Chapter 20: Contraceptive access, fertility and well-being in lower income countries*

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Abstract

What is the effect of contraceptive access on fertility and well-being in lower income countries? We start by presenting the long-standing debate on the importance of contraception as a driver of fertility decline, the underlying theoretical arguments and the implications for policies. Next, we review the empirical evidence, from older studies evaluating the effect of historical family planning programs to more recent randomized controlled trials in various contexts. We conclude that there is no strong evidence that simply making contraceptives more affordable and more available substantially reduces fertility and improves well-being. However, we argue that the limited effects of contraceptive supply interventions to date do not imply that all pregnancies are desired and that there is no room for public policy. Finally, we warn against extrapolating the limited effects of increasing supply to forecast the impact of decreasing supply—these are likely to be asymmetrical. This is especially important given the downward trend in international aid.

Keywords: Contraception, Fertility, Well-being, Lower income countries, Supply interventions, Family planning

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1 Introduction

Over the past 50 years, fertility in low- and middle-income countries has been declining from an average of six children per woman to 2.3 today (The World Bank, 2026). Across world regions, the decline has been heterogeneous: very fast in most East Asian and Latin American countries, less fast in South and Central Asia, the Middle East and North Africa, and slower in most of sub-Saharan Africa. While many economists tend to explain this heterogeneity by differences in economic development, other social scientists have long argued that differences in access to contraception play an important role.

Another way to frame the debate is to ask whether high fertility is a cause or a consequence of poverty. High fertility is sometimes considered as a barrier to increase (or even maintain) per capita investments in human capital, both for governments and for families. Under this view, family planning policies aiming to lower fertility levels are a way to reduce poverty and hence improve well-being. However, if high fertility is in fact the consequence of poverty, it is unclear why interventions trying to lower fertility without addressing the root causes of poverty should succeed in doing so. And even if they do succeed, they may not have a positive effect on welfare, especially if they attempt to go against fertility preferences.

In this chapter, we study the effect of contraceptive access on fertility and its downstream consequences in terms of human capital and economic empowerment ("well-being") in lower income countries.[1] Herrera Almanza and Karra (2027) provide a thorough review of the evidence on the impact of access to contraception on *contraceptive use*, typically in the short-run. But only a small subset of these studies document effects on fertility and other downstream outcomes, and fewer even do so in the long-run. An increase in contraceptive use may not necessarily translate into a reduction in fertility and hence alter outcomes further down the causal path. First, the focus is typically on *modern* contraceptive use. But this is substitutable with traditional contraception, so that the total effect on short-term fertility may be relatively small.[2] Second, even if fertility decreases in the short run, there is no guarantee that completed fertility will be lower. Longer spacing may still improve maternal and child well-being even if total fertility is not affected, but many of the hypothesized downstream effects of reduced fertility on development are likely to only be realized through reductions in *completed* fertility (Schultz, 2007). For all these reasons, it is important to go beyond effects on contraceptive use and study the impact of contraceptive access on fertility and other downstream outcomes.

We define "access to contraception" as an individual's ability to access contraception information and methods at a reasonable cost. We distinguish between "supply-side" interventions focusing on monetary cost—both direct and indirect (availability, opportunity costs, distance) and "demand-side" interventions trying to increase the demand for contraception holding availability and affordability constant. When reviewing the evidence, we focus on access in a narrow sense, isolating the role of "supply-side" factors, in line with the focus of most of the research documenting impacts on fertility and well-being. We later argue that "demand-side" interventions reducing non-monetary barriers to contraception *without attempting to alter fertility preferences* can be understood as access in a broader sense. But more research is needed to assess their potential in closing the gap between fertility desires and contraceptive practice in lower-income settings.

The first section presents the key debates surrounding the role of contraceptive access in fertility and well-being in low-income country settings. The second section reviews the empirical evidence on the impact of contraceptive access on fertility and the well-being of women and their children. Finally, we go beyond the main rift in the literature and propose what we see as key areas where more research is needed.

[1] Some contraceptive technologies have direct health benefits in addition to their fertility control properties. Most notably, condoms prevent sexually transmitted infections. This is extremely important but beyond the scope of this review.

[2] Estimated average rates of pregnancies under method "common use" (or "first-year of use") vary, as these depend on underlying risk of pregnancy and adherence. But for several traditional methods, these estimated failure rates are not much larger than "common use" estimates for some modern methods. For instance, figures reported in WHO/RHR and CCP, Knowledge for Health Project (2018); WHO/RHR (2016) for use of withdrawal over a one-year period (13.4 to 22 pregnancies per 100 women) or for cycle-awareness methods (12 to 24) are not too dissimilar to those for male- (5.4 to 18) or female condoms (21). Many modern methods such as implants (1 pregnancy per 1,000 women over one year) are much more effective than these traditional methods. But the use of traditional methods still implies a significant reduction in pregnancy risk relative to no use at all (estimated at 85% chance over a one-year period WHO/RHR and CCP, Knowledge for Health Project, 2018; WHO/RHR, 2016).

2 The controversial relationship between contraceptive access, fertility and well-being

2.1 The academic debate: unable or unwilling to control births?

The importance of access to contraception in accelerating the fertility transition has long been debated. Is high fertility driven by people's inability or by people's unwillingness to limit births?

One view argues that most couples would be willing to control births and a key binding constraint is their ability to do so—this is the "Family-Planning Gap" view (Bongaarts et al., 1990; Bongaarts, 2017; Bongaarts and Hodgson, 2022).[3] An early version of this view is that many couples in low-income countries would be willing to use modern contraception if only contraceptive methods were available and affordable *and the benefits of small families were explained to them.*[4] Even when it is not coercive, the "encouragement of smaller families", often presented by the proponents of this view as a pragmatic complement to the increased supply of modern contraceptives, is seen by most economists as problematic since it proposes to alter individual preferences—which is hard to justify from a welfare perspective. A milder version of the view that a key binding constraint to birth control in low-income settings is contraceptive availability is supported by the fact that 20% to 40% of women of reproductive age in low-income countries report not wanting to get pregnant in the near future, yet they are not using any contraceptive method (Loaiza et al., 2016; The World Bank, 2024). The gap between pregnancy desire and contraceptive use is called "unmet need for contraception". By closing this gap, increased availability of contraceptives should contribute to reducing unintended pregnancies and ultimately fertility. The view that contraceptive access is a key binding constraint to birth control in low-income settings is supported by macroeconomic structural models and cross-country regressions (De Silva and Tenreyro, 2017; Strulik, 2017; De Silva and Tenreyro, 2020; Cavalcanti et al., 2021) and by the fact that decreases in actual fertility over time have far exceeded decreases in wanted fertility (Bongaarts and Hodgson, 2022). Under this view, high fertility is considered as a cause of poverty and access to contraception as a strategy for economic development (Canning and Schultz, 2012).

The opposing view argues that couples have long been able to control their fertility using traditional methods, and therefore, the binding constraint is their willingness to do so (Davis, 1967; Pritchett, 1994). This view is supported by the fact that modern contraception followed rather than preceded the historical fertility transition in the Western world. Fertility declined as countries got more industrialized, urbanized and educated, changing the costs and benefits of children in favor of smaller families (see Gobbi et al. (2026) for a recent review of the determinants of the fertility transition). Under this view, high fertility is considered as a consequence of poverty and "development is the best contraceptive" (Hartmann, 1997).

2.2 The policy debate: supply or demand interventions?

In the policy world, the scientific debate translated into a debate on "supply" interventions against "demand" interventions. Do we expect contraceptive take-up to rise, fertility to fall and wellbeing to improve as soon as contraception becomes cheap and available everywhere? Should family planning programs focus on supply, assuming that demand exists, or should they also try to raise the demand for contraception, and if so, on what grounds?

According to the "Desired Fertility" view, merely improving access to contraception is expected to have limited effects and there is no justification for policy intervention aimed at changing fertility desires since individuals are the best judges of their own welfare. Fertility will eventually decrease as a consequence of economic development. Instead, proponents of the "Family-Planning Gap" view expect family planning interventions to lead to large reductions in fertility which cannot be accounted for by economic development alone. Two conceptually distinct channels could be at play: (1) a reduction in fertility preferences and (2) a reduction in unwanted pregnancies due to increased contraceptive supply.[5] The findings reported in De Silva and Tenreyro (2017) are descriptive but align with this

[3] The term "Family-Planning Gap" view follows Pritchett (1994).

[4] E.g., "By making contraceptives more readily available and by encouraging smaller families, public and private sector programs have increased the use of contraception, which in turn has led to reduced fertility and population growth." (Bongaarts et al., 1990)

[5] Throughout this chapter, we use the term "unwanted" to refer to births or pregnancies to mothers who did not wish to have them at the time, whether they wanted them but at a later date, or not at all.

view. First, they find that the fertility of women in low-income countries today is much lower than that of women living at a similar level of development in 1960. And second, they argue that family planning programs played a role both by decreasing desired fertility through the promotion of a small family norm and by reducing unwanted pregnancies.

These questions raise the issue of the legitimacy of state intervention to solve "population problems" (Dasgupta, 1995). Historically, the problem was framed in terms of externalities. A specific feature of fertility is to be a very private part of life and, at the same time, to have far-reaching aggregate consequences. The growth rate and age structure of a population are crucial drivers of prosperity; they influence economic growth, through e.g. innovation, consumption or firm creation, as well as the sustainability of social protection schemes, the stability of political regimes and the resilience of ecosystems. Since parts of the costs and benefits of having children are passed on to society, the optimal private decision rarely coincides with the optimal social decision. This tension between both spheres has been the rationale for a long history of state interventions. In the 1960s, the population bomb rhetoric in the Global North justified population control policies in the Global South despite individuals' preferences for large families (Ehrlich, 1968).

These policies have been increasingly criticized for their human rights violations. In response, the International Conference on Population and Development held in Cairo in 1994 defined a new agenda recognizing sexual and reproductive rights as human rights and focusing on maternal and child health as well as female education. The new rationale behind state intervention is to remove the barriers that prevent women from achieving their desired family size and from unduly exposing themselves to the risks of maternal mortality and morbidity. The key assumption is that, in lower income countries, many pregnancies are unwanted and could be avoided if women had better access to affordable and reliable contraceptive methods (see Hartmann (1995); Connelly (2010) for a comprehensive history of the politics of birth control).

Until recently, the view that affordable and available supply of modern contraceptives was an essential contributor to development policy remained widely held in policy circles and shaped government and donor priorities. The vast majority of governments in lower income countries have laws or regulations that guarantee access to contraceptive services (United Nations Department of Economic and Social Affairs, Population Division, 2021). A global partnership known as FP2030 was established through which governments and foreign aid agencies were allocating billions of dollars each year in pursuit of universal access to family planning by 2030 (Bremner et al., 2021).

The closure of USAID, the US foreign aid agency, in 2025 was a turning point. Since the 1960s, the agency had played a key role in shaping and funding family planning programs in the world. They first launched and conducted the World Fertility Surveys with the stated aims of tracking the effect of family planning programs on fertility rates across countries and of providing a sound basis for the design of family planning programs (Ravenholt, 1973). These surveys were later renamed Demographic and Health Surveys and broadened their remit to include new modules on maternal and child health which became an essential source of information for low-income countries lacking sound administrative health records. But the agency has received strong criticism for being ideologically invested in population control (Hartmann, 1997). Whichever perspective one takes on its motivations, USAID has undeniably been at the forefront of international aid for family planning. In 2020-24, the US government alone paid for 41% of total foreign aid for family planning activities in low- and middle-income countries; other donors are unlikely to compensate for this loss in the near future (FP2030, 2025), especially in a context where many of the other key donors such as the UK government are cutting back on their own aid programs (Rosenberg et al., 2025; Root, 2025).

In this context, it seems particularly urgent and important to take stock of the empirical evidence. What do we know about the impact of supply-side interventions on fertility and wellbeing?

3 Review of the empirical evidence on the effect of supply-side interventions

3.1 Impact of supply-side interventions on fertility outcomes

3.1.1 Older empirical evidence using quasi-experimental designs

National family planning programs promoting access to contraception were introduced in many lower income countries in the 1970s-1980s. The effect of these programs on fertility has been evaluated by several studies. Here we focus on studies that go beyond cross-sectional analysis of fertility outcomes across geographical areas with varying levels of contraceptive services provision (hence excluding pioneering studies such as Duraisamy and Malathy, 1981; Rosenzweig and Wolpin, 1982; Hossain, 1989).

One program is central in this literature: the Matlab family planning experiment. In 1977, the program was introduced in some blocks of the district of Matlab, Bangladesh, while other blocks served as a comparison group. By current methodological standards, the placement of the program was not random but quasi-random (Barham et al., 2021). Early studies report a reduction by 25% in the general fertility rate in the first two years (Phillips et al., 1982) and long-term follow-ups estimate a decline of the same magnitude in completed fertility (Joshi and Schultz, 2013). Given the very large effect size, the Matlab program is widely cited by the proponents of supply-side policies. However, the external validity has been questioned for two reasons. First, the program included not only access to contraception but also child health services, which could have an independent effect on fertility through reduced child mortality. Second, the program was intensive and very costly, around ten times more than the average program in other lower income countries (Pritchett, 1994).

The effect of national family planning programs on fertility indeed varies substantially between contexts. In their review of the empirical literature, Miller and Babiarz (2016) report estimates ranging between 5% and 35% fewer children. Most studies are observational, exploiting temporal and/or spatial variations in exposure to national programs, e.g. in Indonesia, Colombia, Iran or China. One exception is the Navrongo experiment in Ghana, which was designed as a randomized controlled trial, but failed to achieve balance across treatment arms (Debpuur et al., 2002). In addition to methodological limitations, programs are difficult to compare because they include two different components: the mere access to contraception and an element of communication ranging from marketing to propaganda or even coercion depending on the context. The "success" of a program is likely to hinge on the intensity of the second component. One of the most stringent population policies is estimated to account for roughly half of the fertility decline in China in the 1970s (Chen and Huang, 2020).[6] In contrast, a more voluntary program like Colombia's Profamilia explains at best 7% of the fertility decline during the 1965-1993 period (Miller, 2010), while the opening of "teen friendly" family planning clinics in South Africa delayed childbearing, and led to a reduction of 12-percentage points in births by age 18—with unknown effects on long-term fertility (Branson and Byker, 2018).

3.1.2 Recent experimental evidence focusing on financial barriers

Recent randomized controlled trials in Sub-Saharan Africa have tried to un-bundle the different components and isolate the role of financial barriers. Three trials document a null effect in Ethiopia, Zambia and Burkina Faso whereas one trial report negative effects in Malawi.

In rural Ethiopia, Desai and Tarozzi (2011a) provided condoms and pills through community-based agents for three years. In the main treatment arm, they provided family planning services combined with credit services, meaning that women could buy contraception on credit if they wanted to. In the other treatment arms, they provided only credit services or only family planning services, relaxing either liquidity constraints or availability constraints, but not both at the same time. They find that neither treatment arm, combined or isolation, significantly increased contraceptive use and reduced births over the 3-year period compared to the control group. One potential explanation for the null effect is that women's preferred contraceptive method – injectibles – was not included in the products provided by family planning agents.

In Zambia, Ashraf et al. (2014b) provided long-lasting contraception for free in the capital city, Lusaka. Women were given a voucher for immediate access to injectables and implants; the voucher

[6] Before introducing the One-Child Policy in 1979, Chinese authorities implemented the "Later, Longer, Fewer" campaign in the 1970s. Most of the fertility decline in China occurred during that period.

was valid for one month. Analyzing the effect 9-13 months after the provision of the voucher, they detect a significant increase in the use of injectables, but no significant decline in births, relative to the control group who did not receive the voucher. Contraceptive use at baseline was fairly common, suggesting that, even if at a high cost and with intermittent access, couples were already able to control births.

In rural Burkina Faso, Dupas et al. (2025) further show that removing all financial constraints to access all contraceptive products for all women for a substantial period of time is insufficient to affect birth rates. They randomized free access to all types of products and services related to medical contraception in local public health centers for three years. They find a precise null effect, both on contraceptive take-up and on fertility. Taking into account the 95% confidence interval, they can reject a decrease in the probability of having a birth larger than 4 percentage points, or 6% of the control mean (62% of women in the control group had a birth in the 3-year window). The null result holds for many sub-samples, including those classified as having an unmet need for contraception at baseline. There is also no detectable effect on birth spacing and no complementarities with light-touch information treatments.

In contrast in Malawi, an intervention focusing on women who recently gave birth and combining free contraception with counseling and transportation subsidies significantly lowered the birth rate from 9% to 5% over a two-year period (Karra et al., 2022). The difference between the Malawi experiment and the others could be due to a number of differences in the intervention itself and in the context in which it takes place. First, the Malawi experiment combined a transportation and counseling component to the subsidy. It also focused specifically on post-partum women. Finally, it took place in an urban setting (the capital Lilongwe), contrary to the Ethiopia and Burkina Faso experiments. The Malawi results suggest that free contraception can reduce birth rates when combined with relatively intensive interventions and/or when targeted to some populations with, e.g., a potentially higher demand for contraception.

There are other experimental studies investigating the role of financial constraints in contraceptive take-up, but which do not track their effect on fertility—we therefore refer the interested reader to Herrera Almanza and Karra (2027) for further detail.

3.1.3 Evidence from reducing access

Historically, the focus has been on *expanding* access to contraception and how this expansion contributed to fertility decline. In the wake of the closure of USAID and the corresponding budget cuts in family planning programs, a new question arises: what is the effect of *reducing* access to contraception on fertility? In theory, the effect is not necessarily symmetric.

For instance, it may well be the case that the substitution between traditional methods of birth control and modern methods works well in one way but not in the other. Traditional methods are usually transmitted from one generation of women to the next and sanctioned by social rituals. Traditional methods can significantly reduce the risk of pregnancy (from 85% chance over one year with no method at all to 3-24% WHO/RHR and CCP, Knowledge for Health Project, 2018; WHO/RHR, 2016), but their effectiveness is dependent on correct use. For instance, if used perfectly, cycle awareness methods can carry a risk as low as 3% over one year. If the introduction of modern methods breaks the transmission of knowledge around these methods, younger generations of women may use them less effectively than older generations, or be unaware of them altogether. In addition, experiencing the convenience of not having to time sexual activity around one's cycle or one's partner's cycle may change preferences and create resistance to using cycle-awareness methods. In this case, we could observe no change in birth rates after expanding access and a strong increase in birth rates after reducing access.

Very few studies have examined the effects of disruptions of existing programs. Jones (2015) used plausibly exogenous reduction in contraceptive supply in Ghana to show that women are unable to perfectly switch to traditional methods. The 10-16% reduction in supply translated into a 7-10% increase in realized fertility, concentrated among poor women. This is a very large effect relative to the size of the first stage, suggesting that reducing and expanding access do not have symmetric effects in low-income countries.

Evidence for middle-income countries confirms that decreasing access to contraception can have a large impact on fertility. Pop-Eleches (2010) estimates the long-term effect of the introduction and removal of a ban on both contraception and abortion during the 1960s-1980s in Romania. He

finds that women who spent most of their reproductive years under the restrictive regime experienced increases in lifecycle fertility of about 0.5 children, although it is impossible to disentangle the role of banning abortion from that of banning contraception. Rau et al. (2021) study a continuous decrease in contraceptive prices followed by a sudden increase in 2007-2008 in Chile. They find that the progressive decrease in price led to insignificant changes in fertility but the sharp increase resulted in a 3.2% increase in births. This suggests that responses to increased and decreased contraceptive access may be asymmetrical in other contexts too, although the external validity of these findings for low-income countries today may be limited. Indeed, Romania and Chile had higher baseline contraceptive use than in many of today's low-income countries and Rau et al. (2021) do not detect any effect of the pill price hike in the poorest municipalities, where contraceptive use was lower (and less likely to be subject to the price hike, which only affected private provision).

At the beginning of the COVID-19 pandemic, there was a widespread concern that disruptions in access to family planning would lead to an increase in unintended births in lower income countries (Riley et al., 2020). However, few studies attempt to quantify the effect ex-post. Kim et al. (2024) report no increase in monthly birth data in 16 out of 18 low- and middle-income countries; only in Peru and Sao Tome and Principe do we observe a temporary increase with respect to pre-pandemic levels.[7] While interesting, these findings are only indicative since the pandemic led to major changes across many other factors which may have contributed to changing birth patterns independently of contraceptive access, in an unknown direction.

3.1.4 Take-aways

As discussed in Herrera Almanza and Karra (2027), there is a vast literature documenting the positive impact of supply-side interventions on short-term, modern contraceptive take-up. However, this is not enough to infer that fertility should decrease: there can be some substitution between modern methods and traditional methods, and longer birth spacing does not necessarily translate into fewer births in the long term. Looking at fertility outcomes is more challenging than looking at contraceptive take-up for experimental studies due to attrition. Even when effects on fertility outcomes are documented, they are often not documented beyond the short- to medium-term because tracking respondents over a long time window is difficult. The lack of experimental data on the impact of family planning interventions on *long-term, fertility* outcomes sustains skepticism regarding whether there is one. From the point of view of public health scholars and those funding their research, however, follow-ups to measure fertility outcomes are typically not seen as a funding priority due to a more mechanistic view of the link between contraceptive use and fertility outcomes. To estimate the effect on lifetime fertility, researchers have to rely on observational designs. The main shortcomings of these designs is that they cannot isolate the role of improved access from other components typically aiming at actively promoting smaller families. Overall, there is no strong evidence that merely increasing the availability and affordability of modern contraception substantially reduces fertility in low-income settings. But there is evidence that *lowering* contraceptive access can lead to large increases in fertility in the short-term.

3.2 Impact of supply-side interventions on wellbeing

3.2.1 Impact on the wellbeing of children

Contraceptive access may improve the wellbeing of children who are born through several channels, by increasing birth intervals, reducing the number of siblings and changing the composition of women who give birth.

The positive correlation between birth interval and maternal and child health is well established (see, e.g., Bauserman et al., 2020, for an analysis of close to 200,000 women across Democratic Republic of Congo, Zambia, Kenya, Guatemala, India, and Pakistan). There is however limited causal evidence of the impact of contraceptive access on birth intervals. Exceptions include the recent finding discussed in the previous section that a postpartum intensive intervention in urban Malawi reduced the probability of pregnancy within 24 months of giving birth from 9% to 5%, representing a reduction by 43.5% in the likelihood of having a short birth interval (Karra et al., 2022).[8]

[7] Sao Tome and Principe was the only African country in their sample due to data limitations in the rest of the continent.

[8] We refer the interested reader to Cleland et al. (2015) for a review of studies focusing on postpartum interventions,

Structural work has documented the potential of contraceptive subsidies, in theory, to reduce fertility, increase human capital investment, savings, and ultimately long-run living standards (see Cavalcanti et al., 2021, for a model calibrated to Kenyan data). Evaluations of historical family planning campaigns, like the Matlab experiment or the Navrongo experiment mentioned above, align with the expected effects of contraceptive access on the quality-quantity trade-off as they tend to find both negative effects on fertility and positive effects on child survival, anthropometric scores, and education (Joshi and Schultz, 2013; Phillips et al., 2006). However, these estimates are hard to interpret as causal effects of contraceptive access because these programs also included services directly targeting child health. Barham (2012) goes further and exploits the phasing-in of the Matlab interventions to identify the long-term impact of the family planning component from the combined effect of the family planning and child health component on cognitive functioning. She finds that cohorts treated with both the family planning and child health interventions gained a large 0.39 S.D. in cognitive function. However, the cohorts whose mothers had access to the family planning component, but who were born too early to benefit from the early child health component, experienced no gain in cognitive functioning.

A few studies document impacts of "pure" (i.e., not bundled) family planning shocks on child human capital, mostly in middle-income countries. While no significant effect on child survival was found in Colombia, where the family planning program of interest included only family planning services (Miller, 2010), two papers document substantial effects in Chile and South Africa, respectively. In 2007-2008 Chile, Rau et al. (2021) find an increase in that the incidence of low-birth weight, miscarriages, and infant mortality when the price of the pill suddenly and unexpectedly increased, while the reverse is observed during a prior period of progressive price decreases. They also find that, as the children born following the price hike reach school age, they are less likely to be enrolled in school and more likely to be enrolled in special needs education programs. In South Africa, Branson and Byker (2018) evaluate the impact of improving teens' access to contraception and find that the decrease in the incidence of underage births (by 6.5 (11.3) percentage points for births by age 17 (18), for a cohort mean of 8% (14%)) led to a very large increase in first-born children's height-for-age (0.8 SD) and a very large reduction in first-born stunting (15 percentage points for a mean of 25%). While interesting, these results should be taken with some caution, as the data does not permit carrying out tests of parallel pre-trends for the child outcomes.

Among the experimental studies described in Section 3.1.2, only the Malawi trial found a significant effect on fertility and could therefore study downstream effects of a reduction in fertility on children. Focusing on children born just before the intervention rollout, Maggio et al. (2024) find that children of treated mothers were 0.3 standard deviations taller for their age and 11-12 percentage points less likely to be stunted within a year of exposure. They also scored 0.2 standard deviations higher in terms of caregiver-reported cognitive development within two years of exposure. These estimates are large with respect to the first stage on fertility (a reduction in subsequent births by 4 percentage points). One possible explanation for this disconnect is that the effect of their intervention on child wellbeing does not only operate through a reduction in fertility, but also potentially through an income effect, improved certainty over birth planning or increased health care-seeking.

3.2.2 Impact on wellbeing of women

Since the seminal work by Goldin and Katz (2002), the effect of contraceptive access on women's outcomes, in particular improved education and delayed marriage, has been extensively studied in high-income countries. Evidence is much scarcer in lower income countries, though. Many family planning programs focus on married women and have therefore limited power to affect schooling and marriage. Among married women, contraceptive access can in principle affect labor supply; however, these are contexts where many women do not work (e.g., in South Asia and Northern Africa) or work in the informal sector (e.g., in much of Sub-Saharan Africa), which up to now makes the family-career tradeoff less salient than in higher income countries. Reduced fertility may still improve women's expected well-being outside marriage and hence increase their intrahousehold bargaining power, but the evidence-base is very thin (Diamond-Smith et al., 2025).[9]

although these authors make clear that few studies in this area meet the highest evidence standards and that very few document impacts on birth-spacing or even contraceptive use beyond one year post-intervention.

[9] In a recent systematic review, Diamond-Smith et al. (2025) identify only four studies set in LMIC settings which document impacts of contraceptive access on women's bargaining power, using varied proxies for bargaining power.

In the Colombian context, Miller (2010) reports small effects: having access to family planning early in the reproductive life increases women's education by 0.05 years and their likelihood to be employed in the formal sector by 1-2 percentage points. In the Malawi trial, Karra et al. (2024) report that treated women are 3.5 percentage points more likely to be wage-employed (as opposed to self-employed or not working). In South Africa, Branson and Byker (2018) find that improved access to contraception for teenagers has larger effects: they estimate that having an adolescent-friendly family planning clinic nearby during teenage years increases completed years of education by .9 to 1.2 years (for a mean of 11.2) and increases the wages of those who work by 38 to 47% (while having no significant effect on the share employed). While tests of differences in trends among older cohorts cannot reject the null of parallel trends for labour market outcomes, this is not the case for years of education—which exhibit a *decrease* by 0.94 years relative to the control group prior to treatment, so that some caution is needed when interpreting these large effects on completed education and wages.

In contexts where maternal mortality and morbidity remain high, another important outcome is maternal health. Public health research typically emphasizes the reduction in exposure to maternity-related health risks stemming from a decrease in fertility (Singh et al., 2014). Undeniably, if fertility decreases as a consequence of improved access to contraception, then holding everything else constant, maternal mortality and morbidity should decrease. However, in many low-income settings, the status of women and their access to family resources is at least partly tied to their reproductive success (Rossi, 2019; Genicot and Hernandez-de Benito, 2025). The total effect of access to contraception on overall women's health is therefore unclear *a priori*. Consistent with this, evidence from Matlab—further to being subject to the caveats we already discussed—is mixed, and positive short-term effects, which may stem from lower exposure to maternal mortality and morbidity, are not sustained over the very long term (well beyond women's reproductive period). Indeed, in the short-run, treated women were found to be more likely to survive (Koenig et al., 1988), and survivors had a higher body mass index (Joshi and Schultz, 2013). However, a long-term follow-up reports no health benefits 35 years after the program initiation, and even a modest negative impact: fewer women were underweight in 1996 but more women were overweight or obese in 2012 (Barham et al., 2021). The Burkina Faso trial detected no significant effect on maternal death, self-reported health or life satisfaction, but found a reduction in intimate partner violence after three years of exposure (Dupas et al., 2025).

3.2.3 Impact of coercive interventions

There is a long history of coercive family planning interventions in lower income countries framed by local authorities as an improvement in access (Hartmann, 1995; Connelly, 2010). Even when these interventions were "successful" at reducing fertility, they had long-term detrimental effects on wellbeing, often unintended, in addition to the short-term violations of reproductive rights.[10]

For example, Chen and Fang (2021) study the consequences of China's population policies on the quality of life of the elderly forty years later. Policy exposure is associated with a reduction in lifetime fertility by 1.5 children, fewer visits from children and worse mental health; there is no effect on financial support from children and no effect on physical health, though. León-Ciliotta et al. (2025) study the long-term effects of a large-scale sterilization campaign in Peru in the late 1990s, showing that the disclosure of alleged forced sterilizations caused a reduction in the demand for medical services and a deterioration in child health for at least 17 years. In the same vein, Singh and Vincent (2024) argue that a government-mandated male sterilization program in India in the late 1970s led to a persistent increase in violent crime rates, driven by crimes against women. Understanding the context in which historical family planning programs were implemented is therefore crucial to analyze effects on wellbeing.

3.2.4 Take-aways

Overall, the empirical evidence of contraceptive access on wellbeing in lower income countries is scarce. Potential benefits may take time to materialize, which is a challenge for experimental studies. Most

These find mixed results, from an increase in intergenerational transfers to the women's parents through coresidence in Malaysia and an increase in decision-making power in India to a reduction in autonomy in Bangladesh. (Babiarz et al., 2017; Dhak et al., 2020; Peters, 2011; Ruthbah, 2020).

[10] See e.g., Li et al. (2025) for a recent review of the literature and evidence that coercion was instrumental in reducing fertility in the context of China's "one-child policy".

observational studies bundle several components or focus on middle-income countries. This is a concern for external validity, in particular when it comes to wellbeing—which may be directly impacted by components of the bundled treatment other than their family planning element. In addition, they rely on weaker research designs, which is a concern for internal validity.

4 Moving beyond the "Family-Planning Gap" vs. "Desired Fertility" debate

As the previous section has made clear, direct, arguably causal evidence of the impact of contraceptive access on fertility and well-being is both limited and mixed. It is therefore not surprising that the "old" debate between the relative merits of the "Desired Fertility" and "Family-Planning Gap" views has not progressed much. In this section, we attempt to reconcile this dichotomy and highlight areas of research that would be especially fruitful in the present context.

4.1 Most but not *all* pregnancies are wanted

One of the most convincing arguments in Pritchett (1994)'s case in support of the "Desired Fertility" view is that, when regressing actual total fertility rates (TFR) on women's ideal number of children in a cross-country regression including 66 low-income countries, he obtained an R-squared of 0.91. A large R-squared when regressing actual fertility on desired fertility does not, however, imply a one-to-one relationship. After all, if the average ideal number of children decreased by two in every country, the R-squared would be unchanged despite a huge gap between the reported ideal number of children and actual number of children. And when plotting actual TFR against desired TFR (as in Pritchett (1994)'s Figure 1), nearly every country is above the 45-degree line, with a majority of countries above it by about one child. While it is therefore clear that much of the high fertility observed in these countries can be accounted for by desired fertility, one out of 4 or one out of 5 children potentially above-target is not negligible and can have very material consequences to mothers and their families.

This gap between desired fertility and actual fertility has been, for many years, referred to as "unmet need" for contraception. This terminology, while a convenient short-hand, is now being increasingly questioned due to its paternalistic connotations. In itself, "unmet need" usefully highlights the gap between, on the one hand, the wish to delay a new birth or avoid one altogether and, on the other, the practice of modern or traditional contraception. But the concept has often been associated with the implication that women with an unmet need should use modern contraception irrespective of potential concerns about its possible social, physical, or financial implications. We therefore welcome the increasing realization that modern contraceptive use is not necessarily synonymous with progress and recent work developing more individual-centered alternative concepts to "unmet need" (e.g. Holt et al., 2023).

Two additional sources of skepticism over the concept of "unmet need" come from the fact that (1) it is binary and (2) it relies on self-reports. Its binary nature does not take into account the fact that some women may only marginally prefer having or not having a child (soon). And the fact that it relies on self-reported fertility preferences raises the concern that fertility preferences may be systematically misreported for image-concern reasons. Women responding to surveys in low female empowerment settings may hesitate to express their desire to limit fertility, leading to an underestimate. Or women may instead want to signal their "modernity" and overstate their desire to limit fertility. The extent and direction in which "unmet need" figures may therefore be biased by these image concerns is unclear, but recent work comparing answers to fertility preferences under direct questioning and indirect questioning show that, in some settings at least (e.g., in Northern Nigeria), responses to direct questions may *understate* desired fertility (Valente et al., 2024).

However, the idea of a gap between the fertility women want and the fertility they have or "unwanted fertility" should not be discarded. While the exact extent of "unmet need" may be questioned due to the reasons discussed above, the high incidence of induced abortion is proof that many pregnancies are not desired. It is estimated that 22% of all pregnancies occurring in low-income countries result in an induced abortion; the share increases up to 37% in middle-income countries (authors' calculations based on Bearak et al., 2020; United Nations, Department of Economic and Social Affairs,

Population Division, 2026).[11] Abortion, a costly solution to an unwanted or mistimed pregnancy, does not necessarily imply that the pregnancy was not desired at the time of conception. Indeed, new information may be revealed after conception (e.g., whether the father will be supportive, or whether the mother is able to maintain her earnings). It nevertheless seems unlikely that substantial new information is revealed post-pregnancy in one-fifth to one-third of cases, suggesting that there are indeed many women in low- and middle-income countries who get pregnant but would much rather not.

4.2 Understanding and addressing the fundamental causes of unwanted pregnancies

We have seen that, overall, there is limited evidence that increasing the availability and affordability of contraceptive methods reduces fertility. Unwanted pregnancies can therefore occur despite good contraceptive supply. Why is that? While "access to contraception" is often understood as simply the availability of modern contraception at an affordable price—and indeed, most evaluations discussed in this chapter focus on this type of interventions, there is a case for considering "access" as including the availability of contraception at reasonable non-monetary costs too. This would entail low effort in terms of cognitive load, time, but also low social stigma, potential side-effects, or risk of intimate partner violence (see review by Herrera Almanza and Karra (2027)). And beyond access to contraception, further research is needed to understand the fundamental, likely multiple, causes of unwanted pregnancies—as opposed to proximate causes such as contraceptive use.

A now rich literature has recognized that husbands may have different fertility preferences to their wives and that, in many low-income settings, this is likely to result in higher fertility than desired by wives (Doepke and Tertilt, 2018; Ashraf et al., 2014a). The implications of this strand of research for the potential of contraceptive access interventions to affect fertility outcomes are nuanced. In urban Zambia and among monogamous Burkinabe couples, giving contraceptive vouchers to women in the absence of the husband has been shown to raise take-up more than giving them to couples (Ashraf et al., 2014a; D'Exelle et al., 2023). However, offering information or counseling to *husbands* may be more effective at raising take-up rather than targeting wives due to information transmission frictions between spouses (in urban Zambia and rural Tanzania, resp.: Ashraf et al., 2026; D'Exelle and Ringdal, 2022). Caution should prevail in extrapolating these conclusions for intervention effectiveness into effects on fertility since very short-term effects on take-up are not always sustained a few months after the intervention (six months in the case of D'Exelle et al., 2023) and evidence of impacts on short-term fertility is limited. Ashraf et al. (2026) document impacts on pregnancies 12-month post intervention and on the self-reported probability of having a birth in the future. Impacts on fertility are not documented in D'Exelle and Ringdal (2022) and not statistically significant in D'Exelle et al. (2023).

While husbands no doubt matter, more research is needed to understand the role of potentially more malleable factors than husbands' desired fertility and wider social norms. Lowering the financial cost and improving availability of contraceptives may have no effect on contraceptive use even when women and/or men would have a high disutility of getting pregnant for a number of under-researched reasons.

First, there may be substantial uncertainty surrounding the outcomes of using or not using contraceptive methods, and women or men may hold statistically incorrect subjective expectations regarding the realization of these outcomes (Miller et al., 2025; de Paula and Valente, 2025). For instance, Miller et al. (2025); de Paula and Valente (2025) show that, on average, (Nigerian and Mozambican) women and (Nigerian) men underestimate the risk of pregnancy when doing nothing to reduce the probability of getting pregnant and overestimate the failure rate of modern contraceptives. They also show, in structural models of contraceptive choices between no contraception and the set of methods individuals know about, that choices respond strongly to subjective beliefs about their own perceived risk of pregnancy absent contraception.[12] Relatedly, Ashraf et al. (2026) highlight different subjective

[11] We first take the estimated number of annual induced abortions in, respectively, low-income and middle-income countries, during 2015-2019 according to Bearak et al. (2020), and the average number of births annually between 2015 and 2019 in the same country groups according to United Nations, Department of Economic and Social Affairs, Population Division (2026). We then divide the number of abortions by the sum of births and induced abortions. In low-income countries (resp. middle-income countries), there are an estimated 6.2M (63.2) abortions for 22.6M (106.3M) births.

[12] In Miller et al. (2025), the structural analysis of Mozambican data is complemented by a within-subject experiment

expectations in maternal mortality risks, which may lead husbands to underestimate the disutility of pregnancy. Even if husbands and wives have the same *preferences* over realized fertility, realized side effects, etc..., they may disagree on whether to use contraception or not if spouses differ in their *beliefs* about the chance of pregnancy, side effects (and other relevant factors such as religious approval, expected monetary costs, etc...) when using or not using contraception (de Paula and Valente, 2025). Women, men, or both, may also erroneously believe that using hormonal contraceptives may negatively impact the ability to get pregnant after discontinuing their use. Recent experimental evidence shows that addressing fears of side-effects, in particular misconceptions regarding long-term fecundity can increase contraceptive use and reduce fertility in the short-run (Bau et al. (2024) in Zambia and Glennerster et al. (2026) in Burkina Faso).

Second, behavioral biases such as present bias or cognitive overload have received little attention in the context of contraceptive choices. They may however also play a role. There is evidence that the poor have limited mental "bandwidth" due to the cognitive burden of meeting the basic needs of their families (e.g. Mani et al., 2013), which may impede their ability to make optimal contraceptive decisions. Consistent with this hypothesis, text message reminder "nudges" increase contraceptive use by 5% in a randomized experiment in urban Mozambique (Leight et al., 2022).

Unwanted pregnancies may occur despite good availability and affordability of contraceptives for a number of "demand-side" reasons. Most family planning interventions focusing on the demand side tend to cast a wide net, aiming to increase knowledge, shift social norms, and promote use through individual and group-based community engagement and media. It is therefore challenging to distinguish the impact of pure information or reminders from that of "persuasion" or peer effects, which at present limits our understanding of the causes of unwanted pregnancies and how to address them without attempting to change individual preferences. Overall, there is no silver bullet to reduce unwanted pregnancies. Instead, there is likely a range of different factors which matter more or less and are more or less amenable to change depending on the context.

4.3 Context matters

Evidence regarding the impact of contraceptive access, broadly understood, on *fertility*, is limited. It is however interesting to note an emerging pattern in randomized evaluations of subsidy interventions: these seem to be effective, at least in terms of short-term effects on contraceptive use, in urban, clinic-based settings (Athey et al., 2021; Karra et al., 2022), but not in rural areas (Desai and Tarozzi, 2011b; Dupas et al., 2025). Similarly, there is evidence that unfounded fears of future infecundity act as a barrier to use contraception among university students in urban Zambia (Bau et al., 2024) but married women and men in samples covering diverse age groups, geographic and socioeconomic backgrounds across Mozambique and Nigeria do not, on average, expect a woman's probability of conceiving to decrease after using hormonal methods (Miller et al., 2025; de Paula and Valente, 2025).[13] These contrasting findings are consistent with the idea that binding constraints differ across geographies and demographic groups (see also D'Exelle et al., 2023). For instance, qualitative work by Sedlander et al. (2018) suggests that fears of infertility following the use of hormonal methods are much more prevalent with regards to contraceptive use among nulliparous women, which can reconcile the evidence described above.

More evidence is needed for young unmarried women, including on impacts on own human capital and marital outcomes. Many interventions and impact evaluations focus on improving contraceptive access among married women. This is at least in part due to there being much higher levels of social acceptability of contraceptive use among married women than among young unmarried women in low-income country settings. But the resulting limited amount of research on teen pregnancies (in stark contrast with high-income countries) means that little is known about the potential impacts of contraceptive access on well-being for a group that stands to benefit the most from delaying pregnancy in terms of human capital. Indeed, teenage pregnancy carries particular health risks and may jeopardize own human capital accumulation.

showing that providing information about the World Health Organization's reference rate of pregnancy absent contraception leads participants to increase their own perceived risk of pregnancy and intentions to use contraception. In de Paula and Valente (2025), the analysis includes the beliefs of both wives and husbands, taken from a larger sample across five states of Nigeria, and the choice model incorporates traditional methods.

[13] More specifically, subjective expected chances of conceiving within a year of discontinuing hormonal methods are not lower than subjective expected chances of conceiving within the next year if using no contraception and if both spouses wanted the wife to get pregnant.

Finally, it is crucial to note that much of the more recent evidence on the impact of improving the affordability and availability of contraception on fertility and well-being—which overall points to a limited impact in low-income settings—is based on evidence gathered in a world of generally convenient, low-cost access. As explained above, the disinvestment from international aid by USAID and other leading family planning donors such as the UK is highly unlikely to be replaced by domestic funding or other donors in the short to medium run. It is therefore essential to gather more evidence on the impact of a reduction in supply.

5 Conclusion

Much of the debate on the impact of contraceptive access on fertility has revolved around the following question: "Is high fertility driven by people's inability or by people's unwillingness to limit births?". The existing evidence on the impact of expanding contraceptive supply on fertility makes it clear that people's unwillingness to limit births is likely to explain most of the difference between high- and low-fertility settings. There is, however, also clear evidence that a large number of pregnancies are unwanted or at least mistimed, and access to modern contraception has been shown to matter for fertility in a number of contexts—especially in the case of *reductions* in access. It is therefore important to move beyond binary views of the role of contraceptive access on fertility outcomes in low-income countries, especially at a time when the funding of contraceptive supply is under strain.

In particular, we see the role of "demand-side" factors in explaining contraceptive use, holding fertility desires constant, as a fruitful research area. There is a key conceptual distinction between demand-side "barriers to contraceptive use" *conditional on fertility preferences*, on the one hand, and the active promotion of a small family norm and "persuasion" activities, on the other. The two concepts are often confused because many family planning interventions have combined both in practice. We hope to have contributed here to a clearer delineation between the two.

Finally, it is worth reiterating that there are two types of arguments supporting family planning interventions (Senderowicz and Valley, 2023). First, from an instrumental perspective, access to contraception is a way to prevent unwanted births and improve well-being. So far, the empirical evidence supporting this perspective remains relatively sparse. Second, from an ethical perspective, access to contraception is a basic human right that must be guaranteed by the state. While traditional contraceptive methods can be effective, they also require cooperation from partners, which makes them less suitable for many women—including some among the most vulnerable. Arguments regarding reproductive freedom and universal access to basic care provide another rationale for policies making contraceptives accessible and affordable.

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