OPEN LETTER

Family Planning in Zambia: An Investment Pillar for Economic Development [version 1; peer review: 1 approved with reservations, 1 not approved]

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Abstract
Family planning represents a ‘best buy’ in global efforts to achieve sustainable development and attain improvements in sexual and reproductive health. Ensuring access is amongst key transformative strategies that underpin health and sustainable development. It confers fertility choices on women and couples within a human rights framework. By meeting contraceptive needs of all women, significant public health impact and development gains accrue. At the same time, governments face the complex challenge of allocating finite resources to competing priorities, each of which presents known and unknown challenges and opportunities. As such, there is a need to carefully consider the estimated costs and benefits for each proposed investment in health, education, social welfare, and security. Zambia has experienced a slow but steady increase in contraceptive prevalence, with slight decline in total fertility rate (TFR), over the past 20 years. Increasing voluntary modern contraceptive use among women offers opportunities to reduce unintended pregnancy while effectively harnessing the demographic dividend in order to bolster socioeconomic outcomes for households and communities. Drawing from the Zambian context, we present a case for making investments in voluntary family planning (FP), underpinned by a human rights framework, as a pillar for accelerating development and socioeconomic advancement. Through multilevel interventions aimed at averting unintended pregnancies, Zambia – and other low- and middle-income countries – can reduce their age dependency ratios and harness economic growth opportunities awarded by the demographic dividend while improving the health and quality of life of the population.
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Author roles: Mbizvo MT: Conceptualization, Writing – Original Draft Preparation, Writing – Review & Editing; Bellows N: Conceptualization, Writing – Original Draft Preparation, Writing – Review & Editing; Rosen JG: Writing – Original Draft Preparation, Writing – Review & Editing; Mupeta S: Writing – Review & Editing; Mwiche CA: Writing – Review & Editing; Bellows B: Conceptualization, Writing – Original Draft Preparation, Writing – Review & Editing

Competing interests: No competing interests were disclosed.

Grant information: This work was supported by the Bill and Melinda Gates Foundation [OPP1181398]. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

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How to cite this article: Mbizvo MT, Bellows N, Rosen JG et al. Family Planning in Zambia: An Investment Pillar for Economic Development [version 1; peer review: 1 approved with reservations, 1 not approved] Gates Open Research 2019, 3:1459 https://doi.org/10.12688/gatesopenres.12989.1

First published: 08 May 2019, 3:1459 https://doi.org/10.12688/gatesopenres.12989.1

Keywords
family planning, FP2020, sustainable development goals, social-economic development, costed implementation plan, Zambia

This article is included in the International Conference on Family Planning gateway.
**Abbreviations**

**Disclaimer**
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**Introduction**
Among the goals set by the global community for sustainable development is Goal 3.7, “By 2030 ensure universal access to sexual and reproductive health care services, including family planning (FP) information and education, and the integration of reproductive health into national strategies and programmes.” Meeting all contraceptive and maternal and newborn health care needs would result in substantial health and development gains, yielding dramatic reductions of 76% in unintended pregnancy, 74% in less-than-safe and unsafe abortions, 64% in maternal deaths, and 76% in newborn deaths. Investments in FP, therefore, offer benefits beyond fertility, further downstream of the maternal and newborn care continuum.

Low-income countries with high fertility rates are at risk of having poor maternal and child health, economic stagnation, environmental degradation, and political unrest. These outcomes trap societies in a vicious poverty cycle, with women bearing a disproportionate burden. By making investments that expand access to a broad contraceptive method mix, based on principles of voluntarism and informed choice, countries can generate economic benefits while also improving the health, education, and quality of life for current and future populations.

Investments in high-quality FP services yield increased uptake and continued use of modern contraception, which have positive impacts on the health of women and children. Healthier women with fewer children participate more in the workplace, resulting in economic benefits that also extend to children who are better educated and equipped to be more economically productive in the future. When children are healthier, and infant mortality declines, the average number of desired children decreases, increasing demand for FP and unlocking a virtuous cycle for continuing improvements in health and economic advancement.

Additionally, when population dynamics shift due to a reduction in mortality and fertility rates, there is a resulting increase in the proportion of working-age adults. When combined with appropriate policies, including the expansion of FP, this shift can yield the ‘demographic dividend’, a phenomenon in which there are relatively fewer dependents (children and elderly) and a greater proportion of working-age adults, spurring rapid economic development and income generation. This phenomenon has been observed in East Asia and certain regions of South America, but has yet to be harnessed in most of sub-Saharan Africa (SSA), where FP uptake has been lower and the HIV/AIDS epidemic has affected many working-age adults. Realization of the demographic dividend in SSA is possible, but this opportunity can be missed or greatly diminished without proper investments in FP. As Melinda Gates stated in the Gates Foundation 2017 Annual Letter, “No country in the last 50 years has emerged from poverty without expanding access to contraceptives.”

**Economic estimates of FP investments**
The results of research on the impact of FP vary widely across settings and intervention contexts; nonetheless, a systematic review demonstrated that cross-cutting investments in women’s health yield healthier and more productive societies, broadly. One seminal study in Bangladesh found that investment in community-based FP services had a positive and persistent long-term contribution in targeted localities 19 years later, with a faster decline in fertility, a lower birth rate, reductions in infant and child mortality, healthier women with 40% higher wages, and increased educational gains among their children.

Another systematic review found that scaling FP interventions was the most cost-effective strategy for reducing maternal mortality. In a review of global progress and strategies to reduce maternal mortality, contraceptive use emerged as a chief factor associated with substantial declines in maternal mortality.

Other cost–benefit and economic analyses of FP interventions have attributed substantial economic advantages to FP investments. The Guttmacher Institute’s 2014 “Adding It Up” report estimated that every $1 (USD) spent on contraception would generate $1.47 in savings from averting unwanted pregnancies. Another estimate showed very high benefit-to-cost ratios associated with voluntary FP programs, ranging from 90 to 150, meaning that the costs can potentially yield over 100 times the cost in benefits, when accounting for the economic gains from lower infant and maternal mortality and higher income growth. The same report discussed the post-2015 consensus that policymakers should prioritize the elimination of unmet need for modern contraception by 2040.

Economic models in Africa have predicted substantial gains if fertility rates can accelerate their decline. One simulation model in Nigeria found that shifting the fertility rate from the UN median fertility projection to the low fertility projection would result in a 5.6% increase in per capita income within 20 years and an 11.2% increase in 50 years. In Ghana, an analysis with four scenarios of government investment estimated that across scenarios, the health savings from public sector investments in FP would exceed costs associated with service provision in absence of those investments, offering further evidence to include fee-for-service reimbursement of FP services in the national insurance plan.

By describing reproductive health challenges and innovative policy strategies in the Zambian context, we present a case for investments in voluntary FP, underpinned by a human rights framework, as a pillar for accelerating development and socioeconomic advancement. Through multilevel interventions aimed at averting unintended pregnancies, Zambia – and other low- and middle-income countries – can reduce their age dependency ratios and harness economic growth opportunities awarded by
the demographic dividend while improving the health and quality of life of the population.

**Demographic and FP trends: Zambia case study**

In 2014, Zambia had a total fertility rate (TFR) of approximately 5.3 births per woman, a substantial drop from 6.5 births in 1992, with rural women having an average of nearly three more children than urban women (6.6 vs. 3.7 births). While the TFR in Zambia is higher than the SSA average of 4.8 births per woman, there have been substantial gains in the use of modern contraception in recent years, with 45% of married women of reproductive age reporting use of some form of modern contraception, an increase from only 15% in 1992.

Despite these advancements, challenges addressing the demand for FP in Zambia persist. Data from the 2013-14 Zambia Demographic and Health Survey (DHS) reveal that 21% of women of childbearing age have an unmet need for FP, meaning that over 20% of married women of childbearing age wish to prevent or delay childbearing but are not using any form of FP. In addressing unmet need, efforts to expand FP access may focus either on the concerns and needs of women who have never used or women who discontinued use due to stock-outs, side-effects, partner preferences, or other reasons. An estimated 54% of married women in Zambia with unmet need for FP reported discontinuing a contraceptive method. Injectable and oral contraceptives, both combined estrogen-progestin and progestin-only, account for nearly 67% of modern methods used among Zambian women. While user preferences contribute to method uptake and continuation patterns, supply-side barriers – including stock-outs of preferred methods and limited method mix (one to two methods offered in health facilities) – strain uptake and sustained use of modern contraception. Being able to switch to another method enables women to maintain protection from pregnancy, but this requires access to a broad mix of methods.

In addition to having high levels of unmet need, Zambian women commence childbearing early, with more than one-third reporting they gave birth before their 18th birthday and more than 50% by age 20. Among adolescent girls aged 15–19, 29% had given birth or been pregnant, with a median age of 19.1 years for first birth. While child marriage in Zambia has declined in recent years, over 30% of girls aged 20–24 reported being married before age 18, one of the highest rates in the world. Geographical analysis of child marriage in Zambia identified Northern, Muchinga, and Copperbelt Provinces with the highest rates of child marriage; however, girls in Western and Northwestern Provinces were more likely to experience an adolescent pregnancy.

The culmination of early childbearing and unmet need for FP contribute to a high birth rate in Zambia, at 40 per 1,000 population per year, by contrast with the worldwide average of 19 per 1,000 and an average of 37 per 1,000 for SSA. As such, Zambia has a higher age dependency ratio, or proportion of the population that are children or elderly. While the worldwide age dependency ratio is 54%, it is 85% in SSA and 95% in Zambia. Increased investments in voluntary FP could facilitate reductions in this ratio and advance economic growth.

At present, the United Nations median estimate for Zambia suggests 553,000 women did not have their FP needs met in 2017; this estimate is projected to increase to 609,000 women by 2030. As a consequence, many women are at risk of unintended pregnancy. In 2016, an estimated 443,000 unintended pregnancies were recorded in Zambia. However, 352,000 unintended pregnancies were averted due to use of modern contraception. By further increasing the number of averted unintended pregnancies in the coming years, Zambia is well positioned to lower its age dependency ratio and harness the economic growth opportunities awarded by the demographic dividend, while improving the health and quality of life of the population.

**Current efforts and recommendations**

The Government of the Republic of Zambia (GRZ) has been actively working to generate demand, expand dialogue on FP, and improve FP access and quality in a coordinated effort guided by the national costed implementation plan. This plan emerged in response to the 2012 London Summit on Family Planning, where the government articulated several commitments to improving contraceptive outcomes by 2020, including a commitment to increasing voluntary FP access for those in need by doubling its budget for FP commodities and enhancing community-based outreach, with the goal of reaching a modern contraceptive prevalence rate of 58%. As of August 2016, GRZ reported substantial progress in securing FP commodities and building provider capacity, as well as engaging traditional and religious leaders in dialogues surrounding child marriage and adolescent pregnancy. GRZ is near the end of an 8-year (2013–2020) FP scale-up plan focused on strengthening demand for FP, engaging adolescents and rural women in addition to improving service delivery and government coordination.

Looking ahead to 2030, GRZ has committed to the Sustainable Development Goals (SDGs), which build on the Millennium Development Goals and focus on sustainability and root causes of poverty. Many of the 17 SDGs are linked to key metrics in sexual and reproductive health including FP access, connecting these indicators to improvements in health, gender equality, education, and sustainability. For example, SDG 3.7 aims to “ensure universal access to sexual and reproductive health care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes.”

Moving forward with these commitments, it is important to keep a continued focus on the unique opportunities and challenges of FP provision in Zambia. First, GRZ’s focus on adolescents and rural women is critical, since these groups have historically lagged in contraceptive uptake. Strategies to engage adolescents include continued support of comprehensive sexuality education in schools through capacity strengthening of teachers and peer educators, identifying youth-friendly service access points and address existing stigma at health facilities inhibiting youth FP uptake, and clarifying age of consent regulations to improve youth access. Sustained integration of FP into HIV services nationally will mitigate geographic access barriers, particularly for underserved groups in rural areas.
In addition to FP demand generation and securing FP commodities for these groups, it is also important to combine FP efforts with other policy interventions, particularly those aimed at reducing early marriage and promoting school retention for girls longer than the current average of 4.3 years\textsuperscript{4}. In addition to reducing the TFR, delaying first birth can yield substantial socio-economic benefits by enabling more women to access education and earn higher wages\textsuperscript{5}.

Efforts to address the 21% of women with an unmet need for FP will require not only reaching those who have never used FP previously, but also those who have used at least one FP method but later discontinued use. By expanding the mix of methods available to women, end users can find the method that works best for them throughout their reproductive life courses, thereby minimizing the risk of discontinuation and poor adherence. Additionally, a broader method mix enhances choice, a critical component in a rights-based approach to FP outreach and provision. According to the 2013-14 DHS, Zambian women, on average, desire approximately one fewer child than they currently have\textsuperscript{6}. By offering steady access to a range of FP methods, these preferences can be realized, alongside substantial improvements in health, as well as education and economic development.

From a public administrative perspective, it is important to both protect FP resources in government budgeting and to increase domestic investment in provision of voluntary FP services. Specifying that allocated funds are for FP supplies and provision helps to improve budgeting transparency; without specification, line item funds risk being absorbed into broader maternal and child health expenses. Increasing domestic investment in voluntary FP services is critical at a time when donor assistance in FP is stagnant or even declining\textsuperscript{7}. Itemizing contraceptive commodities and services and advocating for increased domestic FP investment, ministries, and the future national health insurance fund can increase security of planned FP commodity procurements and lead to subsequent reductions in the financial burden of pregnancy-related costs\textsuperscript{8,9,10}. Bolstering FP governance, through subnational coordination of national FP initiatives and establishment of novel tracking systems for procurements and expenditures, should be a core tenant of efforts to safeguard FP commodity security and sustain access to a mix of contraceptive methods. Finally, as a public administrative goal, it is important to work with local leaders to ensure ownership of FP objectives and promote a common goal of health, economic, and human welfare improvement.

**Conclusions**

Decades of research have clearly established the benefits of voluntary FP services as a health, development, and human rights priority. It has a direct impact on women’s health and socio-economic development. There is a pressing need to invest more in voluntary FP services in general and, specific to the Zambian context, to realize the development potential associated with high and sustained contraceptive use. This requires the engagement of diverse stakeholders, economic and planning decision-makers, as well as traditional and religious leaders. With proper planning and investments in FP and related supportive programs, Zambia is at a critical juncture in harnessing the demographic dividend, spurring long-term economic growth and continued improvements in the population’s health, education, and overall quality of life. Unfortunately, this opportunity comes at a time when international resources for FP investments are under threat. Therefore, it is important to also mobilize domestic resources for FP investments and continue to explore innovative strategies to increase FP access for women with current unmet needs. Ensuring a broad contraceptive method mix secures decision-making autonomy over reproductive intentions for women and couples. Ultimately, this will require commitments to FP programs and policies by government officials across line ministries, as well as greater public support.

**Data availability**

No data are associated with this article.

**Grant information**

This work was supported by the Bill and Melinda Gates Foundation [OPP1181398].

The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

**References**


Open Peer Review

Current Peer Review Status: ✗ ✅

Mai Do
Department of Global Community Health and Behavioral Sciences, Tulane University School of Public Health and Tropical Medicine, New Orleans, LA, USA

I agreed with the first reviewer that this is an excellent, very well written open letter with many clear policy implications. I only have two comments:

1. While the authors aim to use Zambia to make a case for investments in FP, I am left wanting to know more about Zambia to be convinced that Zambia is such a good example. This is because when the authors describe current efforts in Zambia, they do a very good job in the first half. In the second half, when they start talking about reducing early marriage, promoting education, expanding method mix, etc, it is not clear what the Government of Zambia has done exactly. No specific examples from the country's programs are provided.

2. The abstract is too heavy on the background, with the first three sentences saying the same key points. Later on, the sentence “Increasing voluntary modern contraceptive use...” in the middle of the abstract is similar to the last sentence of the abstracts as they both talk about socioeconomic outcomes and demographic dividends. Both of these instances give an impression that the abstract could be much more concise and to the point.

Is the rationale for the Open Letter provided in sufficient detail?
Yes

Does the article adequately reference differing views and opinions?
Yes

Are all factual statements correct, and are statements and arguments made adequately supported by citations?
Yes

Is the Open Letter written in accessible language?
Yes

Where applicable, are recommendations and next steps explained clearly for others to follow?
Yes

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** 15 years of experience in family planning and reproductive health.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 20 Jul 2020

**Joseph Rosen,** Population Council, Lusaka, Zambia

We thank the reviewer for these thoughtful, detailed comments. In response to the first point about specific policies implemented in Zambia, we have clarified our language in the “Current efforts and recommendations” sub-section (Pgs. 6-7) in hopes of delineated between current FP policies implemented in Zambia and our recommendations. Additionally, at the reviewer’s recommendation, we have supplemented our discussion of policy recommendations with additional detail of existing FP policies in Zambia, particularly those enumerated in the costed implementation plan to support FP scale-up (2013-2020). These include development of a school-based adolescent sexual and reproductive health curriculum and task-shifting FP provision to community-based distributors. With respect to the second comment, we have consolidated some of the language in the abstract (Pg. 2) to more succinctly summarize of the Open Letter’s contents.

**Competing Interests:** No competing interests to disclose

Reviewer Report 25 October 2019

https://doi.org/10.21956/gatesopenres.14096.r28057

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**John Stanback**
FHI 360, Durham, NC, USA

This is an excellent open letter: well-written, concise and with clear policy implications. My only issues are with a couple of significant omissions.
First, another benefit of family planning is that it helps countries become more resilient, not only in the face of climate change, but also to other shocks and emergencies.

Second, and more significantly, I was very disappointed that, in a letter full of precise and direct policy recommendations, the authors seemed extremely hesitant to directly address the need for more long-acting methods such as implants and IUDs. Instead, they use roundabout wording to signal this lacuna, citing the problem of early method discontinuation and the need for a broader method mix. If you are serious about improving choice, please be more explicit. You've covered your bases by mentioning "rights" five times and "voluntary" ten times in a single letter; it's okay to say "long-acting" at least once.

**Is the rationale for the Open Letter provided in sufficient detail?**
Partly

**Does the article adequately reference differing views and opinions?**
Yes

**Are all factual statements correct, and are statements and arguments made adequately supported by citations?**
Yes

**Is the Open Letter written in accessible language?**
Yes

**Where applicable, are recommendations and next steps explained clearly for others to follow?**
Partly

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** programmatic family planning researcher with >30 years experience

I confirm that I have read this submission and believe that I have an appropriate level of expertise to state that I do not consider it to be of an acceptable scientific standard, for reasons outlined above.

**Author Response 20 Jul 2020**

**Joseph Rosen,** Population Council, Lusaka, Zambia

We thank the reviewer for the thorough and thoughtful review of our Open Letter. We agree with the reviewer’s assertion that FP supports women’s resilience to confront climate change, natural disasters, and other destabilizing events. As such, we have added language to the Open Letter’s introduction (Pg. 3) addressing these aforementioned factors as added benefits to investments in FP. Secondly, we also appreciate the reviewer’s attention to the absence of explicit articulation of long-acting methods in our discussion of FP. To correct this oversight, we have weaved discussion of long-acting methods throughout our
manuscript, including explicit mention of long-acting methods as a core component of the recommendation for expanding contraceptive method mix.

**Competing Interests:** No competing interests to declare.