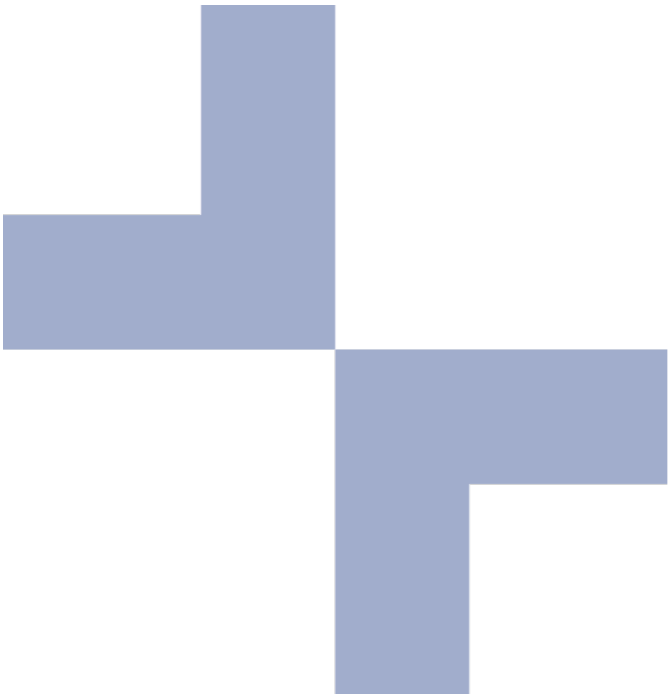
SHOPS PLUS

Methodology

Family Planning Market Analyzer



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Acronyms

CYP	Couple-years of protection
DHS	Demographic and Health Survey
FP	Family Planning
LARC	Long-acting reversible contraceptives
mCPR	Modern contraceptive prevalence rate
SSA	Sub-Saharan Africa
STM	Short-term methods
TMA	Total market approach
UNPD	United Nations Population Division
WB	World Bank
WRA	Women of reproductive age

Introduction

What is the Family Planning Market Analyzer?

The Family Planning Market Analyzer is an interactive web-based tool that allow users to look at the current FP market and explore potential scenarios for a total market approach (TMA). It combines method mix and source mix data from Demographic and Health Surveys (DHS), FP2020's projections of modern contraceptive prevalence (mCPR), and projections of the number of women of reproductive age (WRA) from the UN Population Division (UNPD), as well as poverty headcount data from the World Bank (WB).

The tool can be used to inform TMA discussions by providing key results linked to probing questions. For example, if the private sector doubled its role in implant provision, how many more services would need to be provided? This tool translates theoretical discussions about making changes in the public or private sector into what those changes would mean in terms of users, visits, and commodities.

Using another example, consider the question: "what would be the implications of increasing the use of the private sector in urban areas?". The tool can help us explore this question from a few different perspectives:

- First is a composition question – how would the change in urban areas change the overall picture? In countries that are primarily rural, the change in the urban area might have little impact on the national picture.
- Next is a feasibility question – how many more clients would the private sector need to serve, and would that change be feasible given the number of providers?
- Finally, we can look at method choice – if the private sector primarily only provides pills and condoms, what implications would the shift have for method choice among urban women?

Tool structure

The tool itself is organized into modules. There are two general modules which let us explore the national picture. The first looks at the current national landscape, focusing on the number of users by method and sector. The "current" situation is a 2020 projection. The second module lets you explore policy scenarios by changing method mix, source mix, or both together. This module also includes a policy scenario generator which lets you look at key questions around potential shifts to the market in the future, which in the tool is 2023.

There are also three additional modules to look at the market among key segments: age and marital status, urban/rural residence, and income level. For each of these modules there are results exploring the baseline 2020 scenario, then projections can be made based on changes to the source mix for each segment.

Data sources and model inputs

The Family Planning Market Analyzer uses the following data sources:

- UNPD World Population Prospects (2019 Revision) projections determine women of reproductive age in 2020 and 2023
- FP2020 projections (based on Track20's Family Planning Estimation Tool) & UNPD Estimates and Projections of Family Planning Indicators 2019 determine mCPR in 2020 and 2023
- World Bank poverty headcount estimates determine country-specific income thresholds (see more details below).
- Secondary analysis of the most recent DHS survey for each country provides information on the distribution of users by method and source.

More details on the secondary DHS analysis are provided below. This analysis was done to calculate the source mix and method mix nationally and for selected sub-groups (marital status, age, residence, income level).

Source: Definitions of public and private sector sources were aligned as much as possible with the source coding developed for Private Sector Counts[1]. For this tool, the public sector was also segmented to give additional visibility into the public sector. The figure below shows the general segmenting of sources; however, in some countries categories were adapted based on available data and sample sizes. Sources with insufficient sample sizes (<25 respondents) were aggregated into others – this means that some countries have fewer than 6 detailed sources included. Notes on specific source considerations by country can be found in the annex.

Figure 1. Illustrative example of detailed sources used for Family Planning Market Analyzer

Public Sector		Private Sector			Other
Public Hospital	Public Other	NGO FBO	Private Medical	Private Pharmacy/Shop	Other*

**includes: friend, relative, partner, don't know, and other non-medical sources*

Method: Analysis looked only at modern methods of family planning. For some method users the source question is not asked (for example LAM users are not asked their source). Therefore 'other modern methods' was split between those with and those without a source. For the purposes of the calculations in the tool, other modern methods users with no source are excluded from results. This group represents a small share of modern users in most countries.

Where sample sizes permit users by method are grouped as follows:

- Sterilization (male & female)
- IUD
- Implants
- Injections
- Pill
- Condom
- Other Modern (with source)
- Other Modern (no source)

[1] https://www.privatesectorcounts.org/familyplanning/about-data.html

In some cases, women using a method where a source is asked do not respond to the question about their source or say that they do not know the source. To address this, the responses among women who report sources were re-standardized to match to the overall method mix of modern users.

For countries where the sample size was too small to analyze results for a particular method, users of that method were grouped into "Other Modern (with source)". For example, if there were only 5 implant users in the sample in a country there will be no results for implants in the tool and those 5 users will be counted under "Other Modern (with source)." See the annex for details.

Segmenting by sub-group: For the three modules that focus on sub-groups, method and source mix were calculated among specific subgroups using the DHS datasets. These include:

- Age and Marital status[2]:
    - Married WRA (15-49)
    - Unmarried WRA (15-49)
- Residence
    - Urban
    - Rural
- Income level
    - <$1.90 per day
    - $1.90 - $3.20 per day
    - $3.20 - $5.50 per day
    - >$5.50 per day

Splits by income level were created by integrating World Bank poverty headcount estimates into the DHS datasets. Details of the approach used to do this can be found elsewhere[3]. In two countries no income data was available. In some countries the sample size of a single income group was too small to analyze, in these cases that income group is excluded from the analysis. See the annex for details.

[2] Future changes are made for married vs unmarried women without an age distinction. The "current situation" tab also shows use and source broken down by five-year age groups, Married youth (15-24), Unmarried youth (15-24), Married non-youth (25-49), and Unmarried non-youth (25-49).

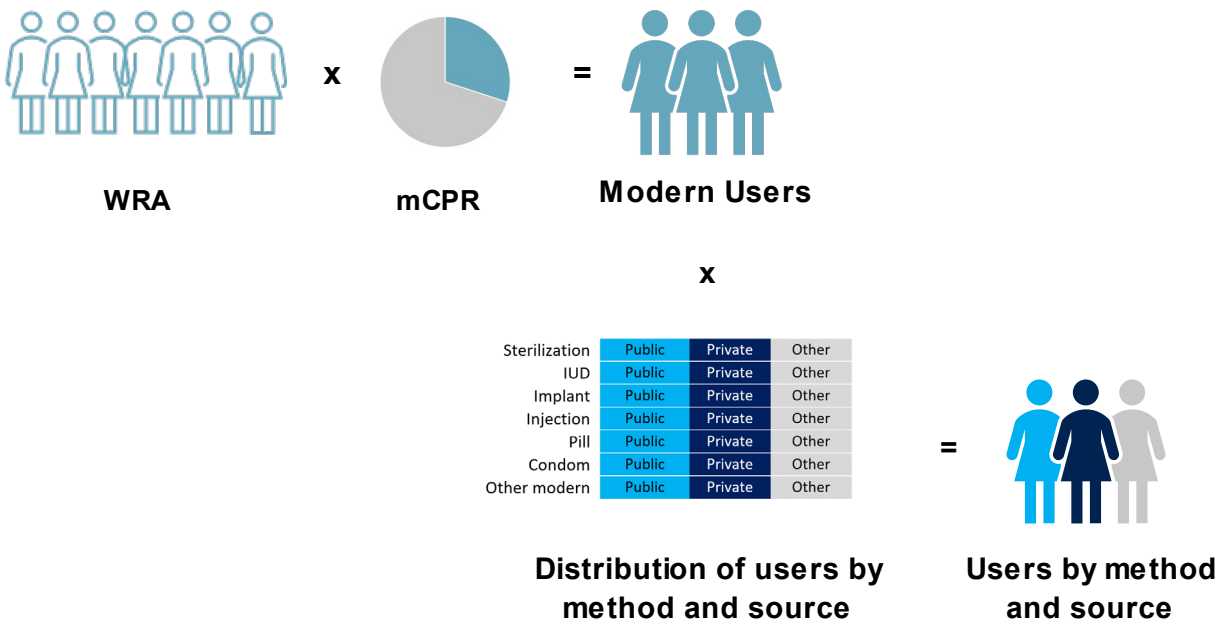
[3] Bellows N, Weinberger M, Reidy M. Using the Demographic Health Survey wealth index to create family planning market segments based on absolute income levels. BMJ Global Health 2020; 5: e002450.

Methodology

Overall Approach

The general approach used in the Family Planning Market Analyzer is to calculate the total number of modern method users (in 2020 and 2023), then allocate these users by method and source as shown in Figure 2.

Figure 3. Illustration of general approach used for Family Planning Market Analyzer



The current scenario results are based on estimated users in 2020, with those users distributed by method and source using the most recent DHS in each country. The 2023 scenarios project forward modern users, accounting for both increases in the number of WRA and the mCPR. For 2023 a "status quo" situation is calculated based on the most recent DHS survey, then a "new" situation is calculated based on inputted changes to the method and/or source mix. Details are provided below for the options for changing the method and/or source mix of users.

Explore policy scenarios: change in method mix

This section allows the user to input a new method mix, then the overall source mix is calculated assuming no changes to the source mix *within* each method. For example, if 80% of pill users get their method from the private sector, this assumption will be maintained. If the method mix is changed to increase the share of women using pills, then the overall share of women using the private sector will also increase.

The detailed calculations are done as follows for each method (**m**) and sector (**s**):

Users in 2023 x share of users using method **m** (*from input*) = Users of method **m** in 2023

Users of method **m** in 2023 x share of users of method **m** going to sector **s** (*from DHS*) =

Users of method **m** going to sector **s** in 2023

Results are then summed to calculate the total number and relative share of users going to each sector in 2023. For these calculations, the more detailed level 2 sources (see Figure 4) are used. Users are prevented from making changes to "other modern" methods.

Explore policy scenarios: change in source mix

This section allows the user to input a new source mix, then the overall method mix is calculated assuming no changes to the method mix *within* each source. For example, if 80% of private pharmacy/shop users use pills, this assumption will be maintained. If the source mix is changed to increase the share of women using private pharmacies/shops, then the overall share of women using pills will also increase.

The detailed calculations are done as follows for each sector (**s**) and method (**m**):

Users in 2023 x share of users using sector **s** (*from input*) = Users of sector **s** in 2023

Users of sector **s** in 2023 x share of users of sector **s** using method **m** (*from DHS*) =

Users of method **m** going to sector **s** in 2023

Results are then summed to calculate the total number and relative share of users of each method in 2023. For these calculations, the more detailed level 2 sources (see Figure 5) are used. Users are prevented from making changes to "other" source.

Explore policy scenarios: change in method and source mix

This section allows the user to first input a new method mix, then specify a change in source *within* each method. For these calculations, the aggregated sources (public, private, other) are used. Users can change the share of women going to the public vs private sector for each method; the "other" source is held constant.

The detailed calculations are done as follows for each method (**m**) and sector (**s**):

Users in 2023 x share of users using method **m** (*from input*) = Users of method **m** in 2023

Users of method **m** in 2023 x share of users of method **m** going to sector **s** (*from input*) =

Users of method **m** going to sector **s** in 2023

Results are then summed to calculate the total number and relative share of users going to each sector in 2023. Users are prevented from making changes to "other modern" methods.

Explore policy scenarios: policy scenario generator

The policy scenario generator automatically calculates changes based on four pre-built policy scenarios. The detailed assumptions behind each scenario are described below.

Scenario 1: Without changes in method mix or source mix (status quo), what efforts are needed to keep up with increases in users?

For this scenario, the "status quo" is maintained—meaning the source and method mix from the latest DHS. This scenario captures the increase in users from 2020 to 2023 based on projected increases in WRA and mCPR and shows how many more users there would be of each method and sector without changes to where women go for services or what methods they use.

Scenario 2: What if task sharing allowed the private sector (e.g. pharmacies) to increase its share of injectables?

For this scenario, the share of injectables users going to the private sector increases to equal the share of pill users going to the private sector. If at baseline the injectable private share is greater than pill private share, the injectable share stays constant.

Scenario 3: What if implants increase in popularity, but the sources where they are available stays the same?

For this scenario, the share of implants in the method mix is doubled unless doubling results in a share that is less than 5% (in which case the implant share is set to 5%) or a share that is greater than 40% (in which case the implant share is set to 40%). To compensate for the increased role of implants in the method mix the share of women using condoms, pills, and injectables are decreased proportional to the share of women using each of these methods.

In countries with no implant use at baseline, this scenario is unavailable as no data exists to know what sources women would use for implants.

Scenario 4: What if barriers were removed to allow the private sector to play a greater role in LARC provision as implants increase in popularity?

For this scenario, the method mix change used in Scenario 3 is replicated. In addition, the share of women using the private sector for IUDs and Implants is increased by 20% points.

In countries with no implant use at baseline, this scenario is unavailable as no data exists to know what sources women would use for implants. In countries with no IUD users at baseline, no increase in IUD users from the private sector is included in the scenario.

Explore by sub-group: change in source mix

For the modules that allow exploring changes by sub-group, changes can be made to the share of women using the public vs private sector within each sub-group. The share of women using "other" sources is held constant. Based on the changes specified, the national change in source mix and method mix is then calculated, as well as the change in method mix among each sub-group. For these calculations it is assumed that the method mix within each sector (for each sub-group) is maintained.

The detailed calculations are done as follows for each sub-group (**g**), sector (**s**), and method (**m**):

Total users in 2023 x share of users in sub-group **g** *(from DHS)* =

Users in subgroup **g** in 2023

Users in sub-group **g** in 2023 x share of users using sector **s** (*from input*) =

Users in sub-group **g** of sector **s** in 2023

Users in sub-group **g** of sector **s** in 2023

x share of users in sub-group **g** going to sector **s** using method **m** (*from DHS*) =

Users of method **m** going to sector **s** in sub-group **g** 2023

Results are first summed by sub-group g to calculate the new method mix within each sub-group. Results then aggregated across sub-groups to calculate the total number of users by source and method and the national method mix and source mix in 2023 resulting from the specified changes.

Limiting decline of sterilization users

All changes to method mix and source mix are constrained to ensure that the number of sterilization users does not decline below how many would be expected in 2023 given aging out. This is needed because women who are already sterilized (or relying on the male sterilization of their partners) cannot switch to another method. The only way for sterilization users to decline is for women to age out of their reproductive years (15-49).

The number of continuing sterilization users is calculated as follows:

Continuing sterilization users in 2023 =

Sterilization users in 2020 – (Sterilization users in 2020 * (1/CYP factor for sterilization)))

For simplicity in the Family Planning Market Analyzer the global CYP factor of 10 is used for all countries. In most scenarios this limit does not play a role; however, very dramatic shifts in the source mix or method mix may cause this limitation to come into play. If a change is too large, a warning note will be displayed in the tool showing the minimum allowed value.

This same limitation is not applied to IUD and implant users because while there is continued use of these methods, women could choose to have them removed early and switch to another method.

Visits and commodities

Throughout the Family Planning Market Analyzer results are not only presented in terms of users, but also in terms of visits and commodities. These results are important because users of different methods require different numbers of visits and volumes of commodities in each year.

For example, only a sub-set of implant users will need to visit a provider to have an implant inserted in a given year, while pill users will need to make multiple visits. This is an important dynamic to capture since the private sector often provides more short-term methods, which are more 'visit intensive' than long-acting methods, so the share of visits to the private sector may look different to the share of users going to the private sector.

A set of global default assumptions are used to estimate the number of visits and commodities per year, these are aligned with the assumptions used for the CYP factor of each method. For long-acting methods, because multiple years of protection are provided, visits and commodities per year are equal to one over the CYP factor. For short-term methods only part of the CYP factor is used – the assumption of units needed per year of coverage. The inflation for method failure is not included as it is not relevant for this calculation. In addition, for pills and condoms it is assumed that women will need to make 4 visits per year to receive/purchase their commodities. Some caution should be taken, especially for condom users, since little is known about how many condoms women and couples use over a year and how many they purchase at a time.

Table 1. Visits and commodities per user per year

	Visits per method per year	Commodities per year
Sterilization (male/female)	1/10	0
IUD	1/4.6	1/4.6
Implants	1/3.8	1/3.8
Injections	4	4
Pill	4	13
Condoms	4	98

For 2020 users are simply multiplied by these factors to estimate to estimate the number of visits and commodities. For 2023 a slightly different approach is used for sterilization, IUD, and implant users, if these methods are showing an *increase* in user numbers:

Visits to increase number of users of method **m** =

(Users of method **m** in 2023 – Users of method **m** in 2020)/3

Visits to maintain baseline users of method **m** =

Users of method **m** in 2020 x visits per user for method **m**

This approach assumes that the increase in LAPM users is spread evenly across the three years of the projection, with a share of the LAPM users from 2020 needing to be 'replaced' after discontinuing their IUD or implant or aging out of reproductive age (for sterilization).

Visits are summed together to look at total visits under different scenarios, as well as total visits by sector and method. For commodities, results can only be looked at by method. A detailed table provides results for the number of commodities by method in 2020 as well as in 2023 under the "status quo" and "new" method and/or source mix scenario.

Limitations

The Family Planning Market Analyzer is a model and its results are dependent on the data and assumptions used. It is important to note that the model is not meant to be predictive of the future, but rather to allow users to explore potential "what if" scenarios in order to help inform a TMA approach. While almost any scenario can be entered into the model, it is important that users of the tool sense check these scenarios with partners in country to discuss what changes may be realistic or expected given the policy environment, plans for scale up, funding availability, etc. Indeed, the results from the tool provide a useful contribution to this sense checking.

One limitation of the model is that while mCPR is projected to change, all other assumptions about the distribution of users come from the latest DHS survey in each country. If the DHS survey is out of date, or things are changing rapidly in the country, the distributions applied to 2020 and 2023 may not fully reflect current reality. This is particularly true for the sub-group analysis. If in the last DHS 75% of users live in rural areas, then in both 2020 and 2023 it is assumed that 75% of users live in rural areas. The total number of users is updated to reflect recent estimates, but the relative share who live in rural vs urban areas is estimated to be the same. If a country is experiencing rapid urbanization or progress of mCPR growth is more concentrated in urban areas, then this share may not be maintained. However, without a more recent DHS survey it is not possible to quantify these changes. Since the model is only projecting over a short time frame (2020 to 2023), and only countries with a somewhat recent DHS are included, this limitation is minimized as much as possible.

LEARN MORE

Explore the Family Planning Market Analyzer at www.FPMarketAnalyzer.org

Annex: Country specific notes

Country	DHS Year	Missing Methods (n<25)	Missing Source (n<25 or not included)	Income Data Limitations
Afghanistan	2015	Implants		No World Bank poverty thresholds were provided, and thus no income analysis could be conducted.
Angola	2015/2016	Sterilization, IUD	No NGO/FBO	
Bangladesh	2014			
Benin	2017/2018	Sterilization		
Bolivia	2008			
Burkina Faso	2010		Private Medical and Private Pharmacy/Shops combined to "Private"	
Burundi	2016/2017			
Cambodia	2014			No World Bank poverty thresholds were provided, and thus no income analysis could be conducted.
Cameroon	2011			
Chad	2014/2015	Sterilization, IUD	Private Medical and Private Pharmacy/Shops combined to "Private"	
Comoros	2012	IUD	Private Medical and Private Pharmacy/Shops combined to "Private"	
Congo	2011/2012	Sterilization, IUD, Implants		
Cote d'Ivoire	2011/2012	Sterilization, IUD, Implants	NGO/FBO, Private Medical and Private Pharmacy/Shops combined to "Private"	

Democratic Republic of Congo	2013/2014	IUD		n<25 for public users/above $5.50
Dominican Republic	2013			
Egypt	2014			
Ethiopia	2016			
Gabon	2012	IUD, Implants	No NGO/FBO	
Gambia	2013			
Ghana	2014		No NGO/FBO	
Guatemala	2014/2015			
Guinea	2018	Sterilization	No NGO/FBO	
Guyana	2009		No NGO/FBO	
Haiti	2016/2017	IUD		
Honduras	2011/2012			
India	2015/2016	Implants		
Indonesia	2017		No NGO/FBO	
Jordan	2017/2018			n<25 for under $1.90
Kenya	2014			
Kyrgyz Republic	2012	Implants		
Lesotho	2014			
Liberia	2013	Sterilization, IUD		
Madagascar	2008/2009			
Malawi	2015/2016			
Maldives	2016/2017	IUD, Implants	No NGO/FBO	
Mali	2018	Condoms		
Mozambique	2011	Implants	No NGO/FBO	n<25 for private under $1.90
Myanmar	2015/2016			

Namibia	2013	Implants	No NGO/FBO	
Nepal	2016			n<25 for private under $1.90
Niger	2012	Sterilization, IUD, Condoms		n<25 for private under $1.90
Nigeria	2018			
Pakistan	2017/2018	Implants	No NGO/FBO	n<25 for private under $1.90
Peru	2012	Implants		
Philippines	2017	Implants	No NGO/FBO	
Rwanda	2015/2016		No NGO/FBO	
Sao Tome & Principe	2008/2009	Sterilization, IUD, Implants	NGO/FBO, Private Medical and Private Pharmacy/Shops combined to "Private"	
Senegal	2016		No NGO/FBO	
Sierra Leone	2013			
South Africa	2016		No NGO/FBO	
Tajikistan	2017	Implants	Private Medical and Private Pharmacy/Shops combined to "Private"	
Tanzania	2015/2016			
Timor-Leste	2016	Condoms	Private Medical and Private Pharmacy/Shops combined to "Private"	
Togo	2013/2014	Sterilization		
Uganda	2016			
Yemen	2013			
Zambia	2013/2014			
Zimbabwe	2015			