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DO FAMILY PLANNING PROGRAMS DECREASE POVERTY? EVIDENCE FROM PUBLIC CENSUS DATA

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Abstract

This paper provides new evidence that family planning programs are associated with a decrease in the share of children and adults living in poverty. Our research design exploits the county roll-out of U.S. family planning programs in the late 1960s and early 1970s and examines their relationship with poverty rates in the short and longer-term in public census data. We find that cohorts born after federal family planning programs began were less likely to live in poverty in childhood and that these same cohorts were less likely to live in poverty as adults.

With U.S. income inequality soaring to its highest level in almost a century (Saez 2013), increasing the economic opportunities of poor children is a growing policy concern. Poor children are significantly more likely to experience delayed academic development, have health problems, live in more dangerous neighborhoods, and attend underperforming schools (Levine and Zimmerman 2010). In the longer-term, children from poorer households have lower test scores (Reardon 2011) are less likely to complete high school, enroll in college, and, conditional upon enrolling, complete college (Bailey and Dynarski 2011), which limits their earnings potential as adults. Ultimately, over 40 percent of children born to parents in the lowest quintile of family income remain in that income quintile as adults (Pew Charitable Trusts 2012).

This paper explores the role of family planning programs as a public policy strategy to improve children's economic resources in childhood. The rationale that family planning programs would increase children's resources and opportunities was integral to their inclusion in U.S. President Lyndon B. Johnson's War on Poverty, which began in 1964. Five years later, when campaigning for a national family planning program, President Richard Nixon asserted their more direct connection to children's economic disadvantage:

"Unwanted or untimely childbearing is one of several forces which are driving many families into poverty or keeping them in that condition" (July 18, 1969).

A long theoretical tradition in economics also rationalizes a causal link running from children's economic resources, to their lifetime opportunities, and ultimately to their adult outcomes.[1] This link occurs both through income and price channels. More affluent parents not only have more economic resources, but they may invest more in each child and have fewer children if the income elasticity of parental investments in children ("child quality") exceeds the income elasticity of child quantity (Becker and Lewis 1973, Willis 1973). Having fewer children, in turn, reduces the shadow price of child quality and further encourages investment in children. In addition, credit constraints may lead poorer families to underinvest in their children's formal human capital (Becker and Tomes 1979, 1986).

Family planning programs could increase investments in children through both income and price channels. First, they may induce greater parental investments in their children by reducing the relative price of child quality. Second, they may raise the incomes of the average parent, for instance by reducing the cost of delaying childbearing so that parents can themselves increase their human capital investments, find better partners, and, ultimately, earn higher wages (Christenson 2011, Bailey, Hershbein and Miller 2012, Rotz 2011). Family planning programs could also raise the family income of the average child as they disproportionately allow poorer households to delay or avoid additional childbearing.

This paper provides new empirical evidence on the relationship of family planning programs to child poverty rates, both in the short and long-run. Building on Bailey's (2012) research design, we exploit the roll-out of U.S. federally funded family planning grants from 1964 to 1973. The first U.S. family planning programs were quietly funded under the 1964 Economic Opportunity Act and the program expanded under the Family Planning Services and Population Research Act (P.L. 91-572).[2] This legislation supported the opening of new clinics in disadvantaged areas and, to a lesser extent, the expansion of existing family planning programs. Federal family planning dollars funded education, counseling, and the provision of low-cost contraceptives and related medical services; they did not fund abortion, which remained illegal in most states until 1973. Use of these programs was not explicitly means tested, but programs tended to benefit lower income women.

Our research design compares the poverty rates of individuals born in the years leading up to and just after federally funded family planning programs began. We draw upon several public-use datasets that measure individuals' ages and place of residence: the 1980 US

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[1]Thomas Malthus popularized the link between childbearing and poverty in his *Essay on the Principle of Population* (1798). Malthus argued that this link was rooted in the arithmetic growth of agricultural yields being outstripped by the exponential growth of population. Left unchecked, population growth would outstrip the growth in agricultural production and result in a subsistence economy.

[2]Before 1965, U.S. federal involvement and investments in family planning had been modest. This reflected the view expressed by President Dwight Eisenhower in 1959, who said that he could not "imagine anything more emphatically a subject that is not a proper political or government activity or function or responsibility... The government will not, so long as I am here, have a positive political doctrine in its program that has to do with the problem of birth control. That's not our business" (Tone 2001, p. 214). According to 1967 estimates, expenditure for family planning through the Maternal and Child Health programs (started in 1942; U.S. Department of Health, Education and Welfare [DHEW] 1974, p. 3, citing a 1942 memorandum from Surgeon General Thomas Parran to state health departments) and the Maternal and Infant Care programs under the 1963 Social Security Amendments were small (U.S. DHEW 1974, p. 3, citing House Appropriations Committee hearings; U.S. DHEW 1967, p. 988).

decennial census observes the potentially affected cohorts as children and the 2000 census and 2005–2011 American Community Survey (ACS) observes the same cohorts as adults.

Our results show that federally funded family planning programs are associated with significant reductions in child poverty rates and, later, poverty rates in adulthood.[3] Individuals born one to six years after program funding were 4.2 percent less likely to live in poverty in childhood and 2.4 percent less likely to live in poverty in adulthood. Although both white and non-white children born after family planning programs began experienced large reductions in childhood poverty, white children experienced greater relative reductions in poverty rates in adulthood. Whites born after family planning programs began were 4.1 percent less likely to live in poverty in childhood and 6.1 percent less likely to live in poverty in adulthood. Non-whites born after family planning programs began were 8.2 percent less likely to live in poverty in childhood, but 2 percent less likely to live in poverty in adulthood.

In short, family planning programs may help break the cycle of poverty. Our results suggest that family planning programs reduce poverty among children and, ultimately, in adulthood. These findings complement a growing body of research that suggests that investments in children can have sizable effects on children's longer-term educational attainment, health, and labor market productivity (Cunha and Heckman 2007, Almond and Currie 2011).

I. The Initiation and Potential Impact of U.S. Family Planning Programs

Margaret Sanger's zealous advocacy of what became known as "birth control" is often credited to her encounters with child poverty. Her work as a maternity nurse on the Lower East Side of New York City took her to the residences of poor families with many children living in squalor. She also encountered women who died (or nearly died) from attempted abortions or debilitating contraceptive techniques.[4] The best medical recommendation of the day to prevent unwanted childbearing (as related in a letter to Sanger) was often to tell one's husband to "sleep on the roof."

A. The Initiation of U.S. Family Planning Programs, 1964 to 1973

The introduction of the first oral contraceptive gave women and physicians much more reliable, safer, and enjoyable options. Its expense, however, prohibited many women from using it. Differences in access to "the Pill" led many to advocate for federal subsidies. Largely due to these efforts, federal grants for family planning began under the Economic Opportunity Act (EOA 1964, Public Law 88–452), a key piece of President Johnson's War on Poverty.[5] Between 1965 and 1970, federal outlays for family planning through the OEO rose more than twenty-fold, from 1.6 to 41 million (2008 dollars). This increase reflects two

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[3]Poverty rates in this paper are defined using the official U.S. measure.

[4]One letter to Margaret Sanger read, "I am the mother of two lovely little girls. I have been married fifteen years. I married at the age of fifteen to escape a home that was overcrowded with unloved and unwanted children, where there was never clothing or food enough to divide among the eight of us…I have been pregnant 15 times, most of the time doing things myself to get out of it and no one knows how I have suffered from the effect of it, but I would rather die than bring as many children into the world as my mother did and have nothing to offer them" (Sanger 1923).

[5]According to 1967 estimates, expenditures for family planning through the Maternal and Child Health programs (started in 1942) and the Maternal and Infant Care programs under the 1963 Social Security Amendment were small (DHEW 1974: 3).

important sets of policy changes. The first was the 1967 Amendments to the EOA (Public Law 90–222, Title II, Section 222a), which designated family planning as a "national emphasis" program. The second was the increase in outlays under President Nixon, who became president in 1969. The November 1970 enactment of Title X of the Public Health Services Act allowed the Department of Health Education and Welfare (DHEW) to make grants to local organizations directly and prohibited the use of federal funds "in programs where abortion is a method of family planning" (§ 1008). After the enactment of Title X, federal outlays for family planning increased by another 50 percent by 1973.

Federally funded family planning programs provided access to birth control as well as related education and counseling services. These programs tended to open in locations whose residents had limited access to family planning services. In many locations, no program existed prior to the federal grant. In others, programs had existed but were much smaller in scale. Consequently, the federal grants significantly increased availability, reduced wait times, and increased the supply of free or low-cost contraceptives in affected communities. Because federally funded programs did not require an explicit means test, they may have also reduced the costs of visits and supplies at private providers in the area.

Less is known, however, about these programs' day-to-day operations. In the 1960s, programs were subjected to little oversight from the federal government. Not only is information on all federal programs sparse in this period, but officials rarely spoke about this largely taboo topic. In an evaluation of the War on Poverty, Sar Levitan (1969, p. 209) wrote that, "Contrary to the usual OEO tactic of trying to secure the maximum feasible visibility for all its activities, OEO prohibited [family planning] grantees from using program funds to 'announce or promote through mass media the availability of the family planning program funded by this grant.'"[6] The implication is that the treatment effect of these grants can be understood as one of increasing federal funding for "family planning," rather than the effect of a particular, homogeneous intervention.

Figure 1 presents the rollout of the first federal family planning grants from 1965 to 1973. Counties that received federal grants in this period (shaded on map; we call these counties "funded") were more likely to be in cities and, consequently, differed in a number of their observable dimensions (Bailey 2012): Table 1. Data from the 1960 census indicates that roughly 60 percent of the U.S. population of women ages 15 to 44 lived in funded counties. Funded counties were more urban, had more elderly residents, and were more educated and affluent than were unfunded counties. Interestingly, funded and unfunded counties had a similar share of residents under age 5 in 1960, suggesting little difference in fertility rates in these areas before the passage of the EOA. To account for time-invariant, area-level differences, our analysis includes area fixed effects.

The different shades of gray in Figure 1 represent variation in the timing of each county's first federal family planning grant. Counties in the lightest shade of gray first received grants between 1965 and 1967; counties in the next darkest shade of gray first received grants

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[6]The fact that the OEO might fund birth control was contentious before the EOA passed. For instance, on April 18, 1964, Eve Edstrom in the *Washington Post* (p. A4) reported the controversy on this topic between Representative Phil M. Landrum (D-Ga.), the House sponsor of the EOA, and Republican members of the special House Education and Labor subcommittee.

between 1968 and 1969 counties shaded in black first received grants from 1970 to 1973. Although counties in each of the lower 48 states (i.e., excluding Alaska and Hawaii) received grants, the timing of program start dates varied considerably within states: in 43 states, programs were first funded in at least two different years; counties in 41 states first received funding in at least four different years; and, in more than half of all states, counties were first funded in at least five different years of the period considered.

B. The Expected Effects of Family Planning Programs on Outcomes

The potential effects of these family planning grants on children operate through several channels, each relating to their effects on fertility rates. By providing cheaper, more reliable contraception and more convenient services, family planning should reduce ill-timed and unwanted childbearing. Additionally, reductions in the price of averting births should increase the number of births that parents *choose* to avert or delay.[7] Standard economic models and related empirical work motivate the following expected relationships between family planning policies and poverty rates.

First, holding constant other uses of parents' time, fewer children in a household at a given point in time implies an increase in the availability of parental time and economic resources per child. Fewer children in a household should mechanically reduce poverty rates as a family with a given income is less likely to fall below the poverty threshold.

Second, family planning programs may directly increase household income, thus reducing poverty rates. Cheaper and more reliable contraception reduces the immediate and expected costs of delaying childbearing, freeing up resources for investment in the parents' human capital. Delaying parenthood, even for just a year or two, could allow soon-to-be parents to get more education, work experience, and job training, and thus increase their lifetime earnings. The results of empirical studies of teen access to the birth control pill are consistent with the claim that delaying childbearing has value. Bailey, Hershbein, and Miller (2012) show that earlier access to the Pill increased women's investment in their careers and, ultimately, their wages. Hock (2008) shows that early access to the Pill increased men's educational attainment as well. Family planning also reduces the price of delaying marriage (Goldin and Katz 2002) and can improve spousal matching, thereby reducing subsequent divorce rates (Christensen 2011, Rotz 2011). However, delaying childbearing does not necessarily yield economic benefits for mothers. Hotz, McElroy, and Sanders (2005) show that women who became mothers as teenagers have slightly *higher* subsequent levels of employment and earnings than women of the same age who miscarried as teenagers.

Third, family planning programs may affect the composition of parents by benefitting the lower income population. Because higher income households could afford services at private medical providers, federally subsidized services may have disproportionately benefitted poorer families. Consistent with this claim, Torres and Forrest (1985) document that, in 1983, family planning programs served almost 5 million Americans. In the same

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[7]Potentially offsetting this effect is the fact that cheaper and more reliable contraception should reduce precautionary undershooting as well (Michael and Willis 1976). Estimates presented later suggest that reductions in childbearing have dominated empirically, so that greater access to cheaper and more reliable contraceptives tends to reduce family size.

year, roughly 83 percent of family planning patients had incomes below 150 percent of the poverty line, and 13 percent were recipients of Aid to Families with Dependent Children (AFDC, the principal cash welfare program at the time). Jaffe, Dryfoos, and Corey (1973) report that 90 percent of all patients in organized family planning programs had household incomes of no more than 200 percent of the federal poverty line. If poorer families elected to postpone childbearing or have fewer children, children born following the introduction of the programs would enjoy, on average, greater economic resources.

Finally, parents' investments in children may also be complemented by decreases in children's cohort size. Smaller cohorts could increase the public resources available per child and decrease competition for these limited resources (Easterlin 1978). In schools, for instance, a decrease in cohort size might decrease class sizes, increase the likelihood of getting attention from teachers, and reduce classroom disruptions. Changes in cohort size are unlikely to be accommodated fully by universities, a larger share of these smaller cohorts may be admitted to and complete college (Bound and Turner 2007). Smaller cohort sizes may also affect the scale of markets for illicit drugs and other social "bads" and thereby reduce the incidence of related crimes (Jacobson 2004). Finally, smaller cohorts may reduce aggregate labor supply, decrease workers' competition for firms' resources, increase capital-labor ratios, and tend to raise wages.

In summary, by increasing adults' pre-childbearing human capital and by benefitting lower income families, family planning programs may increase children's economic resources and decrease child poverty rates. Under standard quality-quantity formulations, these changes would tend to increase parental investment in their children (Becker and Lewis 1973). To the extent that family planning increases parental investment in children, it may improve their lifetime opportunities and labor market outcomes as adults. Cohort-size effects tend to reinforce the positive effects of family planning.

Note that these labor market channels—in addition to the within-household spillovers in family income and reductions in the price of child quality—suggest that the consequences of family planning may extend *beyond* the children immediately affected. Access to family planning may benefit slightly older or younger children in the affected households, children in unaffected households in the same cohort, and children in slightly older or younger cohorts in the same labor market. Because our research design compares the outcomes of children who were born in the years leading up to and just after the first funding for federal family planning programs began, this framework implicitly treats the older siblings of children born just before the family planning program as part of the comparison group. We expect, therefore, that our results understate the effects of family planning programs.

II. Data and Research Design

Our analysis integrates the approach of Gruber, Levine and Staiger (1999), who study the impact of legalizing abortion on children's economic resources, and Bailey (2012), who studies the impact of funding family planning programs on fertility rates. We use three separate datasets to document effects at different stages by race: Vital Statistics data on fertility rates by race; the 1980 decennial census which contains information on poverty

rates among the affected cohorts in childhood; and a pooled sample of the 2000 decennial census and 2005–11 American Community Surveys (ACS) which contains information on poverty rates among the affected cohorts in adulthood. Our data have been collapsed to birth year × area × year of observation cells, indexed as t, j, and c, respectively. Geographic area is defined either as a county (in the Vital Statistics data), county group of residence (in the 1980 decennial census), or a public use microdata area of residence (PUMA, in the 2000 census and 2005–11 ACS).

Our research design compares poverty outcomes in childhood and adulthood between cohorts born before and after their area of birth/residence was first funded within the following linear difference-in-differences specification,

$$Y_{j,t,c} = \tau \, PostFP_{j,t} + \boldsymbol{X}'_{j,t,c}\boldsymbol{\beta} + \theta_{j,c} + \gamma_{s(j),t} + \varepsilon_{j,t,c}, \quad (1)$$

where Y is a poverty rate and $PostFP_{j,t} = 1(t > T_j^*)$ is equal to 1 for areas observed after the first fiscal year family planning programs were funded (T_j^*).[8] Other covariates include either area × year fixed effects (in the 2000 census and 2005–11 ACS) or area fixed effects (Vital Statistics and 1980 decennial census), θ, to account for within year, area-level differences; a set of year fixed effects or state-by-birth-cohort fixed effects that capture changes in state policies such as the staggered legalization of abortion and the state-level roll-out of Medicaid, γ. $\boldsymbol{X}$ is a set of covariates which are discussed in later sections.

The estimates of interest, τ, capture the average change in outcomes between individuals whose mothers would have had access to a family planning program before childbirth and individuals in the same area whose mothers would have conceived them before federal family planning grants began. In all specifications, estimates are unweighted to minimize the importance of measurement error due to mobility (migration in and out of cities is much higher than in smaller areas). (See also Solon, Haider, and Wooldridge 2013). Additionally, we present cluster-robust standard errors, which account for an arbitrary covariance structure within each area across birth years (Arellano 1987; Bertrand, Duflo, and Mullainathan 2004).

A. Support for Key Identifying Assumptions

A central assumption of this paper's research design is that the roll-out of family planning programs is unrelated to other determinants of childbearing or child outcomes. Evidence for this assumption comes from both historical accounts and quantitative evidence. According to oral histories, the "wild sort of grant-making operation" during the period provides a plausibly exogenous shock to the availability of local family planning services (Gillette 1996): 193). Bailey (2012) also provides quantitative support for this assumption. She shows that, although family planning programs were funded earlier in areas with greater urban populations, neither 1960 census characteristics, 1964 fertility levels, 1960 to 1964 fertility changes, nor a rich set of 1965 measures of sexual behavior, birth control use, and

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[8]For simplicity in our later exposition, we refer to the year family planning programs were funded as the date they began. The date of the first grant is not technically the date these clinics began operating, but the date of the first grant serves as a close proxy.

childbearing predict *when* federal family planning programs began. She also shows that the timing of the first family planning grant appears unrelated to changes in the funding for other War on Poverty programs.

Another key assumption underlying this paper's empirical strategy is that federal funding of family planning meaningfully increased the *use* of family planning services in the affected areas. This assumption is difficult to test explicitly, but administrative reports suggest that the number of users of federally funded family planning services increased from zero in 1965 to around 1.2 million in 1969 and nearly 5 million in 1983.

Further evidence of these programs' relevance comes from their relationship to reductions in local fertility rates. Bailey's main findings also support this claim. Before federal funding of family planning programs, the trend in the general fertility rate was similar in counties that would eventually receive funding and in those that would not (the pretreatment differences are close to zero and individually and jointly statistically insignificant). However, fertility rates fell sharply in the funded counties after the family planning grants began. Within 3 years of the grant, the general fertility rate had fallen by roughly 1 birth per 1,000 women of childbearing age in these counties on average. By years 6 to 10, it had fallen by an average of 1.5 births per 1,000 women. Fifteen years after an organization received its first federal family planning grant, the fertility rate in funded counties remained 1.4 to 2 percent lower than in the year of first grant receipt, net of declines in fertility in other counties in the same state and after adjusting for observable county-level characteristics. These findings are robust to variations in the specification: omitting unfunded counties, not weighting the regressions, and including county-level linear time trends. In addition, the effects are similar for programs funded before and after Title X began in 1970.

Using Vital Statistics birth certificate records that report mother's county of residence, we provide further evidence on the fertility effects of family planning grants by crude race categories consistently available in this period: white and nonwhite. Due to incomplete reporting of fertility rates by race in the early 1960s, our sample begins in 1968 with the natality microdata files (NCHS 2003). For our fertility analyses, we drop counties that received their first family planning grant before 1968, so our post-grant estimates capture changes in fertility rates for a consistent group of counties. Our overall sample, which aggregates across racial groups, includes 2,633 counties, 514 of which received a federal family planning grant (we call these "funded counties"). The subsample of these counties that allows disaggregation by race (white and nonwhite in this period) consists of 1,481 counties, 197 of which were funded. The Vital Statistics contain information on county of mother's residence for each birth, which makes it possible to compare the results for different estimators and samples.

In practice, θ_j in equation (1) consists of a set of county fixed effects, and X includes county covariates for the number of abortion providers, which account for within-state changes in the provision of abortion from 1970 to 1979 and annual information on per capita measures of government transfers from the Bureau of Economic Analysis Regional Information System (REIS) (cash public assistance benefits such as Aid to Families with Dependent Children, Supplemental Security Income, and General Assistance; medical spending such as

Medicare and military health care; and cash retirement and disability payments). In addition, X includes 1960 county covariates interacted with a linear trend.[9] Finally, $PostFP_{j,t}$ is replaced with dummy variables for three birth cohort categories: cohorts born 5 to 1 years before the family planning program began; cohorts born 1 to 15 years after funding began, and cohorts born 16 to 20 years after funding began. The sample consists of a balanced set of counties, while the control group consists of the cohort born at the time of first grant in funded counties and all cohorts in unfunded counties. We report estimates of the effect of federally funded family planning on cohorts born 1 to 15 years after the family planning program was first funded.

Table 1 shows the relationship between family planning grants and fertility rates (τ) for all individuals (panel A), whites (panel B) and nonwhites (panel C). Columns labeled (1) use a sample of all counties and include county, year, and state-by-year fixed effects; columns labeled (2) add county-level covariates to the samples in columns labeled (1). The results for all individuals suggest a relationship between family planning programs and fertility rates similar to those reported in Bailey (2012), even though programs funded before 1968 are dropped and the sample only covers years 1968 to 1988 (not 1959 to 1988). One to 15 years after counties first received federal family planning funding, fertility rates remained 2.3 births lower per 1,000 women of childbearing age—a reduction of 2.5 percent over the pre-program mean in funded counties and the overall mean for unfunded counties.[10]

Panels B and C of Table 1 present the relationship between family planning programs and fertility rates by race. For both whites and nonwhites, the introduction of family planning is associated with declines in fertility rates. Using the column 2 specification, the white fertility rate was about 2.1 percent lower in the 15 years after first federal funding of family planning programs, and the nonwhite fertility rate was about 1.4 percent lower. For nonwhites, however, these estimates are imprecise and not statistically different from zero.

In summary, these results support previous findings that the introduction of federally funded family planning programs—and the increase in the availability of family planning services they engendered—is associated with reduced fertility rates. Next, our analysis examines the relationship between family planning programs and child poverty.

III. Poverty Rates among Affected Cohorts in Childhood

We use measures of child poverty from the 5-percent 1980 Integrated Public Use Microdata Series (IPUMS, Ruggles et al. 2010) sample of the U.S. decennial census. These data have several advantages for the purposes of our analysis. First, they provide large sample sizes

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[9]The interactions of county covariates are identical to those in Almond et al. (2011) and include share of population in urban area, nonwhite, under age five, over age 64; share of households with income under $3000; and the share of the county's land that is rural or a farm. We are grateful to Doug Almond, Hilary Hoynes, and Diane Schanzenbach for providing the REIS data and to the Guttmacher Institute and Ted Joyce for providing the data on abortion providers. Because information on abortion providers is not available at the county level before 1973, we follow Joyce et al. (2013) in assuming the number of providers in 1970 to 1972 in states that legalized before Roe v. Wade are identical to the number observed in 1973. Note that changes in the distance to states providing legal abortion before 1970 are accounted for in the state-by-birth-year fixed effects.

[10]Restricting the sample to funded counties only, however, reduces the magnitudes of these estimates and they become statistically insignificant. Although the estimates remain negative, they are a fraction of the size in table 1A, which suggests that using funded only counties (as we do in subsequent analyses) may understate the overall impact of the program.

and allow us to compute for each area and birth cohort and race the share of children in families below 100 percent and 200 percent of the poverty line. A second advantage is that information on county group in the 1980 census (the lowest level of geographic identification in the IPUMS files) allows us to link the location of family planning programs to individuals in areas smaller than states.[11]

These data, however, also have limitations for the purposes of this analysis, because they only provide geographic information at the county group level. County groups in the continental U.S. are typically contiguous agglomerations of counties, but some counties are split between different county groups or are noncontiguous. This limits our ability to link covariates to county groups and match them to family planning grant information. For this reason, we restrict our sample to county groups that consist only of contiguous counties and that do not contain split counties. Ongoing work by Bailey, Malkova and McLaren (2013) uses the 1970 and 1980 restricted census samples that consist of 16 and 20 percent samples of the population and include the county of residence information. This allows them to provide more precise estimates of the effect of first family planning program grants and to link all households to family planning grants based on their county of residence.

A further limitation of the geographic information in the public files is that county group at the time of the census may not accurately measure mothers' county group around the time of conception. This source of measurement error is empirically important: Bailey, Malkova, and McLaren (2013) find that migration-induced measurement error in access to family planning is greater in cities and increases in funded areas (relative to unfunded areas) after the first federal family planning grant. They demonstrate that using unweighted regressions and limiting the sample to funded areas generates similar implied reductions in fertility rates in the census as in the Vital Statistics data (compare to this paper's Table 1) as a result of family planning program funding. To reduce measurement error in access to family planning in our analysis, we also use unweighted regressions and limit the sample to funded county groups. Out of 1,154 overall county groups, our final sample consists of 251 county groups that do not contain split or non-coterminous counties and that receive their first federal family planning funding at some point before 1974. Of these county groups, only 154 have sufficient observations on nonwhites for inclusion.[12]

The final limitation of the 1980 IPUMS census derives from the fact that the unit of observation is a household. The census does not measure outcomes of children not *residing* with their parents. Because children often leave home around age 18, we limit our analysis to individuals under age 18, or birth cohorts born from 1963 to 1979. The practical implication of this limitation is that our pre-trend in the 1980 census is very short and begins only two years before the first family planning grant.

The data available in the 1980 public census files necessitate that we estimate a restricted version of equation (1). Only one census year is used, so c is 1980 for all individuals, and θ_j

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[11]We link *county-level* introduction of family planning to census *county groups* using a cross-walk generously provided by Elizabeth Cascio.
[12]We also exclude Virginia from the analysis, because so many of its counties changed boundaries over the 1970s making it difficult to merge county groups with appropriate covariates.

is a set of county-group fixed effects. *X* includes county group covariates for the number of abortion providers and annual information on per capita measures of government transfers from REIS (cash public assistance benefits such as Aid to Families with Dependent Children, Supplemental Security Income, and General Assistance; medical spending such as Medicare and military health care; and cash retirement and disability payments). Finally, *PostFP_{j,t}* is replaced with dummy variables for three birth cohort categories: cohorts born 10 to 3 years before the family planning program began and cohorts born 1 to 6 years and 7 to 14 years after the family planning program began. The comparison group in this analysis is the cohort born in event years −2 to 0, which is observed for all county groups in the analysis. We report coefficients for the 1 to 6 years post funding category, because they are based on a balanced set of county groups.

Access to affordable family planning may lead to lower poverty rates by permitting families to adjust their childbearing decisions in a way that raises their family income. Table 1 shows that family planning grants allowed women to defer childbearing. As we discussed previously, the share of children in poverty may decrease following the introduction of a family planning program due to smaller family sizes, parents' accumulation of more human capital, work experience, higher earning mates, or a change in the income composition of parents.

Table 2 presents the estimated relationship between funding for family planning and child poverty rates. Panel A shows the share of children living in families below the poverty line and panel B shows the share of children living in families below twice the poverty line. The results suggest that children born after family planning programs were funded were less likely to live in poverty. Children born 1 to 6 years after funding were 0.76 percentage points less likely to live in poverty than the children born before the federal funding began—a reduction of 4.2 percent (from a mean poverty rate of 18.2 percent for children born 0 to 2 years before funding began). These results are robust across specifications that include county group, year and state-by-year fixed effects (column 1) and the addition of county group level controls (column 2).

Federal family planning programs expanded access to and affordability of family planning particularly to disadvantaged individuals. Whether white or nonwhite children experienced greater reductions in poverty depends on how family planning influenced parents' use of their services and also how parents using these services changed their economic circumstances. Different relationships between family planning and poverty rates by race may also result from differences in access to education, job training, or spousal matching for mothers, for instance. To examine these differences, we perform our analysis by crude categories for race to correspond to those categories available in the Vital Statistics data on births. Although both white and nonwhite children were significantly less likely to live in poverty, the reduction was largest among nonwhite children. Column 3 shows that white children are 0.56 percentage points less likely to live in poverty, a reduction of 4.1 percent from a mean of 13.7 percent. Column 4 shows that nonwhite children are 3.2 percentage points less likely to live in poverty, a reduction of 8.3 percent from a mean of 38.7 percent.

A second (and related) hypothesis is that family planning programs would affect more disadvantaged families more, because they are substantially more likely to gain from access to affordable contraception. Consistent with this hypothesis, the relative reductions in the share of children below two times the poverty line are generally smaller than the reductions in the share of children living below the poverty line. Family planning programs are associated with a reduction in the share of children living near poverty, particularly among nonwhite children. Panel B shows that the share of children below two times the poverty line also fell. The relative reductions for all, white and nonwhite children are smaller than the reductions in the share of children living in poverty and the estimates are no longer statistically significant. Compared to white children, the reduction in the share of nonwhite children living near poverty is both absolutely and relatively larger. Nonwhite children born after family planning programs began were 3.0 percent less likely to live below two times the poverty line while white children were 1.1 percent less likely to live below two times the poverty line.

Poverty Rates among Affected Cohorts in Adulthood

A final analysis investigates the long-run relationship between a mother's access to family planning services and the adult outcomes of the affected children. Children born after the funding of family planning programs may have been part of smaller families and cohorts, were less likely to grow up in poverty, and, consequently, may have benefitted from greater parental and societal investments. The accumulation of these changes in childhood circumstances suggests these cohorts may have been less likely to live in poverty as adults.

We use the 5-percent, public use sample of the 2000 decennial census and the 2005–11 American Community Surveys (ACS) (Ruggles et al. 2010) to investigate this hypothesis. An advantage of these data for the purposes of our analysis is that they allow the inclusion of a long pre-trend of cohorts, as information on poverty status exists even if individuals do not live with their parents. Our sample, therefore, includes individuals born from 1946 to 1980 who were ages 20 to 59 when observed. We choose these age limits to capture the labor market outcomes of workers after they have left home and before they have retired.

A disadvantage of these data is that they do not contain information on the county in which individuals were born. As in the analysis of the 1980 IPUMS data, we proxy for county of birth using the Public Use Microdata Area (PUMA) of residence at the time of observation. [13] The role of misclassification error induced by this data limitation is difficult to assess without national data on lifetime migration. In the absence of systematic changes in migration, we expect that misclassification error introduced by using PUMA of residence should tend to work against finding results. On the other hand, using PUMAs rather than counties for longer-term outcomes may reduce misclassification error if, for instance, using a slightly larger area improves the assignment of mothers' access to family planning (that is, more of the individuals remain in the PUMA of birth than lived in their county of birth). As in the analysis of the 1980 census, we estimate unweighted regressions and include only the

[13]PUMAS are the finest consistent geographic detail available for all individuals in the publically available versions of these data There are 2,069 distinct PUMAs, each with a population of 100,000 or more, and, unlike county groups, PUMAs do not cross state borders.

1,269 PUMAs that received a family planning grant before 1974 to limit the role of misclassification error.[14]

Our specification of equation 1 is similar to the analysis using 1980 IPUMS data with several exceptions. First, we use multiple survey years, so c equals 2000, 2005, 2006, …, 2011. Pooling multiple years yields observations on the same cohorts at different ages, so we include age and age squared as covariates in X. Second, due to the difficulty of mapping county characteristics onto PUMAs, we cannot include other covariates in the analysis. Third, $PostFP_{j,t}$ is replaced with dummy variables for three birth cohort categories: cohorts born 27 to 14 years before family planning programs began; cohorts born 1 to 7 years and cohorts born 8 to 15 years after family planning programs began. We omit cohorts born 13 to zero years before family planning programs began, so this category becomes our comparison group. Estimates for the first and last categories are suppressed in the presentation in Table 3, because they are estimated using only a subset of cohorts.

Table 3 shows that within cohort changes in funding of federal family planning programs are associated with significant reductions in adult poverty rates among cohorts born after the programs began.[15] Many individuals in cohorts born before first funding of family planning programs transitioned out of poverty between childhood and adulthood: 18 percent of these cohorts lived in poverty in childhood, while 12 percent lived in poverty in adulthood. We provide evidence that this transition was significantly greater among cohorts born after family planning programs began. Table 3 shows that the share of adults in poverty (panel A) and the share of adults with family income below two times the poverty line (panel B) fell significantly for the affected cohorts. Relative to individuals born in the years prior to when family planning programs began, individuals born in the seven subsequent years were 0.28 percentage points less likely to live in poverty as adults, a reduction of 2.4 percent over the pre-program mean of 11.5 percent. This result is unaltered with the inclusion of age and age-squared controls in column (2).

Following our analysis of child poverty, we also examine reductions in near poverty. The effect of funding family planning programs on the share of adults living near poverty is similar to the effect on the share of adults living in poverty. Panel B of table 3 shows that cohorts born after family planning programs were funded were 2.4 percent less likely to live below two times the poverty line as adults, relative to cohorts born before funding began but residing in the same PUMA. In addition, we find that the mean long-run effects are slightly stronger (though not statistically so) among whites. White cohorts born after the introduction of family planning were 4.8 percent (0.97 percentage points) less likely to live below two times the poverty line. The same statistic was 2 percent among nonwhite cohorts. This striking relationship between family planning programs and poverty rates decades later suggests that family planning programs may reduce poverty rates, both in the short and longer term.

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[14]Some PUMAs overlap multiple counties. The count of PUMAs that contain funded programs exceeds that of counties because we treat each PUMA that overlaps with a funded county as having received a family planning grant in the same year as the county.
[15]We borrow from the US census the definition of poverty that uses a family income threshold that depends on the number of overall family members and the number of children (Dalaker and Proctor 2000). For instance, the poverty threshold for the annual income of a household of four is $23,550 in 2013 dollars.

CONCLUSIONS

In 2012, approximately one in five U.S. children lived below the official poverty line, only slightly lower than in 1965. The persistence of child poverty and its potentially negative consequences for children's opportunities has made reducing child poverty a public policy concern. While the majority of Americans have higher incomes than their parents, children with parents in the lowest income quintile experience the lowest absolute increase in income through adulthood (Pew Charitable Trusts 2012). In fact, 43 percent of all children and 50 percent of black children with parents in the bottom income quintile remain in the bottom income quintile as adults.

Our findings suggest the potential of family planning programs to disrupt this cycle of disadvantage. Individuals born after family planning programs began were 4.2 percent less likely to live in poverty in childhood and were 2.4 percent less likely to live in poverty as adults, than individuals born just before family planning programs began and residing in the same location.

A simple calculation relies on our estimates to approximate some of the costs and benefits of spending on family planning programs. On the benefit side, we multiply the number of children in funded county groups in 1980 who were born after family planning programs were funded by our estimate in table 2 in panel A of column (2). This calculation implies that 79,800 fewer children (0.0076×10.5 million) lived below the poverty line in 1980 than would have in the absence of the program. To approximate the number of adults who escaped poverty as a result of these programs, we multiply the number of adults ages 20 to 59 living in funded PUMAs in 2000 who were born after program funding by the coefficient in table 3 in panel A of column (2) which yields 46,760 adults (0.0028×16.7 million). Between 1964 and 1973, the federal government spent approximately $2.6 billion (in 2010 dollars) on family planning grants. This implies that each child lifted out of poverty cost approximately $32,581, while the long-run cost of each adult lifted out of poverty was $55,603.

Of course, these calculations likely misstate the effects of family planning for several reasons. First, siblings and slightly older and younger cohorts may also benefit from the programs and they contaminate the comparison group. Second, the mismeasurement of family planning status of parents (due to migration) should lead us to misstate the relationship of interest, and understate it if measurement error is unrelated to access to family planning. Finally, using only changes in poverty rates ignores many of the other consequences of family planning programs, which extend to population growth and labor supply, higher education, labor force participation, and wages (Bailey 2013). Nevertheless, even these conservative estimates of the cost per child or adult exiting poverty suggest that family planning programs could improve economic outcomes over the longer term.

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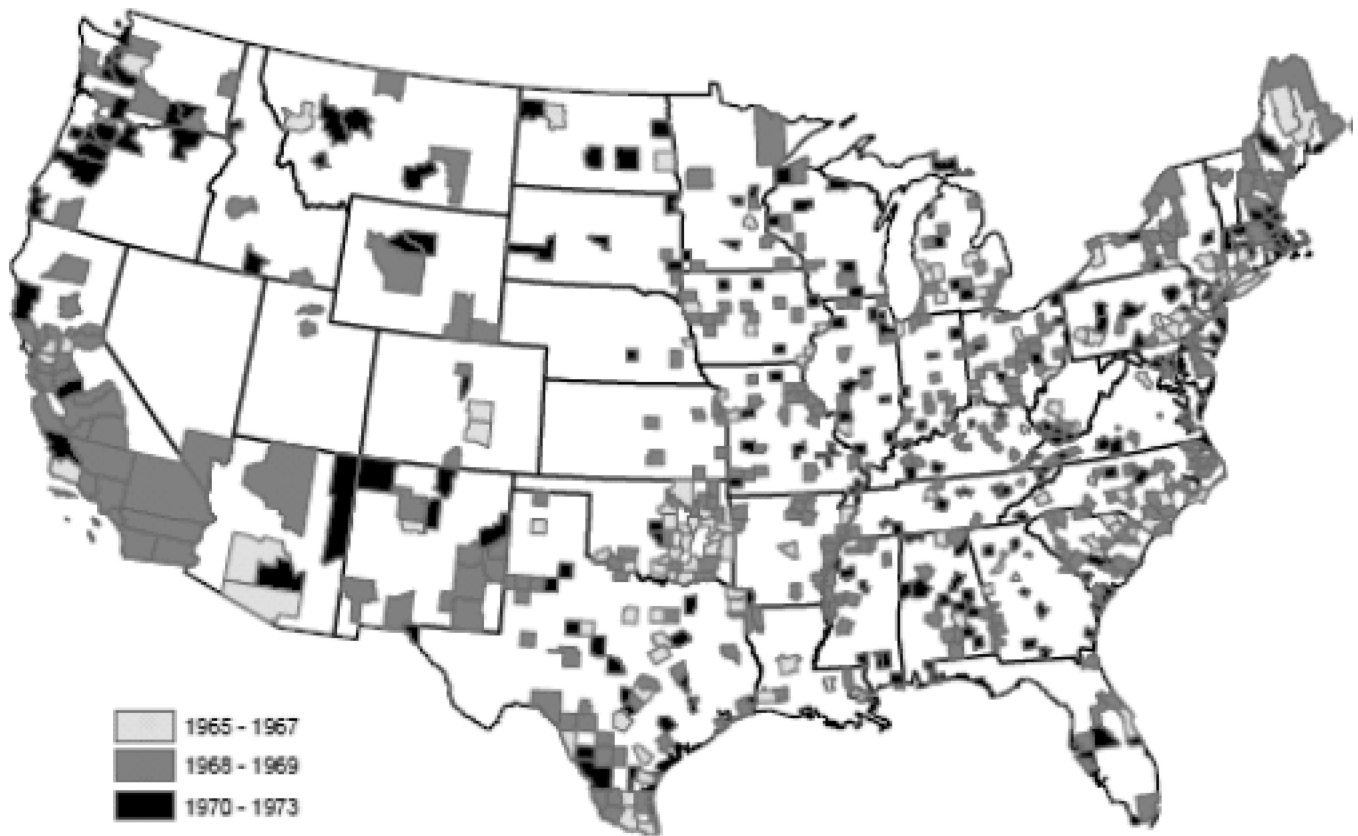Willis, Robert J. 1973:S14–S64. A:

Figure 1.
The Date of the First Federal Family Planning Grant, 1965–1973
Note: Dates are the year that the county first received a federal grant. Counties not receiving a family planning grant between 1965 and 1973, including communities that received funding but with an unknown starting date, are not shaded. Source: NACAP, NAFO and OEO (1969, 1971 and 1974).

Table 1

The Effect of Family Planning on Fertility Rates, by Race

| | Dependent Variable: Fertility Rate (Births per 1000 Women Ages 15–44) | | | | | |
| | A. All Individuals | | B. White | | C. Nonwhite | |
	(1)	(2)	(1)	(2)	(1)	(2)
Mean in Funded Counties Before Funding Began	*90*	*90*	*83*	*83*	*122*	*122*
After Family Planning	−2.75	−2.26	−1.96	−1.73	−1.28	−1.72
Program Funding Began	[0.43]	[0.40]	[0.47]	[0.45]	[1.63]	[1.63]
R^2	0.56	0.57	0.52	0.53	0.30	0.31
Counties	2,633	2,633	1,481	1,481	1,481	1,481
Observations	55,293	55,293	31,101	31,101	31,101	31,101
County FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth year FE	Yes	Yes	Yes	Yes	Yes	Yes
State × birth year FE	Yes	Yes	Yes	Yes	Yes	Yes
County characteristics		Yes		Yes		Yes

Notes: The unit of observation is county by year, and estimates of are presented using equation 1. The results use the funded and unfunded sample of counties. Estimates are not weighted. Columns labeled (1) include county, year, and state by year fixed effects, while columns labeled (2) add county covariates (1960 county covariates interacted with a linear trend, number of abortion providers, and REIS controls). Panel A presents results for both races, panel B presents results for whites only, and panel C presents results for nonwhites only. Heteroskedasticity-robust standard errors clustered by county are presented beneath each estimate in brackets. Source: Vital Statistics.

Table 2

The Effect of Family Planning on Next Generation Childhood Poverty, by Race

	All Individuals		White	Nonwhite
	(1)	**(2)**	**(3)**	**(4)**
A. Dependent Variable: Percent with Family Income < Poverty Line				
Mean in Funded Counties Before Funding Began	*18.2*	*18.2*	*13.7*	*38.7*
After Family Planning	−0.81	−0.76	−0.56	−3.16
Program Funding Began	[0.31]	[0.32]	[0.30]	[1.22]
R^2	0.27	0.28	0.26	0.30
B. Dependent Variable: Percent with Family income < Two Times the Poverty Line				
Mean in Funded Counties Before Funding Began	*42.9*	*42.9*	*37.0*	*69.7*
After Family Planning	−0.45	−0.50	−0.40	−2.09
Program Funding Began	[0.41]	[0.42]	[0.44]	[1.16]
R^2	0.47	0.47	0.47	0.31
County Group FE	Yes	Yes	Yes	Yes
Birth year FE	Yes	Yes	Yes	Yes
State × birth year FE	Yes	Yes	Yes	Yes
County Characteristics		Yes	Yes	Yes
County Groups	251	251	251	154
Observations	4,267	4,267	4,267	2,618

Notes: The unit of observation is county group by year, and estimates of are presented using equation 1. The results use the funded only sample. We classify as "white" all individuals in the census who list their race as "white", while "nonwhite" comprises all other individuals. We drop county groups where fewer than 50 non-white children were born in any year in the analysis. We drop non-coterminous county groups and county groups that contain split counties. We define the share in poverty as the share of children who live in families whose income is below the poverty threshold, we also compute the share of children who live in families whose income is below 200 percent of the poverty threshold. Column (1) presents results for both races and includes county group, birth year, and state by birth year fixed effects; column (2) adds county characteristics (number of abortion providers and REIS controls) to column (1); column (3) presents results for whites only and includes county group, birth year, state by birth year fixed effects, and county characteristics; column (4) presents results for nonwhites only and adds the same controls as column (3). Panel A presents results when using the share of children living in families whose income is below 100 percent of the poverty line as a dependent variable. Panel B presents results when using the share of children living in families whose income is below twice the poverty line as a dependent variable. Estimates are not weighted. Heteroskedasticity-robust standard errors clustered by county are presented beneath each estimate in brackets. Source: 1980 Integrated Public Use Microdata Series.

Table 3

The Effect of Family Planning on Next Generation Adult Poverty, by Race

	All Individuals		White	Nonwhite
	(1)	(2)	(3)	(4)
A. Dependent Variable: Percent with Family Income < Poverty Line				
Mean in Funded Counties Before Funding Began	*11.5*	*11.5*	*8.18*	*16.4*
After Family Planning	−0.28	−0.28	−0.50	−0.32
Program Funding Began	[0.12]	[0.18]	[0.14]	[0.28]
R^2	0.05	0.06	0.02	0.03
B. Dependent Variable: Percent with Family income < Two Times the Poverty Line				
Mean in Funded Counties Before Funding Began	*27.9*	*27.9*	*20.4*	*38.1*
After Family Planning	−0.68	−0.68	−0.97	−0.76
Program Funding Began	[0.18]	[0.18]	[0.21]	[0.34]
R^2	0.13	0.13	0.06	0.05
PUMA × observation year FE	Yes	Yes	Yes	Yes
Birth year FE	Yes	Yes	Yes	Yes
State × birth year FE	Yes	Yes	Yes	Yes
Age and age^2		Yes	Yes	Yes
PUMAs	1,268	1,268	1,268	1,268
Observations	328,403	328,403	320,634	298,216

Notes: We classify as "white" all individuals recorded in the census as belonging to no other racial group and not being Hispanic, while "nonwhite" comprises all other individuals. There were 2,072 PUMAs in the fifty US states in 2000. Following population displacement in Louisiana due to Hurricane Katrina, three PUMAs (1801, 1802, and 1905) were combined, and we merge these PUMAs together throughout the entire 2000–2011 sample period. Additionally, we drop PUMA 5423 in Los Angeles because it has few white residents, for none of whom poverty status is recorded. Our final sample consists of 1,268 PUMAs whose boundaries include all or part of county in which an family planning grant began between 1965 and 1973 and in which poverty status was measured for at least one white and at least one nonwhite resident age 20–59 and born 1946–1980 in each of the eight years of observation (yielding 10,144 unique combinations of PUMA × year of observation). This figure of 1,268 PUMAs exceeds the tally of 654 counties with a grant because, while a single PUMA may span several counties, so too may a single county span several PUMAs. Finally, we average poverty status across all individuals, and separately by race for those who reside in the same PUMA, share the same year of birth, and are observed in the same year. The units of analysis are 328,403 PUMA × year of birth × year of observation cells. Not every cell contains both white and nonwhite individuals for whom poverty status is recorded, so the actual number of units is slightly smaller for the race-specific specifications (3) and (4). Heteroskedasticity-robust standard errors clustered by PUMA and observation year are presented beneath each estimate in brackets. The mean in funded counties before funding began is the average across individuals born two years prior to funding to those born in the year of funding. Estimates are not weighted. Source: 2000 US Decennial Census and 2005–2011 American Community Surveys.