Family Planning

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Summary

The impact of population growth has received increased recognition within the post-2015 global development agenda as a key challenge to human and socioeconomic development (1,2). While much of the world's population is now estimated to live in regions with either rapidly declining or achieved low fertility, many low- and middle-income countries, particularly in Sub-Saharan Africa, continue to experience high rates of fertility and unintended pregnancy, premature mortality, and poor reproductive health outcomes (3,4).

Expanding access to family planning and reproductive health services play an important role in empowering women, men, couples, and adolescents to realize their reproductive rights and intentions by allowing them to avoid unintended pregnancy and choose whether and/or when to have a child. Family planning is beneficial to individuals, families, and societies alike, and investing in the expansion of family planning and reproductive health services has been recognized as an essential step to achieving many of the Sustainable Development Goals (SDGs) (5). Reducing global unmet need for contraception would prevent an estimated 40 percent of maternal deaths, reduce child mortality by up to 20 percent, and avert 36 million years of healthy life lost each year (6,7). Additionally, investments in family planning would also contribute to expanded access to education, women's empowerment, the prevention of HIV, poverty reduction, and environmental sustainability, making it one of the most cost-effective global health and development interventions (8).

Problem Identification and Scope

Economic evaluations that assess both costs and effectiveness of interventions are receiving increased consideration in the decision-making process in low- and middle-income countries. These evaluations allow for the effective prioritization of competing needs in resource-constrained settings. While some studies have assessed the effectiveness as well as cost effectiveness of approaches to improving maternal and child health, the synthesis of evidence on cost effective strategies in early interventions, such as family planning, is limited, particularly in the Sub-Saharan African context (9).

This brief outlines the benefits and costs of scaling up investments for family planning programs in Sub-Saharan Africa, where contraceptive use is low relative to the rest of the world (only 23.9 percent of women of reproductive age in Sub-Saharan Africa use a modern method of contraception (10)) and unmet need for family planning is relatively high (more than 1 in 5 women of reproductive age in Sub-Saharan Africa report having an unmet need for family planning (7)).

Types of Family Planning Programs and Interventions

Comprehensive family planning programs and interventions include components that target both family planning demand (e.g. sexual and reproductive health behavior change communication (BCC) approaches, information campaigns, counseling) and supply (improving access to and quality of contraceptives and family planning services) (11). More recently, the number of family planning programs that have undergone more rigorous impact evaluation has increased, and more studies have begun to utilize experimental and quasi-experimental methods to assess the health and broader socioeconomic effects of family planning programs. Family planning interventions can be generally classified into one or more of the following domains:

a) Interventions that aim to improve client access to services through price or cost reduction mechanisms, e.g. voucher schemes, providing free or subsidized access to contraceptives and services, microcredit financing schemes for family planning, etc.

b) Interventions that seek to improve contraceptive use and generate demand by increasing awareness, counseling, access to reliable information, and access to education resources.

c) Interventions that seek to directly increase supply and effective distribution of contraceptives and services to end users.

d) Interventions that promote family planning through community level engagement by improving community-based distribution channels and increasing local capacity.

e) Interventions that seek to improve FP use and access through social franchising mechanisms.

f) Interventions that focus on training of FP health personnel as a means to improve service delivery.

Costs of Family Planning Programs

Costs related to the provision of family planning services, both from the perspective of the client (demand side) and service provider (supply side) can be classified into the following categories:

a) **Direct medical costs for seeking family planning services to the supply (provider) side,** which include 1) costs for contraceptive commodities, commodity-related supplies (gloves, pregnancy tests, etc.), and procurement of equipment; 2) supply chain costs, including shipping, storage, and distribution of supplies; 3) health personnel and service provider costs, which include costs of counseling clients, method provision, and method follow-up (particularly for resupply methods).

b) **Direct non-medical costs for seeking family planning services to the supply (provider) side,** which include overhead / administrative costs and other capital costs for out-patient care.

c) **Direct medical and non-medical costs for seeking family planning services to the demand (client) side,** which include transportation costs and all out-of-pocket expenditures for seeking family planning services (consultation fees, follow-up fees, expenses related to the treatment and management of contraceptive-related side effects, etc.).

d) **Indirect costs to the supply (provider) side,** which can mainly be classified as program and systems costs and include costs related to program management, supervision and training of personnel, monitoring and evaluation, human resources development, transport and telecommunications, health education, outreach and advocacy, infrastructure improvements, and health management information and commodity supply systems.

e) **Indirect costs to the demand (client) side**, which include costs related to the loss of time and productivity from seeking care, adherence costs (for clients who use resupply methods), productivity losses from contraceptive-related complications, and costs related to contraceptive failure, including pregnancy and pregnancy-related complications (both direct and indirect).

COST ESTIMATES

From Adding It Up (7): Expanding contraceptive coverage to 100 percent (covering all unmet need) for all women in all LMICs from status quo would cost $12.1 billion per year in both direct and indirect costs, compared to current $6.3 billion per year expenditures on FP. There are 214 million women in LMICs with an unmet need for FP, which means that the additional cost per woman to fully cover FP (and cover unmet need) would be ($12.1 billion - $6.3 billion) / 214 million women per year = $27.10 per woman per year.

Alternative estimate: FP2020 ROI PPT states that the regional average cost of FP is $11.20 per couple-year of protection (CYP) in Sub-Saharan Africa.

21 percent of 214 million women with an unmet need for FP are from Sub-Saharan Africa, implying a total of 44.9 million women in Sub-Saharan Africa with a continued unmet

need for FP. Covering all FP related costs (direct and indirect) for these 44.94 million people would cost: $27.10 * 44.94 million = $1.22 billion per year to cover all FP services for women in Sub-Saharan Africa. Costs in future years depend on changes in fertility desires and thus demand for family planning, changes in the population size and age structure, and changes in marriage and human capital levels. These factors interact, and in the absence of detailed estimates of unmet family planning need in Sub-Saharan Africa, we assume that the same expenditures can be applied over a longer time horizon (1).

Benefits and Benefit-Cost Ratios

Universal access to reproductive health services and voluntary family planning provides several benefits for women, children, families, and communities. These benefits include:

a) **Health benefits to women and children:** Family planning minimizes life-threatening complications for mothers and their children by reducing fertility-related risks, which include reduction of high-risk pregnancies, pregnancies that are too closely spaced, pregnancies that end in unsafe abortion, and overall fertility.

b) **Increased Education, Employment of Women:** Family planning lowers the opportunity cost of childbearing for women, which in turn allows them to stay in school, complete more schooling, seek employment, and be employed.

c) **Empowerment of Women:** Through the creation of new opportunities for women and the securing of reproductive rights

d) **Poverty Alleviation through Demographic Dividends:** At a population level, family planning enables population shifts through lower childbearing, lower population growth, and an increase in the share of working age adults relative to young children (dependents), which contribute to poverty reduction and are conducive for individual, household, and country-level development.

ESTIMATES OF BENEFITS

Benefit 1: Cost savings from reduced health, education, and other societal expenditures from increased populations. Between 4:1 and 7:1 cost savings (1), so take the average to be 5.5:1 benefit-cost ratio.

Benefit 2: Aversion of infant mortality and maternal mortality: Adding It Up predicts that modern contraceptive use prevented 188 million unintended pregnancies, 1.2 million newborn deaths, and 230,000 maternal deaths and other negative health outcomes that would have occurred in the absence of any modern method use. $110 billion in benefits (taking a conservative $1,000 saved per DALY, 3% discounted, with average LE at birth for infant deaths and at age 28 for maternal deaths) (2). With $6.1 billion in costs, yields a 18.3:1 benefit-cost ratio.

Benefit 3: Demographic Dividend benefits – hard to assess and account for directly. In addition to the effect of family planning programs towards reducing fertility and reducing maternal/child mortality, these programs have been shown to result in higher levels of female (mother's) education, improvements in women's general health (e.g., as indicated by BMI) and longer-term survival, increases in female labor force participation and earnings, increased child health (up and beyond the effect on reducing child mortality) and increased child human capital (including higher schooling levels. Several of these program effects will affect individual's well-being because in large-scale family planning programs—the only ones that we evaluate here—these effects will make contributions to economic growth, which in turn will affect future income levels.

From Karra-Canning-Wilde Model: a one-birth reduction in fertility in Nigeria over a 15-year time horizon yields a doubling of income per capita within 50 years ($11,114 under the high fertility variant and $21,938 under the low fertility variant), with persistent doubling of income per capita over 90-year time horizon (up to 2100). Extrapolating from the Matlab field experiment, a 37 percentage point increase in contraceptive prevalence (from 20 percent CPR in 1977 to 57 percent CPR in

1990), equivalent to a 2.9 fold increase, translated to a 15 percent decline (equivalent to a one birth decline) in TFR over the period (12–14). So, extrapolating for Nigeria, which has a 28 percent CPR, increasing CPR by 2.9 times would result in a doubling of GDP per capita.

From HPP DemDiv Model: an increase in contraceptive prevalence from 39.4 percent to 70 percent (a 77 percent increase in CPR) through expansion of FP services would yield an additional $2,540 in income per capita over a 40-year time horizon in Kenya (from $8,748 without FP investments to $11,288 with FP investments). This is a 29 percent increase in GDP per capita as a result of a 77 percent increase in CPR over 40 years.

The average CPR in Sub-Saharan Africa is 23.9 percent (10). The average GDP per capita in Sub-Saharan Africa is $1573.94 (World Bank National Accounts Data) (15). In order to achieve 70 percent CPR by eliminating unmet need, this would amount to a 192 percent increase in CPR, or almost a tripling (2.9 times) higher CPR than what was projected by HPP DemDiv in Kenya. If the relationship between CPR growth rates and GDP per capita growth rates are linear (excluding interaction effects), then a 2.9-fold increase in SSA's CPR over a 40-year time horizon, from 23.9 percent to 70 percent, would result in (at minimum) a 2.9 fold increase in GDP per capita, from $1573.94 to $4609.86, just from the Demographic Dividend effect. This is roughly a 3-fold increase in GDP per capita for a 3-fold increase in CPR (increase of $3035.92 per person).

Based on estimates from Karra-Canning-Wilde and DemDiv, a 3-fold increase in CPR (to close the unmet need for FP) in Sub-Saharan Africa, would yield a 2- to 3-fold increase in GDP per capita. Let us assume 2.5-fold increase in GDP per capita.

Cost per capita for Africa: $6.1 billion per year in costs to close unmet need gap / 1.078 billion in Sub-Saharan Africa = $5 per Sub-Saharan African per year

2.5-fold increase in GDP per capita of Sub-Saharan Africa, with a population of 1.078 billion, is a $3035.92 increase in GDP per capita per year over a 40-year period. If we bring this down to a present value increase (assuming a 5 percent discount rate), it is a $431.23 increase in GDP per capita per year. This implies a benefit-cost ratio of 431.23 / 5.01 = 86.1:1 benefit-cost ratio from the Demographic Dividend

BCR ANALYSIS

From FP2020 PPT: BCRs in Sub-Saharan Africa ranging from 2.03 to 6.22.

Calculations from just the societal cost savings and aversion of infant and maternal mortality estimates above would yield a (5.5 + 18.3) = 23.8:1 benefit-to-cost ratio (a BCR of 23.8) for Sub-Saharan Africa. This is a conservative estimate because it excludes the Demographic Dividend benefits, other welfare benefits, and the other longer-run / life-cycle benefits of increased investment in FP.

Discussion

- Family planning is highly cost-effective, with a high ROI
- The ROI in FP is likely to be much higher than what we have estimated.
- It is important to consider the relative cost effectiveness of family planning not only within the health domain but also across other domains. A comparative assessment of the cost-effectiveness of FP relative to, say, improving girls' education or building roads, would be helpful in understanding the true ROI to FP, and would also serve as a point for advocacy for FP with policymakers and the Ministries of Finance by showing that FP is not only the best buy in health but the best buy more generally.
- Including the Demographic Dividend estimate of 86.1:1 BCR, and combining it with the cost-saving + IM/MM BCR, we would get a total estimated BCR of 109.8:1.

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