

# Performance Monitoring and Accountability Data Analysis Handbook



February 2021

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## Acronyms

<b>CP</b>	contraceptive prevalence
<b>CEI</b>	client exit interview
<b>DMPA</b>	depot medroxyprogesterone acetate
<b>DMPA-SC</b>	subcutaneous depot medroxyprogesterone acetate
<b>DRC</b>	Democratic Republic of Congo
<b>EA</b>	enumeration areas
<b>EC</b>	emergency contraception
<b>HH</b>	households
<b>IUD</b>	intrauterine device
<b>LAM</b>	lactational amenorrhea method
<b>mCP</b>	modern contraceptive prevalence
<b>NSO</b>	National Statistical Organization
<b>RE</b>	Resident Enumerator
<b>SDP</b>	service delivery point
<b>SIF</b>	Stata internal form

## Introduction

Performance Monitoring for Action (PMA) uses innovative mobile technology to support low-cost, rapid-turnaround surveys that monitor key health and development indicators.

PMA surveys collect longitudinal data throughout a country at the household and health facility levels by female data collectors, known as resident enumerators, using mobile phones. The survey collects information from the same women and households over time for regular tracking of progress and for understanding the drivers of contraceptive use dynamics. The data are rapidly validated, aggregated, and prepared into tables and graphs, making results quickly available to stakeholders. PMA surveys can be integrated into national monitoring and evaluation systems using a low-cost, rapid-turnaround survey platform that can be adapted and used for various health data needs.

The PMA project is implemented by local partner universities and research organizations who train and deploy the cadres of female resident enumerators.

The purpose of this manual is to provide guidance on PMA's analytical approach for household, female, and service delivery point (SDP) indicators included in the *PMA Indicator Brief* for cross sectional data. The manual includes an overview of the PMA survey, an introduction on how to set up survey data so that they are ready for analysis in Stata, and the specific analytical approach for each indicator. PMA will continue to make updates to the manual as new indicators are added to the brief and provide a separate manual once longitudinal data are available.

This manual is accompanied by reference .do files located in the [PMA Analyses Public repository on GitHub](#). The .do files in this repository allow data users to replicate the PMA data products using the publicly released data files.

## Household and Female Questionnaires

### Sampling

PMA employs multistage stratified clustered sampling, where households are selected in sampled clusters, or enumeration areas (EAs), instead of simple random sampling due to the budget and logistical constraints of conducting a national-level survey. EAs are selected first with probability proportional to size. Boundaries of selected EAs are mapped and all occupied structures within the selected EA are listed. A fixed number of 35 households within the EA are randomly selected and interviewed.

All women aged 15 to 49 who are either usual members (*de jure* population) of the household or who slept in the household the night before (*de facto* population) are eligible to be interviewed. Since PMA is a longitudinal survey, the same households and females are followed through each phase of the survey. To ensure accurate sampling probabilities for household and female weight calculation, PMA re-maps and re-lists each EA before each phase of the survey. PMA makes every effort to locate households and females that have changed location within an EA, however women and households are considered lost to follow-up if they move outside of the EA. Further information on survey weights is presented in Annex 1.

### Data Structure

Each specific country dataset includes variables from both household and female surveys. All observations within a sample household have identical household-level characteristics variables. Each observation includes individual household member-level information such as age and sex. If an individual is an eligible woman, aged 15-49 years, all variables for the female questionnaire will be available. If the individual is not an eligible woman, the variables from the female questionnaire will be assigned missing values.

Each observation in the dataset refers to one individual in the household identified from the household member roster<sup>1</sup> created during the household interview. Each observation contains data for the individual's respective household (data from a household with multiple members is repeated for each member). The dataset includes members from all eligible sampled households and all eligible women who were identified from the household interview, including eligible households that refused or did not complete the household interview for any reason and eligible women who refused or did not complete the female interview. Interview completion status is coded using two variables; *HHQ\_result* for household interviews and *FRS\_result* for female interviews.

---

<sup>1</sup> The member roster is a complete list of household members—usual member or spent the previous night in the household—developed during the household survey.

Each individual in the dataset has a unique ID called a *memberID*. Each household has a unique ID called the *metainstanceID*. Since the dataset is structured at the household-member level, there will be multiple observations from a household with duplicate household ID but there will be no missing *metainstanceID*. Each eligible woman in the dataset has an additional unique ID, *FQmetainstanceID*. There should be no duplicate *FQmetainstanceID* in the dataset.

### Inclusion Criteria for Analysis

Including relevant observations is critical for correct calculation of indicators. For all analyses at the household level, keep only one observation per household (*metainstanceID*<sup>2</sup>) and use completed interviews only. Similarly, all analyses using data collected from the female interviews must use female observations with completed household **and** female interviews. Female-level analyses are limited to the *de facto* population – women who slept in the household last night. Analysis using longitudinal data are limited to eligible households and *de facto* females who have completed more than one phase of the survey.

To achieve the household sample used in PMA cross sectional analysis, the following criteria are used:

1. Keep if *HHQ\_result* is completed
2. Keep only one observation per household by generating a variable that is 1 for the first member of each household and 0 for all others
3. To facilitate future analysis, save the household dataset in a separate folder on your computer, and provide it with a name that will be easy to identify. For the purpose of this handbook, when an analysis should be performed at the household level, the Stata sample code will begin with *use household, clear*

#### Sample Stata code:

```
keep if HHQ_result==1
egen metatag=tag(metainstanceID)
keep if metatag==1

save household.dta, replace
```

To achieve the *de facto* female sample used in PMA cross sectional analysis, the following criteria are thus used:

1. Keep if the household interview is complete (*HHQ\_result==1*)
2. Keep if the female interview is complete (*FRS\_result==1*)
3. Keep if the woman is *de facto* (*last\_night==1*)

---

<sup>2</sup> Rounds implemented in 2013–2016 use *usual\_member* variable, while all rounds 2017 and later use the *last\_night* variable.

4. To facilitate future analysis, save the *de facto* female dataset in a separate folder on your computer, and provide it with a name that will be easy to identify. For the purpose of this handbook, when an analysis should be performed at the female level, the Stata sample code will begin with *use female\_defacto, clear*

**Sample Stata code:**

```
keep if HHQ_result==1 & FRS_result==1 & last_night==1

save female_defacto, replace
```

### Response Rate

For the household, PMA calculates the response rates among all households that were contacted to participate in the PMA survey. PMA considers a household to have responded to the survey if they started and completed the survey.

To achieve the household response rate calculation, the following criteria are thus used:

1. Only keep one response per household (*metatag==1*) (Stata code to generate *metatag* is above)
2. Keep if a *household* was contacted for an interview (*HHQ\_result>=1* AND *HHQ\_result<6*)
3. Identify households that completed the survey (*HHQ\_result==1*)

**Sample Stata code (full household sample):**

```
keep if metatag==1
gen responserate=0 if HHQ_result>=1 & HHQ_result<6
replace responserate=1 if HHQ_result==1
label define responselist 0 "Not complete" 1 "Complete"
label val responserate responselist

tab responserate
```

For females, PMA calculates the response rates among all eligible women that were contacted to participate in the PMA survey and live in a household that completed a survey. PMA considers a female to have responded to the survey if she started and completed the survey.

To achieve the female response rate calculation, the following criteria are used:

1. Keep if woman is part of a household that completed the household survey (*HHQ\_result==1*)
2. Keep if woman is *de facto* (*last\_night==1*) and eligible (*eligible==1*)
3. Identify females that completed the female survey (*FRS\_result==1*)

### Sample Stata code (full female sample):

```
gen FQresponserate=0 if eligible==1 & last_night==1 & HHQ_result==1
replace FQresponserate=1 if FRS_result==1 & last_night==1 & HHQ_result==1
label define responselist 0 "Not complete" 1 "Complete"
label val FQresponserate responselist

tab FQresponserate
```

## Analysis and Interpretation: Cross Sectional Analysis

### Weighting

Survey weights are used to improve the representativeness of a sample when the sample does not match the target population due to varying sampling probabilities, oversampling, and non-response. Before the first phase of data collection, PMA collaborates with the national statistical organization (NSO) in each country to obtain a representative survey sample of EAs. EAs are selected with probability proportional to size using the master sampling frame stratified by urban-rural areas<sup>3</sup>. PMA receives the sampled EAs as well as their selection probabilities from the relevant organization. Additional information on the construction of the survey weights can be found in Annex 1.

The PMA Household and Female dataset includes three weights *HHweight*, *FQweight*, and *EAsweight*<sup>4</sup>. *HHweight* is used when performing an analysis at the household level (e.g., What percentage of households have flush toilets?). *FQweight* is used when doing a female-level analysis (e.g., What percent of women use a modern contraceptive method?). *EAsweight* can be used if the analyst would like to link the dataset with the SDP dataset or compare the household- and EA-level weights. PMA normalizes its weights so that number of weighted and unweighted respondents remain the same, however, the results are representative of the general population.

PMA weights should be identified as one of two weight types in Stata depending on the desired analysis. The first are *pweights*, or sampling weights, and are used when calculating population means. The second are *awweights*, or analytic weights, and are used when performing tabulations.

---

<sup>3</sup> The Democratic Republic of Congo does not have urban-rural stratification

<sup>4</sup> Weight variable names may vary depending on country and existence of sub-national estimates, as outlined in Appendix 2.

**Sample Stata code:**

```
tabulate FRS_result [aw=FQweight]
OR
prop cp [pw=FQweight]
```

To calculate appropriate confidence intervals, Stata needs to understand the sample design. At the start of each survey data analysis, a single command is used to identify the design elements of the survey. For subsequent commands, when we want the confidence intervals to account for the sample design, the design is prefixed with the *svy:* command. The command that identifies the sample design is named *svyset*<sup>5</sup>, which requires the following inputs:

1. Primary sampling unit variable<sup>6</sup>
2. Weight variable
3. Stratum variable<sup>7</sup>

**Sample Stata code for household-level analysis:**

```
use household.dta, clear

svyset EA_ID [pw=HHweight], strata(strata) singleunit(scaled)
OR
svyset EA_ID [pw=HHweight], singleunit(scaled)
```

**Sample Stata code for female-level analysis:**

```
use female_defacto.dta, clear

svyset EA_ID [pw=FQweight], strata(strata) singleunit(scaled)
OR
svyset EA_ID [pw=FQweight], singleunit(scaled)
```

### Presentation in the PMA Brief

The PMA Brief, [available on the country pages on the PMA website](#), presents trend data from PMA and PMA2020 surveys. For more information on PMA2020 and how PMA2020 calculates the indicators, consult the PMA2020 Analytical Handbook.

### Disaggregation

In addition to family planning and health indicators, PMA collects sociodemographic and geographic data. All household and female indicators in this handbook can be stratified by the

<sup>5</sup> Type 'help svyset' in Stata for additional information.

<sup>6</sup> EA\_ID in all countries except Nigeria, which uses clusters as the primary sampling unit (*Cluster\_ID*).

<sup>7</sup> Data from the Democratic Republic of Congo are not stratified. Appendix 2 contains a list of necessary variables for survey setting the data, disaggregated by country, region/state (if applicable), and round.

following respondent characteristics: marital status, education level, urban/rural status, age, household wealth status, and geographic region (depending on country).

**Marital Status** (*marital\_status*): The marital status of each member of the household, as reported by the household respondent. An additional question (*FQmarital\_status*), with the same response options, is included in the female questionnaire for verification. There are five possible responses and values in the dataset, the values are presented in parentheses below.

- Currently married (1): Married by the government or religious institution
- Currently living with partner (2): Living together with no formal civil or religious ceremony
- Divorced or separated (3): Married before, now divorced or separated
- Widow or widower (4): Married before, spouse died
- Never married (5): Never married before

**Education Level** (*school*): Highest level of formal education—excluding Bible, Koranic School, and short courses—attended for each eligible woman in the household, as reported by the female respondent at the time of the interview. Possible responses vary by country and include primary, secondary, post-secondary, and other intermediate levels in the formal school system. Technical or vocational training beyond primary school (coded: 1, 2, 3, 4, etc.) is also included.

**Urban/Rural Status** (*ur*): The urban (1)/rural (2) status of the EA in which the household was interviewed. PMA uses the urban/rural status that the NSO assigns the EA.

**Age** (*age*): Age of each member of the household, in years, as reported by the household respondent at the time of the interview. An additional question (*FQ\_age*), is included in the female questionnaire for verification. Ages can be combined into five-year age groups to facilitate analysis. The Stata code below will generate the following age groupings: 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49

**Sample Stata code:**

```
use female_defacto.dta, clear  
  
egen age5_fq=cut(FQ_age), at(15(5)50)
```

**Wealth Status** (*wealthquintile* or *wealthtertile*): Households are divided into either wealth quintiles or tertiles, based on the distribution of wealth in the sampled households.<sup>8</sup> (*wealthquintile* coded: 1, 2, 3, 4, 5; *wealthtertile* coded: 1, 2, 3). Quintiles and tertiles are created by distributing approximately equal percentages of households, using weights, from the variable *score*.<sup>9</sup> Wealth categories are created at the household level, not individual level; that

<sup>8</sup> Nigeria's wealth quintiles are calculated by state. DRC wealth quintiles are calculated separately for Kongo Central and Kinshasa.

<sup>9</sup> Each household is assigned a score based on the number of assets possessed. Households with a lower score are

is, approximately 20% (or 33%)<sup>10</sup> of households (one observation per household-weighted) are in each wealth category. Quintiles and tertiles are created by distributing approximately equal percentages of households, using weights, from the variable *score*. Each household is assigned a score (equal to the variable *score*) based on the number of assets possessed. Households with a lower score are placed into lower wealth quintiles or tertiles. At the population level (all observations), the distribution may be skewed.

**Geographic Region** (*region*<sup>11</sup>): Geographic region (or county) of the EA in which the household was interviewed. Not all PMA survey countries have information on the geographic region (county) of the survey<sup>12</sup> (coded: 1, 2, 3, 4, etc.).

In demographic sub-groups with small sample sizes, the estimates of PMA indicators may be numerically unstable and very imprecise. Therefore, it is important to check the number of people who responded to a given question before performing an analysis, and present confidence intervals with the data. The same is true when combining disaggregated information to get more information on a specific population. For example, because the number of women aged 15 to 19 years using contraceptives may be very small, it may not be recommended to report the percentage of women receiving their contraceptives from a public source because of the small denominator. In PMA publicly available indicator tables, results generated from between 25 and 50 unweighted women in the denominator are italicized, while results generated from fewer than 25 unweighted women in the denominator are replaced with “—”.

### Date Variables

All PMA datasets include date variables in string and Stata internal form (SIF). SIF variables are coded using the amount of time in milliseconds since 00:00:00 January 1, 1990 but may be displayed using many common date or time formats. Date variables are originally stored in string format and are converted to SIF format during the data cleaning process using one of two different Stata codes, depending on whether the variable includes information on hours, minutes, and seconds. Dates in SIF format are designated with SIF at the end of the variable name (for example: *birthdate* and *birthdateSIF*).

Date variables with hours, minutes, and seconds (*system\_date*, *FQsystem\_date*, *FQSubmissionDate*, *SubmissionDate*, *doi\_corrected*):

#### Sample Stata code\*:

```
gen double system_dateSIF=clock(system_date, "MDYhms")
format system_dateSIF %tc
```

\*Can be done with any of the listed variables

placed into lower wealth quintiles or tertiles. *score* variable generation information can be [found here](#).

<sup>10</sup> 20% for wealth quintiles and 33% for wealth tertiles

<sup>11</sup> *state* in Nigeria; *county* in Kenya

<sup>12</sup> Surveys without this variable include the Democratic Republic of Congo and Rajasthan.

Date variables without hours, minutes, and seconds (*birthdate*, *husband\_cohabit\_start\_first*, *husband\_cohabit\_start\_recent*, *first\_birth*, *recent\_birth*, *preg\_end\_date*, *begin\_using*, *stop\_using*):

**Sample Stata code\*:**

```
gen double birthdateSIF=date(birthdate, "MDY")
format birthdateSIF %td
```

\*Can be done with any of the listed variables

Dates are converted to SIF format to facilitate duration calculations during analysis. To calculate the elapsed time between two events (first birth and recent birth, for example):

1. Identify the unit of time that is best suited for the analysis (days, months, or years).
2. Subtract the time of the first event from that of the most recent event, specifying the unit of analysis.

If the unit of analysis is greater than days (months or years), subtract the two dates to get the number of days between the two dates and divide the resulting variable by the respective factor (30.5 for months assuming an average month length of 30 days, and 365.25 for years).

**Sample Stata code\*:**

```
gen double birth_intervalSIF=hours(recent_birthSIF ///
- first_birthSIF)
replace birth_intervalSIF=(birth_intervalSIF/730.5)
```

### Missing Data

Missing data are either coded as "." or are coded as either -77 (Not Applicable), -88 (Do not know), or -99 (No Response). Annex 6 provides a summary of how PMA deals with missing data for the purpose of Key Indicator Report generation.

For the purpose of percentage analysis only, all missing data are temporarily recoded to equal 0.<sup>13</sup> This is done so that the number of potential respondents (n) to a set of related questions remains consistent. Since PMA does not report on the proportion of people who responded "No" to a question in its publications, the recoding of missing data does not have an effect on proportions.

---

<sup>13</sup> This step is performed for key indicator report generation. Missing data are not recoded in the publicly released datasets.

## Interpreting Results: Cross Sectional Analysis

PMA data [can be used for various analytical purposes](#). The analyses that are most commonly used by the PMA team to generate publicly available materials using a cross-sectional analysis are one- and two-way tabulations and proportion calculations.

### Tabulation: One Way

A one-way tabulation presents frequency and count for a single variable. One-way tabulations are most effective when used to analyze categorical variables. Uses analytical weights (*aweight*) during analysis.

```
. tabulate cp [aw=FQweight]
```

```
Current use of |  
  any |  
contraceptive |  
  method |  Freq.  Percent  Cum.  
-----+-----  
  0. no | 2,528.632  72.00  72.00  
  1. yes | 983.367992  28.00  100.00  
-----+-----  
Total | 3,512  100.00
```

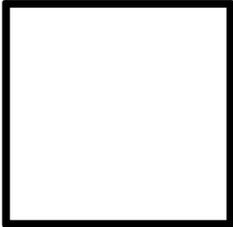
#### Interpretation:

72% of the population is estimated to not be currently using contraception, while 28% are estimated to be currently using a contraceptive method

Current use of any contraceptive method	Freq.	Percent	Cum.
0. no	2,528.632	72.00	72.00
1. yes	983.367992	28.00	100.00
Total	3,512	100.00	

Current use of any contraceptive method	Freq.	Percent	Cum.
0. no	2,528.632	72.00	72.00
1. yes	983.367992	28.00	100.00
Total	3,512	100.00	

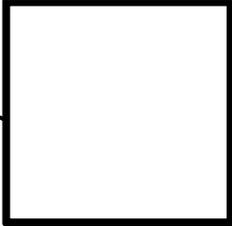
Current use of   any   contraceptive   method	Freq.	Percent	Cum.
0. no	2,528.632	72.00	72.00
1. yes	983.367992	28.00	100.00
Total	3,512	100.00	



Weighted  
percent of  
respondents in  
each category

Current use of   any   contraceptive   method	Freq.	P	Cum.
0. no	2,528.632		
1. yes	983.367992	28.00	100.00
Total	3,512	100.00	

Cumulative  
percent of  
respondents in  
each category



### Tabulation: Two Way

A two-way tabulation presents overlap count data for two variables and has the option to present measures of association. Two-way tabulations are most effective when used to analyze categorical variables. Uses analytical weights (*aweight*) during analysis. To display percentages, *column* and/or *row* must be specified.

```
. tabulate school cp [aw=FQweight], row
```

```
+-----+
| Key      |
+-----+
| frequency |
| row percentage |
+-----+

          | Current use of any
Highest level of | contraceptive method
school attended | 0. no  1. yes | Total
-----+-----+-----
0. never | 1,665.854  572.09356 | 2,237.948
          | 74.44   25.56 | 100.00
-----+-----+-----
1. primary | 380.00611  190.22434 | 570.23045
          | 66.64   33.36 | 100.00
-----+-----+-----
2. secondary_1cycle | 368.31345  144.5489 | 512.86234
          | 71.82   28.18 | 100.00
-----+-----+-----
3. secondary_2cycle | 80.2461  48.089807 | 128.33591
          | 62.53   37.47 | 100.00
-----+-----+-----
4. tertiary | 31.694277  27.929383 | 59.62366
          | 53.16   46.84 | 100.00
-----+-----+-----
Total | 2,526.114  982.88599 | 3,509
          | 71.99   28.01 | 100.00
```

#### Interpretation:

25.6% of the population who never attended school currently use contraception. In contrast, 46.8% of women who have higher levels of education (tertiary) currently use a contraceptive method.

```

+-----+
| Key    |
+-----+
| frequency |
| row percentage |

```

Provides information about what is included in the table; does not appear if *row* or *column* are not specified

	Current use of any contraceptive method	Highest level of school attended	Total
	0. no	yes	
0. never	1,665.854	572.09356	2,237.948
	74.44	25.56	100.00
1. primary	380.00611	190.22434	570.23045
	66.64	33.36	100.00
2. secondary_1cycle	368.31745	144.5489	512.86635
	71.82	28.18	100.00
3. secondary_2cycle	80.2461	48.089807	128.33591
	62.53	37.47	100.00
4. tertiary	31.604277	27.929383	59.53366
	53.16	46.84	100.00
Total	2,526.114	982.88599	3,509
	71.99	28.01	100.00

Variable and category names or labels for the second variable in

Variable and category names or labels for the first variable in the

	Current use of any		
Highest level of school attended	0. no	1. yes	Total
0. never	1,665.854	572.09356	2,237.948
	74.44	25.56	100.00
1. primary	380.00611	190.22434	570.23045
	66.64	33.36	100.00
2. secondary_1cycle	368.31345	144.5489	512.86234
	71.82	28.18	100.00
3. secondary_2cycle	80.2461	48.089807	128.33591
	62.53	37.47	100.00
4. tertiary	31.694277	27.929383	59.62366
	53.16	46.84	100.00
Total	2,526.114	982.88599	3,509
	71.99	28.01	100.00

Weighted frequency and percent who both never went to school and do not currently use a contraceptive method

Total frequency and weighted percent of respondents who currently do not use a contraceptive method

	Current use of any		
Highest level of school attended	0. no	1. yes	Total
0. never	1,665.854	572.09356	2,237.948
	74.44	25.56	100.00
1. primary	380.00611	190.22434	570.23045
	66.64	33.36	100.00
2. secondary_1cycle	368.31345	144.5489	512.86234
	71.82	28.18	100.00
3. secondary_2cycle	80.2461	48.089807	128.33591
	62.53	37.47	100.00
4. tertiary	31.694277	27.929383	59.62366
	53.16	46.84	100.00
Total	2,526.114	982.88599	3,509
	71.99	28.01	100.00

Frequency and percent of respondents who both never attended school and currently use a contraceptive method

Total frequency of respondents who attended secondary school

Total number of respondents answering both questions

## Proportions and Confidence Intervals

The following presents Stata code and interpretation for proportion, standard error, and confidence interval for a specified binary variable, using the Wilson method approach (*citype(wilson)*)<sup>14</sup>. This approach enables PMA to obtain an asymmetric confidence interval that is appropriate for a proportion and bounded by 0 and 100%. In other words, the Wilson method assures that the confidence intervals for estimations near 0 or 100% do not go below 0 or above 100% for small populations. Additionally, Wilson confidence intervals do not vary greatly from symmetrical confidence interval estimations (Wald for example) when the populations are large and the estimations are near 50%. These properties make the Wilson method well appropriated for PMA data. With survey data, the dataset needs to be survey set before analysis and the *svy:* command must be used.

```
. svy: proportion cp, citype(wilson)
(running proportion on estimation sample)
```

Survey: Proportion estimation

```
Number of strata = 2   Number of obs = 3,512
Number of PSUs = 83   Population size = 3,512
Design df = 81
```

```
_prop_1: cp = 0. no
_prop_2: cp = 1. yes
```

```
-----+-----
      |      Linearized      Wilson
      | Proportion Std. Err. [95% Conf. Interval]
-----+-----
cp    |
_prop_1 | .7199977 .0177253 .6834634 .7538341
_prop_2 | .2800023 .0177253 .2461659 .3165366
-----+-----
```

### Interpretation:

28.0% (95% confidence interval (CI): 24.6, 31.7) of respondents use a contraceptive method

```
-----+-----
      |      Linearized      Wilson
      | Proportion Std. Err. [95% Conf. Interval]
-----+-----
cp    |
_prop_1 | .7199977 .0177253 .6834153 .753875
_prop_2 | .2800023 .0177253 .2461247 .316584
-----+-----
```

Proportion of respondents not using (*\_prop\_1*) and using (*\_prop\_2*) a contraceptive method (multiply by 100 to get the percentage)

<sup>14</sup> Stata 15 and above

	Linearized	Std. Err.	Wilson	[95% Conf. Interval]
cp				
_prop_1	.7199977	.0177253	.6834153	.7538743
_prop_2	.2800023	.0177253	.2461659	.3165346

Standard error  
(provides an estimation  
of how precise the  
mean estimation is)

	Linearized	Wilson	[95% Conf. Interval]
cp			
_pr			.34 .753834
_pr			.59 .316536

95% CI for the proportion  
(95% confident that the  
true population proportion  
lies within this interval)

## Indicators

### Section 1: Contraceptive Use, Dynamics, and Demand

#### Modern Contraceptive Prevalence

**Description:** Percent of women ages 15 to 49 years who are using (or whose partners are using) any modern contraceptive method at the time of the survey.

**Definition of Terms:**

*Modern Contraceptive Method*<sup>15</sup> – Contraceptive methods differ by country, depending on approved and available methods in the country, and could include: female sterilization, male sterilization, implants, IUDs, injectables<sup>16</sup>, pills, emergency contraception, male condoms, female condoms, diaphragms, foam, beads, N tablet, and lactational amenorrhea method (LAM).

**Calculation:**

$$mCP = \frac{\text{Weighted number of modern contraceptive users}}{\text{Weighted number of women ages 15 to 49 years}} \times 100$$

**Numerator:** Weighted number of women who are using (or whose partners are using) a modern contraceptive method

**Denominator:** Weighted number of women ages 15 to 49 years

**Data Source:** PMA/Core Female Questionnaire, all respondents

**Questions:**

1. “Are you or your partner currently doing something or using any method to delay or avoid getting pregnant?”
2. IF YES, “Which method or methods are you using?”

**Variable:** *mcp*. *mcp* is a binary variable generated by PMA to indicate use or non-use of a modern contraceptive method. It is constructed as below:

1. All women who report that they are currently using a modern method of contraception are coded as a user (*mcp*=1) with the exception of point 3 (below).
2. All women who report that they are not currently using a method of contraception but did use emergency contraception (EC) as the most effective contraceptive method in the previous 12 months according to the contraceptive calendar, are coded as a user (*mcp*=1).
3. All women who report currently using LAM as the most effective method **and** meet two of the three criteria for practicing LAM correctly—those who are less than six months postpartum **and**

---

<sup>15</sup> In the PMA core survey, modern methods are coded as <30 while traditional methods are coded as >30.

<sup>16</sup> Currently, there are three principle injectable contraceptives available to contraceptive users: a 1-month injectable, a 3-month injectable, and a subcutaneous injectable. The type of injectable included in the questionnaire depends on its availability in the survey country.

who report that their menstrual cycle has not returned—are coded as a user (*mcp*=1). Women who report LAM but are either more than six months postpartum and/or report that their menstrual cycle has returned since the last birth are recoded to traditional users and are not considered *mcp* users (*mcp*=0).

4. Women who report that they are using a method of contraception but do not report the type of method are considered to be contraceptive users (*cp*=1) but not modern contraceptive users (*mcp*=0), as the type cannot be determined.

**Analysis:**

*Weight* – *FQweight*

*Suggested stratifiers* – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear  
  
tabulate mcp [aw=FQweight]
```

**Notes:**

The surveys do not necessarily capture women who ever used EC in the past 12 months. Thus, the adjustment regarding EC use (point 2 under variable) is minimal. The adjustment regarding LAM (point 3 under variable) also has minimal impact on the estimate, since reported LAM use as the most effective method is typically low.

PMA has a separate question for EC use in the last 12 months: “Have you used emergency contraception at any time in the last 12-months?”. However, this question is not included in the contraceptive use calculation.

## Short-Acting Contraceptive Prevalence

**Description:** Percent of women ages 15 to 49 years who are using (or whose partners are using) a short-acting contraceptive method

Definition of Terms:

*Short-acting contraceptive method*<sup>17</sup> – Contraceptive methods include: injectables (intra-muscular and subcutaneous), pill, EC, male condoms, female condoms, LAM, diaphragm, foam/jelly, standard days method

**Calculation:**

$$\text{Short-Acting CP} = \frac{\text{Weighted Number of short-acting or contraceptive users}}{\text{Weighted Number of women ages 15 to 49 years}} \times 100$$

**Numerator:** Weighted number of women who are using (or whose partners are using) a short-acting contraceptive method

**Denominator:** Weighted number of women aged 15 to 49 years

**Data Source:** PMA/Core Female Questionnaire, all respondents

*Questions:*

“Are you or your partner currently doing something or using any method to delay or avoid getting pregnant?”

IF YES, “Which method or methods are you using?”

**Variable:**

Construct using *current\_methodnum\_rc*, the recoded method mix variable.

### Sample Stata code (*de facto* women only)\*:

```
use female_defacto.dta, clear

gen shortacting=current_methodnum_rc>4 & current_methodnum_rc<30 &
current_methodnum_rc!=-99

save female_defacto_shortacting.dta, replace
```

\* For the purpose of this manual only, each time a new variable is generated, the Stata box will create a new dataset. This is shown to help differentiate between analyses that can be performed on the publicly released dataset and analyses that can only be performed after generating new variables

<sup>17</sup> In the PMA core survey, short-acting methods are coded as  $\geq 5$  &  $< 30$

**Analysis:**

Weight – *FQweight*

*Suggested stratifiers* – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status

**Sample Stata code (*de facto* women only):**

```
use female_defacto_shortacting.dta, clear  
  
tabulate shortacting [aw=FQweight]
```

## Long-Acting Reversible or Permanent Contraceptive Prevalence

**Description:** Percent of women ages 15 to 49 years who are using (or whose partners are using) a long-acting reversible or permanent contraceptive method

### Definition of Terms:

*Long-acting reversible or permanent contraceptive method*<sup>18</sup> – Contraceptive methods include: IUD, implants, and male and female sterilization

### Calculation:

$$\text{Long-acting reversible or permanent CP} = \frac{\text{Weighted Number of long-acting or permanent contraceptive users}}{\text{Weighted Number of women ages 15 to 49 years}} \times 100$$

**Numerator:** Weighted number of women who are using (or whose partners are using) a long-acting reversible or permanent contraceptive method

**Denominator:** Weighted number of women ages 15 to 49 years

**Data Source:** PMA/Core Female Questionnaire, all respondents

### Questions:

1. “Are you or your partner currently doing something or using any method to delay or avoid getting pregnant?”
2. IF YES, “Which method or methods are you using?”

### Variable:

Construct using *current\_methodnum\_rc*, the recoded method mix variable.

### Sample Stata code (*de facto* women only)\*:

```
use female_defacto.dta, clear

gen longacting=current_methodnum_rc<=4 & current_methodnum_rc!=-99

save female_defacto_longacting.dta, replace
```

### Analysis:

Weight – *FQweight*

<sup>18</sup> In the PMA core survey, long-acting reversible methods are coded as ≤4.

*Suggested stratifiers* – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status

**Sample Stata code (*de facto* women only):**

```
use female_defacto_longacting.dta, clear  
  
tabulate longacting [aw=FQweight]
```

## Traditional Contraceptive Prevalence

**Description:** Percent of women ages 15 to 49 years who are using (or whose partners are using) a traditional contraceptive method

### Definition of Terms:

*Traditional contraceptive method*<sup>19</sup> – Contraceptive methods include: Rhythm and Withdrawal

### Calculation:

$$\text{Traditional CP} = \frac{\text{Weighted Number of traditional contraceptive users}}{\text{Weighted Number of women ages 15 to 49 years}} \times 100$$

**Numerator:** Weighted number of women who are using (or whose partners are using) a traditional contraceptive method

**Denominator:** Weighted number of women ages 15 to 49 years

**Data Source:** PMA/Core Female Questionnaire, all respondents

### Questions:

1. “Are you or your partner currently doing something or using any method to delay or avoid getting pregnant?”
2. IF YES, “Which method or methods are you using?”

### Variable:

Construct using *current\_methodnum\_rc*, the recoded method mix variable.

### Sample Stata code (*de facto* women only)\*:

```
use female_defacto.dta, clear

gen traditional=current_methodnum_rc>=30 & current_methodnum_rc!=-99

save female_defacto_traditional.dta, replace
```

### Analysis:

Weight – *FQweight*

---

<sup>19</sup> In the PMA core survey, traditional methods are coded as ≥ 30.

*Suggested stratifiers* – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status

**Sample Stata code (*de facto* women only):**

```
use female_defacto_traditional.dta, clear  
  
tabulate traditional [aw=FQweight]
```

## Modern Contraceptive Method Mix

**Description:** Composition of current modern methods used by women ages 15 to 49 years

**Definition of Terms:** NA

**Calculation:**

$$\text{Method mix} = \frac{\text{Weighted number of women using a specific modern method}}{\text{Weighted number of women using a modern contraceptive method ages 15 to 49 years}} \times 100$$

**Numerator:** The numerator for method mix is composed of the weighted number of women using:

1. Female sterilization
2. Male sterilization
3. Implants
4. IUD
5. Injectables
6. Pills
7. Emergency contraception
8. Male condoms
9. Female condoms
10. Diaphragms
11. Foam
12. Beads
13. LAM
14. Injectables – subcutaneous (when offered)

**Denominator:** Weighted number of women using a modern contraceptive method ages 15 to 49 years

**Data Source:** PMA/Core Female Questionnaire, all respondents

**Questions:**

1. “Are you or your partner currently doing something or using any method to delay or avoid getting pregnant?”
2. IF YES, “Which method or methods are you using?”

**Variable:** *current\_methodnum* and *current\_methodnum\_rc*. *current\_methodnum* is a categorical variable as reported by the respondent to indicate the number of women ages 15 to 49 years using each modern contraceptive method, defined as the woman’s most effective current contraceptive method. It is constructed using *current\_method*, which is a string variable representing a woman’s current method(s). *current\_methodnum\_rc* is the reclassified method

mix (reclassification outlined below) used by PMA to generate the method mix and includes women reclassified.

The following methods are recoded based on respondents' responses:

*Recode DMPA-SC:* In countries where subcutaneous injectables, subcutaneous Depot-medroxyprogesterone acetate (DMPA-SC), are introduced, it is important to know the type of injectables that women use. PMA recodes women as using subcutaneous injectables when they report using injectables **and** report having been given the injection via a small needle rather than a syringe. Coded as 16 in *current\_methodnum\_rc*.

*Recode emergency contraception:* Women may not consider themselves to be current users of emergency contraception if they were not sexually active near the time of the survey. Therefore, to avoid under-reporting of emergency contraceptive use, PMA recodes its contraceptive method variable to include women who report using emergency contraception as their most effective method in the last 12 months (identified using the first 12 characters besides commas in *calendar\_c1\_full*).

*Recode lactational amenorrhea method:* In order for a woman to meet the definition of using LAM, she must have given birth within the six months previous to the survey and be amenorrhoeic at the time of the survey. Additional criteria of exclusive breastfeeding and breastfeeding on demand are not evaluated in PMA. Therefore, to avoid over-reporting LAM, PMA recodes its contraceptive prevalence rate to exclude women who report using LAM but who either gave birth more than six months previous to the survey or who are not amenorrhoeic. These women are recoded to be traditional contraceptive users.

**Analysis:**

*Weight – FQweight*

*Suggested stratifiers – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status*

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear

tabulate current_methodnum_rc [aw=FQweight]
```

**Notes:** Women may be using more than one method. The variable *current\_method* is a string, multi-select variable that includes multiple methods. For calculation of the method mix, women are categorized as using only one method based on the most effective method that they report, thus, the sum of method mix is 100%. While Family Planning 2020 (FP2020) monitors modern contraceptive method mix, method mix can be calculated among all women who use any method, including traditional methods.

It is also possible to calculate the percentage of current female users using a specific contraceptive method. To do this, PMA includes a variable for each method listed above in the dataset. They are:

*femalester*  
*malester*  
*implant*  
*IUD*  
*injectables*  
*pill*  
*EC*

*malecondoms*  
*femalecondoms*  
*LAM*  
*diaphragm*  
*foamjelly*  
*stndrddays*

**Sample Stata code (*de facto* women only)\*:**

```
use female_defacto.dta, clear  
  
tabulate femalester if mcp==1 [aw=FQweight]
```

\* This Stata code can be performed on any of the above variables

## Unmet Need

**Description:** The percentage of fecund women ages 15 to 49 years who want no more children or want to postpone having the next child, or who wanted to postpone or have no more children at the time of the last pregnancy but are not using a contraceptive method.

### Definition of Terms:

The following diagram outlines the definition/calculation of unmet need<sup>20</sup>. Even though the diagram is only for married women, PMA's calculation of unmet need among all women follows the same logic:

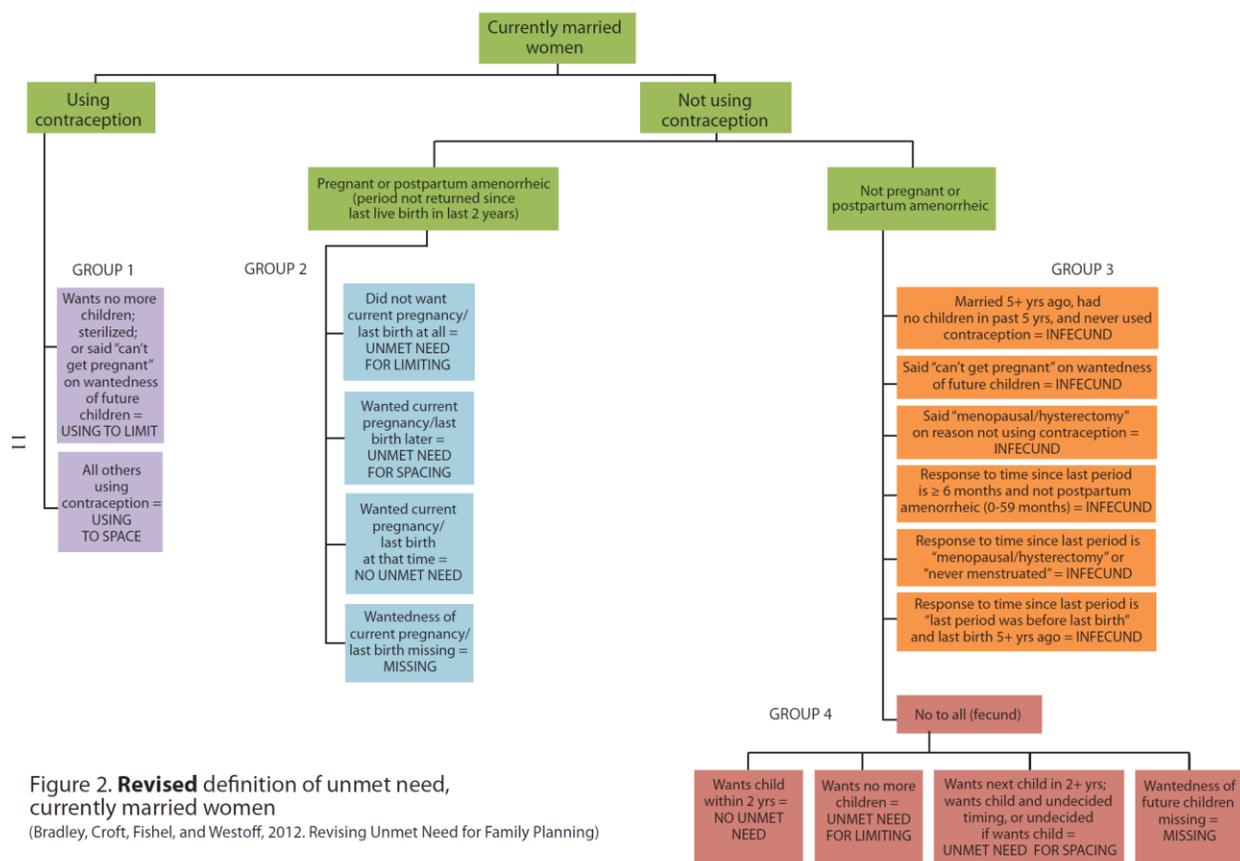


Figure 2. **Revised** definition of unmet need, currently married women  
 (Bradley, Croft, Fishel, and Westoff, 2012. Revising Unmet Need for Family Planning)

### Calculation:

$$\text{Unmet need} = \frac{\text{Weighted number of women with unmet need}}{\text{Weighted number of women ages 15 to 49 years}} \times 100$$

<sup>20</sup> Bradley, Sarah E.K., Trevor N. Croft, Joy D. Fishel, and Charles F. Westoff. 2012. Revising Unmet Need for Family Planning. DHS Analytical Studies No. 25. Calverton, Maryland, USA: ICF International.

**Numerator:** The numerator for unmet need includes the following:

1. Weighted number of women ages 15 to 49 years who are not using any contraception, are fecund<sup>21</sup>, and want no more children or want to postpone having children
2. Weighted number of women ages 15 to 49 years whose current pregnancy was unwanted or mistimed
3. Weighted number of women ages 15 to 49 years in postpartum amenorrhea who are not using contraception and who wanted to delay or prevent the most recent pregnancy

**Denominator:** Weighted number of women ages 15 to 49 years

**Data Source:** PMA/Core Female Questionnaire, all respondents

*Questions:*

1. "When did your last menstrual period start?"
2. "Are you or your partner currently doing something or using any method to delay or avoid getting pregnant?" IF YES, "Which method or methods are you using?"
3. "Would you like to have a/another child, or would you prefer not to have any/any more children?"
4. "How long would you like to wait from now before the birth of a/another child?"
5. "At the time you became pregnant, did you want to become pregnant then, did you want to wait until later, or did you not want to have any/any more children at all?"
6. "You said that you do not want any/anymore children and that you are not using a method to avoid pregnancy. Can you tell me the reason why you are not using a method to prevent pregnancy?"
7. "When was the last time you had sexual intercourse?"

Additional information to calculate infecundity/postpartum infecundability is taken from questions establishing last menstrual period, date of last birth, and date of first marriage.

**Variable:**

The variable *unmet* has multiple categories, which are generated from a woman's responses to the seven aforementioned questions:

1. unmet need for spacing
2. unmet need for limiting
3. using for spacing
4. using for limiting
5. no unmet need
6. infecund or menopausal
7. not sexually active

*unmettot* is a binary categorization of *unmet*, where women in categories 1 and 2 above are defined as 1 and all others as 0.

---

<sup>21</sup> Unmarried women are considered fecund only if they have had sex in the last 30 days

**Analysis:**

Weight – *FQweight*

*Suggested stratifiers* – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear

tabulate unmet [aw=FQweight]
```

**Notes:** There is no question in the PMA Core Female survey that directly asks about a women’s unmet need for contraception. Rather, the indicator is constructed using information collected throughout the survey including: (1) desire for additional children and desired length of birth interval; (2) contraceptive status based on all methods, including both modern and traditional; (3) fecundity, pregnancy, and amenorrhea status for women not using contraception; (4) intention (number and/or timing) of current/last pregnancy; and (5) contraceptive use at time of current/last conception. FP2020 monitors unmet need based on modern method use (Core Indicator 3).

*Unmet need breakdown***Description:**

**Unmet need for spacing** (*unmet=1*) is defined as the percentage of women ages 15 to 49 years who want to postpone having the next child or who wanted to postpone having children at the time of the last pregnancy but are/were not using a contraceptive method.

**Unmet need for limiting** (*unmet=2*) is defined as the percentage of women ages 15 to 49 years who want to have no more children or who wanted to have no more children at the time of the last pregnancy but are/were not using a contraceptive method.

**Analysis:****Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear

tabulate unmet [aw=FQweight]
```

## Total Demand for Family Planning

**Description:** Percent of women ages 15 to 49 years who either have an unmet need or are using a contraceptive method.

**Definition of Terms:** NA

**Calculation:**

$$\text{Total demand} = \frac{\text{Weighted number of women who are using a contraceptive method or who have an unmet need}}{\text{Weighted number of women ages 15 to 49 years}} \times 100$$

**Numerator:**

1. Weighted number of women who are using a contraceptive method, either traditional or modern
2. Weighted number of women with unmet need for spacing
3. Weighted number of women with unmet need for limiting

**Denominator:** Number of women ages 15 to 49 years

**Data Source:** PMA/Core Female Questionnaire, all respondents

There is no question in the PMA2020 survey that directly asks about a women's demand for contraception. Rather the indicator is constructed using contraceptive use (*cp*) and unmet need (*unmettot*).

**Variable:** *cp* and *unmettot*

**Analysis:**

*Weight* – *FQweight*

*Suggested stratifiers* – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status

### Sample Stata code (*de facto* women only):

```
use female_defacto.dta, clear

gen totaldemand=0
replace totaldemand=1 if cp==1 | unmettot==1
label variable totaldemand "Has demand for family planning"

save female_defacto_totaldemand.dta, replace

tabulate totaldemand [aw=FQweight]
```

**Notes:** *cp* and *unmettot* can be combined to create a variable for total demand.

## Total Demand Satisfied by Modern Method

**Description:** Percentage of women ages 15 to 49 years with a demand for family planning who are using a modern method.

**Definition of Terms:** NA

**Calculation:**

$$\text{Total demand satisfied by modern method} = \frac{\text{Weighted number of modern contraceptive users}}{\text{Weighted number of women ages 15 to 49 years with a demand for family planning}} \times 100$$

**Numerator:** Weighted number of women using modern contraception

**Denominator:** Weighted number of women ages 15 to 49 years with a demand for contraception (either using contraception or have unmet need)

**Data Source:** PMA/Core Female Questionnaire, respondents with a demand for family planning. There is no question in the PMA2020 survey that directly asks about a women's satisfied demand for modern contraception. Rather, the indicator is constructed using total demand and modern contraceptive use.

**Variable:** *totaldemand*<sup>22</sup> and *mcp*

**Analysis:**

*Weight* – *FQweight*

*Suggested stratifiers* – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status

**Notes:** *totaldemand* and *mcp* can be combined to create a variable for total demand

### Sample Stata code (de facto women only):

```
use female_defacto_totaldemand.dta, clear

gen totaldemand_sat=0
replace totaldemand=1 if totaldemand==1 & mcp==1
label variable totaldemand_sat ///
    "Demand for family planning satisfied by modern method"

tabulate totaldemand_sat [aw=FQweight]
```

satisfied

<sup>22</sup> Not in original dataset, construction outlined above under total demand.

## 12-Month Discontinuation Rate

**Description:** Percent of contraceptive episodes started within the two years preceding the survey that were stopped within 12 months of commencing use

**Definition of Terms:**

A contraceptive episode is a period of use of a particular method. An individual woman can contribute multiple episodes to the calculation

**Calculation:**

$$12\text{-Month Discontinuation Rate} = \frac{\text{Weighted number of episodes of use discontinued within 12 months of commencing the episode}}{\text{Weighted number of episodes of use commenced within the 24 months preceding the survey}} \times 100$$

**Numerator:** Weighted number of episodes of use discontinued within 12 months of commencing the episode of use

**Denominator:** Weighted number of episodes of use commenced within the 24 months preceding the survey

**Data Source:** PMA/Core Female Questionnaire, all respondents  
*Contraceptive Calendar*

Female Questionnaire



**CONTRACEPTIVE CALENDAR:** please enter answers from visual aid paper

**COL. 1 Codes – Births / Pregnancies**

Birth.....	B
Pregnancy.....	P
Termination.....	T

**COL. 1 Codes – Family Planning Use**

No method used.....	0
Female Sterilization .....	1
Male Sterilization.....	2
Implant .....	3
IUD .....	4
Injectables.....	5
Pill .....	7
Emergency Contraception .....	8
Male Condom.....	9
Female Condom .....	10
Diaphragm .....	11
Foam/Jelly.....	12
Std. Days/Cycle beads.....	13
LAM.....	14
Rhythm method.....	30
Withdrawal .....	31
Other traditional methods.....	39

**COL. 2 Codes – Discontinuation**

Infrequent sex / husband away .....	1
Became pregnant while using.....	2
Wanted to become pregnant.....	3
Husband / partner disapproved.....	4
Wanted more effective method .....	5
Side effects / health concerns.....	6
Lack of access / too far .....	7
Costs too much .....	8
Inconvenient to use.....	9
Up to god / fatalistic .....	10
Difficult to get pregnant / menopausal .....	11
Marital dissolution / separation .....	12
Other .....	39

				COL. 1	COL. 2		
	2020	12	DEC	01			2020
		11	NOV	02			
		10	OCT	03			
		09	SEP	04			
		08	AUG	05			
		07	JUL	06			
		06	JUN	07			
		05	MAY	08			
		04	APR	09			
		03	MAR	10			
		02	FEB	11			
		01	JAN	12			
<hr/>							
	2019	12	DEC	13			2019
		11	NOV	14			
		10	OCT	15			
		09	SEP	16			
		08	AUG	17			
		07	JUL	18			
		06	JUN	19			
		05	MAY	20			
		04	APR	21			
		03	MAR	22			
		02	FEB	23			
		01	JAN	24			
<hr/>							
	2018	12	DEC	25			2018
		11	NOV	26			
		10	OCT	27			
		09	SEP	28			
		08	AUG	29			
		07	JUL	30			
		06	JUN	31			
		05	MAY	32			
		04	APR	33			
		03	MAR	34			
		02	FEB	35			
		01	JAN	36			

**Variable:** *calendar\_c1\_full* and *calendar\_c2\_full* can be combined to generate a dataset that includes the total discontinuation rate and discontinuation rates by reason. The following information is also required for calculating discontinuation rates<sup>23</sup>:

<sup>23</sup> Available by country in Annex 5

- First year of the calendar: The first year of the calendar is 2 years preceding the survey year. For example, if a survey was implemented in 2019, then the first year of the calendar would be 2017. To identify the survey year, sort the data using *doi\_corrected*, and identify the earliest calendar year in which the survey was implemented
- Last year of the calendar: The last year of the calendar is the year in which the survey was implemented, unless the survey rolled out in November or December. If the survey rolled out in November or December, the last year of the calendar is the following year, for example 2020 if the survey rolled out in November 2019 (see above on how to identify survey roll-out)
- Calendar length: Calendar length in months, either 36 or 48. All PMA countries are 36 months, unless the survey rolled out in November or December. If the survey rolled out in November or December, the calendar length is 48.

**Analysis:** The Stata code for generating discontinuation rates is available on PMA's Public GitHub repository [PMA Analyses Public](#)

## Reasons for Discontinuation

**Description:** Reasons for discontinuation among contraceptive episodes started within the two years preceding the survey that were stopped within 12 months of commencing use

### Definition of Terms:

Potential reasons for discontinuation include the following:

1. Experienced method failure
2. Concerned over side effects or health
3. Had fertility related reasons
4. Wanted a more effective method
5. Other method-related reasons
6. Other/don't know

### Calculation:

$$12\text{-Month Discontinuation Rate by Reason} = \frac{\text{Weighted number of episodes of use discontinued within 12 months of commencing the episode that were discontinued for each specific reason}}{\text{Weighted number of episodes of use commenced within the 24 months preceding the survey that were discontinued within 12 months of commencing the episode}} \times 100$$

**Numerator:** Weighted number of episodes of use discontinued within 12 months of commencing the episode of use that were discontinued for each specific reason

**Denominator:** Weighted number of episodes of use commenced within the 24 months preceding the survey that were discontinued within 12 months of commencing the episode

**Variable:** *calendar\_c1\_full* and *calendar\_c2\_full* can be combined to generate a dataset that includes the total discontinuation rate and discontinuation rates by reason. The following information is also required for calculating discontinuation rates<sup>24</sup>:

- First year of the calendar: The first year of the calendar is 2 years preceding the survey year. For example, if a survey was implemented in 2019, then the first year of the calendar would be 2017. To identify the survey year, sort the data using *doi\_corrected*, and identify the earliest calendar year in which the survey was implemented
- Last year of the calendar: The last year of the calendar is the year in which the survey was implemented, unless the survey rolled out in November or December. If the survey

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<sup>24</sup> Available by country in Annex 5

rolled out in November or December, the last year of the calendar is the following year, for example 2020 if the survey rolled out in November 2019 (see above on how to identify survey roll-out)

- Calendar length: Calendar length in months, either 36 or 48. All PMA countries are 36 months, unless the survey rolled out in November or December. If the survey rolled out in November or December, the calendar length is 48.

**Analysis:** The Stata code for generating discontinuation rates is available on PMA's Public GitHub repository [PMA Analyses Public](#)

## Reasons for Discontinuation – Switched Methods

**Description:** Contraceptive episodes started within the two years preceding the survey that were stopped within 12 months of commencing use and were stopped to switch to a different method

### Definition of Terms:

Method switching means that when a woman stopped using one method, she switched to a different contraceptive method without any break between the use of the two methods

### Calculation:

$$12\text{-Month Discontinuation Rate} = \frac{\text{Weighted number of episodes of use discontinued within 12 months of commencing the episode that were discontinued to switch to a new method}}{\text{Weighted number of episodes of use commenced within the 24 months preceding the survey that were discontinued within 12 months of commencing the episode}} \times 100$$

**Numerator:** Weighted number of episodes of use discontinued within 12 months of commencing the episode of use that were discontinued to switch to a new method

**Denominator:** Weighted number of episodes of use commenced within the 24 months preceding the survey that were discontinued within 12 months of commencing the episode

**Variable:** *calendar\_c1\_full* and *calendar\_c2\_full* can be combined to generate a dataset that includes the total discontinuation rate and discontinuation rates by reason. The following information is also required for calculating discontinuation rates<sup>25</sup>:

- First year of the calendar: The first year of the calendar is 2 years preceding the survey year. For example, if a survey was implemented in 2019, then the first year of the calendar would be 2017. To identify the survey year, sort the data using *doi\_corrected*, and identify the earliest calendar year in which the survey was implemented
- Last year of the calendar: The last year of the calendar is the year in which the survey was implemented, unless the survey rolled out in November or December. If the survey rolled out in November or December, the last year of the calendar is the following year, for example 2020 if the survey rolled out in November 2019 (see above on how to identify survey roll-out)
- Calendar length: Calendar length in months, either 36 or 48. All PMA countries are 36

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<sup>25</sup> Available by country in Annex 5

months, unless the survey rolled out in November or December. If the survey rolled out in November or December, the calendar length is 48.

**Analysis:** The Stata code for generating discontinuation rates is available on PMA's Public GitHub repository [PMA Analyses Public](#)

## Recent Births/Pregnancies Unintended

**Description:** Percentage of most recent births in the past five years, including current pregnancies, to females ages 15 to 49 years that are reported to be mistimed (wanted later) or unwanted.

**Definition of Terms:** NA

**Calculation:**

$$\text{Recent births unintended} = \frac{\text{Weighted number of women currently pregnant or haven't given birth in the past 5 years, reporting the pregnancy or latest birth was unwanted or mistimed}}{\text{Weighted number of women ages 15 to 49 years, currently pregnant or who have given birth in the past 5 years}} \times 100$$

**Numerator:**

1. Weighted number of women who are currently pregnant and report that the pregnancy was unwanted or mistimed
2. Weighted number of women who gave birth in the past five years and report that the most recent birth was unwanted or mistimed

**Denominator:**

1. Number of women ages 15 to 49 years who are currently pregnant
2. Number of women ages 15 to 49 years who gave birth in the past five years

**Data Source:** PMA/Core Female Questionnaire, respondents who are currently or recently pregnant (last five years)

**Questions:**

1. "At the time you became pregnant, did you want to become pregnant then, did you want to wait until later, or did you not want to have any/any more children at all?"
2. "When was your most recent birth?"

**Variable:** *pregnancy\_last\_desired*, *pregnancy\_current\_desired*, and *recent\_birth*

**Analysis:**

Weight – *FQweight*

*Suggested stratifiers* – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status

**Sample Stata code (*de facto* women only)\*:**

```
use female_defacto_lastbirth.dta, clear

keep if tsinceb<60

tabulate pregnancy_last_desired [aw=FQweight]
OR
tabulate pregnancy_current_desired [aw=FQweight]
```

\* Stata code for generating *tsinceb* below (female\_defacto\_lastbirth.dta dataset)

**Notes:** *pregnancy\_last\_desired*, *pregnancy\_current\_desired* and *tsinceb* can be combined to construct a variable for wantedness of current or last birth occurring within the last five years (60 months). *tsinceb* is constructed using the variables *doi\_corrected* and *recent\_birth* and represents the amount of time in months between the interview date and the woman's most recent birth. The Stata code for this is below.

### Sample Stata code (*de facto* women only):

```
use female_defacto.dta, clear

split doi_corrected, gen(doi_)
gen doimointh=doi_1
    replace doimonth=lower(doimonth)
    replace doimonth="1" if doimonth=="jan"
    replace doimonth="2" if doimonth=="feb"
    replace doimonth="3" if doimonth=="mar"
    replace doimonth="4" if doimonth=="apr"
    replace doimonth="5" if doimonth=="may"
    replace doimonth="6" if doimonth=="jun"
    replace doimonth="7" if doimonth=="jul"
    replace doimonth="8" if doimonth=="aug"
    replace doimonth="9" if doimonth=="sep"
    replace doimonth="10" if doimonth=="oct"
    replace doimonth="11" if doimonth=="nov"
    replace doimonth="12" if doimonth=="dec"
gen doiyear=doi_3
destring doimonth doiyear, replace
gen doicmc=(doiyear-1990)*12+doimonth

split recent_birth, gen(lastbirth_) parse(-)
rename lastbirth_1 lastbirthyear
rename lastbirth_2 lastbirthmonth
drop lastbirth_*

* Destring last birth month and year variables
destring lastbirth*, replace

* Replace last birth month and year equal to missing is year is 2030
(i.e. missing)
replace lastbirthmonth=. if lastbirthyear==2030
recode lastbirthyear 2030=.

* Generate last birth data in century month code
gen lastbirthcmc=(lastbirthyear-1900)*12+lastbirthmonth

* Generate time since last birth in months variable
gen tsinceb=doicmc-lastbirthcmc

save female_defacto_lastbirth.dta, replace
```

### Sample Stata code (*de facto* women only):

```
use female_defacto.dta, clear

generate wanted=1 if pregnancy_last_desired==1 | ///
    pregnancy_current_desired==1
replace wanted=2 if pregnancy_last_desired==2 | ///
    pregnancy_current_desired==2
replace wanted=3 if pregnancy_last_desired==3 | ///
    pregnancy_current_desired==3

save female_defacto_wanted.dta, replace
```

## Section 2: Quality of Family Planning Services and Counseling

### Method Information Index Plus

**Description:** Percentage of modern method users who reported that their provider informed them about other methods, side effects of chosen method and, if informed of side effects, what to do if they experience them, and told that they could switch to a different method in the future at the time of receipt of their current method

**Definition of Terms:** NA

**Calculation:**

$$= \frac{\text{Method information index plus} \\ \text{Weighted number of women who report they received} \\ \text{information on other methods, were informed of side effects and what} \\ \text{to do if experiencing side effects, and were told that they could switch} \\ \text{to a different method in the future by their provider at the time they} \\ \text{recieved their current contraceptive method}}{\text{Weighted number of women ages 15 to 49 years using} \\ \text{a modern contraceptive method}} \times 100$$

**Numerator:** Weighted number of women ages 15 to 49 years using a modern contraceptive method who meet each of the following criteria:

1. Received information on other methods
2. Were informed of side effects of chosen method
3. IF INFORMED OF SIDE EFFECTS, were informed of what to do if experience side effects
4. Were told that they could switch to a different method in the future

**Denominator:** Weighted number of women ages 15 to 49 years currently using a modern contraceptive method

**Data Source:** PMA/Core Female Questionnaire, all respondents using a modern contraceptive method except LAM

**Questions:**

1. "When you obtained your current method, were you told by the provider about side effects or problems you might have with a method to delay or avoid getting pregnant?"
2. IF INFORMED OF SIDE EFFECTS "Were you told what to do if you experienced side effects?"
3. "At that time, were you told by the family planning provider about methods of family planning other than your current method that you could use?"
4. "At that time, were you told that you could switch to a different method in the future?"

**Variable:** *fp\_told\_other\_methods, fp\_side\_effects, fp\_side\_effects\_instructions, fp\_told\_switch*. The four aforementioned variables can be combined to construct a variable for *method\_information\_index*.

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear

generate method_information_index_plus=0 if mcp==1
replace method_information_index_plus=1 if ///
fp_told_other_methods==1 & fp_side_effects==1 & ///
fp_side_effects_information & mcp==1

save female_defacto_miipplus.dta, replace
```

**Analysis:**

Weight – *FQweight*

*Suggested stratifiers* – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status

**Sample Stata code (*de facto* women only):**

```
use female_defacto_miipplus.dta, clear

tabulate method_information_index_plus [aw=FQweight]
```

**Notes:** The questions used for this index were originally asked of all modern contraceptive users. Starting in 2017 the questions are no longer asked of LAM users.

## Percent of Women Who Discussed Family Planning with Provider/CHW

**Description:** Percentage of women ages 15 to 49 years who discussed family planning when visited by a health worker or during a visit to a health facility in the last 12 months

**Definition of Terms:** NA

**Calculation:**

$$\text{Percent who discussed family planning} = \frac{\text{Weighted number of women aged 15 to 49 who received information on family planning from a health worker or while visiting a health facility in the last 12 months}}{\text{Weighted Number of women ages 15 to 49 years}} \times 100$$

**Numerator:**

1. Weighted number of women ages 15 to 49 years who were visited by a health worker and discussed family planning in the last 12 months
2. Weighted number of women ages 15 to 49 years who visited a health facility and discussed family planning in the last 12 months

**Denominator:** Weighted number of women ages 15 to 49 years

**Data Source:** PMA/Core Female Questionnaire, all respondents

**Questions:**

1. "In the last 12 months, were you visited by a community health worker who talked to you about family planning?"
2. "In the last 12 months, have you visited a health facility or camp for care for yourself or your children?" IF YES, "Did any staff member at the health facility speak to you about family planning methods?"

**Variable:** *visited\_by\_health\_worker, facility\_fp\_discussion, visited\_by\_health\_worker* and *facility\_fp\_discussion* can be combined to construct a *healthworkerinfo* variable.

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear

generate healthworkerinfo=0
replace healthworkerinfo=1 if visited_by_health_worker==1 ///
| facility_fp_discussion==1

save female_defacto_healthworker.dta, replace
```

**Analysis:**

*Weight* – *FQweight*

*Suggested stratifiers* – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status

**Sample Stata code (*de facto* women only):**

```
use female_defacto_healthworker.dta, replace  
  
tabulate healthworkerinfo [aw=FQweight]
```

**Notes:** NA

### Section 3: Partner Dynamics

Percent of women whose partner knows they are using FP

**Description:** Percent of women ages 15 to 49 years who are using a modern, female controlled method, and whose partner is aware that they are using the method

**Definition of Terms:**

*Modern, female controlled method:* Female sterilization, IUD, Implant, Injectable (IM), Injectable (SC), Pill, Standard Days/Cycle Beads, Emergency Contraception, Diaphragm

**Calculation:**

$$\text{Percent of partners aware} = \frac{\text{Weighted number of women ages 15 to 49 using a female controlled modern method whose partner is aware that they are using the method}}{\text{Weighted number of women ages 15 to 49 using a female controlled modern contraceptive methods}} \times 100$$

**Numerator:**

Weighted number of women ages 15 to 49 years who are using a female controlled modern method and whose partner is aware that they are using that method

**Denominator:** Weighted number of women ages 15-49 using a female controlled modern method

**Data Source:** PMA/Core Female Questionnaire, all respondents

*Questions:*

1. “Are you or your partner currently doing something or using any method to delay or avoid getting pregnant?”
2. IF YES, “Which method or methods are you using?”
3. IF MODERN FEMALE CONTROLLED METHOD “Does your husband/partner know that you are using [CURRENT METHOD]?”

**Variable:** *partner\_know*

**Analysis**

*Weight – FQweight*

*Suggested stratifiers –* marital status, education, urban/rural status, age, geographic region (depending on country), wealth status

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear
```

```
tabulate partner_know if mcp==1 [aw=FQweight]
```

Percent of women who discussed the decision to delay or avoid pregnancy with their partner before starting to use FP

**Description:** Percent of women ages 15 to 49 years who are using a modern, female controlled method, and who discussed the decision to delay or avoid pregnancy with their partner before starting to their current FP method

**Definition of Terms:**

*Modern, female controlled method:* Female sterilization, IUD, Implant, Injectable (IM), Injectable (SC), Pill, Standard Days/Cycle Beads, Emergency Contraception, Diaphragm

**Calculation:**

$$\text{Percent discussed with partner} = \frac{\text{Weighted number of women ages 15 to 49 using a female controlled modern contraceptive method who discussed the decision to delay or avoid pregnancy with their partner before starting to use}}{\text{Weighted number of women ages 15 to 49 using a female controlled modern contraceptive method}} \times 100$$

**Numerator:**

Weighted number of women ages 15 to 49 years who are using a female controlled modern method and who discussed the decision to delay or avoid pregnancy with their partner before starting to use the method

**Denominator:** Weighted number of women ages 15-49 using a female controlled modern method

**Data Source:** PMA/Core Female Questionnaire, all respondents

**Questions:**

1. “Are you or your partner currently doing something or using any method to delay or avoid getting pregnant?”
2. IF YES, “Which method or methods are you using?”
3. IF MODERN FEMALE CONTROLLED METHOD “Before you started using [CURRENT METHOD], had you discussed the decision to delay or avoid pregnancy with your husband/partner?”

**Variable:** *partner\_decision*

**Analysis**

*Weight – FQweight*

*Suggested stratifiers – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status*

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear
```

```
tabulate partner_decision if mcp==1 [aw=FQweight]
```

**Notes:** NA

Percentage of Women Who Decided to Use Their Family Planning Method Jointly with Their Husbands/Partner

**Description:** Percent of women ages 15 to 49 years who use a method of family planning and who discussed the decision to delay or avoid pregnancy with their partner before starting to their current FP method

**Definition of Terms:** NA

**Calculation:**

$$\frac{\text{Family Planning Decision Making – To Use}}{\text{Weighted number of women ages 15 to 49 using a contraceptive method who say that the decision to use family planning was made jointly with her husband/partner}} = \frac{\text{Weighted number of women ages 15 to 49 using a method of contraception}}{\text{Weighted number of women ages 15 to 49 using a method of contraception}} \times 100$$

**Numerator:**

Weighted number of women ages 15 to 49 years who are using a contraceptive method and who say that the decision to use family planning was made jointly with her partner

**Denominator:** Weighted number of women ages 15-49 using a contraceptive method

**Data Source:** PMA/Core Female Questionnaire, all respondents

**Questions:**

1. “Are you or your partner currently doing something or using any method to delay or avoid getting pregnant?”
2. IF YES, “Would you say that using contraception is mainly your decision, mainly your husband/partner’s decision or did you both decide together?”

**Variable:** *partner\_overall*

**Analysis**

*Weight* – *FQweight*

*Suggested stratifiers* – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear

tabulate partner_overall [aw=FQweight]
```

**Notes: NA**

## Percentage of Women Who Decided to Not Use Family Planning Jointly with Their Husbands/Partner

**Description:** Percent of women ages 15 to 49 years who are not using a method of family planning and who discussed the decision to not use with their partner

**Definition of Terms:** NA

**Calculation:**

$$\frac{\text{Family Planning Decision Making – Not to use}}{\text{Weighted number of women ages 15 to 49}} \times 100$$

*not using a contraceptive method who say that the decision to not use family planning was made jointly with her husband/partner*

$$= \frac{\text{Weighted number of women ages 15 to 49}}{\text{Weighted number of women ages 15 to 49}} \times 100$$

*not using a method of contraception*

**Numerator:**

Weighted number of women ages 15 to 49 years who are not using a contraceptive method and who say that the decision to not use family planning was made jointly with her partner

**Denominator:** Weighted number of women ages 15-49 not using a contraceptive method

**Data Source:** PMA/Core Female Questionnaire, all respondents

**Questions:**

1. “Are you or your partner currently doing something or using any method to delay or avoid getting pregnant?”
2. IF NO, “Would you say that not using contraception is mainly your decision, mainly your husband/partner’s decision or did you both decide together?”

**Variable:** *why\_not\_decision*

**Analysis**

*Weight* – *FQweight*

*Suggested stratifiers* – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear

tabulate why_not_decision [aw=FQweight]
```

**Notes:** NA

## Section 4: Women and Girls' Empowerment

Exercise of choice (self-efficacy, negotiation) for family planning

*Proportion of women who feel confident telling their provider what is important when selecting a family planning method*

**Description:** Percent of women ages 15 to 49 years who feel confident telling their provider what is important when selecting a family planning method

**Definition of Terms:** NA

**Calculation:**

$$\text{Percent confident} = \frac{\text{Weighted number of women aged 15 – 49 selecting specific level from five – point likert scale}}{\text{Weighted number of women ages 15 to 49}} \times 100$$

**Numerator:**

Weighted number of women selecting specific level from five-point likert scale

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**Denominator:** Weighted number of women ages 15-49

**Data Source:** PMA/Core Female Questionnaire, all respondents

**Question:**

1. "Please indicate how much you think these statements could apply to you by indicating how strongly you agree or disagree with the statement:"
  - a. "I feel confident telling my provider what is important for me when selecting a family planning method"

**Variable:** *fp\_aut\_confident*

**Analysis**

*Weight – FQweight*

*Suggested stratifiers* – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear
```

```
tabulate fp_aut_confident [aw=FQweight]
```

**Notes:** NA

*Proportion of women who agree with the statement “I can decide to switch from one FP method to another if I want to”*

**Description:** Percent of women ages 15 to 49 years who agree with the statement that they can decide to switch from one FP method to another if they would like to

**Definition of Terms:** NA

**Calculation:**

$$\text{Percent decide to switch} = \frac{\text{Weighted number of women selecting specific level from five – point likert scale}}{\text{Weighted number of women ages 15 to 49}} \times 100$$

**Numerator:**

Weighted number of women selecting specific level from five-point likert scale

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**Denominator:** Weighted number of women ages 15-49

**Data Source:** PMA/Core Female Questionnaire, all respondents

**Question:**

1. “Please indicate how much you think these statements could apply to you by indicating how strongly you agree or disagree with the statement:”
  - a. “I can decide to switch from one family planning method to another if I want to”

**Variable:** *fp\_aut\_switch*

**Analysis**

*Weight – FQweight*

*Suggested stratifiers – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status*

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear  
  
tabulate fp_aut_switch [aw=FQweight]
```

**Notes:** NA

Existence of choice (motivational autonomy) for family planning

*Proportion of women who agree with the statement “If I use FP, my body may experience side effects that will disrupt relations with my partner”*

**Description:** Percent of women ages 15 to 49 years who agree with the statement that using FP will cause side effects that will disrupt relations with her partner

**Definition of Terms:** NA

**Calculation:**

$$\text{Percent potential side effects} = \frac{\text{Weighted number of women selecting specific level from five – point likert scale}}{\text{Weighted number of women ages 15 to 49}} \times 100$$

**Numerator:**

Weighted number of women selecting specific level from five-point likert scale

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**Denominator:** Weighted number of women ages 15-49

**Data Source:** PMA/Core Female Questionnaire, all respondents

**Question:**

1. “Please indicate how much you think these statements could apply to you by indicating how strongly you agree or disagree with the statement:”
  - a. “If I use family planning, my body may experience side effects that will disrupt my relations with my husband/partner”

**Variable:** *fp\_aut\_disrupt*

**Analysis**

*Weight* – *FQweight*

*Suggested stratifiers* – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear

tabulate fp_aut_disrupt [aw=FQweight]
```

**Notes: NA**

*Proportion of women who agree with the statement “If I use FP, my children may not be born normal”*

**Description:** Percent of women ages 15 to 49 years who agree with the statement that using family planning will cause children to not be born normal

**Definition of Terms:** NA

**Calculation:**

$$\text{Percent child not born normal} = \frac{\text{Weighted number of women selecting specific level from five – point likert scale}}{\text{Weighted number of women ages 15 to 49}} \times 100$$

**Numerator:**

Weighted number of women selecting specific level from five-point likert scale

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**Denominator:** Weighted number of women ages 15-49

**Data Source:** PMA/Core Female Questionnaire, all respondents

**Question:**

1. “Please indicate how much you think these statements could apply to you by indicating how strongly you agree or disagree with the statement:”
  - a. “If I use family planning, my children may not be born normal”

**Variable:** *fp\_aut\_abchild*

**Analysis**

*Weight – FQweight*

*Suggested stratifiers – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status*

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear  
  
tabulate fp_aut_abchild [aw=FQweight]
```

**Notes:** NA

*Proportion of women who agree with the statement “There will be conflict in my relationship/marriage if I use FP”*

**Description:** Percent of women ages 15 to 49 years who agree with the statement that using family planning will cause conflict in their relationship or marriage

**Definition of Terms:** NA

**Calculation:**

$$\text{Percent cause conflict} = \frac{\text{Weighted number of women selecting specific level from five – point likert scale}}{\text{Weighted number of women ages 15 to 49}} \times 100$$

**Numerator:**

Weighted number of women selecting specific level from five-point likert scale

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**Denominator:** Weighted number of women ages 15-49

**Data Source:** PMA/Core Female Questionnaire, all respondents

**Question:**

1. “Please indicate how much you think these statements could apply to you by indicating how strongly you agree or disagree with the statement:”
  - a. IF IN UNION “There will be conflict in my relationship/marriage if I use family planning”
  - b. IF NOT IN UNION “There could be conflict in my relationship/marriage if I use family planning”

**Variable:** Use *fp\_aut\_conflict\_willl* for women in union, and *fp\_aut\_conflict* for women who are not in union

**Analysis**

*Weight – FQweight*

*Suggested stratifiers* – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear

tabulate fp_aut_conflict_will [aw=FQweight]

tabulate fp_aut_conflict [aw=FQweight]
```

**Notes:** NA

*Proportion of women who agree with the statement “If I use FP, I may have trouble getting pregnant the next time I want to”*

**Description:** Percent of women ages 15 to 49 years who agree with the statement that using family planning will make it difficult to get pregnant in the future

**Definition of Terms:** NA

**Calculation:**

$$\text{Percent trouble to get pregnant} = \frac{\text{Weighted number of women selecting specific level from five – point likert scale}}{\text{Weighted number of women ages 15 to 49}} \times 100$$

**Numerator:**

Weighted number of women selecting specific level from five-point likert scale

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**Denominator:** Weighted number of women ages 15-49

**Data Source:** PMA/Core Female Questionnaire, all respondents

**Question:**

1. “Please indicate how much you think these statements could apply to you by indicating how strongly you agree or disagree with the statement:”
  - a. “If I use family planning, I may have trouble getting pregnant the next time I want to”

**Variable:** *fp\_aut\_diffpreg*

**Analysis**

*Weight – FQweight*

*Suggested stratifiers* – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear

tabulate fp_aut_diffpreg [aw=FQweight]
```

**Notes:** NA

*Proportion of women who agree with the statement “If I use FP, my partner may seek another sexual partner”*

**Description:** Percent of women ages 15 to 49 years who agree with the statement that using family planning cause her partner to seek another sexual progress

**Definition of Terms:** NA

**Calculation:**

$$\text{Percent partner new partner} = \frac{\text{Weighted number of women selecting specific level from five – point likert scale}}{\text{Weighted number of women ages 15 to 49}} \times 100$$

**Numerator:**

Weighted number of women selecting specific level from five-point likert scale

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**Denominator:** Weighted number of women ages 15-49

**Data Source:** PMA/Core Female Questionnaire, all respondents

**Question:**

1. “Please indicate how much you think these statements could apply to you by indicating how strongly you agree or disagree with the statement:”
  - a. “If I use family planning, my husband/partner may seek another sexual partner”

**Variable:** *fp\_aut\_otherptr*

**Analysis**

*Weight – FQweight*

*Suggested stratifiers – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status*

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear

tabulate fp_aut_otherptr [aw=FQweight]
```

**Notes:** NA

## Women's and Girl's Empowerment Sub-Scale for Family Planning

**Description:** The Women's and Girls' Empowerment (WGE) Index examines the existence of choice, exercise of choice, and achievement of choice domains across pregnancy, family planning, and sex outcomes. The Sub-Scale for Family Planning presents results for the existence and exercise of choice for family planning. A score of 5 on the subscale indicates the highest level of empowerment.

### Definition of Terms:

*Exercise of Choice:* Whether a woman experience self-efficacy and feel confident enough to negotiate family planning use

*Existence of Choice:* Whether a woman is motivated to use family planning

### Calculation:

$$\text{Sub - Scale Score} = \frac{\sum \frac{\text{scores from seven WGE questions for each woman}}{\text{Number of questions responded to by each woman}}}{\text{Number of women ages 15 to 49 years}}$$

**Numerator:** Sum of the scores (1-5) for each of the seven WGE exercise of choice and existence of choice questions among all women ages 15 to 49 years divided by the number of questions answered by each woman

**Denominator:** Number of women ages 15 to 49 years

**Data Source:** PMA/Core Female Questionnaire, all respondents

### Questions:

1. "Please indicate how much you think these statements could apply to you by indicating how strongly you agree or disagree with the statement:"
  - a. "I feel confident telling my provider what is important for me when selecting a family planning method"
  - b. "I can decide to switch from one family planning method to another if I want to"
  - c. "If I use family planning, my body may experience side effects that will disrupt my relations with my husband/partner."
  - d. "If I use family planning, my children may not be born normal"
  - e. IF IN UNION "There will be conflict in my relationship/marriage if I use family planning"
  - f. IF NOT IN UNION "There could be conflict in my relationship/marriage if I use family planning"
  - g. "If I use family planning, I may have trouble getting pregnant the next time I want to"
  - h. "If I use family planning, my husband/partner may seek another sexual partner"

**Variable:** *fp\_aut\_confident*, *fp\_aut\_switch*, *fp\_aut\_disrupt*, *fp\_aut\_abchild*, *fp\_aut\_conflict\_will*, *fp\_aut\_conflict*, *fp\_aut\_diffpreg*, and *fp\_aut\_otherptr* can be combined to generate a mean score variable

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear

gen fp_aut_conflict_combine=.
  replace fp_aut_conflict_combine=1 if fp_aut_conflict==1 | ///
  fp_aut_conflict_will==1
  replace fp_aut_conflict_combine=2 if fp_aut_conflict==2 | ///
  fp_aut_conflict_will==2
  replace fp_aut_conflict_combine=3 if fp_aut_conflict==3 | ///
  fp_aut_conflict_will==3
  replace fp_aut_conflict_combine=4 if fp_aut_conflict==4 | ///
  fp_aut_conflict_will==4
  replace fp_aut_conflict_combine=5 if fp_aut_conflict==5 | ///
  fp_aut_conflict_will==5

egen fp_wge_combine=rowmean(fp_aut_confident fp_aut_switch
fp_aut_disrupt fp_aut_abchild fp_aut_conflict_combine fp_aut_conflict
fp_aut_diffpreg fp_aut_otherptr)
label variable fp_wge_combine "Mean combined FP WGE score"

gen wge_scoreround=.
  replace wgescore_round=1 if fp_wge_combine>=1 & fp_wge_combine<=2
  replace wgescore_round=2 if fp_wge_combine>2 & fp_wge_combine<=3
  replace wgescore_round=3 if fp_wge_combine>3 & fp_wge_combine<=4
  replace wgescore_round=4 if fp_wge_combine>4 & fp_wge_combine<=5
  replace wgescore_round=5 if fp_wge_combine==5

save female_defacto_wgescore.dta, replace
```

**Analysis:**

*Weight – FQweight*

*Suggested stratifiers* – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status, mCP, intent to use contraception

**Sample Stata code (*de facto* women only):**

```
use female_defacto_wgescore.dta, clear

tabulate wge_scoreround [aw=FQweight]
```

**Notes:** In the brief, a WGE score of 5 indicates highest empowerment. In the provided code, a WGE score of 1 indicates highest empowerment. To generate WGE scores that match the PMA brief, you need to flip the scores before generating the *fp\_wge\_combine* variable

## Section 5: Attitudes Towards Contraception

Percent of women who agree with the statement “Adolescents who use FP are promiscuous”

**Definition of Terms:** NA

**Calculation**

$$\text{Percent promiscuous adolescents} = \frac{\text{Weighted number of women ages 15 to 49 who select sepecific level from four – point likert scale}}{\text{Weighted number of women ages 15 to 49 years}} \times 100$$

**Numerator:**

Weighted number of women selecting specific level from four-point likert scale

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

**Denominator:** Weighted number of women ages 15-49

**Data Source:** PMA/Core Female Questionnaire, all respondents

*Question:*

1. “Now we would now like to know about your personal opinions about these issues. Do you strongly agree, agree, disagree, strongly disagree with the following statements?:”
  - a. “Adolescents who use family planning are promiscuous”

**Variable:** *fp\_think\_promis*

**Analysis**

*Weight* – *FQweight*

*Suggested stratifiers* – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear

tabulate fp_think_promis [aw=FQweight]
```

**Notes:** NA

Percent of women who agree with the statement “Family planning is only for married women”

**Definition of Terms:** NA

**Calculation**

$$\text{Percent fp only married} = \frac{\text{Weighted number of women ages 15 to 49 who select sepecific level from four – point likert scale}}{\text{Weighted number of women ages 15 to 49 years}} \times 100$$

**Numerator:**

Weighted number of women selecting specific level from four-point likert scale

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

**Denominator:** Weighted number of women ages 15-49

**Data Source:** PMA/Core Female Questionnaire, all respondents

*Question:*

1. “Now we would now like to know about your personal opinions about these issues. Do you strongly agree, agree, disagree, strongly disagree with the following statements?”
  - a. “Family planning is only for women who are married”

**Variable:** *fp\_think\_onlymar*

**Analysis**

*Weight – FQweight*

*Suggested stratifiers – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status*

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear

tabulate fp_think_onlymar [aw=FQweight]
```

**Notes:** NA

Percent of women who agree with the statement “Family planning is only for women who don’t want any more children”

**Definition of Terms:** NA

**Calculation**

$$\text{Percent no children} = \frac{\text{Weighted number of women ages 15 to 49 who select sepecific level from four – point likert scale}}{\text{Weighted number of women ages 15 to 49 years}} \times 100$$

**Numerator:**

Weighted number of women selecting specific level from four-point likert scale

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

**Denominator:** Weighted number of women ages 15-49

**Data Source:** PMA/Core Female Questionnaire, all respondents

**Question:**

1. “Now we would now like to know about your personal opinions about these issues. Do you strongly agree, agree, disagree, strongly disagree with the following statements?:”
  - a. “Family planning is only for women who don’t want any more children”

**Variable:** *fp\_think\_nomore*

**Analysis**

*Weight* – *FQweight*

*Suggested stratifiers* – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear

tabulate fp_think_nomore [aw=FQweight]
```

**Notes:** NA

Percent of women who agree with the statement “People who use family planning have a better quality of life”

**Definition of Terms:** NA

**Calculation**

$$\text{Percent quality life} = \frac{\text{Weighted number of women ages 15 to 49 who select sepecific level from four – point likert scale}}{\text{Weighted number of women ages 15 to 49 years}} \times 100$$

**Numerator:**

Weighted number of women selecting specific level from four-point likert scale

- Strongly Disagree
- Disagree
- Agree
- Strongly Agree

**Denominator:** Weighted number of women ages 15-49

**Data Source:** PMA/Core Female Questionnaire, all respondents

**Question:**

1. “Now we would now like to know about your personal opinions about these issues. Do you strongly agree, agree, disagree, strongly disagree with the following statements?:”
  - a. “People who use family planning have a better quality of life”

**Variable:** *fp\_think\_lifestyle*

**Analysis**

*Weight* – *FQweight*

*Suggested stratifiers* – marital status, education, urban/rural status, age, geographic region (depending on country), wealth status

**Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear

tabulate fp_think_lifestyle [aw=FQweight]
```

**Notes:** NA

## Section 6: Reproductive Timeline

### Average Number of Children at First Contraceptive Use

**Description:** Average number of living children at first contraceptive use

**Definition of Terms:** NA

**Calculation:**

$$\text{Average number of children} = \frac{\Sigma \text{number of living children at first contraceptive use}}{\text{Number of women ages 15 to 49 years who have ever used contraception and given birth}}$$

**Numerator:** Sum of the reported number of living children at first contraceptive use among all women ages 15 to 49 years who have ever used contraception. Women who did not have children at the time of first use are included as 0.

**Denominator:** Number of women ages 15 to 49 years who have ever used contraception and given birth

**Data Source:** PMA/Core Female Questionnaire, all respondents who have ever used contraception

**Question:** “How many living children did you have [when you first used a method to delay or avoid getting pregnant], if any?”

**Variable:** *age\_at\_first\_use\_children*

**Analysis:**

*Weight* – *FQweight*

#### **Sample Stata code (*de facto* women only):**

```
use female_defacto.dta, clear

tabulate age_at_first_use_children [aw=FQweight]
```

**Notes:** NA

## Median Age at First Sex

**Description:** Median age at first sex

**Definition of Terms:** Median is defined as the middle age, or the age separating the youngest half from the oldest half of the distribution. In terms of first sex, it is the age by which half of the population had sexual intercourse for the first time.

**Calculation:**

$$\{(n + 1) \div 2\} \text{ age value}$$

Where  $n$  = the number of women ages 15 to 49 years who have had sexual intercourse

**Numerator:** NA

**Denominator:** Number of women ages 15 to 49 years who have had sexual intercourse

**Data Source:** PMA/Core Female Questionnaire, all respondents who have ever had sexual intercourse

**Question:** "How old were you when you first had sexual intercourse?"

**Variable:** [age\\_at\\_first\\_sex](#) is used to construct a variable for median age at first sex

### Sample Stata code (*de facto* women only):

```
use female_defacto.dta, replace

keep if age_at_first_sex >= 15 & age_at_first_sex < 50

gen one=1
drop if age_at_first_sex == .
collapse (count) count=one [pweight=FQweight], ///
        by(age_at_first_sex)
sort age_at_first_sex
gen cttotal=sum(count)
egen total=sum(count)
gen cp=cttotal/total

keep if (cp <= 0.5 & cp[_n+1] > 0.5) | ///
        (cp > 0.5 & cp[_n-1] <= 0.5)

local median=(0.5-cp[1]) / (cp[2]-cp[1]) * ///
        (age_at_first_sex[2] - age_at_first_sex[1]) ///
        + age_at_first_sex[1] + 1

gen median_age_at_first_sex=`median'

save female_defacto_mafs.dta, replace
```

**Analysis:**

*Weight* – no weight should be used during analysis since the weight is applied during variable generation

**Sample Stata code (*de facto* women only):**

```
use female_defacto_mafs.dta, clear  
  
tabulate median_age_at_first_sex
```

**Notes:** NA

## Median Age at First Marriage

**Description:** Median age at first marriage

**Definition of Terms:** Median is defined as the middle age, or the age separating the youngest half from the oldest half of the distribution. In terms of first marriage, it is the age by which half of the population was married for the first time.

**Calculation:**

$$\{(n + 1) \div 2\} \text{ age value}$$

Where  $n$  = the number of women ages 25 to 49 years who have been married or in union

**Numerator:** NA

**Denominator:** Number of women ages 25 to 49 years who have had been married or in union

**Data Source:** PMA/Core Female Questionnaire, all respondents ages 25 to 49 who have ever been married

**Questions:**

1. "Are you currently married or living together with a man as if married?"  
IF YES, OR DIVORCED SEPARATED OR A WIDOW:
2. "In what month and year did you start living with your [FIRST] husband/partner?"

**Variable:** *firstmarriageyear*, *firstmarriagemonth*, *recentmarriageyear*, *recentmarriagemonth*, *times\_married* in PMA, *birthyear*, and *birthmonth* can be combined to generate a variable for age at first marriage (*agemarriage*). *agemarriage* is then used to construct a variable for median age at first marriage.

### Sample Stata code (*de facto* women only):

```
gen marriagecmc = (firstmarriageyear - 1900) * 12 ///
+ firstmarriagemonth
replace marriagecmc = (recentmarriageyear - 1900) * 12 ///
+ recentmarriagemonth if times_married==1

gen v011 = (birthyear - 1900) * 12 + birthdate_month

gen agemarriage = (marriagecmc - v011) / 12

save female_defacto_agemarriage.dta, replace
```

**Sample Stata code (*de facto* women only):**

```
use female_defacto_agemarriage.dta, clear

keep if FQ_age>=25

gen one=1
drop if agemarriage==.
collapse (count) count=one [pweight=FQweight], ///
        by(agemarriage)
sort agemarriage
gen cttotal=sum(count)
egen total=sum(count)
gen cp=cttotal/total

keep if (cp <= 0.5 & cp[_n+1]>0.5) | ///
        (cp>0.5 & cp[_n-1]<=0.5)

local median=(0.5-cp[1]) / (cp[2]-cp[1]) * ///
        (agemarriage[2] - agemarriage[1]) ///
        + agemarriage[1] + 1

gen median_agemarriage=`median'

save female_defacto_mam.dta, replace
```

**Analysis:**

*Weight* – no weight should be used since the weight is applied during variable generation

**Sample Stata code (*de facto* women only):**

```
use female_defacto_mam.dta, clear

tabulate median_agemarriage
```

**Notes:** The medians for age at first marriage can only be calculated if at least 50% of a population has been married. Therefore, PMA does not calculate median age of first marriage for adolescents, given that generally less than 50% of the adolescent population has been married.

## Median Age at First Birth

**Description:** Median age at first birth

**Definition of Terms:** Median is defined as the middle age, or the age separating the youngest half from the oldest half of the distribution. In terms of first birth, it is the age by which half of the population has given birth for the first time.

**Calculation:**

$$\{(n + 1) \div 2\} \text{ age value}$$

Where  $n$  = the number of women ages 25 to 49 years who have given birth

**Numerator:** NA

**Denominator:** Number of women ages 25 to 49 years who have given birth

**Data Source:** PMA/Core Female Questionnaire, all respondents ages 25 to 49 who have ever given birth

**Question:**

1. "Now I would like to ask about all the births you have had during your life. Have you ever given birth?"
2. "When was your FIRST birth?"

**Variable:** *first\_birthSIF* and *birthdateSIF* can be combined to generate a variable for age at first birth (*agefirstbirth*). *agefirstbirth* is then used to construct a variable for median age at first birth.

### Sample Stata code (*de facto* women only):

```
gen agefirstbirth = hours(first_birthSIF-birthdateSIF) / 8765.81
```

OR

```
gen agefirstbirth=(first_birthSIF-birthdateSIF)/365.25
```

```
save female_defacto_firstbirth.dta, replace
```

**Analysis:**

*Weight* – no weight should be used since the weight is applied during variable generation

**Sample Stata code (*de facto* women only):**

```
use female_defacto_firstbirth.dta, replace

keep if FQ_age>=25 & ever_birth==1

gen one=1
drop if agefirstbirth==.
collapse (count) count=one [pweight=FQweight], ///
        by(agefirstbirth)
sort agefirstbirth
gen cttotal=sum(count)
egen total=sum(count)
gen cp=cttotal/total

keep if (cp <= 0.5 & cp[_n+1]>0.5) | ///
        (cp>0.5 & cp[_n-1]<=0.5)

local median=(0.5-cp[1]) / (cp[2]-cp[1]) * ///
        (agefirstbirth[2] - agefirstbirth[1]) ///
        + agefirstbirth[1] + 1

gen median_agefirstbirth=`median'

save female_defacto_mafb.dta, replace
```

**Sample Stata code (*de facto* women only):**

```
use female_defacto_mafb.dta, clear

tabulate median_agefirstbirth
```

**Notes:** The medians for age at first birth can only be calculated if at least 50% of a population has had sexual intercourse. Therefore, PMA does not calculate median age of first birth for adolescents, given that generally less than 50% of the adolescent population has given birth.

## Median Age at First Contraceptive Use

**Description:** Median age at first contraceptive use

**Definition of Terms:** Median is defined as the middle age, or the age separating the youngest half from the oldest half of the distribution. In terms of first contraceptive use, it is the age by which half of the population has used contraception for the first time.

**Calculation:**

$$\{(n + 1) \div 2\} \text{ age value}$$

Where  $n$  = the number of women ages 15 to 49 years who have used a contraceptive method

**Numerator:** NA

**Denominator:** Number of women ages 15 to 49 years who have used a contraceptive method

**Data Source:** PMA/Core Female Questionnaire, all respondents ages 15 to 49 years who have ever used contraception

**Question:** "How old were you when you first used a method to delay or avoid getting pregnant?"

**Variable:** *age\_at\_first\_use* is used to construct a variable for median age at first contraceptive use

### Sample Stata code (*de facto* women only):

```
use female_defacto.dta, clear

keep if FQ_age>=15 & fp_ever_used==1

gen one=1
drop if age_at_first_use==.
collapse (count) count=one [pweight=FQweight], ///
        by(age_at_first_use)
sort age_at_first_use
gen cttotal=sum(count)
egen total=sum(count)
gen cp=cttotal/total

keep if (cp <= 0.5 & cp[_n+1]>0.5) | ///
        (cp>0.5 & cp[_n-1]<=0.5)

local median=(0.5-cp[1]) / (cp[2]-cp[1]) * ///
        (age_at_first_use[2] - age_at_first_use[1]) ///
        + age_at_first_use[1] + 1

gen median_age_at_first_use=`median'

save female_defacto_mafu.dta, replace
```

**Analysis:**

*Weight* – no weight should be used since the weight is applied during variable generation

**Sample Stata code (*de facto* women only):**

```
use female_defacto_mafu.dta, clear
```

```
tabulate median age at first use
```

**Notes:** NA

## Women Ages 18 to 24 Years Who Had First Sex by Age 18 Years

**Description:** Percent of women ages 18 to 24 years who had first sex by age 18 years

**Definition of Terms:**

**Calculation:**

$$\text{Sex by age 18 years} = \frac{\text{Number of women who had sex by age 18 years}}{\text{Number of women ages 18 to 24 years}} \times 100$$

**Numerator:** Number of women who had sex by age 18 years

**Denominator:** Number of women ages 18 to 24 years

**Data Source:** PMA/Core Female Questionnaire, all respondents ages 18 to 24 years

**Question:** "How old were you when you first had sexual intercourse?"

**Variable:** *FQ\_age* and *age\_at\_first\_sex* can be used to generate a binary variable for all women 18 to 24 years who had sex by age 18 years (*sex18*).

### Sample Stata code (*de facto* women only):

```
use female_defacto.dta, clear

generate sex18=0 if FQ_age>=18 & FQ_age<25
replace sex18=1 if age_at_first_sex>0 ///
    & age_at_first_sex<18 & sex18==0

save female_defacto_sex18.dta, clear
```

**Analysis:**

*Weight* – *FQweight*

### Sample Stata code (*de facto* women only):

```
use female_defacto_sex18.dta, clear

tabulate sex18 [aw=FQweight]
```

**Notes:** NA

## Women Ages 18 to 24 Years Who Were Married by Age 18 Years

**Description:** Percent of women ages 18 to 24 years who were married by age 18 years

**Calculation:**

$$\text{Marriage by age 18 years} = \frac{\text{Number of women who were married by age 18 years}}{\text{Number of women age 18 to 24 years}} \times 100$$

**Numerator:** Number of women who were married by age 18 years

**Denominator:** Number of women age 18 to 24 years

**Data Source:** PMA/Core Female Questionnaire, all respondents ages 18 to 24 years

**Question:** “In what month and year did you start living with your FIRST husband/partner?”

**Variable:** *FQ\_age* and *agemarriage*<sup>26</sup> can be used to generate a binary variable for all women 18 to 24 years who were married by age 18 (*married18*).

### Sample Stata code (*de facto* women only):

```
use female_defacto.dta, clear

gen married18=0 if FQ_age>=18 & FQ_age<25
replace married18=1 if agemarriage<18 & married18==0

save female_defacto_married18.dta, replace
```

**Analysis:**

*Weight* – *FQweight*

### Sample Stata code (*de facto* women only):

```
use female_defacto_married18.dta, clear

tabulate married18 [aw=FQweight]
```

**Notes:** NA

<sup>26</sup> Generation of the *agemarriage* variable is explained on page 80.

## Women Ages 18 to 24 Who Gave Birth by Age 18 Years

**Description:** Percent of women ages 18 to 24 years who gave birth by age 18 years

**Calculation:**

$$\text{Birth by age 18 years} = \frac{\text{Number of women who gave birth by age 18 years}}{\text{Number of women ages 18 to 24 years}} \times 100$$

**Numerator:** Number of women who gave birth by age 18 years

**Denominator:** Number of women ages 18 to 24 years

**Data Source:** PMA/Core Female Questionnaire, all respondents ages 18 to 24 years

**Questions:**

1. "In what month and year were you born?"
2. "When was your FIRST birth?"

**Variable:** *first\_birthSIF* and *birthdateSIF*. *first\_birthSIF* and *birthdateSIF* can be used to determine the age at which a woman had her first birth (*agefirstbirth*). This variable can then be used to create a binary variable representing the number of women ages 18 to 24 years who had their first birth by age 18 years.

### Sample Stata code (*de facto* women only):

```
use female_defacto.dta, clear

generate agefirstbirth= ///
    hours(first_birthSIF- birthdateSIF)/8765.81

OR

generate agefirstbirth= (first_birthSIF- birthdateSIF)/365.25

THEN

generate birth18=. if FQ_age>=18 & FQ_age<25
replace birth18=1 if agefirstbirth<18 & birth18==0

save female_defacto_birth18.dta, replace
```

**Analysis:**

*Weight* – *FQweight*

### Sample Stata code (*de facto* women only):

```
use female_defacto_birth18.dta, clear

tabulate birth18 [aw=FQweight]
```

**Notes:** NA

## Women Ages 18 to 24 Who Used Contraceptives by Age 18 Years

**Description:** Percent of women ages 18 to 24 years who used contraception by age 18 years

**Calculation:**

$$\text{Contraception by age 18 years} = \frac{\text{Number of women who used contraception by age 18 years}}{\text{Number of women age 18 to 24 years}} \times 100$$

**Numerator:** Number of women who used contraception by age 18 years

**Denominator:** Number of women age 18 to 24 years

**Data Source:** PMA/Core Female Questionnaire, all respondents ages 18 to 24 years

**Question:** “How old were you when you first used a method to delay or avoid getting pregnant?”

**Variable:** *FQ\_age* and *age\_at\_first\_use* can be used to generate a binary variable for all women 18 to 24 years who had used contraception by age 18 years (*fp18*).

**Sample Stata code (de facto women only):**

```
use female_defacto.dta, clear

generate fp18=0 if FQ_age>=0 & FQ_age<25
replace fp18=1 if age_at_first_use>0 ///
    & age_at_first_use<18 & fp18==0

save female_defacto_fp18.dta, replace
```

**Analysis:**

*Weight* – *FQweight*

**Sample Stata code (de facto women only):**

```
use female_defacto_fp18.dta, clear

tabulate fp18 [aw=FQweight]
```

**Notes:** NA

## SDP-Related Female Indicators

Percent of women who obtained method from a public health facility

**Description:** Percent of women using a modern contraceptive method who obtained the method from a public facility

**Calculation:**

$$\text{Obtained in public facility} = \frac{\text{Weighted number of women aged 15 to 49 who are currently using a modern contraception and obtained the method from a public facility}}{\text{Weighted number of women aged 15 to 49 who currently use a modern contraceptive method}} \times 100$$

**Numerator:** Weighted number of women aged 15 to 49 years who are currently using a modern contraceptive method and obtained the method from a public facility

**Denominator:** Weighted number of women aged 15 to 49 years who currently use a modern contraceptive method

**Data Source:** PMA/Core Female Questionnaire, all respondents ages 18 to 24 years

**Question:** “You first started using [CURRENT METHOD] On [DATE]. Where did you or your partner get it at that time?”

**Variable:** *fp\_provider\_rw* can be used to generate a variable to identify where a woman and/or her partner procured the contraceptive method. Public facilities are coded 1-19 and private facilities are coded as 20-39

**Sample Stata code (de facto women only):**

```
use female_defacto.dta, clear

recode fp_provider_rw (1/19=1 "Public") (-88 -99=0) ///
      (nonmiss=0 "Not Public"), gen(publicfp_rw)

save female_defacto_publicfp.dta, replace
```

**Analysis:**

*Weight* – *FQweight*

**Sample Stata code (de facto women only):**

```
use female_defacto_publicfp.dta, clear

tabulate publicfp_rw [aw=FQweight]
```

**Notes: NA**

## Service Delivery Point Questionnaire

### Sampling

PMA Service Delivery Point (SDP) sample represent SDPs that are administratively and geographically accessible by population sampled for household and female surveys.<sup>27</sup> Thus, SDPs are selected based on the selection of the enumeration areas (EAs) used for the household and female surveys, that is, the administrative and geographic link to the EAs. The sample includes both public and private SDPs. For public SDPs,<sup>28</sup> primary-, secondary-, or tertiary-level facilities that are assigned to serve the EA are selected, regardless of their location. Meanwhile, private SDPs are only included in the sample if they fall within the geographic boundaries of the EA. In typical low-resource settings, each EA is expected to have on average one private SDP, such as a pharmacy, within its boundary and approximately two to three public SDPs designated for the area. The number of public SDPs per EA varies across countries, depending on health systems.

Private SDPs are listed concurrently with household listing in the EA. Once all private SDPs are listed, up to three are selected for the SDP questionnaire. A list of public SDPs designated to cover the residents of each EA is provided by the district/local health authorities. All sampled SDPs can be linked to the index EA. In the event that a larger public SDP serves multiple EAs in the sample, the SDP can be linked to all associated EAs. This enables subsequent linkage to the household and female interviews.

### Data Structure

The dataset includes all SDPs that were selected, including sampled SDPs that refused or did not complete the survey for any reason. Interview results are available in the variable: *SDP\_result*.

Each observation in the dataset refers to an individual SDP. Each SDP in the dataset has a unique ID called *facility\_ID*. There should be no duplicate *facility\_ID* in the dataset of one round. If the SDP is interviewed in multiple rounds, it will have the same facility ID across rounds to enable linking.

### Inclusion Criteria for Analysis

Inclusion of relevant observations in analyses is critical for correct calculation of indicators. For all analyses at the SDP level, use completed interviews only.

---

<sup>27</sup> The sample is not necessarily representative of SDPs in the country or subgeography, since facility distribution does not necessarily follow population distribution of the country.

<sup>28</sup> Public facilities are defined as government run, while private facilities are nongovernment run.

To achieve the SDP sample, the following criteria is used:

1. Keep if *SDP\_result* is completed (1)

#### Sample Stata code:

```
keep if SDP_result==1  
  
save SDP.dta, replace
```

## Analysis and Interpretation

### Weighting

PMA does not weight its SDP results during analysis because the sample includes all eligible SDPs.<sup>29</sup> However, *EWeight* (inverse of the EA selection probability) is included in the PMA SDP dataset, and it can be used if the analyst would like to link EA weights to the SDP dataset. More information on PMA sampling can be found on the [PMA website](#).

### Disaggregation

In addition to service delivery and indicators, PMA collects descriptive and geographic data for each SDP. This information can be used to provide descriptive statistics on each indicator of interest for analysis. PMA datasets include facility type and managing authority for each SDP. All SDP indicators in this handbook can be stratified by these variables.

**Facility Type** (*facility\_type*): Facility types are specific to each country. Potential facility types include the following:

- Hospital: The top end of a continuum of care. Can be private or public.
- Health center: Smaller than hospitals, and lower on the continuum of care. Usually headed by a medical assistant and provide midwifery, lab, public health, environment and nutrition services. Only government operated.
- Health clinic: Smaller than health centers and are generally not operated by the government. Can either provide a range of health services or be specialized providers.
- Pharmacy: Run by licensed pharmacists and are certified to carry a range of drugs and health supplies, including antibiotics and family planning methods. Pharmacies must be independent from a larger health facility.
- Chemist: Not run by pharmacists, however they can provide some health products such as birth control and aspirin. Chemists are not licensed to provide antibiotics.
- Retail outlet: Includes a store such as a supermarket or gas station store that sells any health products. Retail outlets do not include kiosks. If the retail outlet ONLY sells condoms and no other family planning product, it is not listed as an SDP.
- Other: Any other health provider, such as maternity waiting homes or herbalists.

---

<sup>29</sup> In rare cases where one EA has more than three private SDPs within its boundaries, three are selected randomly.

**Managing Authority** (*managing\_authority*): The managing authority of each SDP. There are typically five possible responses, and numeric code in the dataset is presented in the parenthesis.

- Government (1): Managed by the national, regional, or district government
- NGO (2): Managed by a nongovernmental organization that is not affiliated with a church or religious group and is not run for profit
- Faith-based organization (3): Managed by a faith-based organization
- Private (4): Owned by an individual or business that is run commercially
- Other (5): Does not correspond to any of the other categories

Depending on the sample size, it may not be possible to produce estimates. Therefore, it is important to check the number of SDPs that respond to a given question before performing an analysis. In PMA publicly available indicator tables, results generated from 10 to 25 SDPs in the denominator are italicized, while results generated from fewer than 10 SDPs in the denominator are replaced with “–”.

### Interpretation of Results

Results should not be interpreted as the percentage of facilities that serve a nationally representative population. They do not represent the percent of regional or national facilities that possess a certain characteristic (e.g., offer family planning services). Due to the panel design, facilities are linked across multiple phases using *facility\_ID*.

## Indicators

### Stockouts (Day of Interview or in Last Three Months)

**Description:** Percentage of facilities offering a method with a stockout of that method either on the day of the interview, or during the three months prior to the interview among facilities offering family planning services.

**Definition of Terms:** An SDP can experience a stockout of any tangible contraceptive method, which could include: implants, intrauterine device (IUD), depot medroxyprogesterone acetate (DMPA), subcutaneous DMPA (DMPA-SC), pills, emergency contraception (EC), male condoms, female condoms, diaphragms, foam, cycle beads, and the N tablet. Not all methods are included in every country. This indicator is calculated for each individual method offered by the facility.

### Calculation:

$$\text{Percent of SDPs with a stockout on the day of the interview} = \frac{\text{Number of SDPs experiencing a method stockout on the day of the interview}}{\text{Number of SDPs offering family planning}} \times 100$$

$$\text{Percent of SDPs with a stockout in the last 3 months} = \frac{\text{Number of SDPs with a method stockout in the last 3 months}}{\text{Number of SDPs offering family planning}} \times 100$$

### Numerator:

1. Number of SDPs experiencing a stockout of an offered method on the day of the interview
2. Number of SDPs with a method stockout of an offered method in the last three months

**Denominator:** Number of SDPs interviewed that offer that method

**Data Source:** PMA/Core Service Delivery Point Survey, all family planning providers

### Questions:

1. "You mentioned that you typically provide [*method*] at this facility, can you show them to me?"
2. IF OUT OF STOCK "How many days has [*method*] been out of stock?"
3. IF IN STOCK "Has [*method*] been out of stock at any time in the last 3 months?"

### Variable:

<i>stockout_days_implants</i>	<i>stockout_3mo_pills</i>	<i>stockout_days_foam</i>
<i>stockout_3mo_implants</i>	<i>stockout_days_ec</i>	<i>stockout_3mo_foam</i>
<i>stockout_days_iud</i>	<i>stockout_3mo_ec</i>	<i>stockout_days_beads</i>
<i>stockout_3mo_iud</i>	<i>stockout_days_male_condoms</i>	<i>stockout_3mo_beads</i>
<i>stockout_days_sayana_press</i>	<i>stockout_3mo_male_condoms</i>	<i>stockout_days_othermod</i>
<i>stockout_3mo_sayana_press</i>	<i>stockout_days_female_condoms</i>	<i>stockout_3mo_othermod</i>
<i>stockout_days_depo_provera</i>	<i>stockout_3mo_female_condoms</i>	
<i>stockout_3mo_depo_provera</i>	<i>stockout_days_diaphragm</i>	
<i>stockout_days_pills</i>	<i>stockout_3mo_diaphragm</i>	

**Analysis:**

**Sample Stata code\*:**

```
use SDP.dta, clear

keep if fp_offered==1
tabulate stockout_days_implants
tabulate stockout_3mo_implants
```

\*This tabulation can be done with any of the above-listed variables

**Notes:** NA

## Main Reason for Stockout

**Description:** Main reason that provided contraceptive method was out of stock on the day of the interview

**Definition of Terms:** Potential reasons for stockout include: did not place order for shipment, ordered but did not receive shipment, did not order right quantities, ordered but did not receive right quantities, unexpected increase in consumption, or other. This question seeks to identify the **main reason** for the stockout, even if there were multiple reasons

### Calculation:

$$\text{Main Reasons for Stockout} = \frac{\text{Number of SDPs citing specific reason for stockout of a method}}{\text{Number of SDPs offering specific contraceptive method}} \times 100$$

### Numerator:

Number of SDPs experiencing a stockout due to:

1. Not placing order for shipment
2. Placing order but not receiving shipment
3. Ordering incorrect quantities
4. Ordering correct quantities but receiving incorrect quantities
5. Unexpected increase in consumption

**Denominator:** Number of SDPs interviewed that offer that method

**Data Source:** PMA/Core Service Delivery Point Survey, all family planning providers

*Questions:*

1. "You mentioned that you typically provide [*method*] at this facility, can you show them to me"
2. IF OUT OF STOCK "Why is this facility out of stock for [METHOD]?"

### Variable:

*stockout\_why\_implants*

*stockout\_why\_iud*

*stockout\_why\_injectables\_dp*

*stockout\_why\_injectables\_sp*

*stockout\_whys\_pills*

*stockout\_why\_ec*

*stockout\_why\_mc*

*stockout\_why\_fc*

*stockout\_why\_diap*

*stockout\_why\_foam*

*stockout\_why\_beads*

**Analysis:**

**Sample Stata code\*:**

```
use SDP.dta, clear

keep if fp_offered==1
tabulate stockout_why_implants
```

\*This tabulation can be done with any of the above-listed variables

**Notes:** NA

## Percent of SDPs that Offer Family Planning Services Charging General User Fees for Family Planning Services

**Description:** Percent of SDPs that offer family planning services charging general user fees for family planning services.

**Definition of Terms:** NA

**Calculation:**

$$\text{Percent charging user fees} = \frac{\text{Number of SDPs charging general user fees for family planning services}}{\text{Number of SDPs offering family planning}} \times 100$$

**Numerator:** Number of SDPs that offer family planning services charging general user fees for family planning services

**Denominator:** Number of SDPs that offer family planning services

**Data Source:** PMA/Core Service Delivery Point Survey, all family planning providers

**Question:** “Do family planning clients need to pay any fees in order to be seen by a provider in this facility even if they do not obtain a method of contraception?”

**Variable:** *fees\_rw*

**Analysis:**

### Sample Stata code:

```
use SDP.dta, clear

tabulate fees_rw
```

**Notes:** For surveys implemented before December 2017, the indicator was calculated using the following question “Does this facility have any routine user-fees or charges for any services related to family planning?”<sup>30</sup> The variable for this question is: *fees*

Variables for the average fee by method are also included in the dataset (unrelated to general user fees). They are dependent on the methods available in the country, and could include:

---

<sup>30</sup> Routine user fees are specific to family planning methods as opposed to the current wording that asks of fees not specific to family planning services.

*fees\_female\_ster*  
*fees\_male\_ster*  
*fees\_implants*  
*fees\_iud*  
*fees\_depo\_provera*  
*fees\_sayana\_press*  
*fees\_pills*

*fees\_ec*  
*fees\_male\_condoms*  
*fees\_female\_condoms*  
*fees\_diaphragm f*  
*fees\_foam*  
*fees\_beads*

## Percent of SDPs that Offer Implants with Availability of Instruments and Supplies for Implant Insertion/Removal

**Description:** Percent of SDPs that offer implants and have the instruments or supplies needed for implant and insertion and removal available.

**Definition of Terms:** The instruments needed to insert/remove implants are clean gloves, antiseptic, sterile gauze pad or cotton wool, local anesthetic, sealed implant pack, mosquito forceps<sup>31</sup>, and surgical blade.

### Calculation:

$$\text{Percent with supplies for implant insertion/removal} = \frac{\text{Number of SDPs that offer implants and have the instruments and supplies for implant insertion and removal}}{\text{Number of SDPs that provide implants}} \times 100$$

**Numerator:** Number of SDPs that have the instruments and supplies for implant insertion and removal

**Denominator:** Number of SDPs that provide implants

**Data Source:** PMA/Core Service Delivery Point Survey, all family planning providers providing implants

**Question:** “Does this facility have the following supplies needed to insert and/or remove implants?”

### Variable:

*implant\_gloves*  
*implant\_forceps*  
*implant\_antiseptic*  
*implant\_sterile\_gauze*  
*implant\_anesthetic*  
*implant\_sealed\_pack*  
*implant\_blade*

---

<sup>31</sup> Not included in PMA2020 survey

**Sample Stata code:**

```
use SDP.dta, clear

generate implant_supplies_personnel=0 if provided_implants==1
replace implant_supplies_personnel=1 if ///
  implant_insert == 1 & implant_remove == 1 & ///
  implant_gloves==1 & implant_antiseptic==1 & ///
  implant_sterile_gauze==1 & implant_anesthetic==1 ///
  & implant_sealed_pack==1 & implant_blade==1 ///
  & implant_forceps==1 & provided_implants==1

save SDP_implantsupplies.dta, replace
```

**Analysis:****Sample Stata code:**

```
use SDP_implantsupplies.dta, clear

tabulate implant_supplies_all
```

**Notes:** The variable *implant\_supplies* is also included in the dataset; it is the variable generated from the multiple choice question. *implant\_gloves*, *implant\_antiseptic*, *implant\_sterile\_gauze*, *implant\_anesthetic*, *implant\_sealed\_pack*, *implant\_blade*, *implant\_forceps* are generated from this variable.

## Percent of SDPs that Offer IUDs with Availability of Instruments and Supplies for IUDs

**Description:** Percent of SDPs that offer IUDs and have the instruments or supplies needed for IUD insertion and removal.

**Definition of Terms:** The instruments needed to insert/remove IUDs include: sponge-holding forceps, speculums (large and medium), tenaculum, scissors, exam-gloves<sup>32</sup>, antiseptic<sup>33</sup>, drapes<sup>34</sup>, and uterine sound.

### Calculation:

$$\text{Percent with supplies for IUD insertion/removal} = \frac{\text{Number of SDPs that offer IUDs and have the instruments and supplies for IUD insertion and removal}}{\text{Number of SDPs that provide IUDs}} \times 100$$

**Numerator:** Number of SDPs that offer IUDs services and have the instruments and supplies for IUD insertion and removal

**Denominator:** Number of SDPs that provide IUDs

**Data Source:** PMA/Core Service Delivery Point Survey, all family planning providers offering IUDs

**Question:** “Does this facility have the following supplies needed to insert and/or remove IUDs?”

### Variable:

*iud\_forceps*

*iud\_uterinesound*

*iud\_scissors*

*iud\_gloves*

*iud\_antiseptic*

*iud\_drapes*

*iud\_speculums*

*iud\_tenaculum*

### Sample Stata code:

```
use SDP.dta, clear

generate iud_supplies_personnel=0 if provided_iud==1
    replace iud_supplies_personnel=1 if iud_insert == 1 ///
    & iud_remove == 1 & iud_gloves == 1 & iud_antiseptic == 1 ///
    & iud_drapes == 1 & iud_scissors == 1 & iud_forceps == 1 ///
    & iud_speculums == 1 & iud_tenaculum == 1 ///
    & iud_uterinesound == 1 & provided_iud==11

save SDP_IUDsupplies.dta
```

<sup>32</sup> Not included in PMA2020 survey

<sup>33</sup> Not included in PMA2020 survey

<sup>34</sup> Not included in PMA2020 survey

## Analysis:

### Sample Stata code:

```
use SDP.dta, clear

tabulate iud_supplies_all
```

**Notes:** The variable *iud\_supplies* is also included in the dataset; it is the variable generated from the multiple choice question listed above. *iud\_forceps*, *iud\_gloves*, *iud\_antiseptic*, *iud\_drapes*, *iud\_scissors*, *iud\_speculums*, *iud\_tenaculum*, *iud\_uterinesound* are generated from this variable.

## Client Exit Interview Questionnaire

### Sampling

The PMA Client Exit Interview (CEI) survey sample is based on the SDP's client volume for the past month across all methods except condoms<sup>35</sup>. The CEI sample is calculated as follows:

$$CEI\ Sample = \frac{Total\ Number\ of\ Family\ Planning\ Clients - Condom\ Clients}{Number\ of\ days\ in\ a\ month\ that\ the\ facility\ provides\ FP\ services}$$

The result is rounded to the nearest whole number, and from this result, SDPs are sorted into one of two categories:

- Low Volume: Those serving fewer than 3 clients per day on average
- Medium-to-High Volume: Those serving 3 or more clients per day on average

PMA only conducts interviews in medium and high-volume facilities and conducts interviews over a two-day period.

### Data Structure

The dataset includes all females that were selected for a CEI, including sampled females that refused or did not complete the survey for any reason. Interview results are available in the variable: *CEI\_result*.

Each observation in the dataset refers to an individual female. Each female in the dataset has a unique ID called *metainstance\_ID*. There should be no duplicate *metainstance\_ID* in the dataset of one round.

Minimal information on the facility is available in the CEI dataset (facility type, managing authority and advanced facility). However, you can link the CEI and SDP datasets using the *facility\_ID* variable.

### Analysis and Interpretation

#### Weighting

PMA does not weight its CEI results during analysis because it uses convenience sampling of eligible women at SDPs included in the PMA SDP survey.

---

<sup>35</sup> PMA aims to have an estimate of female clients, and condoms are likely to be provided to male clients. Therefore, the PMA only conducts the CEI with female family planning clients

### Disaggregation

In addition to contraceptive use and access indicators, PMA collects demographic data for each included female and descriptive data for each SDP. This information can be used to provide descriptive statistics on each indicator of interest for analysis. The CEI dataset includes previously discussed disaggregates, including age, marital status, educational attainment, parity (described in the FQ section), and wealth (described below); and SDP facility type, and managing authority (described in the SDP section). All CEI indicators in this handbook can be stratified by these variables.

**Wealth** (*hh\_wealth\_selfrank*): The self-reported wealth of the respondent's household based on the ladder method. Respondents are asked to imagine a 10-step staircase where on the bottom step stand the poorest people and the top step stand the wealthiest. The respondents are then asked to report the step on which their household is located.

### Interpretation of Results

Results should be interpreted as the percentage of female family planning clients who are accessing facilities that serve a nationally representative population. They do not represent the percent of regional or national facilities that possess a certain characteristic (e.g., offer family planning services).

## Indicators

Percent of female FP clients who received information on the advantages/disadvantages of chosen method from the provider

**Description:** Percent of women who received information on the advantages and/or disadvantages of chosen method among women who received any information on family planning or a contraceptive method during their visit

**Definition of Terms:** NA

### Calculation:

$$\text{Percent Received Information} = \frac{\text{Number of women ages 15 to 49 years who received information about the advantages and or the disadvantages of their chosen contraceptive method at their visit}}{\text{Number of women ages 15 to 49 years who received information on family planning or a contraceptive method at during their visit}} \times 100$$

**Numerator:** Number of women ages 15 to 49 years who received information on the advantages and/or disadvantages of their chosen contraceptive method

**Denominator:** Number of women ages 15 to 49 years who received information on family planning or a contraceptive method during their visit

**Data Source:** PMA/Core Client Exit Interview Survey, all women who received information on family planning at their visit

1. “Did you receive any family planning information or a method during your visit today?”
2. [IF YES] “During your visit today, were you told by the provider about advantages and disadvantages with a method to delay or avoid pregnancy?”

**Variables:** *disc\_mtd\_pro\_con*

### Analysis:

#### Sample Stata code:

```
use CEI.dta, clear

tabulate disc_pro_con_fpmethod
```

**Notes:** NA

Percent of women who obtained the FP method they wanted

**Description:** Percent of female FP clients obtained the family planning method they wanted among women who received any information on family planning or a contraceptive method during their visit

**Definition of Terms:** NA

**Calculation:**

$$\text{Percent Received Desired Method} = \frac{\text{Number of women ages 15 to 49 years who received the family planning method of their choice during their visit}}{\text{Number of women ages 15 to 49 years who received information on family planning or a contraceptive method during their visit}} \times 100$$

**Numerator:** Number of women ages 15 to 49 years who received the family planning method of their choice during their visit

**Denominator:** Number of women ages 15 to 49 years who received information on family planning or a contraceptive method during their visit

**Data Source:** PMA/Core Client Exit Interview Survey, all women who received information on family planning at their visit

1. “Did you receive any family planning information or a method during your visit today?”
2. [IF YES] “During your visit today, did you obtain the method of family planning you wanted?”

**Variables:** *fp\_obtain\_desired*

**Analysis:**

**Sample Stata code:**

```
use CEI.dta, clear  
  
tabulate fp_obtain_desired
```

**Notes:** NA

Percent of women who were satisfied with the FP services they received from the facility

**Description:** Percent of female FP clients who were satisfied with their family planning services among women who received any information on family planning or a contraceptive method at their visit

**Definition of Terms:** NA

**Calculation:**

$$\text{Percent Received Information} = \frac{\text{Number of women ages 15 to 49 years who were satisfied with the family planning services they received from the facility}}{\text{Number of women ages 15 to 49 who received information on family planning or a contraceptive method at during their visit}} \times 100$$

**Numerator:** Number of women selecting specific level from four-point likert scale

- Very satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Dissatisfied
- Very dissatisfied

**Denominator:** Number of women ages 15 to 49 who received information on family planning or a contraceptive method during their visit

**Data Source:** PMA/Core Client Exit Interview Survey, all women who received information on family planning at their visit

1. "Did you receive any family planning information or a method during your visit today?"
2. [IF YES] "Overall, how satisfied are you with the family planning services you received at this establishment today? Would you say very satisfied, satisfied, neither satisfied nor dissatisfied, dissatisfied, or very dissatisfied?"

**Variables:** *service\_satisfied*

**Analysis**

**Sample Stata code:**

```
use CEI.dta, clear
```

```
tabulate satisfied_services_today
```

**Notes:** NA

## Annex 1: Creation of household and female weights in PMA

The design of the household and female survey is an open, prospective, observational cohort survey. At baseline (phase 1), a brief household survey is conducted where in all occupants in the sampled households are enumerated and all resident women ages 15–49 are identified as eligible for the female survey. At the end of the baseline survey interview, all households and women will be recruited to participate in the panel.

The panel household and female surveys will be conducted in 12-month intervals. The household sample in phases 2 and 3 will consist of the sample households drawn at the baseline (phase 1) and households that moved into the index housing structure between phase 1 and phases 2 and 3 and have been enrolled into the panel.

PMA will generate cross-sectional and panel estimates for key indicators. Weighting will allow to produce unbiased estimates.

### Phase 1, Cross-sectional Surveys

The weighting process for cross-sectional surveys involves 3 steps:

1. Obtain the design weights that account for sample selection
2. Adjust the design weights for non-response
3. Adjust the weights to the population totals.

PMA employs a multi-stage stratified cluster sampling approach, where households and are surveyed in clusters or enumeration areas (EAs) and collaborates with the National Statistical Organization (NSO) in each country to obtain a representative survey sample. The NSO selects EAs with probability proportional to size (PPS) using the master sampling frame stratified by urban-rural areas. PMA receives the sampled EAs as well as their selection probabilities. Each EA is then mapped, and a census list of households is compiled for constructing the household listing frame for the EA. PMA use a take size of 35 households within each cluster. The selection probability of the household is calculated as the probability of selecting the EA times the probability of selecting the household in the EA. The design survey weights are then created as the inverse of the household selection probability. The weights are further adjusted for non-response at the household level within the EA.

With PPS sampling, the selection probability of a unit (i.e., EA) is:

$$\pi_i^{pps} = \frac{n * P_i}{\sum_{i \in u} P_i}$$

where  $n$  is the sample size of the EA, and  $P_i$  is the measure of size (e.g. population size, number of households) in the EA unit  $i$ . The denominator  $P_i$  is summed over all units in the specific survey domain. The survey domain, for example, will be urban/rural strata by region, county, or province. This selection probability is usually provided by the NSO.

### Household Weight

With the EA selection probabilities provided by the NSO, we calculate the selection probability of the secondary sampling units (SSU) – households. Since 35 households are selected for interview within each EA, the selection probability of the household in the  $i$ -th EA is:

$$H_i = \frac{35}{P_i}$$

The design weight is then

$$w_i = \frac{1}{\pi_i^{pps} \times H_i}$$

The design weight for the  $i$ -th EA is adjusted for the (unit) non-response rate (i.e., household non-response rate within an EA) by multiplying the weight  $w_i$  by the factor

$$R_i = \frac{1}{1 - f_i}$$

where  $f_i$  is the non-response rate. The household response rate is defined as the number of households with a completed household interview divided by the number of occupied households that is, households with a completed household interview, households that live in the dwelling but no household member was at home or no competent respondent was at home at the time of the visit, households with permanently postponed, refused, or partly completed interviews.

### Female Weight

As all females age 15-49 within a household are surveyed, no further selection probability of eligible women is needed to generate the female weight (self-weighted). Instead, the household weight is adjusted for the female non-response at the EA level. Female non-response is defined as the number of completed female surveys divided by the total number of female surveys.

To create the final weights, the household and female weights are then each normalized at the national level. In the case of countries where the survey was conducted in a selected administrative area (e.g., Kinshasa, Democratic Republic of Congo), the household and female weights are normalized within the administrative area.

## Annex 2: List of Key Variables for the Household Survey

Country	State/Region	Round	Phase	EA/Cluster	Weight		Strata	Wealth Tertile/Quintile	Wealth Score
					Household	Female			
Burkina Faso	National	1	–	EA_ID	HHweight	FQweight	strata	wealthtertile	score
		2	–	EA_ID	HHweight	FQweight	strata	wealthtertile	score
		3	–	EA_ID	HHweight	FQweight	strata	wealthtertile	score
		4	–	EA_ID	HHweight	FQweight	strata	wealthtertile	score
		5	–	EA_ID	HHweight	FQweight	strata	wealthtertile	score
		6	–	EA_ID	HHweight	FQweight	strata	wealthtertile	score
	–	1	EA_ID	HHweight_National	FQweight_Natioal	strata	wealthtertile_National	score	
	Centre	–	1	EA_ID	HHweight_Centre	HHweight_Centre	strata	wealthtertile_Centre	Score
	Haut Bassins	–	1	EA_ID	HHweight_Haut_Bassins	HHweight_Haut_Bassins	Strata	wealthtertile_Haut_Bassins	score
Côte d'Ivoire <sup>36</sup>	–	1	–	EA_ID	HHweight	FQweight	strata	wealthquintile	score
		2	–	EA_ID	HHweight	FQweight	strata	wealthquintile	score
		–	1						
Democratic Republic of the Congo	Kinshasa	1	–	EA_ID	HHweight	FQweight	–	wealthquintile	score
		2	–	EA_ID	HHweight	FQweight	–	wealthquintile	score
		3	–	EA_ID	HHweight	FQweight	–	wealthquintile	score
		4	–	EA_ID	HHweight	FQweight	–	wealthquintile	score
		5	–	EA_ID	HHweight	FQweight	–	wealthquintile	score
		6	–	EA_ID	HHweight	FQweight	–	wealthquintile	score
		7	–	EA_ID	HHweight	FQweight	–	wealthquintile	score
		–	1	EA_ID	HHweight	FQweight	–	wealthquintile	score
	Kongo Central	1	–	EA_ID	HHweight	FQweight	–	wealthquintile	score
		2	–	EA_ID	HHweight	FQweight	–	wealthquintile	score
		3	–	EA_ID	HHweight	FQweight	–	wealthquintile	score
		4	–	EA_ID	HHweight	FQweight	–	wealthquintile	score
		–	1	EA_ID	HHweight	FQweight	–	wealthquintile	score
Ethiopia	–	1	–	EA_ID	HHweight	FQweight	strata	wealthtertile	score
		2	–	EA_ID	HHweight	FQweight	strata	wealthtertile	score
		3	–	EA_ID	HHweight	FQweight	strata	wealthtertile	score
		4	–	EA_ID	HHweight	FQweight	strata	wealthtertile	score
		5	–	EA_ID	HHweight	FQweight	strata	wealthtertile	score
		6	–	EA_ID	HHweight	FQweight	Strata	Wealthtertile	score

<sup>36</sup> Phase 1 dataset not available at time of publication, will update when available

Ghana	-	1	-	EA_ID	HHweight	FQweight	strata	wealthtertile	score
		2	-	EA_ID	HHweight	FQweight	strata	wealthtertile	score
		3	-	EA_ID	HHweight	FQweight	strata	wealthtertile	score
		4	-	EA_ID	HHweight	FQweight	strata	wealthtertile	score
		5	-	EA_ID	HHweight	FQweight	strata	wealthtertile	score
		6	-	EA_ID	HHweight	FQweight	strata	wealthtertile	score
India <sup>37</sup>	Rajasthan	1	-	EA_ID	HHweight	FQweight	strata	wealthquintile	score
		2	-	EA_ID	HHweight	FQweight	strata	wealthquintile	score
		3	-	EA_ID	HHweight	FQweight	strata	wealthquintile	score
		4	-	EA_ID	HHweight	FQweight	strata	wealthquintile	score
		-	1						
Indonesia	-	1	-	EA_ID	HHweight	FQweight	strata	wealth	score
		2	-	EA_ID	HHweight	FQweight	strata	wealth	score
Kenya	National	1	-	EA_ID	HHweight	FQweight	strata	wealth	score
		2	-	EA_ID	HHweight	FQweight	strata	wealth	score
		3	-	EA_ID	HHweight	FQweight	strata	wealth	score
		4	-	EA_ID	HHweight	FQweight	strata	wealth	score
		5	-	EA_ID	HHweight	FQweight	strata	wealth	score
		6	-	EA_ID	HHweight	FQweight	strata	wealth	score
		-	1	EA_ID	HHweight_National	FQweight_National	strata	wealth_National	score
	Bungoma	-	1	EA_ID	HHweight_Bungoma	FQweight_Bungoma	strata	wealth_Bungoma	score
	Kericho	-	1	EA_ID	HHweight_Kericho	FQweight_Kericho	strata	wealth_Kericho	score
	Kiambu	-	1	EA_ID	HHweight_Kiambu	FQweight_Kiambu	strata	wealth_Kiambu	score
	Kilifi	-	1	EA_ID	HHweight_Kilifi	FQweight_Kilifi	strata	wealth_Kilifi	score
	Kitui	-	1	EA_ID	HHweight_Kitui	FQweight_Kitui	strata	wealth_Kitui	score
	Nairobi	-	1	EA_ID	HHweight_Nairobi	FQweight_Nairobi	strata	wealth_Nairobi	score
	Nandi	-	1	EA_ID	HHweight_Nandi	FQweight_Nandi	strata	wealth_Nandi	score
Nyamira	-	1	EA_ID	HHweight_Nyamira	FQweight_Nyamira	strata	wealth_Nyamira	score	
Siaya	-	1	EA_ID	HHweight_Siaya	FQweight_Siaya	strata	wealth_Siaya	score	
Kakamega	-	1	EA_ID	HHweight_Kakamega	FQweight_Kakamega	strata	wealth_Kakamega	score	
West Pokot	-	1	EA_ID	HHweight_West_Pokot	FQweight_West_Pokot	strata	wealth_West_Pokot	score	
Niger <sup>37</sup>	Niamey	1	-	EA_ID	HHweight	FQweight	strata	wealthtertile	score_Niamey
		2	-	EA_ID	HHweight	FQweight	strata	wealthtertile_Niamey	score_Niamey
		3	-	EA_ID	HHweight	FQweight	strata	wealthtertile_Niamey	score_Niamey
		4	-	EA_ID	HHweight	FQweight	strata	wealthtertile_Niamey	score_Niamey
		5	-	EA_ID	HHweight	FQweight	strata	wealthtertile_Niamey	score_Niamey
		-	1						

<sup>37</sup> Phase 1 dataset not available at time of publication, will update when available

	<i>National</i>	2	–	EA_ID	HHweight	FQweight	strata	wealthtertile_National	score_National
		4	–	EA_ID	HHweight	FQweight	strata	wealthtertile_National	score_National
		–	1						
<b>Nigeria</b>	<i>National</i>	3	–	Cluster_ID	HHweight_National	FQweight_National	strata	wealthquintile_National	score_National
		4	–	Cluster_ID	HHweight_National	FQweight_National	strata	wealthquintile_National	score_National
	<i>Anambra</i>	3	–	Cluster_ID	HHweight_Anambra	FQweight_Anambra	strata	wealthquintile_Anambra	score_Anambra
		4	–	Cluster_ID	HHweight_Anambra	FQweight_Anambra	strata	wealthquintile_Anambra	score_Anambra
	<i>Kano</i>	3	–	Cluster_ID	HHweight_Kano	FQweight_Kano	strata	wealthquintile_Kano	score_Kano
		4	–	Cluster_ID	HHweight_Kano	FQweight_Kano	strata	wealthquintile_Kano	score_Kano
		–	1	Cluster_ID	HHweight	FQweight	strata	wealthquintile	score
	<i>Kaduna</i>	1	–	Cluster_ID	HHweight_Kaduna	FQweight_Kaduna	strata_kaduna	wealthquintile_Kaduna	score_Kaduna
		2	–	Cluster_ID	HHweight_Kaduna	FQweight_Kaduna	strata_kaduna	wealthquintile_Kaduna	score_Kaduna
		3	–	Cluster_ID	HHweight_Kaduna	FQweight_Kaduna	strata_kaduna	wealthquintile_Kaduna	score_Kaduna
		4	–	Cluster_ID	HHweight_Kaduna	FQweight_Kaduna	strata_kaduna	wealthquintile_Kaduna	score_Kaduna
	<i>Lagos</i>	1	–	Cluster_ID	HHweight_Lagos	FQweight_Lagos	strata_Lagos	wealthquintile_Lagos	score_Lagos
		2	–	Cluster_ID	HHweight_Lagos	FQweight_Lagos	strata_Lagos	wealthquintile_Lagos	score_Lagos
		3	–	Cluster_ID	HHweight_Lagos	FQweight_Lagos	strata_Lagos	wealthquintile_Lagos	score_Lagos
		4	–	Cluster_ID	HHweight_Lagos	FQweight_Lagos	strata_Lagos	wealthquintile_Lagos	score_Lagos
		–	1	Cluster_ID	HHweight	FQweight	strata	wealthquintile	score
	<i>Nasarawa</i>	3	–	Cluster_ID	HHweight_Nasarawa	FQweight_Nasarawa	strata_Nasarawa	wealthquintile_Nasarawa	score_Nasarawa
		4	–	Cluster_ID	HHweight_Nasarawa	FQweight_Nasarawa	strata_Nasarawa	wealthquintile_Nasarawa	score_Nasarawa
	<i>Taraba</i>	3	–	Cluster_ID	HHweight_Taraba	FQweight_Taraba	strata_Taraba	wealthquintile_Taraba	score_Taraba
		4	–	Cluster_ID	HHweight_Taraba	FQweight_Taraba	strata_Taraba	wealthquintile_Taraba	score_Taraba
<i>Rivers</i>	3	–	Cluster_ID	HHweight_Rivers	FQweight_Rivers	strata_Rivers	wealthquintile_Rivers	score_Rivers	
	4	–	Cluster_ID	HHweight_Rivers	FQweight_Rivers	strata_Rivers	wealthquintile_Rivers	score_Rivers	
<b>Uganda<sup>38</sup></b>	–	1	–	EA_ID	HHweight	FQweight	strata	wealthquintile	score
		2	–	EA_ID	HHweight	FQweight	strata	wealthquintile	score
		3	–	EA_ID	HHweight	FQweight	strata	wealthquintile	score
		4	–	EA_ID	HHweight	FQweight	strata	wealthquintile	score
		5	–	EA_ID	HHweight	FQweight	strata	wealthquintile	score
		6	–	EA_ID	HHweight	FQweight	strata	wealthquintile	score
		–	1						

<sup>38</sup> Phase 1 dataset not available at time of publication, will update when available

### Annex 3: List of Key Variables for the Service Delivery Point Survey

Country	State/Region	Round	Phase	EA/Cluster	Weight	Strata
Burkina Faso	–	1	–	EA_ID	EWeight	strata
		2	–	EA_ID	EWeight	strata
		3	–	EA_ID	EWeight	strata
		4	–	EA_ID	EWeight	strata
		5	–	EA_ID	EWeight	strata
		6	–	EA_ID	EWeight	strata
		–	1	EA_ID	EWeight	strata
Côte d'Ivoire <sup>39</sup>	–	1	–	EA_ID	EWeight	strata
		2	–	EA_ID	EWeight	strata
		–	1	EA_ID	EWeight	strata
Democratic Republic of the Congo	Kinshasa	1	–	EA_ID	EWeight	–
		2	–	EA_ID	EWeight	–
		3	–	EA_ID	EWeight	–
		4	–	EA_ID	EWeight	–
		5	–	EA_ID	EWeight	–
		6	–	EA_ID	EWeight	–
		–	1	EA_ID	EWeight	–
	Kongo Central	1	–	EA_ID	EWeight	–
		2	–	EA_ID	EWeight	–
		3	–	EA_ID	EWeight	–
–		1	EA_ID	EWeight	–	
Ethiopia	–	1	–	EA_ID	EWeight	strata
		2	–	EA_ID	EWeight	strata
		3	–	EA_ID	EWeight	strata
		4	–	EA_ID	EWeight	strata
		5	–	EA_ID	EWeight	strata
		6	–	EA_ID	EWeight	strata
Ghana	–	1	–	EA_ID	EWeight	strata
		2	–	EA_ID	EWeight	strata
		3	–	EA_ID	EWeight	strata
		4	–	EA_ID	EWeight	strata
		5	–	EA_ID	EWeight	strata
		6	–	EA_ID	EWeight	strata
India <sup>39</sup>	Rajasthan	1	–	EA_ID	EWeight	strata
		2	–	EA_ID	EWeight	strata
		–	1			
Indonesia	–	1	–	EA_ID	EWeight	strata
		2	–	EA_ID	EWeight	strata
Kenya	–	1	–	EA_ID	EWeight	strata
		2	–	EA_ID	EWeight	strata
		3	–	EA_ID	EWeight	strata
		4	–	EA_ID	EWeight	strata
		5	–	EA_ID	EWeight	strata
		6	–	EA_ID	EWeight	strata
		–	1			
Niger <sup>39</sup>	Niamey	1	–	EA_ID	EWeight	strata
		2	–	EA_ID	EWeight	strata
		3	–	EA_ID	EWeight	strata

<sup>39</sup> Phase 1 dataset not available at time of publication, will update when available

		4	–	EA_ID	EWeight	strata	
		5	–	EA_ID	EWeight	strata	
		–	1	EA_ID	EWeight	strata	
	<i>National</i>		2	–	EA_ID	EWeight	strata
			4	–	EA_ID	EWeight	strata
			–	1	EA_ID	EWeight	strata
<b>Nigeria</b>	<i>National</i>	3	–	Cluster_ID	Clusterweight	strata	
		4	–	Cluster_ID	Clusterweight	strata	
	<i>Anambra</i>	3	–	Cluster_ID	Clusterweight	strata	
		4	–	Cluster_ID	Clusterweight	strata	
	<i>Kano</i>	3	–	Cluster_ID	Clusterweight	strata	
		4	–	Cluster_ID	Clusterweight	strata	
		–	1	Cluster_ID	Clusterweight	strata	
	<i>Kaduna</i>	1	–	Cluster_ID	Clusterweight	strata	
		2	–	Cluster_ID	Clusterweight	strata	
		3	–	Cluster_ID	Clusterweight	strata	
		4	–	Cluster_ID	Clusterweight	strata	
	<i>Lagos</i>	1	–	Cluster_ID	Clusterweight	strata	
		2	–	Cluster_ID	Clusterweight	strata	
		3	–	Cluster_ID	Clusterweight	strata	
		4	–	Cluster_ID	Clusterweight	strata	
		–	1	Cluster_ID	Clusterweight	strata	
	<i>Nasarawa</i>	3	–	Cluster_ID	Clusterweight	strata	
		4	–	Cluster_ID	Clusterweight	strata	
	<i>Taraba</i>	3	–	Cluster_ID	Clusterweight	strata	
		4	–	Cluster_ID	Clusterweight	strata	
	<i>Rivers</i>	3	–	Cluster_ID	Clusterweight	strata	
		4	–	Cluster_ID	Clusterweight	strata	
	<b>Uganda<sup>40</sup></b>	–	1	–	EA_ID	EWeight	strata
			2	–	EA_ID	EWeight	strata
3			–	EA_ID	EWeight	strata	
4			–	EA_ID	EWeight	strata	
5			–	EA_ID	EWeight	strata	
6			–	EA_ID	EWeight	strata	
–			1				

<sup>40</sup> Phase 1 dataset not available at time of publication, will update when available

## Annex 4: List of Key Variables for the Client Exit Interview Survey

Country	State/Region	Round	Phase	EA/Cluster	Weight	Strata
Burkina Faso	–	–	1	EA_ID	N/A	strata
Côte d’Ivoire <sup>41</sup>	–	–	1			
Democratic Republic of Congo	<i>Kinshasa</i>	–	1	EA_ID	N/A	–
	<i>Kongo Central</i>	–	1	EA_ID	N/A	–
India <sup>41</sup>	<i>Rajasthan</i>	–	1			
Kenya	–	–	1	EA_ID	N/A	strata
Niger <sup>41</sup>	–	–	1			
Nigeria	<i>Kano</i>	–	1	Cluster_ID	N/A	N/A
	<i>Lagos</i>	–	1	Cluster_ID	N/A	N/A
Uganda <sup>41</sup>	–	–	1			

<sup>41</sup> Public data not available at time of publication, will update when available

## Annex 5: List of Information for the Contraceptive Calendar

Country	State/Region	Phase	Start Year	End Year	Length
Burkina Faso	–	1	2018	2020	36
Côte d'Ivoire	–	1	2018	2020	36
Democratic Republic of Congo	<i>Kinshasa</i>	1	2017	2020	48
	<i>Kongo Central</i>	1	2017	2020	48
India	<i>Rajasthan</i>	1			
Kenya	–	1			
Niger	<i>National</i>	1	2018	2020	36
Nigeria	<i>Kano</i>	1	2017	2020	48
	<i>Lagos</i>	1	2017	2020	48
Uganda	–	1			

## Annex 6: Further Information on Missing Data

In Stata, missing data are expressed as “.” for numeric data and “” for string data. The majority of commands in Stata handle missing data by omitting the missing values. However, this may vary across commands. PMA does not impute missing values.

### Reasons for Missing Data

#### Common occurrences

- **Incomplete questionnaire:** If a household, female, or SDP questionnaire is not marked as completed (*HHQ\_result*, *FRS\_result*, *SDP\_result* not equal to 1), information is most likely missing. Do not include incomplete forms in analysis.
- **Ineligible respondents:** Only women aged 15 to 49 years respond to the female questionnaire. Therefore, all female questionnaire observations for ineligible respondents (males and ineligible females) appear as missing in the dataset. Do not include ineligible respondents in analysis.
- **Skipped Question:** Due to the skip logic built into PMA surveys, irrelevant and inapplicable questions are skipped. For example, a woman who is not currently using contraception will not be asked questions about current contraceptive usage.

#### Uncommon occurrences

- **Lost forms:** Technical issues may result in the loss of questionnaires during data submission. Even though most forms are recovered during the data cleaning process, some are not found and result in household questionnaires with a missing female questionnaire or vice versa. Inclusion will depend on analytical needs.
- **Incorrect skip logic:** In rare cases, questionnaires with incorrect skip logics are administered resulting in missing values for eligible respondents. These errors are documented in the [PMA codebook](#).

### Distinguish Missing Data from Negative Values

- **-99 (No response):** The respondent was administered with the question, but did not provide an answer.
- **-88 (Do not know):** The respondent was administered with the question, but did not know the answer.
- **-77 (Not applicable):** The respondent was administered the question, but the question was not applicable to the respondent’s situation.