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CONTRACEPTIVE USE AND PERINATAL MORTALITY IN THE DHS: AN ASSESSMENT OF THE QUALITY AND CONSISTENCY OF CALENDARS AND HISTORIES

DHS METHODOLOGICAL REPORTS 17

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Contraceptive Use and Perinatal Mortality in the DHS: An Assessment of the Quality and Consistency of Calendars and Histories

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Preface

The Demographic and Health Surveys (DHS) Program is one of the principal sources of international data on fertility, family planning, maternal and child health, nutrition, mortality, environmental health, HIV/AIDS, malaria, and provision of health services.

One of the objectives of The DHS Program is to continually assess and improve the methodology and procedures used to carry out national-level surveys as well as to offer additional tools for analysis. Improvements in methods used will enhance the accuracy and depth of information collected by The DHS Program and relied on by policymakers and program managers in low- and middle-income countries.

While data quality is a main topic of the DHS Methodological Reports series, the reports also examine issues of sampling, questionnaire comparability, survey procedures, and methodological approaches. The topics explored in this series are selected by The DHS Program in consultation with the U.S. Agency for International Development.

It is hoped that the DHS Methodological Reports will be useful to researchers, policymakers, and survey specialists, particularly those engaged in work in low- and middle-income countries, and will be used to enhance the quality and analysis of survey data.

Sunita Kishor
Director, The DHS Program

Abstract

This study analyzes the quality of perinatal mortality and retrospective contraceptive prevalence rates calculated from various instruments used in the Demographic and Health Surveys.

Perinatal mortality: In this report we compared methods for estimating perinatal mortality in The DHS Program. None of the methods appear to adequately capture perinatal mortality by the standard that we selected. However, we found that the pregnancy history and the birth history supplemented by special questions performed better than the birth history supplemented by the reproductive calendar.

Contraceptive prevalence tabulated from the reproductive calendar: We assessed the consistency of contraceptive use reporting in the calendar by comparing retrospective contraceptive prevalence rates tabulated from the calendar with independently estimated current status contraceptive prevalence rates from a prior survey. We compared estimates from the two data sources for the same point in time among women in the same age groups. We found evidence of substantial underreporting of retrospective contraceptive use in the majority of calendars analyzed relative to current status estimates.

Results suggest that both stillbirths and contraceptive use are underestimated in data collected using the reproductive calendar. We recommend experiments in future DHS surveys: random assignment of some households to receive a birth history plus calendar and others a pregnancy history, or a forward pregnancy history versus a backward pregnancy history to assess the impact on reporting of stillbirths; and experiments with shorter calendars and potentially alternative methods of electronic data collection to assess the impact of these changes on reporting of contraceptive use and discontinuation.

Executive Summary

This report analyzes the quality of perinatal mortality calculated from various instruments used in the Demographic and Health Surveys and contraceptive prevalence rates calculated with the reproductive calendar.

Perinatal Mortality

Perinatal mortality is calculated using the sum of stillbirths and early neonatal deaths. In the Demographic and Health Surveys there are three distinct mechanisms for gathering information necessary for this calculation: 1) a birth history supplemented by the reproductive calendar; 2) a pregnancy history; and 3) a birth history with specific questions concerning stillbirths. A secondary consideration is whether asking the interviewee about her pregnancy history starting from most recent pregnancy to first pregnancy (backward) or from first pregnancy to most recent pregnancy (forward) yields the best results.

In the literature, it has been frequently noted that survey-based estimates of stillbirths are underestimates. A World Health Organization report states that the ratio of stillbirths to early neonatal deaths should be approximately 1.2. In this report we evaluate the estimation of perinatal mortality based on how close the ratio of stillbirths to early neonatal mortality approaches 1.2.

In general, we find that none of the methods perform well by the standard that we selected. However, we find that the pregnancy history and the birth history supplemented by special questions perform better than the birth history supplemented by the reproductive calendar. One particularly compelling case is from Ghana where The DHS Program conducted two surveys in 2008. One survey used a birth history and the other a pregnancy history. The perinatal mortality rate calculated with the pregnancy history came much closer to the desired ratio of 1.2 for the stillbirth to early neonatal mortality ratio than the survey using birth history. In summary analysis tables, the average of the ratio for the various surveys conducted with a pregnancy history or a birth history supplemented by special questions was closer to the desired ratio of 1.2 than the average of surveys with only a birth history and a reproductive calendar. Unfortunately, the available surveys did not allow us to make solid conclusions regarding the quality of the forward-queried versus backward-queried pregnancy history.

We recommend that controlled trials be conducted within a particular Demographic and Health Survey to confirm these findings and also to come to a firmer conclusion about the relative quality of the forward-looking pregnancy history versus the backward-looking pregnancy history.

Contraceptive Prevalence in the Reproductive Calendar

The DHS calendar is a six-year month-by-month retrospective history of all reproductive events (pregnancies, live births, and terminations) and episodes of contraceptive use. We evaluated the consistency of reported levels of total contraceptive prevalence, as well as the prevalence of each contraceptive method, by comparing retrospective reports of contraceptive prevalence collected in the calendar with the independently estimated level of current contraceptive use reported in a prior survey in the same country. We compared estimates from the two data sources for the same point in time from women of the same ages. We used all available data, drawing comparisons between data sources across 106 survey pairs from 67 countries.

Using this method we found evidence of substantial underreporting of contraceptive use in the majority of calendars analyzed. Levels of total contraceptive use differ significantly between the calendar and current

use reports in 74 percent of survey pairs analyzed. The gap between CPR estimates was 4.1 percentage points on average across the 106 survey pairs analyzed, or 15 percent of the average current status CPR.

Condom use was reported at significantly lower levels in the calendar than in the current use data for the same time point in more than half of surveys analyzed. The lactational amenorrhea method also appeared inconsistently reported. Traditional and short-term methods (periodic abstinence, withdrawal, pills, injectables) were reported at significantly different levels in the calendar than current use in approximately 40 percent of surveys analyzed. Reporting of long-term methods (IUD, sterilization, and implant) appeared far more consistent between the two data sources.

There also appears to be regional variation in the consistency of contraceptive use reporting in the calendar. Results suggest that the calendar does not accurately capture contraceptive use in the vast majority of surveys in sub-Saharan Africa and South/Southeast Asia. By contrast, the calendar appears to capture contraceptive use with a reasonable degree of consistency in many surveys in the Latin American and Caribbean and North Africa/West Asia/Eastern Europe subregions.

We note that some of the discrepancies between data sources are likely to be explained by the fact that women's memories are fallible, especially when asked to recall the use of short-term episodes of contraceptive use that may have occurred up to six years prior to the interview. At the same time, we also note that evidence from some surveys shows that what appears to be consistent recall of contraceptive use throughout the calendar period is possible, at least in some settings. We suggest further investigation of the methods used to collect calendar data in surveys that demonstrated complete reporting of contraceptive use, to see if strategies used in these surveys could be applied more broadly. We also recommend experiments with shorter calendars and potentially alternative methods of collecting retrospective contraceptive use electronically in an effort to limit recall biases and improve the consistency of contraceptive use reporting in calendar data.

Chapter 1: Introduction

In the following chapters of this report, we assess the quality and consistency of various portions of DHS data by comparing results calculated from the data to an externally calculated standard. In the perinatal mortality chapter (Chapter 2), we compare the ratio of stillbirth rates and early neonatal mortality rates calculated from 168 DHS and RHS datasets to an international standard that was derived from vital statistics and endorsed by the World Health Organization (WHO 2006). In the contraceptive use chapter (Chapter 3), we compare retrospective contraceptive prevalence rates calculated from calendar data collected in more than 100 DHS surveys to externally calculated current use contraceptive prevalence rates from an earlier DHS survey for the same time period in the same country. In both chapters, we treat the external information—the metric of 1.2 for the ratio of stillbirth rates to early neonatal mortality rates and the contraceptive prevalence rates calculated from current use data—as the standard for each estimate, and we compare survey-specific results to those standards.

In Chapter 2, we compare the ratios of the stillbirth rate and early neonatal mortality rate calculated using three different tools:

1. A birth history plus the reproductive calendar,
2. A birth history plus special questions about pregnancy terminations, used in Reproductive Health Surveys, or
3. A pregnancy history, with variation in the ordering in which women were asked about their pregnancies (from first pregnancy to most recent or the reverse).

We then attempt to assess which of these tools produce ratios of stillbirth rates and early neonatal mortality rates that are closest to the international standard. Because only one of the three tools listed above was used to collect perinatal mortality information in each survey, data collected using different tools are not directly compared, so we are somewhat limited in our ability to draw firm conclusions. The chapter concludes with recommendations that would allow for direct comparisons between data collection tools.

In Chapter 3, we use data collected in the reproductive calendar to calculate contraceptive prevalence rates in each month covered by the multi-year retrospective histories. We also calculate the prevalence of use of each contraceptive method in each month covered by the calendar. We then compare these results, both graphically and statistically, to contraceptive prevalence rates estimated from current-use data in an earlier DHS survey that was conducted during the time period covered by the calendar. We compare these two data points for the same date, after limiting results to women of the same age (and marital status, in surveys that only interviewed ever-married women) in both data sources. We then summarize results by contraceptive method, geographic region, and survey characteristics. Based on these findings, we offer brief recommendations.

Finally, Chapter 4 summarizes the results and recommendations from the perinatal mortality and contraceptive use analyses.

Chapter 2: Assessing the Quality of Perinatal Mortality Data from Pregnancy and Birth Histories

Over the last 30 years the Demographic and Health Survey (DHS) program has used two different instruments to measure fertility—birth histories and pregnancy histories. The use of these instruments is mutually exclusive. A survey uses one or the other but never both. Questions within these instruments also query whether children, the result of live births, are still alive and if they died how old they were at death. In the case of pregnancy histories, the outcomes of pregnancies not ending in a live birth are recorded as miscarriages, induced abortions or stillbirths. Therefore with the pregnancy history alone, an analyst can calculate perinatal mortality (including stillbirths and early neonatal deaths). The birth history, if supplemented by additional questions or a reproductive calendar, can also be used to tabulate perinatal mortality. This chapter will make an assessment of whether the pregnancy history or the birth history supplemented by additional questions or the reproductive calendar does a better job of collecting data for a tabulation of perinatal mortality.

2.1 Background

The gold standard for evaluating different methods of survey data collection is to compare rates gathered from the survey with rates from vital registration or similar data. In this study we are unable to do this because we lack the relevant data. Espeut (2002) compared birth histories and childhood mortality as measured by pregnancy histories versus birth histories. Comparing events from the histories with events reported in a comprehensive Demographic Surveillance System (DSS),[1] she found that the pregnancy history did a better of job of placing the births and deaths in time relative to the birth history. Although the differences between the birth history and pregnancy history were statistically significant, they were not necessarily large in an absolute sense. On the other hand, in regression analysis she found that the odds of births being missed was higher in the birth histories than in the pregnancy history (2.0 odds ratio) and was much higher for children who died (odds ratio of 22.5). Since the birth history was not supplemented by information on pregnancies resulting in a non-live birth, she was not able to comment on whether the pregnancy history or the birth history did a better job of measuring perinatal mortality.

In the last 15 years several teams have attempted global assessments of perinatal mortality rates or stillbirth rates. Each of these attempts to assess the global burden of perinatal mortality or stillbirths has pointed out the limitations of surveys such as the DHS for measuring perinatal mortality and in particular stillbirth rates (e.g., WHO 2006, Cousens et al. 2012, Stanton et al. 2006, and Lawn et al. 2010).

The usual evidence supplied in documenting this limitation is that the ratio of stillbirth rates (SBR) to early neonatal mortality rates (ENMR) is low for almost all surveys in the DHS and Reproductive Health Surveys (RHS) series. The WHO report "Neonatal and Perinatal Mortality: Country, Regional and Global Estimates" (WHO 2006) presented the results of a historical review of SBR/ENMR ratios derived from vital registration systems in Chile, Denmark, Hong Kong, Mexico, the Netherlands, Norway, Scotland, Singapore, Sweden and the United States. The ratios ranged from 0.7 to 1.9. Depending on the level of the early neonatal mortality rate, the mean was 1.3, 1.4, or 1.5 and the median ranged from 1.2 to 1.5.

A challenge noted in the WHO report is the paucity of good stillbirth data based on vital registration or other solid sources. On the other hand, the report noted relatively solid data existed for early neonatal mortality. Based on the historical data described above they decided to use 1.2 as a multiplicative factor for translating early neonatal mortality rates into stillbirth rates. Other sources have cited this factor of 1.2

[1] This study actually goes beyond the gold standard of comparing rates to actually ascertaining on a case by case basis if the events are accurately and completely reported in the survey.

as a good barometer for assessing quality of stillbirth data (e.g., Cousens et al. 2012, and Lawn et al. 2010).

Based on this general consensus on the ratio of SBR to ENMR as a barometer of quality, we made comparisons of this ratio across surveys. In general a survey with a higher value of SBR/ENMR will be judged as being closer to expectations. However, we also note that several surveys will be found to have very high ratios that may be outside of bounds in the other direction.

A subsidiary question is the best way to administer the pregnancy history. Two basic choices exist: 1) querying women about pregnancies starting with the most recent pregnancy and moving to their first pregnancy (backward pregnancy history); or 2) querying women starting with their first pregnancy and moving to their most recent pregnancy (forward pregnancy history). Becker and Mahmoud (1984) in a small study found that the backward history had fewer missed events in a survey where women were administered a forward or backward survey pregnancy on a random basis.

2.2 Definitions

In this report we will follow the definition of perinatal mortality that the Demographic and Health Survey Program has adopted. This definition differs from definitions that others have used. In particular, the denominator used in this report is based on pregnancies rather than on live births, which are most frequently used for defining child mortality rates such as neonatal mortality rate, infant mortality rate and under-five mortality rate. Our justification for using the pregnancy-based definitions is pragmatic. Because this report is part of a Demographic and Health Survey Program report series, we wish to have our results consistent with those reported in the surveys' final reports and the DHS STATcompiler.

In any case, we do not believe that using live births or pregnancies as the denominator will influence our findings or recommendations. In general, using live births rather than pregnancies will cause an across-the-board small decrease in the rates. The rates would decrease a bit more in countries where the stillbirth rates are higher.[2] However, since the differences in rates we are looking for are relatively large and since we are not offering our results as reference for global, regional or country levels of perinatal mortality, this does not pose a problem.

Stillbirth rate is the number of pregnancies that are terminated in the 7th, 8th, 9th or 10th month of pregnancy divided by the number of pregnancies that reach at least the 7th month.[3] In this report we use an exposure period covering 60 months preceding the survey unless otherwise indicated.

Early neonatal mortality rate is the number of children born alive who die before the seventh day of his/her life divided by the number of pregnancies that reach at least the 7th month. Again we use an exposure period of 60 months preceding the survey unless otherwise indicated.

Perinatal mortality rate is the sum of the stillbirth rate and the early neonatal mortality rate.

[2] We report results differentially for countries with high and low early neonatal mortality, thus controlling somewhat for this.

[3] Definitions of the time frame for perinatal mortality vary. Tanaka et al. (2011) cite sources stating 22 weeks or 28 weeks. The DHS survey instruments do not allow such precision. Theoretically, seven months in the DHS reproductive calendar (described below) could correspond to anything from 22 weeks if the pregnancy began on the last day of the first month and ended in the first day of the seventh month to 30 weeks if the pregnancy began on the first day of the seventh month and ended on the last day of the seventh month.

Note that the denominator for these rates is pregnancies that reach at least seven months. Given that any termination that occurs at the seventh month or beyond is defined as a stillbirth, the denominator could be equivalently defined as stillbirths plus live births.

2.3 Survey Instruments

2.3.1 Birth history supplemented with a reproductive calendar

With some variation, the birth history asks a woman to list all of the live births that she has ever had. For each of the births she is asked if the birth is multiple/single, the birthdate, sex, current age, name of child, whether the child is alive and if she/he died how old she/he was when she died. This information is recorded in tabular form. Figure 1 is a snapshot of the first two lines of the birth history from the Bangladesh 2011 DHS.

Figure 1. Representative birth history survey instrument: Bangladesh 2011

211 Now I would like to record the names of all your births, whether still alive or not, starting with the first one you had.
RECORD NAMES OF ALL THE BIRTHS IN 212. RECORD TWINS AND TRIPLETS ON SEPARATE LINES.
(IF THERE ARE MORE THAN 12 BIRTHS, USE AN ADDITIONAL QUESTIONNAIRE, STARTING WITH THE SECOND ROW).

212 What name was given to your (first/next) baby? RECORD NAME BIRTH HISTORY NUMBER	213 Were any of these births twins?	214 Is (NAME) a boy or a girl?	215 In what month and year was (NAME) born? PROBE: When is his/her birthday?	216 Is (NAME) still alive?	217 IF ALIVE: How old was (NAME) at his/her last birthday? RECORD AGE IN COMPLETED YEARS. IF LESS THAN 1 YEAR, RECORD '00'	218 IF ALIVE: Is (NAME) living with you?	219 IF ALIVE: RECORD HOUSEHOLD LINE NUMBER OF CHILD (RECORD '00' IF CHILD NOT LISTED IN HOUSEHOLD).	220 IF DEAD: How old was (NAME) when he/she died? IF '1 YR', PROBE: How many months old was (NAME)? RECORD DAYS IF LESS THAN 1 MONTH; MONTHS IF LESS THAN TWO YEARS; OR YEARS.	221 Were there any other live births between (NAME OF PREVIOUS BIRTH) and (NAME), including any children who died after birth?
01	SING 1 MULT 2	BOY 1 GIRL 2	MONTH [ ][ ] YEAR [ ][ ][ ][ ]	YES . . 1 NO . . . 2 → 220	AGE IN YEARS [ ][ ]	YES . . . 1 NO 2	LINE NUMBER [ ][ ] → (NEXT BIRTH)	DAYS . . . 1 MONTHS 2 YEARS . . 3 [ ][ ]	
02	SING 1 MULT 2	BOY 1 GIRL 2	MONTH [ ][ ] YEAR [ ][ ][ ][ ]	YES . . 1 NO . . . 2 → 220	AGE IN YEARS [ ][ ]	YES . . . 1 NO 2	LINE NUMBER [ ][ ] → (GO TO 221)	DAYS . . . 1 MONTHS 2 YEARS . . 3 [ ][ ]	YES . . . . 1 ADD BIRTH NO . . . . . 2 NEXT BIRTH

The reproductive calendar is a separate instrument that may include information including births, pregnancies, terminations, contraceptive use, reasons for discontinuation of contraceptive use, source of family planning method, marital status, etc. Here we will describe only the process used to record pregnancies, births and terminations.

Births are live births. Terminations are pregnancies that do not end with a live birth. These may include induced abortions, miscarriages and stillbirths. Figure 2 is the reproductive calendar from the Bangladesh 2011 DHS. The instructions given with reproductive calendar are cursory because detailed instructions are included elsewhere in the survey instrument.

Figure 2. Representative reproductive calendar, Bangladesh 2011

INSTRUCTIONS:
ONLY ONE CODE SHOULD APPEAR IN ANY BOX.
COLUMN 1 REQUIRES A CODE IN EVERY MONTH.

INFORMATION TO BE CODED FOR EACH COLUMN

COLUMN 1: BIRTHS, PREGNANCIES, CONTRACEPTIVE USE

- B BIRTHS
- P PREGNANCIES
- T TERMINATIONS

- 0 NO METHOD
- 1 FEMALE STERILIZATION
- 2 MALE STERILIZATION
- 3 IUD
- 4 INJECTABLES
- 5 IMPLANTS
- 6 PILL
- 7 CONDOM
- L RHYTHM METHOD
- M WITHDRAWAL

- X OTHER _____ (SPECIFY)

COLUMN 2: DISCONTINUATION OF CONTRACEPTIVE USE

- 0 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
- F UP TO GOD/FATALISTIC
- A DIFFICULT TO GET PREGNANT/MENOPAUSAL
- D MARITAL DISSOLUTION/SEPARATION
- X OTHER _____ (SPECIFY)
- Z DON'T KNOW

				1	2
	12	DEC	01		
	11	NOV	02		
	10	OCT	03		
	09	SEP	04		
2	08	AUG	05		2
0	07	JUL	06		0
1	06	JUN	07		1
1	05	MAY	08		1
	04	APR	09		
	03	MAR	10		
	02	FEB	11		
	01	JAN	12		
	12	DEC	13		
	11	NOV	14		
	10	OCT	15		
	09	SEP	16		
2	08	AUG	17		2
0	07	JUL	18		0
1	06	JUN	19		1
0	05	MAY	20		0
	04	APR	21		
	03	MAR	22		
	02	FEB	23		
	01	JAN	24		
	12	DEC	25		
	11	NOV	26		
	10	OCT	27		
	09	SEP	28		
2	08	AUG	29		2
0	07	JUL	30		0
0	06	JUN	31		0
9	05	MAY	32		9
	04	APR	33		
	03	MAR	34		
	02	FEB	35		
	01	JAN	36		
	12	DEC	37		
	11	NOV	38		
	10	OCT	39		
	09	SEP	40		
2	08	AUG	41		2
0	07	JUL	42		0
0	06	JUN	43		0
8	05	MAY	44		8
	04	APR	45		
	03	MAR	46		
	02	FEB	47		
	01	JAN	48		
	12	DEC	49		
	11	NOV	50		
	10	OCT	51		
	09	SEP	52		
2	08	AUG	53		2
0	07	JUL	54		0
0	06	JUN	55		0
7	05	MAY	56		7
	04	APR	57		
	03	MAR	58		
	02	FEB	59		
	01	JAN	60		
	12	DEC	61		
	11	NOV	62		
	10	OCT	63		
	09	SEP	64		
2	08	AUG	65		2
0	07	JUL	66		0
0	06	JUN	67		0
6	05	MAY	68		6
	04	APR	69		
	03	MAR	70		
	02	FEB	71		
	01	JAN	72		

After the interviewer completes the birth history, she marks B at appropriate points in the reproductive calendar. The interviewed woman is queried about the duration of each pregnancy for each of the births and P's are entered as appropriate in the calendar. The final month of pregnancy is assumed to be the month marked as B in the calendar. Therefore calculation of the duration of a pregnancy would be the number of P's plus one.

If a woman is currently pregnant she is queried about the duration of the pregnancy, and this is also entered into the reproductive calendar. Figure 3 is a screenshot from the Bangladesh 2011 DHS showing the instructions for both the entry of births and a current pregnancy.

Figure 3. Representative instructions for entering pregnancies and births into reproductive calendar, Bangladesh 2011

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
225	C FOR EACH BIRTH SINCE JANUARY 2006, ENTER 'B' IN THE MONTH OF BIRTH IN THE CALENDAR. WRITE THE NAME OF THE CHILD TO THE LEFT OF THE 'B' CODE. FOR EACH BIRTH, ASK THE NUMBER OF MONTHS THE PREGNANCY LASTED AND RECORD 'P' IN EACH OF THE PRECEDING MONTHS ACCORDING TO THE DURATION OF PREGNANCY. (NOTE: THE NUMBER OF 'P's MUST BE ONE LESS THAN THE NUMBER OF MONTHS THAT THE PREGNANCY LASTED.)		
226	Are you pregnant now?	YES . . . . . 1 NO . . . . . 2 UNSURE 8	→ 229A
227	How many months pregnant are you? RECORD NUMBER OF COMPLETED MONTHS. C ENTER 'P's IN THE CALENDAR, BEGINNING WITH THE MONTH OF INTERVIEW AND FOR THE TOTAL NUMBER OF COMPLETED MONTHS.	MONTHS . . . . . [ ][ ]	

Next the interviewer asks a series of questions about pregnancies that did not end in a live birth. Eventually, the interviewer asks the woman if she has had a pregnancy that did not end with a live birth and that pregnancy ended after the first month that is included in the reproductive calendar. The interviewer will then sequentially query each pregnancy that fits this description. For each such pregnancy the interviewer will put a T in the calendar at the month where the pregnancy ended. The interviewer will then query the woman about the duration of the pregnancy. The interviewer writes in P's in the appropriate number of months. As above, the month of the termination is assumed to be one of the months of the pregnancy. Figure 4 is a screenshot from the Bangladesh 2011 DHS showing the detailed instructions.

Figure 4. Representative questions concerning terminations, Bangladesh 2011[4]

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
230	Have you ever had a pregnancy that miscarried, ended using menstrual regulation, was aborted, or ended in a stillbirth?	YES ..... 1 NO 2	→ 238
231	When did the last such pregnancy end?	MONTH ..... [ ][ ] YEAR ..... [ ][ ][ ][ ]	
232	CHECK 231: LAST PREGNANCY ENDED IN JAN. 2006 OR LATER ↓ [ ] LAST PREGNANCY ENDED BEFORE JAN. 2006 [ ] → 238		
233	How many months pregnant were you when the last such pregnancy ended? C RECORD NUMBER OF COMPLETED MONTHS. ENTER 'T' IN THE CALENDAR IN THE MONTH THAT THE PREGNANCY TERMINATED AND 'P' FOR THE REMAINING NUMBER OF COMPLETED MONTHS.	MONTHS ..... [ ][ ]	
234	Since January 2006, have you had any other pregnancies that did not result in a live birth?	YES ..... 1 NO 2	→ 236
235	ASK THE DATE AND THE DURATION OF PREGNANCY FOR EACH EARLIER NON-LIVE BIRTH PREGNANCY BACK TO JANUARY 2006 C ENTER 'T' IN THE CALENDAR IN THE MONTH THAT EACH PREGNANCY TERMINATED AND 'P' FOR THE REMAINING NUMBER OF COMPLETED MONTHS.		

Family planning use is also entered into the calendar at a later point in the survey. (Family planning will be covered in the next chapter.) The implementation of the reproductive calendar has evolved over the last 25 years leading to greater standardization. The details of this evolution are beyond the scope of this report.

In the case of the birth history with a reproductive calendar, the number of pregnancies that last at least seven months is tabulated based on the non-current pregnancies that begin less than 60 months before the survey date and last at least seven months (translating to at least 6 P's in the calendar that are followed by a termination or a birth). The number of stillbirths is the number of pregnancies that begin less than 60 months before the survey that end with a termination in the 7th month or later of the survey. The number of early neonatal deaths is calculated based on the number of births in which the child dies before the seventh day of his/her life and the pregnancy began less than 60 months before the beginning of the survey.

[4] The Bangladesh survey instrument deviated slightly from others in that it refers to "menstrual regulation" in addition to stillbirths, miscarriages and abortions.

2.3.2 Pregnancy history

In contrast to the birth history, the pregnancy history queries a woman about pregnancies and their result (rather than births). Details of the pregnancies are recorded in tabular format. First, the interviewer asks some questions to establish if the woman has ever been pregnant. If the interviewer establishes that the woman has ever been pregnant, the interviewer queries her about the pregnancies sequentially. Depending on the survey the interviewer may begin with the first pregnancy that the woman ever had or with the most recent pregnancy[5]. Specific instructions on this matter are given. It is not the choice of the interviewer. With variation, the following is queried about each pregnancy: single/multiple pregnancy, how the pregnancy ended (live, not live), name, sex, birth month/day, currently alive or not, etc. If the child from a live birth has died, the age at death is queried. It may be recorded as days, months or years. If the pregnancy ended without a live birth, the woman is queried about when the pregnancy ended, the duration of the pregnancy and whether the end of the pregnancy was induced. Again there is variation in how the questions are posed. However, the basic structure is that the end of the pregnancy is noted as either as a live birth or not. For live births if the child died, an age at death is recorded. For pregnancies that do not end with a live birth, information necessary for establishing the duration of pregnancy is collected. Figure 5 shows screen shots from the Nepal 2011 DHS showing the relevant elements of the pregnancy history. In this example, the distinction between a stillbirth and a termination/miscarriage is made by the analyst based on the duration of the pregnancy.

[5] Querying from first to last or last to first will be shown to have a potential influence on the results later in this paper.

Figure 5. Representative pregnancy history, Nepal 2011

213	Now I would like to record all your pregnancies, whether born alive, born dead, or lost before full term, starting with the first one you had. RECORD ALL THE PREGNANCIES IN 215. RECORD TWINS AND TRIPLETS ON SEPARATE LINES. (IF THERE ARE MORE THAN 12 PREGNANCIES, USE AN ADDITIONAL QUESTIONNAIRE STARTING WITH THE SECOND ROW).						
214 PREGNANCY HISTORY NUMBER	215 Think back to your first pregnancy. Was that a single or multiple pregnancy?	216 Was the baby born alive, born dead, or lost before birth?	217 Did that baby cry, move, or breathe when it was born?	218 What name was given to the child?	219 Is (NAME) a boy or a girl?	220 In what month and year was (NAME) born? PROBE: When is his/her birthday?	221 Is (NAME) still alive?
01	SING ..... 1 MULT 2	BORN ALIVE ..... 1 (SKIP TO 218) BORN DEAD ..... 2 LOST BEFORE FULL TERM ..... 3 (SKIP TO 226)	YES .... 1 NO .... 2 → 226	_____ NAME	BOY .... 1 GIRL 2	MONTH [ ][ ] YEAR [ ][ ][ ][ ]	YES .... 1 NO .... 2 → 225
02	SING ..... 1 MULT 2	BORN ALIVE ..... 1 (SKIP TO 218) BORN DEAD ..... 2 LOST BEFORE FULL TERM ..... 3 (SKIP TO 226)	YES .... 1 NO .... 2 → 226	_____ NAME	BOY .... 1 GIRL 2	MONTH [ ][ ] YEAR [ ][ ][ ][ ]	YES .... 1 NO .... 2 → 225

222 IF BORN ALIVE AND STILL LIVING:	223	224	225 IF DEAD:	226 IF BORN DEAD OR LOST BEFORE BIRTH:	227	228	229
How old was (NAME) at his/her last birthday? RECORD AGE IN COMPLETED YEARS.	Is (NAME) living with you?	RECORD HOUSEHOLD LINE NUMBER OF CHILD (RECORD '00' IF CHILD NOT LISTED IN HOUSEHOLD).	How old was (NAME) when he/she died? IF '1 YR', PROBE: How many months old was (NAME)? RECORD DAYS IF LESS THAN 1 MONTH; MONTHS IF LESS THAN TWO YEARS; OR YEARS.	In what month and year did this pregnancy end?	How many months did this pregnancy last? RECORD IN COMPLETED MONTHS.	Did you or someone else do something to end this pregnancy?	Were there any other pregnancies between the previous pregnancy and this pregnancy?
AGE IN YEARS [ ][ ]	YES ... 1 NO 2	HOUSEHOLD LINE NUMBER [ ][ ] → (NEXT PREGNANCY)	DAYS ... 1 MONTHS 2 YEARS .. 3 [ ][ ] (NEXT PREGNANCY)	MONTH [ ][ ] YEAR [ ][ ][ ][ ]	MONTHS [ ][ ]	YES .... 1 NO 2	
AGE IN YEARS [ ][ ]	YES ... 1 NO 2	HOUSEHOLD LINE NUMBER [ ][ ] → (GO TO 229)	DAYS ... 1 MONTHS 2 YEARS .. 3 [ ][ ] (GO TO 229)	MONTH [ ][ ] YEAR [ ][ ][ ][ ]	MONTHS [ ][ ]	YES .... 1 NO 2	YES .... 1 ADD PREGNANCY NO ..... 2 NEXT PREGNANCY

In many of the survey instruments, especially those for the former Soviet Republics, stillbirths are identified by the woman being interviewed rather than being defined by the analysts. The interviewer asks the woman directly how the pregnancy ended and offers four choices. The snapshot below in Figure 6 shows the relevant portion of the survey instrument from the Azerbaijan 2006 DHS.

Figure 6. Representative survey instrument where stillbirths are identified by respondent, Azerbaijan 2006

211 PREGNANCY HISTORY. Now I want to talk about each of your pregnancies, including those which ended in a live birth, an induced abortion, a miscarriage, and a stillbirth.
Starting with your last pregnancy, please tell me the following information:
RECORD ALL PREGANCIES. RECORD TWINS AND TRIPLETS ON SEPARATE LINES. IF THERE MORE THAN 10 PREGANCIES USE AN ADDITIONAL QUESTIONNAIRE

212 Did your (last/next to last/etc) pregnancy end in a live birth, an abortion, a miscarriage, or a stillbirth?	213 Was this a single or a multiple birth?	214 In what month and year (was this child born / did this pregnancy end?)	215 Were there any other pregnancies between this and the pregnancy we were just talking about? IF YES, ADD IT TO TABLE	216 CHECK 212: RECORD SAME RESPONSE	217 What name was given to this child? WRITE 'BABY 1' BABY 2', ETC. IF NO NAME WAS GIVEN TO A CHILD	218 Is (NAME) a boy or girl?	219 Is (NAME) still alive?	220 IF ALIVE: How old was (NAME) on his/her last birthday? RECORD AGE IN COMPLETE YEARS	221 IF ALIVE: Is (NAME) living with you?	222 IF ALIVE: RECORD HOUSEHOLD LINE NO. OF CHILD. RECORD '00' IF CHILD NOT LISTED IN HOUSEHOLD	222A IF DIED: How old was (NAME) when he/she died? IF '1 YR', PROBE: How many months old was (NAME)? RECORD DAYS IF LESS THAN 1 MONTH; MONTHS IF LESS THAN TWO YEARS; OR YEARS.
01 LIVE BIRTH ..... 1 STILL BIRTH ..... 2 MISCARRIAGE .. 3 ABORTION ..... 4 GOTO 214	SING 1 MULT 2	MONTH YEAR		LIVE BIRTH ..... 1 STILL BIRTH .. 2 MISCARRIAGE .. 3 ABORTION .... 4 NEXT PREGNANCY	NAME:	BOY 1 GIRL 2	YES ... 1 NO 2 222A	AGE IN YEARS	YES .. 1 NO ... 2	LINE NO.: NEXT PREGNANCY	DAYS ... 1 MONTHS 2 YEARS .. 3
02 LIVE BIRTH ..... 1 STILL BIRTH ..... 2 MISCARRIAGE .. 3 ABORTION ..... 4 GOTO 214	SING 1 MULT 2	MONTH YEAR	YES ..... 1 NO 2	LIVE BIRTH ..... 1 STILL BIRTH .. 2 MISCARRIAGE .. 3 ABORTION .... 4 NEXT PREGNANCY	NAME:	BOY 1 GIRL 2	YES .... 1 NO 2 222A	AGE IN YEARS	YES .. 1 NO ... 2	LINE NO.: NEXT PREGNANCY	DAYS ... 1 MONTHS 2 YEARS .. 3

2.3.3 Birth history with special questions

A third variation frequently implemented in the Reproductive Health Surveys in Latin America is a birth history supplemented by questions establishing the occurrence of pregnancies that did not end in live births. The birth history in these surveys is very close in nature to those in the DHS series. The questions in the survey specifically query the woman about whether she has ever had a stillborn child and when the pregnancy ended. There is no specific attempt to discern if the woman being interviewed understands the term "stillbirth" as international standards define it.

2.4 Presentation of Results

Table 1 presents perinatal mortality rates including stillbirth rates and early neonatal mortality rates for all Demographic and Health Surveys and Reproductive Health Surveys with data appropriate for calculating the rates. The table includes a few special surveys implemented by The DHS Program that used the pregnancy history as part of the survey instrument. To provide context, the early childhood mortality rates are also presented. Table 1 also includes information on the source of the data and the method by which the data were collected.

Table 1. Perinatal mortality rates and early childhood mortality rates, various years, DHS and RHS Programs

				Perinatal mortality				Early child mortality rates		
Country	Survey	Method of data collection	Source of data	Stillbirths per 1000 preg-nancies of 7+ months duration	Early neonatal deaths per 1000 preg-nancies of 7+ months duration	Perinatal mortality rate	Ratio of stillbirths to early neonatal deaths	Neonatal mortality rate	Infant mortality rate	Under five mortality rate
Sub-Saharan Africa										
Benin	2011-12 DHS	Birth History with reproductive calendar	STATcompiler	6	18	24	0.3	23	42	70
Benin	2006 DHS	Birth History with reproductive calendar	STATcompiler	13	24	37	0.5	31	67	125
Burkina Faso	2010 DHS	Birth History with reproductive calendar	STATcompiler	11	19	30	0.6	28	65	129
Burkina Faso	2003 DHS	Birth History with reproductive calendar	STATcompiler	15	20	35	0.8	31	81	184
Burundi	2010 DHS	Birth History with reproductive calendar	STATcompiler	20	22	41	0.9	31	59	96
Cape Verde	1998 RHS	Pregnancy History Queried First to Most Recent	STATcompiler	20	8	28	2.6	11	31	41
Comoros	2012 DHS	Birth History with reproductive calendar	STATcompiler	4	20	23	0.2	24	36	50
Ethiopia	2011 DHS	Birth History with reproductive calendar	STATcompiler	17	29	46	0.6	37	59	88
Ethiopia	2005 DHS	Birth History with reproductive calendar	STATcompiler	10	27	37	0.4	39	77	123
Gambia	2013 DHS	Birth History with reproductive calendar	STATcompiler	11	19	30	0.6	22	34	54
Ghana	2008 DHS	Birth History with reproductive calendar	STATcompiler	14	25	39	0.5	30	50	80
Ghana	2008 Ghana Maternal Health Survey	Pregnancy History Queried First to Most Recent	Final report	21	24	45	0.9	29	50	82
Ghana	2003 DHS	Birth History with reproductive calendar	STATcompiler	11	35	46	0.3	43	64	111
Ghana	1998 DHS	Pregnancy History Queried First to Most Recent	Final report*	22	24	46	0.9	30	57	108
Guinea	2005 DHS	Birth History with reproductive calendar	STATcompiler	15	29	44	0.5	39	91	163
Kenya	2008-09 DHS	Birth History with reproductive calendar	STATcompiler	11	25	37	0.5	31	52	74
Kenya	2003 DHS	Birth History with reproductive calendar	STATcompiler	14	27	40	0.5	33	77	115
Kenya	1998 DHS	Birth History with reproductive calendar	DHS special tabulation	9	21	30	0.5	28	74	111
Lesotho	2009 DHS	Birth History with reproductive calendar	STATcompiler	17	37	54	0.4	47	91	117
Liberia	2013 DHS	Birth History with reproductive calendar	STATcompiler	11	20	30	0.5	26	54	94
Madagascar	2008-09 DHS	Birth History with reproductive calendar	STATcompiler	14	19	32	0.7	24	48	72
Madagascar	2003-04 DHS	Birth History with reproductive calendar	STATcompiler	14	21	35	0.6	32	58	94
Malawi	2010 DHS	Birth History with reproductive calendar	STATcompiler	16	24	40	0.7	31	66	112
Malawi	2004 DHS	Birth History with reproductive calendar	STATcompiler	15	19	34	0.8	27	76	133
Malawi	2000 DHS	Birth History with reproductive calendar	STATcompiler	13	28	41	0.5	42	104	189
Mali	2012-13 DHS	Birth History with reproductive calendar	STATcompiler	6	28	34	0.2	34	56	95
Mali	2006 DHS	Birth History with reproductive calendar	STATcompiler	13	34	47	0.4	46	96	191
Mali	2001 DHS	Birth History with reproductive calendar	STATcompiler	12	38	50	0.3	57	113	229
Mozambique	2011 DHS	Birth History with reproductive calendar	STATcompiler	11	27	38	0.4	30	64	97
Mozambique	2003 DHS	Birth History with reproductive calendar	STATcompiler	19	23	43	0.8	37	101	152
Namibia	2013 DHS	Birth History with reproductive calendar	STATcompiler	8	16	24	0.5	20	39	54
Namibia	2006-07 DHS	Birth History with reproductive calendar	STATcompiler	9	20	29	0.5	24	46	69
Niger	2012 DHS	Birth History with reproductive calendar	STATcompiler	17	17	33	1.0	24	51	127
Niger	2006 DHS	Birth History with reproductive calendar	STATcompiler	12	21	33	0.6	33	81	198
Nigeria	2013 DHS	Birth History with reproductive calendar	STATcompiler	12	29	41	0.4	37	69	128
Nigeria	2008 DHS	Birth History with reproductive calendar	STATcompiler	8	31	39	0.3	40	75	157
Rwanda	2010 DHS	Birth History with reproductive calendar	STATcompiler	17	18	35	0.9	27	50	76
Rwanda	2005 DHS	Birth History with reproductive calendar	STATcompiler	18	26	44	0.7	37	86	152
Rwanda	2000 DHS	Birth History with reproductive calendar	STATcompiler	18	30	48	0.6	44	107	196
Senegal	2010-11 DHS	Birth History with reproductive calendar	STATcompiler	16	21	38	0.8	29	47	72
Senegal	2005 DHS	Birth History with reproductive calendar	STATcompiler	20	25	45	0.8	35	61	121
Sierra Leone	2013 DHS	Birth History with reproductive calendar	STATcompiler	8	31	39	0.3	39	92	156
Sierra Leone	2008 DHS	Birth History with reproductive calendar	STATcompiler	8	25	33	0.3	36	89	140
South Africa	1998 DHS	Pregnancy History Queried First to Most Recent	Author tabulation	25	12	38	2.1	20	45	59
Swaziland	2006-07 DHS	Birth History with reproductive calendar	STATcompiler	12	17	29	0.7	22	85	120
Tanzania	2010 DHS	Birth History with reproductive calendar	STATcompiler	17	19	36	0.9	26	51	81
Tanzania	2004-05 DHS	Birth History with reproductive calendar	STATcompiler	19	23	42	0.8	32	68	112
Uganda	2011 DHS	Birth History with reproductive calendar	STATcompiler	20	20	40	1.0	27	54	90
Uganda	2006 DHS	Birth History with reproductive calendar	STATcompiler	17	20	36	0.8	27	71	128
Uganda	2000-01 DHS	Birth History with reproductive calendar	STATcompiler	16	23	39	0.7	33	88	151
Zambia	2013-14 DHS	Birth History with reproductive calendar	Final report	13	18	31	0.7	24	45	75
Zambia	2007 DHS	Birth History with reproductive calendar	STATcompiler	14	24	38	0.6	34	70	119
Zimbabwe	2010-11 DHS	Birth History with reproductive calendar	STATcompiler	15	24	39	0.6	31	57	84
Zimbabwe	2005-06 DHS	Birth History with reproductive calendar	STATcompiler	8	17	24	0.4	24	60	82
Zimbabwe	1999 DHS	Birth History with reproductive calendar	STATcompiler	15	21	35	0.7	29	65	102
Zimbabwe	1994 DHS	Birth History with reproductive calendar	DHS special tabulation	15	17	31	0.9	24	53	77

(Continued…)

Table 1. – *Continued*

Country	Survey	Method of data collection	Source of data	Perinatal mortality: Stillbirths per 1000 pregnancies of 7+ months duration	Perinatal mortality: Early neonatal deaths per 1000 pregnancies of 7+ months duration	Perinatal mortality: Perinatal mortality rate	Perinatal mortality: Ratio of stillbirths to early neonatal deaths	Early child mortality rates: Neonatal mortality rate	Early child mortality rates: Infant mortality rate	Early child mortality rates: Under five mortality rate
North Africa/West Asia/Europe										
Albania	2002 RHS	Pregnancy History Queried Most Recent to First	STATcompiler	3	12	15	0.2	14	27	31
Albania	2008-09 DHS	Pregnancy History via Special Questions	STATcompiler	4	8	11	0.5	11	18	22
Armenia	2010 DHS	Pregnancy History Queried Most Recent to First	STATcompiler	5	5	10	1.1	8	13	16
Armenia	2005 DHS	Pregnancy History Queried Most Recent to First	STATcompiler	8	10	18	0.8	17	26	30
Armenia	2000 DHS	Pregnancy History Queried Most Recent to First	STATcompiler	15	14	29	1.0	19	36	39
Azerbaijan	2001 RHS	Pregnancy History Queried Most Recent to First	STATcompiler	22	22	44	1.0	38	81	92
Azerbaijan	2006 DHS	Pregnancy History Queried Most Recent to First	STATcompiler	16	23	39	0.7	28	43	50
Egypt	2008 DHS	Birth History with reproductive calendar	STATcompiler	8	11	19	0.7	16	25	28
Egypt	2005 DHS	Birth History with reproductive calendar	STATcompiler	9	14	23	0.7	20	33	41
Egypt	2000 DHS	Birth History with reproductive calendar	STATcompiler	14	16	30	0.9	24	44	54
Egypt	1995 DHS	Birth History with reproductive calendar	DHS special tabulation	15	19	33	0.8	30	63	81
Egypt	1992 DHS	Birth History with reproductive calendar	DHS special tabulation	16	19	35	0.8	33	61	85
Georgia	1999-2000 RHS	Pregnancy History Queried Most Recent to First	STATcompiler	16	22	38	0.7	22	38	46
Georgia	2005 RHS	Pregnancy History Queried Most Recent to First	STATcompiler	16	15	30	1.1	17	21	25
Jordan	2012 DHS	Birth History with reproductive calendar	STATcompiler	5	12	17	0.4	14	17	21
Jordan	2009 DHS	Birth History with reproductive calendar	STATcompiler	9	10	19	0.9	15	23	28
Jordan	2007 DHS	Birth History with reproductive calendar	STATcompiler	6	9	15	0.6	14	19	21
Jordan	2002 DHS	Birth History with reproductive calendar	STATcompiler	10	12	22	0.8	16	22	27
Jordan	1997 DHS	Birth History with reproductive calendar	DHS special tabulation	8	13	21	0.6	19	29	34
Jordan	1990 DHS	Birth History with reproductive calendar	DHS special tabulation	12	15	27	0.8	21	34	39
Kazakhstan	1995 DHS	Pregnancy History Queried Most Recent to First	Author tabulation	14	6	21	2.3	20	40	45
Kazakhstan	1999 DHS	Pregnancy History Queried Most Recent to First	DHS special tabulation	15	26	40	0.6	34	62	71
Moldova	2005 DHS	Pregnancy History Queried Most Recent to First	STATcompiler	14	4	19	3.3	5	13	14
Morocco	2003-04 DHS	Birth History with reproductive calendar	STATcompiler	17	19	35	0.9	27	40	47
Morocco	1992 DHS	Birth History with reproductive calendar	DHS special tabulation	21	18	39	1.1	31	57	76
Romania	1999 RHS	Pregnancy History Queried Most Recent to First	STATcompiler	12	20	32	0.6	20	30	32
Ukraine	1999 RHS	Pregnancy History Queried Most Recent to First	STATcompiler	9	13	22	0.7	12	14	14
Ukraine	2007 DHS	Pregnancy History Queried Most Recent to First	STATcompiler	3	6	9	0.6	9	14	17
Kyrgyz Republic	2012 DHS	Pregnancy History Queried First to Most Recent	STATcompiler	4	14	18	0.3	20	27	31
Kyrgyz Republic	1997 DHS	Pregnancy History Queried Most Recent to First	Author tabulation	6	18	25	0.4	32	61	72
Tajikistan	2012 DHS	Pregnancy History Queried First to Most Recent	STATcompiler	9	15	24	0.6	19	34	43
Turkey	2013 DHS	Birth History with reproductive calendar	Final report	5	6	11	0.8	7	13	15
Turkey	2008 DHS	Birth History with reproductive calendar	Final report	8	11	19	0.7	13	17	24
Turkey	2003 DHS	Birth History with reproductive calendar	Final report	11	12	24	0.9	17	29	37
Turkey	1998 DHS	Birth History with reproductive calendar	DHS special tabulation	16	22	37	0.7	26	43	52
Turkey	1993 DHS	Birth History with reproductive calendar	DHS special tabulation	17	21	38	0.8	29	53	61
Turkmenistan	2000 DHS	Pregnancy History Queried Most Recent to First	STATcompiler	13	22	35	0.6	34	74	94
Uzbekistan	2002 Health Examination Survey	Pregnancy History Queried Most Recent to First	Author tabulation	7	14	21	0.5	34	28	73
Uzbekistan	1996 DHS	Pregnancy History Queried Most Recent to First	Author tabulation	5	17	22	0.3	23	49	59

(Continued…)

Table 1. – *Continued*

Country	Survey	Method of data collection	Source of data	Perinatal mortality: Stillbirths per 1000 pregnancies of 7+ months duration	Perinatal mortality: Early neonatal deaths per 1000 pregnancies of 7+ months duration	Perinatal mortality: Perinatal mortality rate	Perinatal mortality: Ratio of stillbirths to early neonatal deaths	Early child mortality rates: Neonatal mortality rate	Early child mortality rates: Infant mortality rate	Early child mortality rates: Under five mortality rate
South and Southeast Asia										
Bangladesh	2011 DHS	Birth History with reproductive calendar	STATcompiler	26	24	50	1.1	32	43	53
Bangladesh	2007 DHS	Birth History with reproductive calendar	STATcompiler	28	27	55	1.0	37	52	65
Bangladesh	2004 DHS	Birth History with reproductive calendar	STATcompiler	37	28	65	1.3	41	65	88
Bangladesh	1999-00 DHS	Birth History with reproductive calendar	DHS special tabulation	28	28	56	1.0	42	66	94
Bangladesh	1996-97 DHS	Birth History with reproductive calendar	DHS special tabulation	32	27	58	1.2	48	82	116
Bangladesh	1993-94 DHS	Birth History with reproductive calendar	DHS special tabulation	28	32	60	0.9	52	88	134
Cambodia	2010 DHS	Birth History with reproductive calendar	STATcompiler	9	21	30	0.4	27	45	54
India	2005-06 DHS	Birth History with reproductive calendar	STATcompiler	19	29	49	0.7	39	57	74
Indonesia	2012 DHS	Birth History with reproductive calendar	STATcompiler	11	16	26	0.7	19	32	40
Indonesia	2007 DHS	Birth History with reproductive calendar	STATcompiler	10	14	25	0.7	19	34	44
Indonesia	2002-03 DHS	Birth History with reproductive calendar	STATcompiler	10	15	24	0.7	20	35	46
Indonesia	1997 DHS	Birth History with reproductive calendar	DHS special tabulation	10	15	25	0.6	22	46	58
Indonesia	1994 DHS	Birth History with reproductive calendar	DHS special tabulation	11	20	31	0.5	30	57	81
Indonesia	1991 DHS	Birth History with reproductive calendar	DHS special tabulation	8	18	27	0.5	32	68	97
Maldives	2009 DHS	Birth History with reproductive calendar	STATcompiler	9	9	18	1.0	10	14	17
Nepal	2011 DHS	Pregnancy History Queried First to Most Recent	STATcompiler	10	27	37	0.4	33	46	54
Nepal	2006 DHS	Pregnancy History Queried First to Most Recent	STATcompiler	22	23	45	1.0	33	48	61
Nepal	2001 DHS	Pregnancy History Queried First to Most Recent	Final report	22	26	47	0.9	39	64	91
Nepal	1996 DHS	Pregnancy History Queried First to Most Recent	Author tabulation	30	28	58	1.1	50	78	118
Pakistan	2012-13 DHS	Pregnancy History Queried First to Most Recent	STATcompiler	33	42	75	0.8	55	74	89
Pakistan	2006-07 DHS	Pregnancy History via Special Questions	Author tabulation	31	38	69	0.8	54	78	94
Philippines	2013 DHS	Pregnancy History Queried Most Recent to First	Final report	12	10	22	1.2	13	23	31
Philippines	2008 DHS	Pregnancy History Queried Most Recent to First	STATcompiler	14	13	28	1.1	16	25	34
Philippines	2003 DHS	Pregnancy History Queried Most Recent to First	STATcompiler	11	13	24	0.8	17	29	40
Philippines	1998 DHS	Pregnancy History Queried Most Recent to First	DHS special tabulation	12	14	26	0.9	18	35	48
Philippines	1993 DHS	Pregnancy History Queried Most Recent to First	DHS special tabulation	9	13	22	0.7	18	34	54
Philippines	1993 In-depth DHS	Pregnancy History Queried Most Recent to First	Author tabulation	11	13	24	0.8			
Vietnam	2002 DHS	Pregnancy History Queried Most Recent to First	DHS special tabulation	3	11	14	0.3	12	18	24
Vietnam	1997 DHS	Pregnancy History Queried Most Recent to First	DHS special tabulation	9	14	22	0.6	18	29	37
Timor-Leste	2009-10 DHS	Birth History with reproductive calendar	STATcompiler	2	16	18	0.1	22	45	64

(Continued…)

Table 1. – *Continued*

Country	Survey	Method of data collection	Source of data	Perinatal mortality: Stillbirths per 1000 pregnancies of 7+ months duration	Perinatal mortality: Early neonatal deaths per 1000 pregnancies of 7+ months duration	Perinatal mortality: Perinatal mortality rate	Perinatal mortality: Ratio of stillbirths to early neonatal deaths	Early child mortality rates: Neonatal mortality rate	Early child mortality rates: Infant mortality rate	Early child mortality rates: Under five mortality rate
Latin America and Caribbean										
Bolivia	2008 DHS	Birth History with reproductive calendar	STATcompiler	11	18	29	0.6	27	50	63
Bolivia	2003 DHS	Birth History with reproductive calendar	STATcompiler	12	19	31	0.6	27	54	75
Bolivia	1994 DHS	Birth History with reproductive calendar	DHS special tabulation	12	22	34	0.5	36	75	116
Brazil	1996 DHS	Birth History with reproductive calendar	DHS special tabulation	9	14	23	0.7	19	39	49
Colombia	2010 DHS	Birth History with reproductive calendar	STATcompiler	5	8	14	0.7	11	16	19
Colombia	2005 DHS	Birth History with reproductive calendar	STATcompiler	7	10	17	0.7	12	19	22
Colombia	2000 DHS	Birth History with reproductive calendar	STATcompiler	11	11	23	1.0	15	21	25
Colombia	1995 DHS	Birth History with reproductive calendar	DHS special tabulation	9	15	24	0.6	19	28	36
Colombia	1990 DHS	Birth History with reproductive calendar	DHS special tabulation	13	8	22	1.6	10	16	23
Dominican Republic	2002 DHS	Birth History with reproductive calendar	STATcompiler	8	17	25	0.5	22	31	38
Dominican Republic	1999 DHS	Birth History with reproductive calendar	DHS special tabulation	10	12	23	0.9	14	22	30
Dominican Republic	1996 DHS	Birth History with reproductive calendar	DHS special tabulation	19	19	39	1.0	27	47	57
Dominican Republic	1991 DHS	Birth History with reproductive calendar	DHS special tabulation	16	17	34	0.9	24	43	59
Ecuador	1999 RHS	Pregnancy History via Special Questions	STATcompiler	9	15	24	0.6	19	30	38
Ecuador	2004 RHS	Pregnancy History via Special Questions	STATcompiler	15	13	28	1.1	17	30	35
El Salvador	1998 RHS	Pregnancy History via Special Questions	STATcompiler	12	13	25	0.9	17	35	43
El Salvador	2008 RHS	Pregnancy History via Special Questions	STATcompiler	12	7	19	1.8	9	16	19
El Salvador	2002-03 RHS	Pregnancy History via Special Questions	STATcompiler	13	11	24	1.2	13	25	31
Guatemala	2008-09 RHS	Birth History with reproductive calendar	STATcompiler	19	12	31	1.7	17	30	42
Guatemala	2002 RHS	Birth History with reproductive calendar	STATcompiler	18	17	35	1.0	22	39	53
Guatemala	1998-99 DHS	Birth History with reproductive calendar	DHS special tabulation	16	17	33	0.9	23	45	59
Guatemala	1995 DHS	Birth History with reproductive calendar	DHS special tabulation	11	20	31	0.6	26	51	68
Guyana	2009 DHS	Birth History with reproductive calendar	STATcompiler	15	20	35	0.7	25	38	40
Honduras	1996 RHS	Pregnancy History via Special Questions	STATcompiler	11	14	25	0.7	19	36	49
Honduras	2001 RHS	Pregnancy History via Special Questions	STATcompiler	16	14	29	1.2	19	34	45
Honduras	2011-12 DHS	Birth History with reproductive calendar	STATcompiler	10	12	22	0.8	18	24	29
Honduras	2005-06 DHS	Birth History with reproductive calendar	STATcompiler	12	10	23	1.1	14	23	30
Jamaica	2008-09 RHS	Pregnancy History Queried Most Recent to First	STATcompiler	12	11	23	1.1	13	17	18
Nicaragua	2006-07 RHS	Pregnancy History via Special Questions	STATcompiler	10	11	20	0.9	16	29	35
Nicaragua	2001 DHS	Birth History with reproductive calendar	STATcompiler	10	11	21	0.9	16	31	39
Nicaragua	1998 DHS	Birth History with reproductive calendar	DHS special tabulation	7	13	20	0.6	17	40	50
Paraguay	2008 RHS	Pregnancy History via Special Questions	STATcompiler	17	12	28	1.4	13	20	23
Paraguay	2004 RHS	Pregnancy History via Special Questions	STATcompiler	14	15	30	0.9	17	29	33
Paraguay	1990 DHS	Birth History with reproductive calendar	DHS special tabulation	17	14	31	1.2	19	34	43
Peru	2007-08 DHS	Birth History with reproductive calendar	STATcompiler	12	7	19	1.7	10	19	27
Peru	2012 DHS	Birth History with reproductive calendar	STATcompiler	8	9	17	0.9	10	17	21
Peru	2011 DHS	Birth History with reproductive calendar	STATcompiler	8	6	14	1.3	8	16	21
Peru	2010 DHS	Birth History with reproductive calendar	STATcompiler	6	7	13	0.8	9	17	23
Peru	2009 DHS	Birth History with reproductive calendar	STATcompiler	9	8	16	1.1	11	20	26
Peru	2004-06 DHS	Birth History with reproductive calendar	STATcompiler	8	10	18	0.8	13	22	30
Peru	2000 DHS	Birth History with reproductive calendar	STATcompiler	9	13	22	0.7	18	33	47
Peru	1996 DHS	Birth History with reproductive calendar	DHS special tabulation	9	16	25	0.6	24	43	59
Peru	1991-92 DHS	Birth History with reproductive calendar	DHS special tabulation	9	17	26	0.6	25	54	78

2.5 Country Cases

In only a few cases did a country have one survey that used one method of data collection and then a subsequent survey with a different data collection method. These countries are Ghana, Nicaragua and Paraguay.

Ghana is a particularly interesting case because in 2008 The DHS program implemented two surveys: a Demographic and Health Survey and a special Maternal Health Survey (MHS). The DHS used a birth history while the MHS used a pregnancy history. The two surveys found similar early neonatal mortality rates: 25 for the DHS and 24 for the MHS. On the other hand, the two surveys found quite different stillbirth rates: 14 for the DHS and 21 for the MHS. Earlier we stated that solid historical records suggest that the ratio of stillbirths to early neonatal deaths should be on the order of 1.2 when the early neonatal mortality rate exceeds 20. This ratio is 0.5 for the 2008 DHS and 0.9 for the 2008 MHS. The MHS is much closer to the standard.

The 1998 Ghana DHS used a pregnancy history where the ratio of stillbirths to early neonatal deaths was 0.9. The later 2003 Ghana DHS used the birth history where the ratio was 0.3. Again the survey with the pregnancy history was closer to the historically expected ratio of 1.2.

Nicaragua provides a contrasting example to Ghana. The 2006-2007 RHS used a survey instrument that asked women specific questions about whether or not they had one or more stillbirths in the last five years. The 2001 DHS implemented the birth history. The results were almost identical.

Finally, Paraguay had two RHS's in 2004 and 2008 that used the same instrument as the Nicaragua 2006-2007 RHS. The 1990 DHS in Paraguay included a birth history and reproductive calendar. Comparing the results of the 1990 and 2008 surveys in Paraguay, there was a modest decline in the perinatal mortality rate that tracked the reduction in the neonatal mortality rate. On the other hand, there was not a clear trend in the stillbirth rate or the early neonatal mortality rate. In contrast to the results found for Ghana, the birth history in conjunction with the 1990 DHS, using the reproductive calendar, produced a stillbirth rate as high or higher than the rate based on the specific questions regarding stillbirths (i.e., 17 for the 1990 DHS versus 14 for the 2004 RHS and 17 for the 2008 RHS). In all three cases, the ratios of stillbirths to early neonatal deaths were in the neighborhood of the standard of 1.2 (i.e., 1.2 for the 1990 DHS, 0.9 for the 2004 RHS and 1.4 for the 2008 RHS).

2.6 Summary Measures

2.6.1 Comparison of surveys with a pregnancy history versus those with only a birth history

Another way to address the question is by looking at summary measures of stillbirth rates, early neonatal mortality rates and their ratio disaggregated by levels of early childhood mortality and the method used to collect the data. Table 2 presents averages of the stillbirth rate, early neonatal mortality rate and perinatal mortality rate as well as the average of the ratios of stillbirths to early neonatal deaths. These rates are presented for various disaggregations of countries based on their early neonatal mortality rate and whether they implemented a birth history or a pregnancy history.

Table 2. Summary of perinatal mortality rates collected with pregnancy histories versus birth histories

		Number of surveys	Average stillbirth rate	Average early neonatal mortality rate	Perinatal mortality rate	Average ratio of stillbirths to early neonatal mortality
Early neonatal mortality rate greater than or equal to 20	Pregnancy History	15	26	26	52	0.9
	Birth History with reproductive calendar	45	16	26	42	0.6
Early neonatal mortality rate less than 20	Pregnancy History	35	11	12	23	1.0
	Birth History with reproductive calendar	73	11	15	26	0.8

Unfortunately, relatively few of the surveys for countries with high early neonatal mortality rates (greater than 20) implemented a pregnancy history. However, among the surveys in which a pregnancy history was implemented the stillbirth rate is on average about 50 percent higher (26 versus 16) than those using a birth history, while the early neonatal mortality ratio is exactly the same at 26. The ratio of stillbirths to early neonatal deaths is closer to the standard of 1.2 for surveys where the pregnancy history was implemented (0.9 average for the surveys with pregnancy histories versus 0.6 for the surveys with birth histories).

For the surveys in countries where the early neonatal mortality rate was less than 20, the picture is less clear but still consistent with the pattern for the countries with a neonatal mortality rate exceeding 20. The average of the stillbirth rates is 11 in both the surveys using the pregnancy histories and those using the birth histories. On the other hand, the early neonatal mortality rate is 12 in the surveys using the pregnancy history versus 15 in the surveys implementing the birth histories. The ratio of stillbirths to early neonatal deaths is 1.0 for the surveys with pregnancy histories versus 0.8 for the surveys implemented with birth histories.

Table 3 presents the numbers of surveys that meet or exceed the rule of thumb offered by the WHO in its 2006 report (WHO, 2006). Of the 168 surveys analyzed here, only 12 had a ratio of stillbirths to early neonatal deaths that met the 1.2 standard. On a percentage basis the surveys using pregnancy histories did marginally better than those using birth histories but were still quite low. In the right two columns we relaxed the standard to be only 1.0 still there were very few surveys among the high mortality countries that met even this relaxed standard.

Table 3. Numbers and percentages of surveys that meet or exceed cut-offs of 1.0 and 1.2 for the ratio of SBR/ENMR, comparison of pregnancy history with birth history

			Surveys where the ratio of stillbirths to early neonatal mortality exceeds 1.2		Surveys where the ratio of stillbirths to early neonatal mortality exceeds 1.0	
		Number of surveys	Number	Percent of total	Number	Percent of total
Early neonatal mortality rate greater than or equal to 20	Pregnancy History	15	1	7	2	13
	Birth History with reproductive calendar	45	1	2	4	9
Early neonatal mortality rate less than 20	Pregnancy History	35	5	14	14	40
	Birth History with reproductive calendar	73	5	7	11	15

2.6.2 Comparison of reproductive history techniques

As described above, the reproductive history can be collected by either compiling a table similar to the birth history or adding special questions addressing specific non-live birth events that may follow from a pregnancy (i.e., abortions, miscarriages and stillbirths). Also, the tabular pregnancy history can be collected in two ways: 1) pregnancies queried from first pregnancy to most recent (Forward); or 2) pregnancies queried from most recent to first (Backward). Tables 4 and 5 present the same information as Tables 2 and 3 except that they are limited to surveys in which a pregnancy history was implemented and is disaggregated by the type of pregnancy history that was implemented.

Table 4. Summary of perinatal mortality rates collected with forward pregnancy histories, backward pregnancy histories and special questions

		Number of surveys	Average stillbirth rate	Average early neonatal mortality rate	Perinatal mortality rate	Average ratio of stillbirths to early neonatal mortality
Early neonatal mortality rate greater than or equal to 20	Pregnancy History First to Most Recent (Forward)	7	23	28	50	0.8
	Pregnancy History Most Recent to First (Backward)	7	15	24	39	0.7
Early neonatal mortality rate less than 20	Pregnancy History First to Most Recent (Forward)	4	15	12	27	1.4
	Pregnancy History Most Recent to First (Backward)	20	9	12	21	0.8
	Pregnancy History via special questions	11	12	12	15	1.0

Table 5. Numbers and percentages of surveys that meet or exceed cut-offs of 1.0 and 1.2 for the ratio of SBR/ENMR, comparison of forward pregnancy histories, backward pregnancy histories and special questions

			Surveys where the ratio of stillbirths to early neonatal mortality exceeds 1.2		Surveys where the ratio of stillbirths to early neonatal mortality exceeds 1.0	
		Number of surveys	Number	Percent of total	Number	Percent of total
Early neonatal mortality rate greater than or equal to 20	Pregnancy History First to Most Recent (Forward)	7	0	0	1	14
	Pregnancy History Most Recent to First (Backward)	7	0	0	0	0
Early neonatal mortality rate less than 20	Pregnancy History First to Most Recent (Forward)	4	2	50	2	50
	Pregnancy History Most Recent to First (Backward)	20	1	5	7	35
	Pregnancy History via special questions	11	2	18	5	45

Note that the number of surveys in each line of the tables is relatively small. For surveys in countries where the early neonatal mortality rate exceeds 20, the average stillbirth rate is considerably higher in those surveys in which the pregnancies were queried from first to most recent than when queried from most recent to first. The average of the ratio of stillbirths to early neonatal deaths is also higher, but the difference is not as stark. The countries whose surveys go from most recent pregnancy to first pregnancy are mostly Eastern European or Central Asian whereas the countries whose pregnancy histories go from first pregnancy to most recent pregnancy are almost all in Africa or South Asia. Therefore, we resist drawing any conclusions.

For the surveys in which the early neonatal mortality rate is less than 20, the pregnancy history using the special questions seems to do a better job than the pregnancy history done from most recent pregnancy to first. The average stillbirth rate is higher and the average early neonatal mortality rate is lower, leading to a ratio of stillbirths to early neonatal mortality rate that is on average higher for the surveys in which the special questions were asked. Interpreting these findings might be difficult as most of the surveys with special questions are in Latin America whereas the 20 surveys with the pregnancy history from most recent to first are a mix of countries in Central Asia, Europe and South and Southeast Asia. Only four surveys conducted the pregnancy history from first to most recent. The average stillbirth rate and the ratio of stillbirths to early neonatal deaths is relatively high for these surveys.

2.7 Discussion

This chapter has a relatively simple goal: to assess which type of survey instrument is best for collecting information related to pregnancy outcomes. We looked at the following cases:

1. Pregnancy History
   a. Pregnancy history queried from first pregnancy to most recent pregnancy
   b. Pregnancy history queried from most recent pregnancy to first pregnancy
   c. Pregnancy outcomes (other than live birth) queried using special questions
2. Birth History supplemented with a reproductive calendar

From the literature we accepted the finding that for countries with early neonatal mortality rates that exceed 20 should have a ratio of stillbirths to early neonatal deaths that is near to 1.2 (WHO, 2006).[6] Our analysis has therefore focused on evaluating how close a survey comes to finding such a ratio. In general, we believe that the diversions from this ratio would be caused by an underreporting of stillbirths, since both pregnancy histories and birth histories use roughly the same technique for querying early neonatal deaths (i.e., identification of live births and then establishing the number of days that a child lived before dying).

A standard for comparisons would be a survey using several different techniques applied to randomly assigned women. To our knowledge, such a survey focused on perinatal mortality has never been done.[7] Some insights are available from two surveys implemented by The DHS Program in Ghana in 2008: a Maternal Health Survey with a pregnancy history and a Demographic and Health Survey with a birth history supplemented by a reproductive calendar. The two surveys produced very similar estimates of early neonatal mortality rates. However, the Maternal Health Survey with the pregnancy history produced an estimate of stillbirths that was about 50 percent higher than the DHS using the birth history supplemented by the reproductive calendar. This is strong but isolated evidence that the pregnancy history produces better results for estimating numbers of pregnancies that do not result in live births.

Two other countries—Nicaragua and Paraguay—have implemented surveys using different types of instruments (albeit at different points in time). Unfortunately, these surveys did not deliver any clear actionable message, since they did not show any discernible pattern across the two types of survey instruments.

Next we presented summary cross-country averages on stillbirths, early neonatal mortality and the ratio of stillbirths to early neonatal mortality for the different types of survey instruments. The literature suggests that differences in the stillbirth to early neonatal mortality ratio may be different at different levels of early neonatal mortality. Therefore we differentiated surveys for countries that are above or below 20 early neonatal deaths per 1,000 live births. In surveys with both high and low mortality, we found that the surveys with pregnancy histories identified a higher ratio of stillbirths to early neonatal deaths. For countries with high early neonatal mortality, the difference was quite large.

Overall on balance, we find that the pregnancy history finds more stillbirths than the birth history supplemented by the reproductive calendar finds. However, this finding should be viewed in light of the overall underestimation by both methods. In surveys where the early neonatal mortality rate was greater than 20 only one survey out 15 surveys with a pregnancy history found a ratio of stillbirths to early neonatal mortality equal to or greater than 1.2. Among the 45 surveys with a birth history, only one survey found a ratio equal to or greater than 1.2. The results were somewhat better for the surveys in countries with neonatal mortality less than 20 (5 surveys out of 35 with ratios equal to or greater than 1.2 for pregnancy histories and 5 out of 73 for birth histories).

We also compared different approaches to gathering a pregnancy history. Unfortunately, we could not make useful comparisons because these different approaches were implemented along strong regional patterns. The pregnancy histories that went from most recent birth to first birth ("backward pregnancy history") were mostly implemented in Central Asian and Eastern European countries. The pregnancy histories that were inferred from special questions were mostly conducted in Latin America.

[6] It might be argued that the DHS is in fact correct and the 1.2 standard incorrect. However, we believe that the ratio based on results from vital registration is more likely to be correct.
[7] Espeut (2002) did the random assignment but focused on events other than perinatal mortality.

Among surveys in countries where the early neonatal mortality exceeded 20, we found higher reporting of stillbirths relative to early neonatal deaths in surveys using the pregnancy history that queried women from first to most recent pregnancy ("forward pregnancy history") compared with surveys that queried women from most recent to first pregnancy ("backward pregnancy history"). However, very few surveys in this category used a pregnancy history.

In countries where the early neonatal mortality rate was less than 20, we found that surveys in which pregnancies were queried from first to most recent pregnancy ("forward pregnancy history") had the highest stillbirth to early neonatal mortality ratio, based on a very small number of surveys. Surveys with pregnancy histories queried from most recent to first ("backward pregnancy history") identified fewer stillbirths than surveys that either queried pregnancies from first to most recent pregnancy or surveys with special questions. However, we emphasize that there was a strong regional pattern to the surveys' implementation that may actually be the cause of the difference observed.

In summary, we offer the following overall findings for the set of surveys analyzed here:

- Both the pregnancy history and the birth history underestimate stillbirths.
- On average, surveys that used a pregnancy history or included special questions to identify pregnancies with non-live births do a better job of identifying stillbirths.
- In our collection of surveys, those with special questions or pregnancy histories queried from first to most recent captured more stillbirths than the surveys that queried from most recent to first pregnancy. However, the number of surveys for comparison is very small. Also, competing hypotheses such as regional differences in rates of reporting seem equally plausible as explanations.

This report offers evidence concerning whether a pregnancy history or a birth history supplemented with additional information does a better job of reporting perinatal mortality. Some readers may see this evidence as sufficient to move toward systematic implementation of the pregnancy calendar given previous studies that have shown better reporting of other pregnancy events. Other readers may want to see more evidence before making a decision or asserting an opinion. Firmer research might include trials where women are randomly assigned to one of the following types of survey methods:

- Birth history only (with reproductive calendar identifying pregnancies not ending with live births);
- Birth history with supplemental questions to identify pregnancies not ending with live births; and
- Pregnancy history.

The randomized experiments might go one step further and compare the results of a pregnancy history done from most recent pregnancy to first pregnancy versus a history that goes from first pregnancy to most recent pregnancy.

However, we emphasize that none of the three mechanisms above consistently yield results that are comparable to the expectations generated by perinatal mortality rates calculated from vital registration. Any decision made to change the survey instrument would be just making the estimations better, not necessarily good for the purpose of estimating perinatal mortality. To achieve results comparable to those calculated from vital registration may require a change in paradigm about the types of survey methods that are needed for estimating perinatal mortality.

Chapter 3: Assessing the Quality and Consistency of Contraceptive Use Data in DHS Calendars

Information collected in DHS calendars form the primary data source for the study of contraceptive use dynamics, particularly rates of contraceptive discontinuation, failure, and switching, in low- and middle-income countries (Ali, Cleland, and Shah 2012). As described in Chapter 2, calendar data are retrospective month-by-month histories of women's reproductive events (births, pregnancies, and terminations) and episodes of contraceptive use that occurred in the six years prior to interview. The process of filling in the contraceptive calendar (described in detail below) asks women to recall episodes of contraceptive use that may have occurred up to six years in the past. Women using long-term methods such as sterilization, IUD, or implants may be able to accurately recall the start and, if applicable, end dates of use. It is unclear, however, whether retrospective recall of short-term episodes of use, particularly for methods that are coitus dependent (condom, diaphragm, spermicides, withdrawal, periodic abstinence, and other traditional methods) are reliable. This chapter assesses the quality and consistency of episodes of contraceptive use collected in the calendar (hereafter referred to as the "contraceptive calendar").

3.1 Background

An ideal way to assess the reliability of retrospectively collected data would be to interview the same women multiple times. At the first point of data collection, interviewers would ask women what, if any, contraceptive method they are currently using. Several—perhaps five—years later, the same women would be re-interviewed and asked to retrospectively recall their contraceptive use histories using the calendar survey instrument for the past five or more years, including the time point in which they were first interviewed. The two sources of information—current and retrospective for the same time point—could then be compared to see if women accurately recalled the method they were using when the current status data were collected. If retrospective recall is accurate, the two data sources (the calendar and the current status data) would match. If they did not match, we could assess the degree to which the reports are different and assess whether there appears to be under- or over-reporting of contraceptive use in the calendar, assuming the current status data were accurately recorded.

DHS surveys do not interview the same women over time (with the exception of the Morocco Panel survey in 1995), but the surveys do interview nationally representative samples of reproductive-aged women. In many countries, DHS surveys are conducted approximately every five years, providing repeated nationally representative cross-sections drawn from the same population of women. Because the samples are all nationally representative, the women who were ages 15-44 in one survey should be representative of women ages 20-49 in the next survey. After ensuring that data are limited to the same age groups in both data sources, the current status contraceptive use reported by women in one survey can therefore be compared to contraceptive use reported in the calendar in a later survey, tracked back in time to the date of the prior survey. In this chapter, we use this approach of comparing repeated DHS surveys in the same country to assess the reliability of contraceptive use as reported in the calendar compared with current status data from an earlier survey.

Few studies to date have examined the quality of the contraceptive information collected in DHS calendars. Most of the existing studies focus on the first few calendars collected: the 1986 Peru and Dominican Republic DHS and the 1995 DHS Panel survey in Morocco (Goldman, Moreno, and Westoff 1989a and 1989b; Westoff, Goldman, and Moreno 1990; Moreno, Goldman and Babakol 1991; Strickler et al. 1997). At present, the majority of DHS surveys are now conducted in sub-Saharan Africa and include the contraceptive calendar. We are aware of only two prior studies that assessed the quality of calendar data in any sub-Saharan African countries: Curtis and Blanc 1997 and Bradley, Schwandt, and

Khan 2009.[8] In this chapter, we aim to broaden the understanding of the quality and consistency of DHS calendar data on contraceptive use by analyzing data from 106 pairs of DHS surveys conducted in 37 countries, including 18 countries in sub-Saharan Africa.

In this chapter, we first review the history of the calendar in DHS surveys and summarize how contraceptive use is recorded in the calendar. Next, we examine consistency of contraceptive use reporting in each calendar. Finally, we assess patterns in contraceptive reporting across contraceptive methods, geographic regions, and survey characteristics.

3.1.1 A brief history of the calendar in DHS

The calendar was first developed for DHS in the experimental surveys conducted in Peru and Dominican Republic in 1986. These surveys examined "the potential of a six-year calendar for the collection of monthly data on contraceptive practice, breastfeeding, amenorrhea, postpartum abstinence and exposure to risk; the comparative merits of a calendar approach vs. the standard format of collecting such information within each birth interval for estimates of fecundability, natural fertility, and contraceptive efficacy" (Goldman, Moreno, and Westoff 1989b, p.1).

Analysis of the data collected in the Peru survey showed improved information from the calendar format questionnaire in the experimental questionnaire compared with the previously used tabular format. Goldman, Moreno and Westoff (1989b) noted that "several different comparisons indicate that reporting of information on contraceptive histories in the experimental questionnaire is superior to that in the standard one." Moreno and colleagues found other major advantages to using the calendar: "it obtains more complete reports of use for periods prior to the survey; it allows for a detailed study of contraceptive use patterns; and it obtains information which is more internally consistent with other types of information," (Moreno, Goldman, and Babakol 1991, p. 13)

On the basis of these experimental surveys and the analyses that followed, the use of the calendar became a standard part of the DHS Model A questionnaire for use in high contraceptive prevalence countries in the second phase of DHS (DHS II), starting in 1990. DHS phase I corresponded to approximately 1984-1989; phase II, 1989-93; phase III, 1993-97; phase IV, 1997-2003; phase V, 2003-08; and phase VI, 2008-13. The DHS Program is currently in the seventh phase of data collection.

Implementation of the DHS calendar has varied over survey phases. In phases II-IV, the calendar was included only in high contraceptive prevalence countries, which used the Model A questionnaire. In these phases, the calendar included columns that collected reasons for discontinuation (shown in Figure 7), as well as a column tracking women's marital/in-union status in each month of the calendar. Some calendars also included columns to capture additional information such as the source of contraception. Low contraceptive prevalence countries used the Model B questionnaire during phases II-IV, which did not include the calendar.

In DHS phase V starting around 2003, the use of separate questionnaires for high- and low-contraceptive prevalence countries was discontinued, and all countries used the same core questionnaire that included a calendar collecting births, pregnancies, terminations, and episodes of contraceptive use. Note that not all countries included the calendar in their questionnaires immediately. In some countries the calendar was not included until later phases of DHS, based on the data needs and interests of the country, sometimes

[8] The 1997 study included Zimbabwe data, and the 2009 study included data from Kenya and Zimbabwe. As explained below, calendars were only included in high contraceptive prevalence countries in early rounds of the DHS; most sub-Saharan African surveys were not considered high contraceptive prevalence and so calendar data were not collected.

preferring to maintain comparability with approaches used in prior surveys. Additionally, some countries adapted the calendar to collect only births, pregnancies, and terminations, excluding episodes of contraceptive use.[9] The current DHS-7 core questionnaire uses a two-column calendar collecting month-by-month information on births, pregnancies and contraceptive use in column 1 and the reason for discontinuation in column 2, as pictured in Figure 7. The calendar collects a complete history of women's reproduction and contraceptive use for five to seven years prior to the survey. The exact length of the period covered by the contraceptive calendar varies depending on the duration of data collection and the month in which the respondent was interviewed.

Figure 7. Calendar from DHS-7 core questionnaire

INSTRUCTIONS:
ONLY ONE CODE SHOULD APPEAR IN ANY BOX.
COLUMN 1 REQUIRES A CODE IN EVERY MONTH.

CODES FOR EACH COLUMN:

COLUMN 1: BIRTHS, PREGNANCIES, CONTRACEPTIVE USE (2)

B BIRTHS
P PREGNANCIES
T TERMINATIONS

0 NO METHOD
1 FEMALE STERILIZATION
2 MALE STERILIZATION
3 IUD
4 INJECTABLES
5 IMPLANTS
6 PILL
7 CONDOM
8 FEMALE CONDOM
9 EMERGENCY CONTRACEPTION
J STANDARD DAYS METHOD
K LACTATIONAL AMENORRHEA METHOD
L RHYTHM METHOD
M WITHDRAWAL
X OTHER MODERN METHOD
Y OTHER TRADITIONAL METHOD

COLUMN 2: DISCONTINUATION OF CONTRACEPTIVE USE

0 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
F UP TO GOD/FATALISTIC
A DIFFICULT TO GET PREGNANT/MENOPAUSAL
D MARITAL DISSOLUTION/SEPARATION
X OTHER
_____ (SPECIFY)
Z DON'T KNOW

(1) Year of fieldwork is assumed to be 2015. For fieldwork beginning in 2016, all references to calendar years should be increased by one; for example, 2009 should be changed to 2010, 2010 should be changed to 2011, 2011 should be changed to 2012, and similarly for all years throughout the questionnaire.

(2) Response categories may be added for other methods, including fertility awareness methods.

				COL. 1	COL. 2	
	12	DEC	01			
	11	NOV	02			
	10	OCT	03			
2	09	SEP	04			2
	08	AUG	05			
0	07	JUL	06			0
	06	JUN	07			
1	05	MAY	08			1
	04	APR	09			
5	03	MAR	10			5
(1)	02	FEB	11			
	01	JAN	12			
	12	DEC	13			
	11	NOV	14			
	10	OCT	15			
2	09	SEP	16			2
	08	AUG	17			
0	07	JUL	18			0
	06	JUN	19			
1	05	MAY	20			1
	04	APR	21			
4	03	MAR	22			4
	02	FEB	23			
	01	JAN	24			
	12	DEC	25			
	11	NOV	26			
	10	OCT	27			
2	09	SEP	28			2
	08	AUG	29			
0	07	JUL	30			0
	06	JUN	31			
1	05	MAY	32			1
	04	APR	33			
3	03	MAR	34			3
	02	FEB	35			
	01	JAN	36			
	12	DEC	37			
	11	NOV	38			
	10	OCT	39			
2	09	SEP	40			2
	08	AUG	41			
0	07	JUL	42			0
	06	JUN	43			
1	05	MAY	44			1
	04	APR	45			
2	03	MAR	46			2
	02	FEB	47			
	01	JAN	48			
	12	DEC	49			
	11	NOV	50			
	10	OCT	51			
2	09	SEP	52			2
	08	AUG	53			
0	07	JUL	54			0
	06	JUN	55			
1	05	MAY	56			1
	04	APR	57			
1	03	MAR	58			1
	02	FEB	59			
	01	JAN	60			
	12	DEC	61			
	11	NOV	62			
	10	OCT	63			
2	09	SEP	64			2
	08	AUG	65			
0	07	JUL	66			0
	06	JUN	67			
1	05	MAY	68			1
	04	APR	69			
0	03	MAR	70			0
	02	FEB	71			
	01	JAN	72			

[9] Calendars that did not collect contraceptive use data are not analyzed in this chapter.

3.1.2 Collecting contraceptive information in the calendar

From the top of the page to the bottom, the calendar typically includes 72 boxes (each box representing one month of time) divided into six sections (each representing one year or 12 months of time) in which to record information about the woman's experiences with childbearing and contraceptive use. In the current standard DHS-7 questionnaire the calendar consists of two columns:

1. Births, pregnancies, terminations and contraceptive use
2. Reasons for discontinuation of contraceptive use

For each month in the calendar a single letter or digit code is filled in from the list shown in Figure 7. As described in Chapter 1, for each birth that the respondent had during the period of the calendar, a letter B (Birth) is recorded in the month of birth. For each preceding month of pregnancy a letter P (Pregnancy) is recorded in the corresponding months in the calendar. If the respondent had a miscarriage, abortion, or stillbirth in the period covered by the calendar, a letter T (Termination) is recorded in the month the pregnancy ended, and a letter P (Pregnancy) is recorded for each preceding month of pregnancy.

After recording all births and other pregnancies in the corresponding boxes in the calendar, the interviewer asks about contraception. If the respondent is currently using a contraceptive method, the interviewer asks for the month and year the respondent started using the method – that is the start of continuous use of the method, not the first time she used the method. The interviewer fills in the code for the contraceptive method currently used in column 1 in the row corresponding to the month of interview and in the month started using the method using the codes shown to the left of the calendar. If the respondent started using the method prior to the start of the calendar, the interviewer records the code in the first (bottom) row of the calendar. The interviewer then connects the first and last month of contraceptive use with a line showing continuous use of the method between these two dates. Using the calendar shown in Figure 7, if a woman who was interviewed in June 2015 reported current pill use and said she started using that episode of use in January 2015, the interviewer would record a "1" in the seventh row of the calendar form marked 2015 June,[10] a "1" in the 12th row of the calendar form marked 2015 January, and a line connecting the two indicating continuous use.

The interviewer then asks the respondent about other episodes of contraceptive use that may have occurred in any remaining open periods in the calendar (open periods refer to months in which no code has yet been filled in, i.e., the period between a birth and the beginning of contraceptive use, or between one birth and the following pregnancy). For each open period, the interviewer asks a series of questions to ascertain the date and duration of use of contraception, if any, during that period using questions such as:

- *When was the last time you used a method? Which method was that?*
- *Between the (EVENT1) in (MONTH AND YEAR) and the (EVENT2) in (MONTH AND YEAR) did you use a method of contraception?* Note that EVENT1 may be the birth of a child, the termination of a pregnancy, the end of a prior episode of contraceptive use, and EVENT2 may be the start of a pregnancy or the beginning of a later episode of contraceptive use.
- *When did you start using that method?*
- *How long after (EVENT1) did you start using that method?*
- *How long did you use the method then?*

[10] Note the label for June 2015 of "06 JUN 07". The first number, 06, corresponds to the numeric month of June. The second number, 07, corresponds to the number of months since December 2015, working backwards in time.

- *What happened when you stopped using that method: did you not use any method, did you start using a different method, or did you become pregnant?*

For each episode of contraceptive use recorded in column 1 of the calendar, the interviewer asks additional questions to ascertain the reason for discontinuing use of the contraceptive method and records the code for the reason for discontinuation in column 2 of the calendar in the row corresponding to the month of ending use of the contraceptive method. At the end of each episode of contraceptive use the respondent is asked:

- *Why did you stop using the (METHOD)?*

Followed by probing questions, including:

- IF A PREGNANCY FOLLOWED: *Did you become pregnant while using (METHOD), did you stop to get pregnant, or did you stop for some other reason?*

Only the main reason for discontinuation is recorded.

While filling in the episodes of contraceptive use in between each birth or pregnancy, any periods in which the respondent was neither pregnant nor using a contraceptive method are filled with code '0' meaning that no method was used in that month.

After completing the data collection for the calendar, column 1 of the calendar will have a single code recorded in every row, except for those rows after the month of interview. Column 2 will have a single code in the same month as the month of discontinuation of each episode of contraceptive use. Other months in column 2 are left blank.

For many respondents completing the calendar is quite straightforward. For example, a woman who has never been sexually active, a woman who used no contraception and had no pregnancies in the last five years, or a woman who used the same contraceptive method throughout the calendar period (e.g. sterilization or IUD) would have the same code in all months of column 1 and no codes in column 2 of the calendar.

For women with more complex reproductive histories, particularly women who experienced multiple episodes of contraceptive use and discontinuations during the calendar period, filling in the calendar is more complicated. Filling in multiple episodes of use in the calendar requires excellent recall on the part of the respondent, who may need to give dates for the beginning and end of episodes of contraceptive use that occurred up to six years prior to interview,[11] as well as the reason for each discontinuation. Filling in a complex history in the calendar also requires skill and patience on the part of the interviewer, to help the respondent recall dates and reasons for discontinuation, and record this information accurately on the questionnaire. Previous panel studies have found that more complex reproductive histories are associated with poorer reliability of contraceptive reporting in calendars (Callahan and Becker 2012).

3.2 Data and Methods

We analyze all DHS surveys that collected a contraceptive calendar (hereafter referred to as a calendar survey) that overlaps in time with a previous DHS in that country. Because the calendar collects approximately six years of data, this roughly means that we analyze all pairs of surveys in which a calendar survey was preceded by a DHS conducted up to six years prior. We allow for a gap of up to one year between the first month covered by the calendar and the median date of interview in the prior survey.

[11] All calendars collect up at least five full years of information for all women interviewed, described in detail below. In most surveys, at least six years of information is collected, and in some cases the calendar covers seven years.

This selection gives us a sample of 37 countries, many of which have multiple DHS surveys with multiple calendars.

To compare retrospective results from one survey to current status results from another, we restrict the age groups to be comparable. Women who were ages 15-49 in 2011 would have been between ages 8-43 in January 2005, depending on exactly when their birthday falls in relation to the date of interview. We therefore exclude months before women's 15th birthdays and after the end of their 43rd year (i.e., from their 44th birthday on) from the calendar data, and exclude data from women over ages 43 from the current status data.[12] In surveys that only interviewed ever-married women, there is an additional complication: women who were married at the time of interview may not have been married for the entire period covered by the calendar. To be able to compare calendar data to current-status estimates in which all women had been married, we restrict the calendar data to months that fall after the woman was first married. In Egypt, Turkey, and Vietnam, we have information from an additional column in all of the calendar surveys analyzed that tracks whether or not the woman was married in each month of the calendar. In these three countries, we restrict the estimates in each month of the calendar, and in the current-status data, to women who were currently married at that time.[13] For comparability, if any analyzed survey in a country interviewed only ever-married women in a country, we limit all analyses to ever-married women in that country even if more recent surveys included never-married women.

Because reporting about something a person is currently doing (i.e., current contraceptive use) is not subject to recall biases or other problems associated with reporting of events that occurred in the past, we generally assume that reports of current contraceptive use are more likely to be accurate than retrospective reports in the calendar. We therefore consider the current use estimates to be the best estimate of contraceptive prevalence at that time, and consider the calendar data to not accurately capture contraceptive use if estimates of the CPR from the calendar are statistically significant from those from current use estimates for the same date.

The graphs below plot the total CPR for women ages 15-43 years old, or the percentage of women using any form of contraception, reported in each month from the calendar and in the median month of interview from current status data. In each graph, the calendar data are represented as a line over time, with a shaded region representing 95% confidence intervals. Current status data are presented as circles, also with 95% confidence intervals. The black line in each graph connects the current status CPR estimates using linear interpolation, and the dashed lines connect the ends of the 95% confidence intervals for the current status CPR estimates. Note that although the scales are constant within each graph, different scales are used across graphs according to the level of the CPR in each country.

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[12] Depending on exactly when women's birthdays fall in relation to the month in which they were interviewed, women who were turning 50 in 2011 could have been 43 or 44 in a specific month of 2005, and women who were 15 at the date of interview in 2011 could have been 8 or 9 in January 2005. To ensure that age groups are completely comparable, we restrict all estimates to women ages 15-43. In surveys that interviewed women under age 15, all data are restricted to women ages 15 and older. Note that the age restrictions mean that slightly different groups of women are included in each month of the restricted calendar data. The graphs of calendar data therefore do not follow precisely the same cohort of women over time; they instead represent repeated monthly cross-sections of all women ages 15-43 in each month depicted in the calendar.

[13] Note that in some early ever-married surveys, only currently married women were asked if they were using contraception and formerly married women were assumed not to be using contraception. We follow this assumption in analyses when necessary, but limit analyses to currently married women whenever possible. In countries with at least one ever-married survey, but in which the marriage column in the calendar is not available for all surveys, limiting analyses to ever-married rather than currently married women may lead to some unavoidable discrepancies in comparability between surveys. We have run calculations for surveys with the marriage column both ways, limiting to ever-married versus currently married women, wherever possible, and found no notable differences, except in Vietnam where the calendar data matched far better with the current status data when both data sources were limited to currently married women.

The point estimates for current status data are plotted in the median month of interview for that survey. For example, Figure 8 plots the CPR from the 2011 and 2005 surveys in Ethiopia, along with current status CPRs from the 2011, 2005, and 2000 surveys, the earliest of which did not collect calendar data. The green and blue lines represent data from the 2005 and 2011 calendars, respectively. The red circle is the CPR from the 2000 data. This is the percentage of all women 15-43 years old who said they were currently using contraception at the time of interview. The women were all interviewed between February and May 2000, with a median date of interview of April 2000.[14] The red circle is therefore plotted at April 2000 on the horizontal axis. The current status estimates for the 2005 and 2011 surveys are plotted at their median dates of interview: June 2005 and February 2011, respectively. There is a gap of a few months between the most recent time point in each calendar and the current status estimate. This is because we have only estimated the CPR in months when data are available for all women. For example, the Ethiopia 2005 data were collected between April and August 2005. Beginning in May, there are no data for women who were interviewed in April, so we no longer have calendar data for all women in the sample. We therefore do not present data from the calendar for months in which we do not have information for all women, which leaves a gap between the end of the calendar data and the current status point estimate at the median date of interview.

Appendix tables that accompany each graph compare the reported method mix from the current status data with calendar data collected in the corresponding month. In Appendix Table 1, the first column shows the contraceptive methods reported by women interviewed in Ethiopia in 2000 (median date of interview April 2000), followed by the 95% confidence intervals for these percentages. The next column shows the distribution of methods that women interviewed in 2005 reported they were using in April 2000. Because the surveys are representative of all women in Ethiopia, the reports should be the same if the calendar perfectly records women's retrospective contraceptive use (no recall error on the part of the woman interviewed and no interviewer errors recording the information). We also compare the method mix from current-status data in 2005 (median date of interview June 2005) to calendar data from January 2006, which was the first month in which calendar data were collected in the 2011 survey. Although these data are not from exactly the same time point, we believe they are close enough to warrant comparison.

In comparing the CPR and method mix from current-status and calendar data, we test whether differences in reporting are statistically significant. The null hypothesis for each test is that the level of contraceptive use, whether comparing the total CPR or the prevalence of specific methods, is the same in the calendar and the current status data. If the reported levels of use are not statistically significantly different, we judge that the calendar matches the reporting of current contraceptive use in the previous survey with a reasonable degree of accuracy. In the results section below, we only discuss discrepancies between current status and calendar data that are statistically significant.[15]

All analyses in this chapter were conducted and graphs created in Stata 13. All estimates are weighted using sampling weights, and the sampling errors and confidence intervals were estimated accounting for the clustered, two-stage stratified sample designs of each DHS survey.

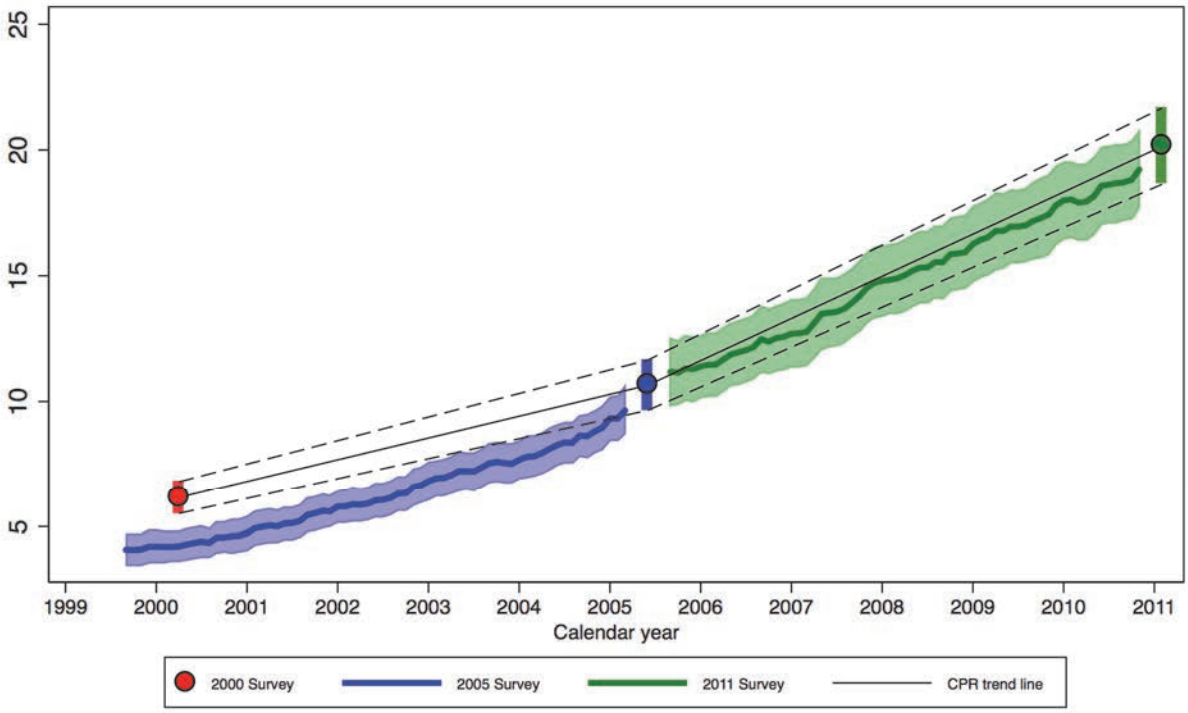
[14] The Ethiopia calendar data were collected using the Ethiopian calendar, which was converted to the Gregorian calendar. All dates in this paper refer to the Gregorian calendar.

[15] Note that even though confidence intervals for two estimates may overlap in graphs, the estimates may still be statistically significantly different.

3.3 Results

3.3.1 East and Southern Africa

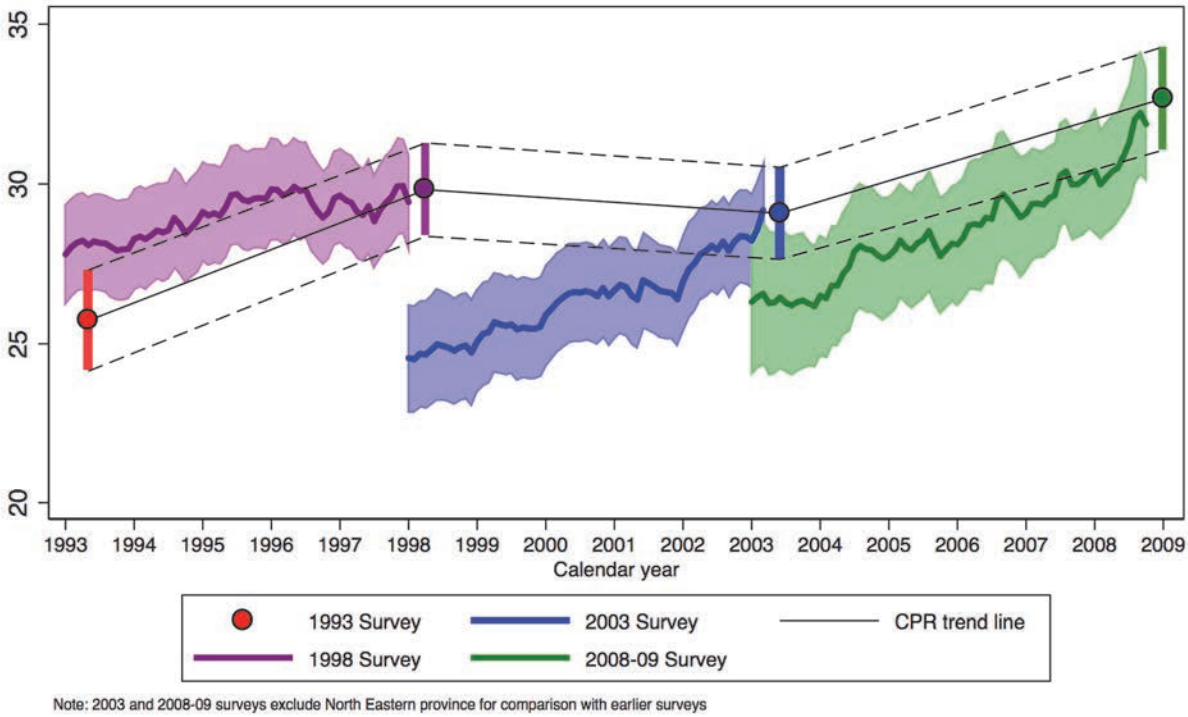
Figure 8. Total contraceptive prevalence rate among women 15-43, Ethiopia



Contraceptive prevalence among women ages 15-43 in the Ethiopia 2000 survey was reported at 6.2 percent, 95% CI 5.6-6.8 (Appendix Table 1). For the same time point from Ethiopia's 2005 calendar data the CPR is reported to be 2 percentage points lower, at 4.2 percent (CI 3.7-4.8) than 2000. This difference was found to be statistically significant and can also be clearly seen in the non-overlapping confidence intervals between the 2000 current status and 2005 calendar data in Figure 8. Although the gap between estimates is only two percentage points, this represents two-thirds of the current status CPR in Ethiopia at the time. Condoms and periodic abstinence appear particularly underreported in the 2005 calendar.

The total CPR in the 2011 calendar data is consistent with the 2005 current status estimate, with CPRs of 11.2 (CI 9.9-12.6) and 10.6 (CI 9.7-11.7) respectively, and also follows the current status CPR trend line precisely. Use of the pill and the lactational amenorrhea method (LAM) are both underreported in the 2011 calendar compared with current status data, but overall the 2011 calendar in Ethiopia appears to capture contraceptive use more accurately than the 2005 calendar.

Figure 9. Total contraceptive prevalence rate among women 15-43, Kenya

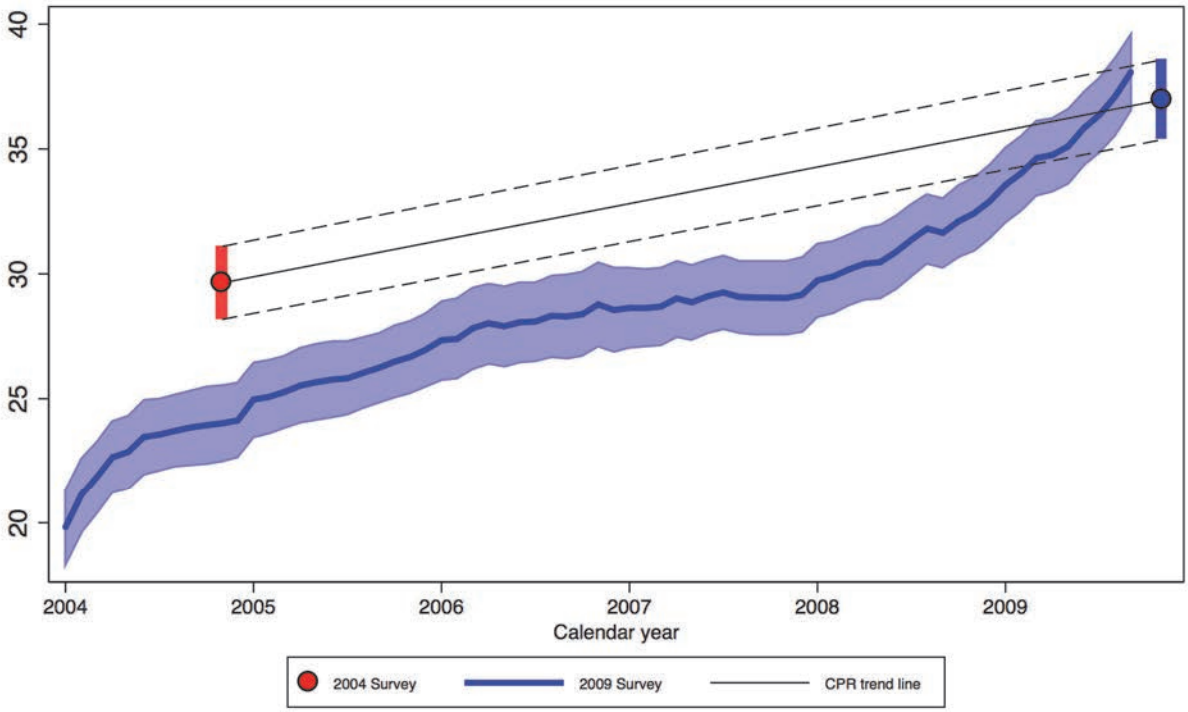


Although the confidence intervals from the 1993 current status data (in red) overlap the calendar estimate of CPR from the subsequent calendar (in purple), as do the confidence intervals for the 2003 current status (blue) and 2008-09 calendar (green) estimates, further statistical testing shows that none of the calendars from Kenya appear to accurately capture contraceptive use as reported in current status data. The calendar from 1998 produces a slightly higher CPR than the current status data: 28.2, percent (CI 26.7-29.8) in the calendar vs. 25.7 percent (CI 24.2-27.3) from the 1993 survey (Appendix Table 2). The vast majority of this difference is due to higher reporting of periodic abstinence in the calendar than in the 1993 survey.

The CPR in 1998 estimated from Kenya's 2003 calendar is 6 percentage points lower than the current status estimate for the same time point, with a CPR of 23.8 percent (CI 22.2-25.5) in the calendar versus 29.8 (CI 28.4-31.3) in the current status data. Sterilization, injections, condoms, and periodic abstinence all appear underreported in the 2003 calendar.

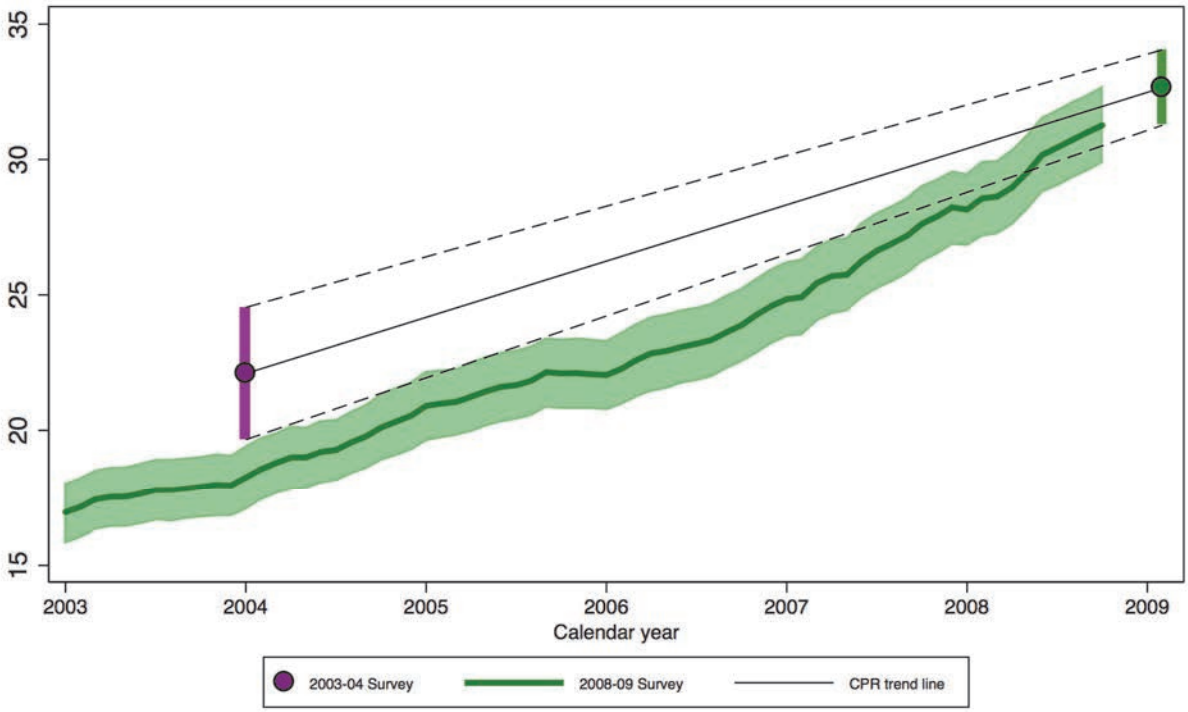
Kenya's current CPR was estimated to be 29.1 percent among women 15-43 in 2003 (CI 27.7-30.5), and 25.9 percent from the 2008-09 calendar (CI 23.8-28.2), which is statistically significantly lower. Much of this difference is due to reporting of periodic abstinence, at 4.6 percent in the current status data and 2.9 percent in the calendar. Surprisingly, given that we generally expect better reporting of long-term methods, both IUD and implant use appear underreported in the 2008-09 calendar, assuming the levels of use in the 2003 current status data are accurate.

Figure 10. Total contraceptive prevalence rate among women 15-43, Lesotho



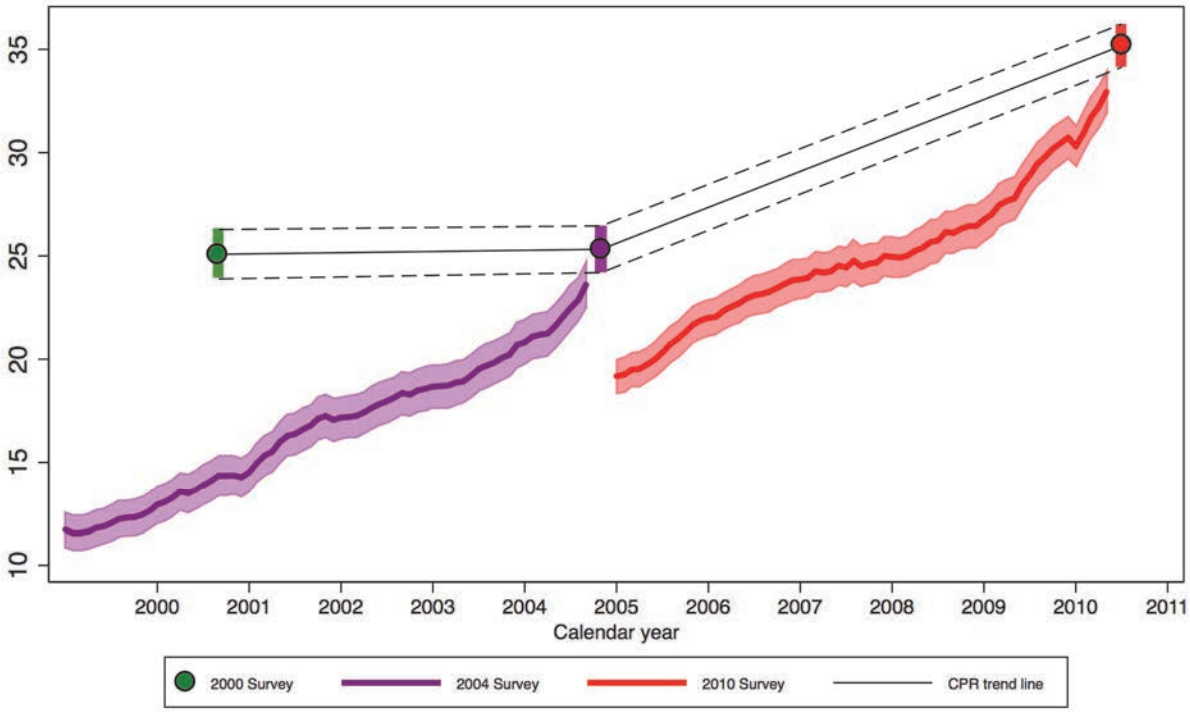
The 2009 Lesotho calendar data CPR for November 2004 is 5.7 percentage points lower than the CPR estimated from 2004 current status data: 23.9 percent in the calendar (CI 22.4-25.4) and 29.6 percent in current status data (CI 28.2-31.1) (Appendix Table 3). The majority of the difference is due to underreporting of injectable use: 11.3 percent in current status data (CI 10.3-12.3) versus 7.8 percent from the 2009 calendar data (CI 6.9-8.7). Pill use and use of "other traditional methods" (other than withdrawal and periodic abstinence) also appear underreported in the calendar compared with the current status data.

Figure 11. Total contraceptive prevalence rate among women 15-43, Madagascar



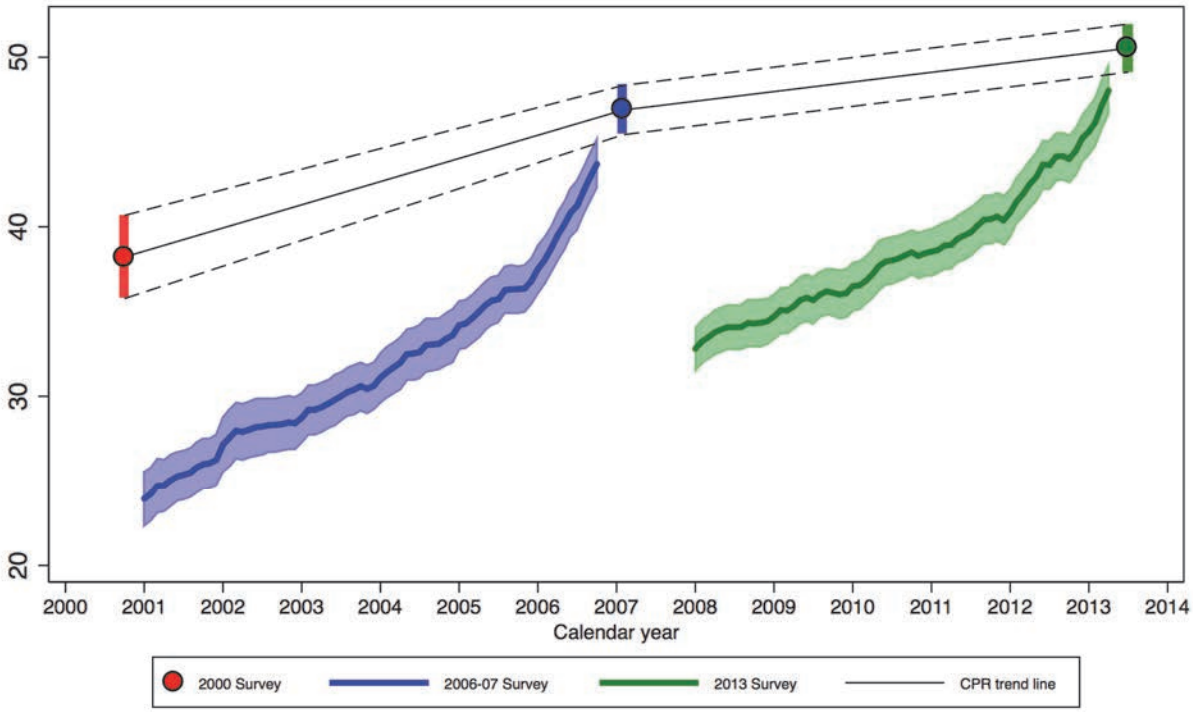
The Madagascar 2008-09 calendar data appear to underestimate contraceptive prevalence in 2004. Twenty-one percent of women ages 15-43 reported current use of contraception in the 2003-04 survey (CI 19.8-24.6), compared with 18.6 percent from the calendar for the same time point (CI 17.4-19.7) (Appendix Table 4). LAM use appears to be underreported, at 1.3 percent in current status data and 0.3 percent in the calendar, as does condom use at 1.2 percent in current status data, and 0.6 percent in calendar data. Neither LAM nor condoms are commonly used in Madagascar.

Figure 12. Total contraceptive prevalence rate among women 15-43, Malawi



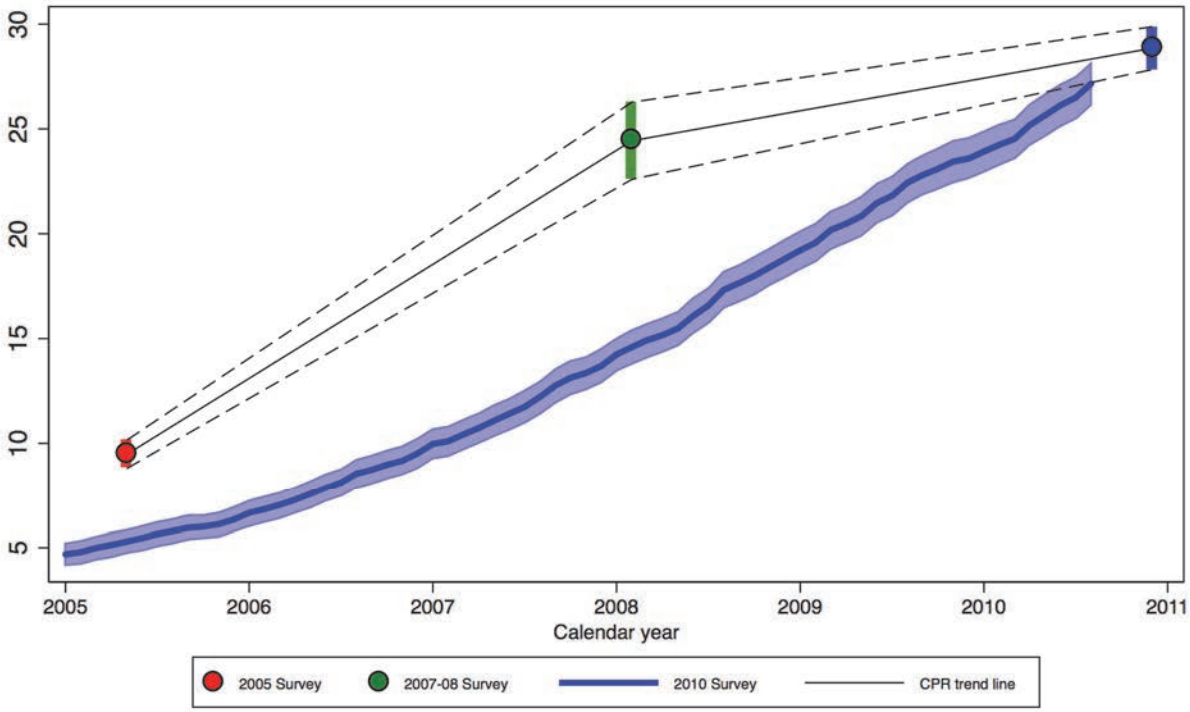
Both the 2010 and 2004 calendars in Malawi appear to underestimate contraceptive use. The gap between current status and calendar data is particularly large in the 2004 calendar: the current-status CPR in 2000 is 25.1 percent (CI 23.9-26.3), while data from the 2004 calendar show only 14.3 percent of women using contraception at that time (CI 13.4-15.4), underestimating the CPR by almost 11 percentage points (Appendix Table 5). This gap indicates that less than 60 percent of contraceptive use in 2000 was captured by the 2004 calendar. The gap between current-status and calendar data is 6.1 percentage points comparing the 2004 and 2010 data, at 25.3 percent (CI 24.2-26.5) and 19.2 percent (CI 18.4-20.0) respectively. In both comparisons, the majority of the gap is due to lower reporting of injectable use in the calendar: 13.5 percent in 2000 current status data versus 7.8 percent in the 2004 calendar, and 14.6 percent in the 2004 current status data versus 11.0 percent in the 2010 calendar. Condom use also appears underreported in both calendars, and pill and periodic abstinence use are also underreported in the 2004 calendar compared with the 2000 current status data.

Figure 13. Total contraceptive prevalence rate among women 15-43, Namibia



Neither of the calendars in Namibia cover precisely the same time period as the prior survey, leaving two months between the median date of the 2000 survey and the beginning of the 2006-07 calendar, and 11 months between the 2006-07 survey and the start of the 2013 calendar. Even so, contraceptive prevalence recorded in the calendar is so far below the current status trend line that it seems clear that the calendar data in Namibia underestimate contraceptive use. The 2000 current status data found a CPR of 38.2 percent (CI 35.8-40.7); the calendar data from the 2006-07 data estimate a CPR 14 percentage points lower at 23.9 percent (CI 22.4-25.5) only two months later (Appendix Table 6), which is clearly implausible. The difference between CPR estimates from the 2006-07 current status data and the 2013 calendar estimate for January 2008 is 14.1 percentage points: 46.9 percent from current status data (CI 45.4-48.3) and 32.8 percent from the calendar (CI 31.6-34.1). In both comparisons, injectables, condoms, and pills appear underreported in the calendar. The two calendars in Namibia capture only 63 to 70 percent of the contraceptive use reported in current status data at nearby time points.

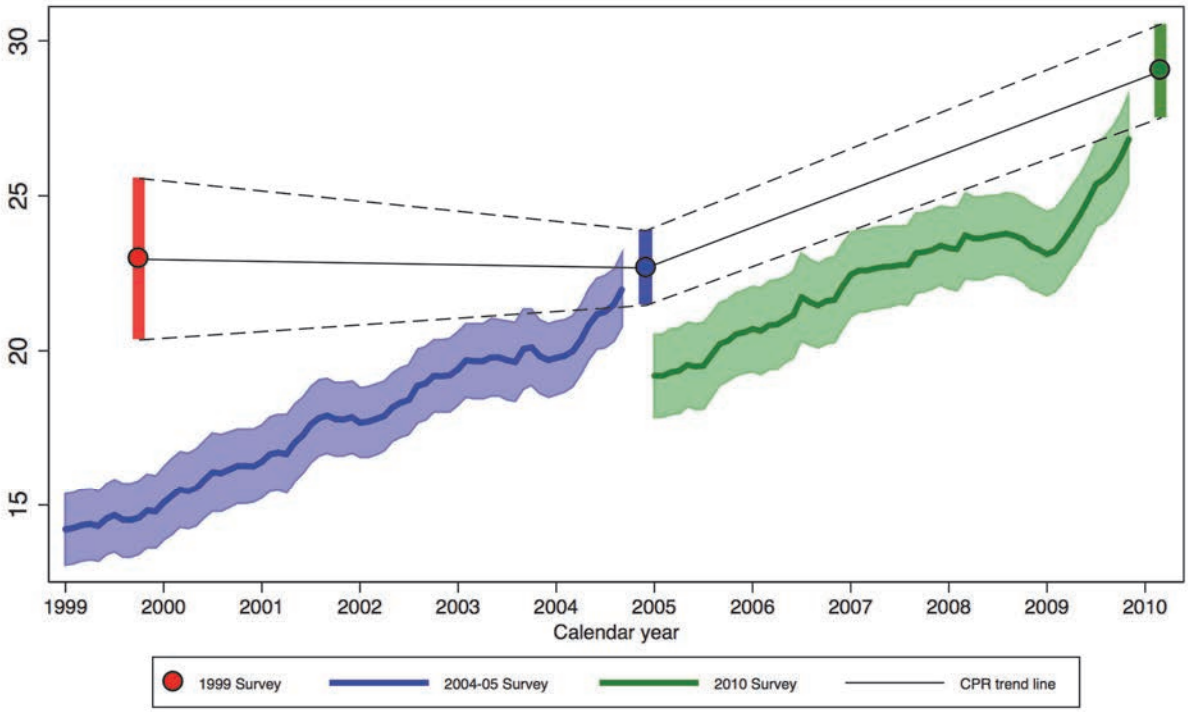
Figure 14. Total contraceptive prevalence rate among women 15-43, Rwanda



Assuming the 2005 and 2007-08 surveys accurately capture current-status contraceptive use, the 2010 calendar underestimates the CPR by 4 percentage points in 2005 and almost 10 percentage points in 2008, underestimating the current status CPR by 44 and 35 percent, respectively[16] (Appendix Table 7). In both comparisons, the majority of the difference is due to underreporting of periodic abstinence in the calendar. Periodic abstinence was reported to be the current method used by 2.3 percent of women in the 2005 survey (CI 2.0-2.6) and 6.0 percent of women in the 2007-08 survey (CI 4.8-7.4). Data from the 2010 calendar show less than 1 percent of women using this method throughout the calendar: 0.6 percent of women using periodic abstinence in May 2005 (CI 0.5-0.8) and 0.9 percent in February 2008 (CI 0.7-1.1). Given that only 2 percent of women reported periodic abstinence as their current method in 2005 and fewer than 1 percent reported using it in the 2010 current status data, it is possible that the method may have been overreported in the 2007-08 survey. If that is the case, the gap between the 2007-08 current status and corresponding calendar data would be lessened, but calendar data also appear to underestimate pill, condom, and withdrawal use compared with current status data from both the 2005 and 2007-08 surveys.

[16] Calculated as the relative difference between current use and calendar estimates of the CPR. For example, the estimated CPR in 2008 was 22.4 percent in current use data and 14.6 percent in the 2010 calendar (see Appendix Table 7). (22.4 – 14.6) / 22.4 = 34.8 percent, indicating that the calendar-based data underestimate contraceptive use by approximately 35 percent relative to the current use estimate.

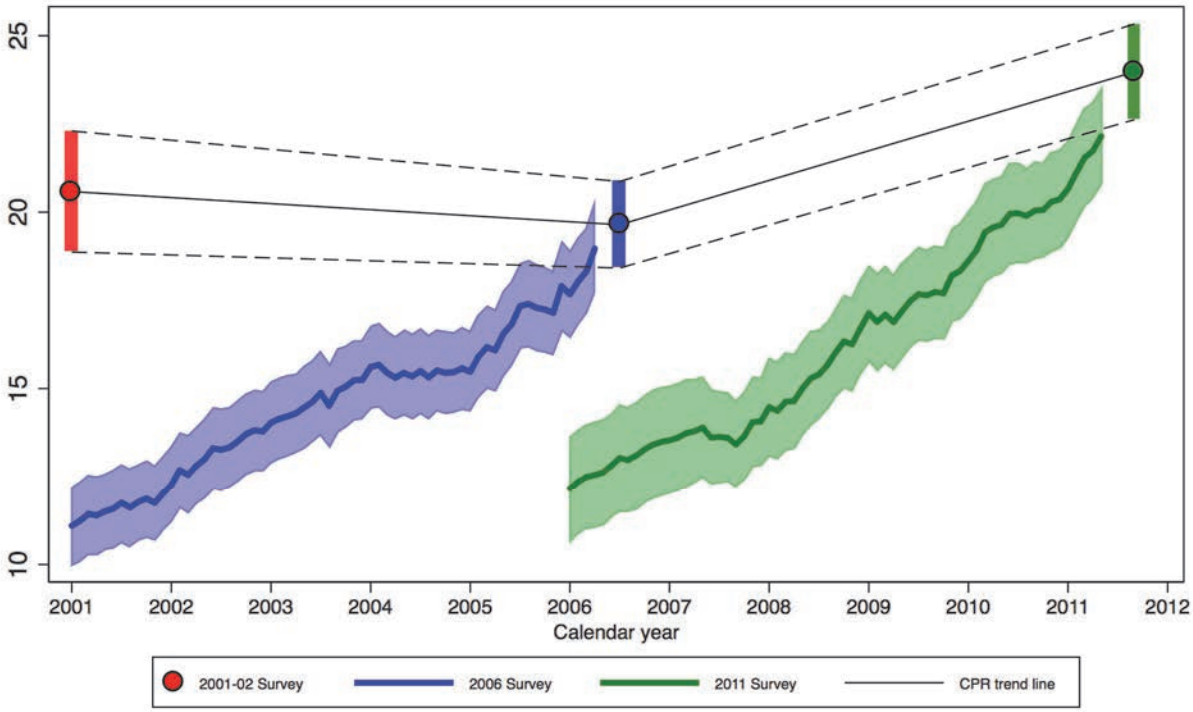
Figure 15. Total contraceptive prevalence rate among women 15-43, Tanzania



The calendars in the 2004-05 and 2010 Tanzania surveys do not appear to accurately capture women's contraceptive use as reported in current status data. The 1999 survey found a CPR of 23.0 percent (CI 20.5-25.7) (Appendix Table 8). The 2004-05 calendar estimates the CPR in 1999 to be 6 percentage points lower, at 14.6 percent (CI 13.4-15.8). The 2010 calendar comes closer to accurately capturing the CPR in 2005: the current status data show a CPR of 22.7 percent (CI 21.5-23.9), while the calendar estimate is 19.2 percent (17.9-20.6).

Condom use appears to be substantially underreported in both calendars: the 1999 estimates were 3.8 percent in current status data and 0.8 percent in the calendar, while the 2005 estimates were 3.3 percent current status data and 1.8 percent in the calendar. Pill use also appears underreported in both calendars, although differences are smaller.

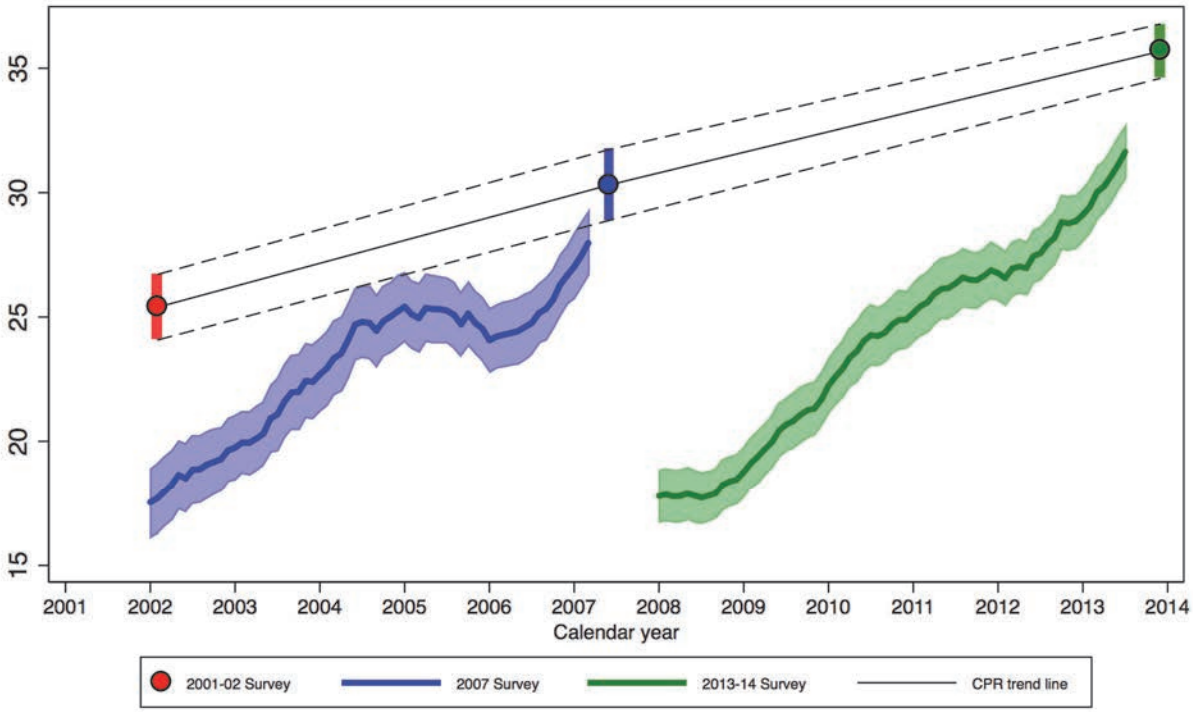
Figure 16. Total contraceptive prevalence rate among women 15-43, Uganda



Both the 2006 and 2011 calendars appear to substantially underestimate contraceptive use in Uganda. The 2006 calendar data show a CPR in 2001 that is 9.5 percentage points lower than the 2001 current status data: the reported CPR is 11.1 percent in the calendar (CI 10.0-12.2) and 20.6 percent from current status data (CI 18.9-22.4) (Appendix Table 9). One-third of this gap is due to very different levels of reported LAM use: 3.2 percent in the 2001 current status data (CI 2.6-4.0) and less than 0.1 percent in the calendar (CI 0.0-0.2). Condom and periodic abstinence also appear underreported in the calendar.

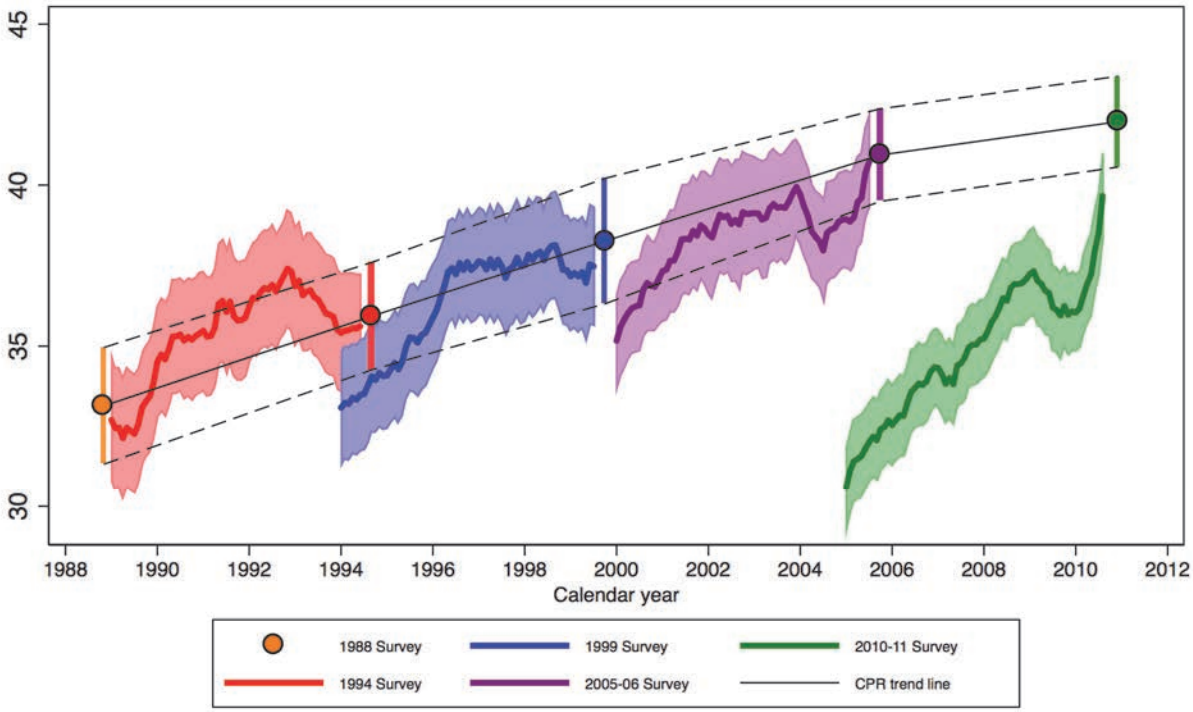
The CPR in 2006 was estimated to be 19.6 percent from current status data (CI 18.4-20.9) and only 13.0 percent from the 2011 calendar data, a difference of 6.6 percentage points. Unlike the 2001 survey, fewer than 0.01 percent of women reported LAM as their current method in 2006. Use of condoms, periodic abstinence, and injectables all appear underreported in the 2011 calendar compared with the 2006 current status data.

Figure 17. Total contraceptive prevalence rate among women 15-43, Zambia



Zambia's calendars from the 2007 and 2013-14 surveys appear to underestimate contraceptive prevalence by 8 and 13 percentage points, respectively (Appendix Table 10). The estimated CPR in 2002 was 25.4 percent (CI 24.1-26.7) from current status data and 17.7 percent (CI 16.3-19.1) from the 2007 calendar. The CPR was estimated to be 30.3 percent (28.9-31.8) in 2007 from current status data; the calendar data show a CPR of 17.8 percent (CI 16.7-18.9) in January 2008. A large part of the discrepancy between the calendar and current status data in both cases is underreporting of condom use in the calendar: the 2002 condom use estimate was 4.3 percent in current status data but 1.8 percent in the calendar, and the 2007 estimate was 5.3 percent in current status data while the calendar estimate was 1.5 percent for the corresponding time point. Withdrawal and injectable use also appear underreported in both calendars, and periodic abstinence and LAM additionally appear to be underreported in the 2013-14 calendar.

Figure 18. Total contraceptive prevalence rate among women 15-43, Zimbabwe

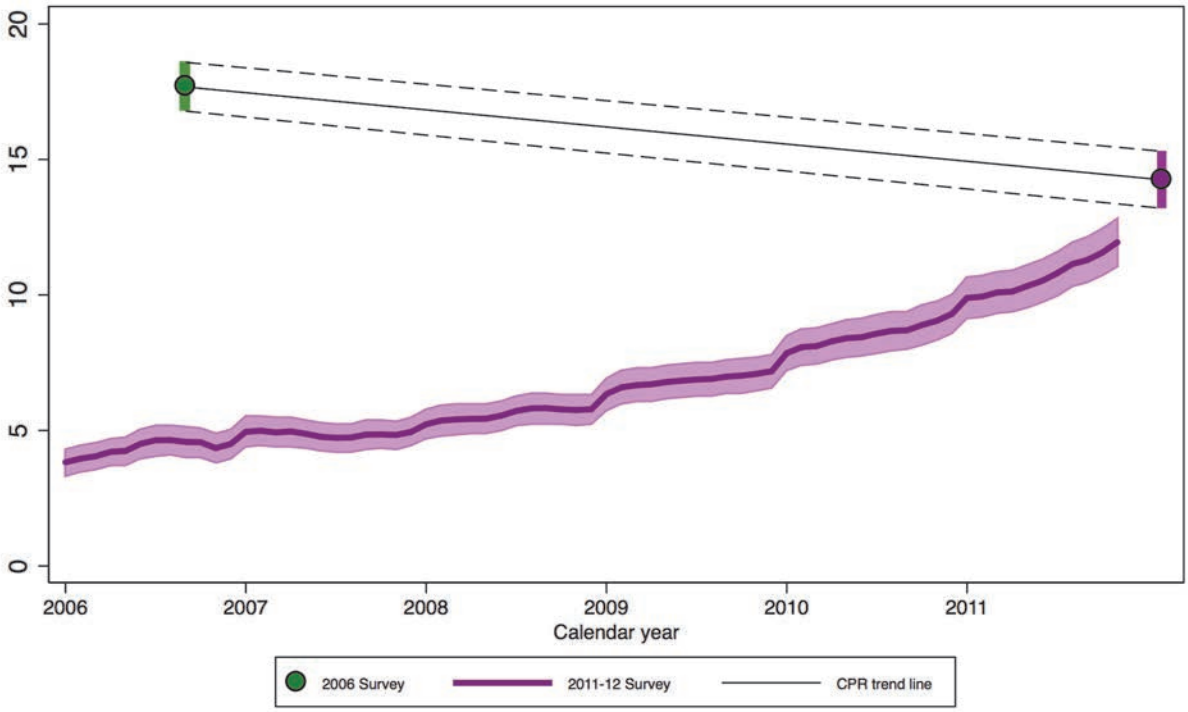


Zimbabwe's calendar data from the 1994 survey matches up remarkably well with the 1988 current status data: the total CPR is 33 percent in both estimates (Appendix Table 11). The method mix recorded in the calendar and current status data are also very similar. The 1999 and 2005-06 calendars also match up reasonably well with current status data from the prior surveys, although not as precisely as the 1994 survey. Condom and withdrawal use appear underreported in both calendars, although neither method is widely used enough to substantially affect the total CPR. Zimbabwe's history of what appears to be quite accurate calendar data makes the results from the 2010-11 calendar all the more surprising. The 2010-11 calendar data produce an estimate of 32.4 percent for the CPR in October 2005 (CI 31.2-33.7) – an 8.5 percentage point drop from the 2005-06 current status estimate of 40.9 percent (CI 39.5-42.4), or a one-third decrease. The majority of the difference is in reported pill use, although injectable use also appears to be underreported in the 2010-11 calendar.

The striking difference between the first three calendars and the fourth prompted us to search for differences between the surveys. The 1988, 1994, 1999, and 2005-06 DHS surveys were all conducted using paper questionnaires. The 2010-11 survey was implemented using Computer Assisted Personal Interviews (CAPI), in which PDAs or tablet computers are used to display questions to the interviewer and record responses. The DHS Survey Organization Manual notes that CAPI has advantages and disadvantages compared with paper questionnaires (ICF international 2012). With CAPI, interviewers do not have a visual depiction of the calendar shown in Figure 18. It seems possible that interviewers found the calendar more difficult to complete without this visual aid and may not have followed the instructions to prompt women to recall all of their contraceptive use episodes throughout the calendar period. It is also possible that field staff were less comfortable with the computer technology than they had been with paper surveys.

3.3.2 West and Central Africa

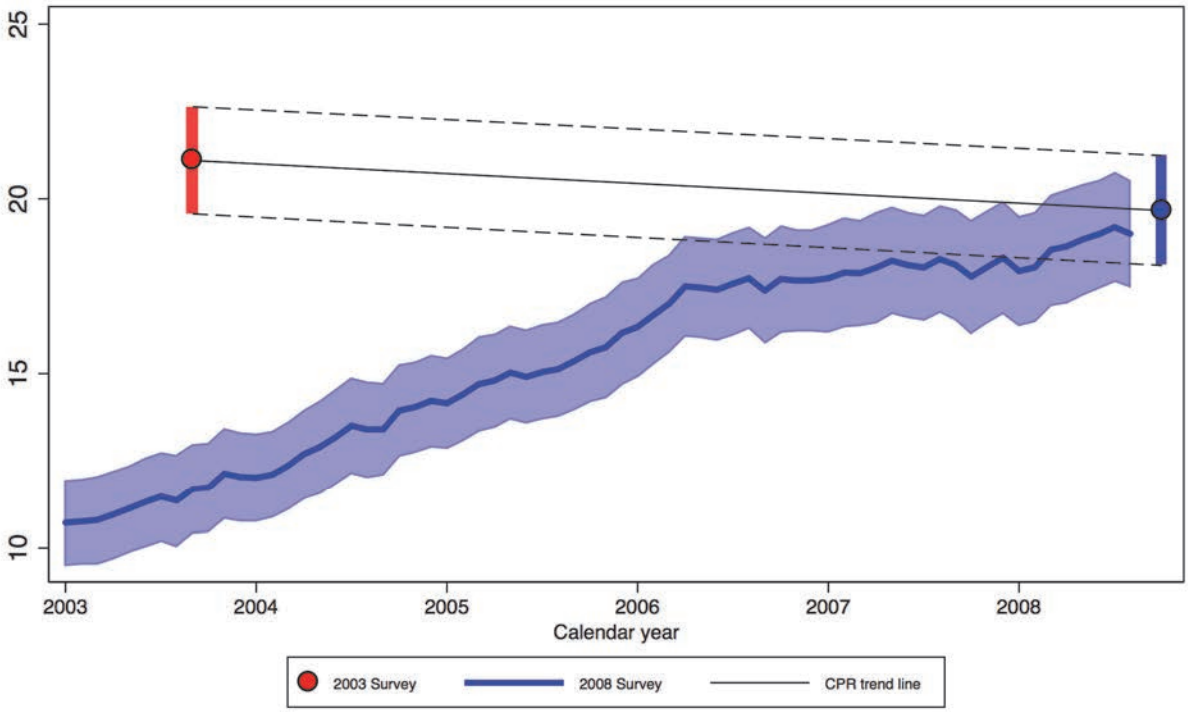
Figure 19. Total contraceptive prevalence rate among women 15-43, Benin



The 2011-12 calendar data clearly appear to underestimate contraceptive use in Benin. The total CPR is difficult to compute for the calendar data because there were episodes in the calendar recorded as "unknown if using." We calculated a "high" and "low" estimate of the total CPR: excluding the "unknown" episodes gives a CPR of 4.6 (CI 4.1-5.2); counting them all as contraceptive use gives a CPR of 6.9 (CI: 6.2-7.7) (Appendix Table 12). Even this "high" estimate is less than half the reported CPR from current-status data in 2006: 17.7 percent (CI: 16.8-18.6).

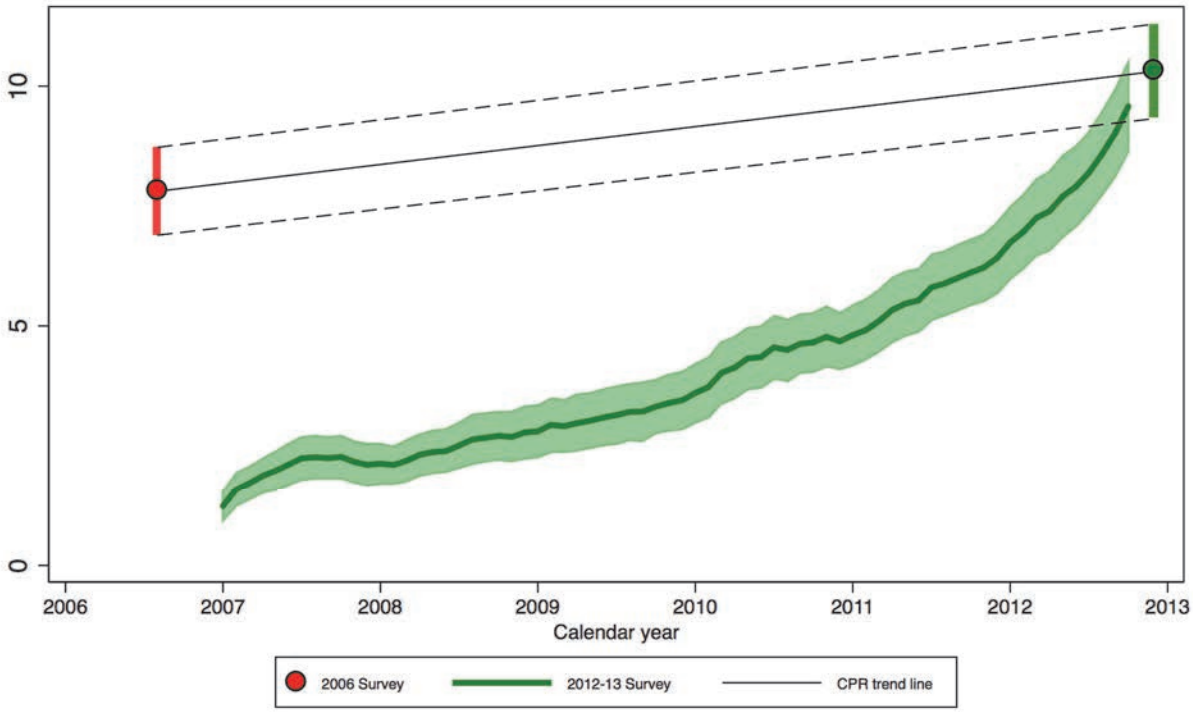
Figure 19 also displays heaping of reporting at the start of each year, most noticeable in the bumps corresponding to the starts of 2009, 2010, and 2011. This relates to heaping of the reported dates when the woman began using her most current method. In examining the underlying data, we found that 25 percent of episodes of current use were reported to have begun in the month of January. If, as seems reasonable, the start dates of women's contraceptive use were evenly distributed across the year, we would only expect 1/12, or 8.3 percent of episodes to have begun in any particular month. This finding very likely indicates heaping of reported start dates on the month of January.

Figure 20. Total contraceptive prevalence rate among women 15-43, Ghana



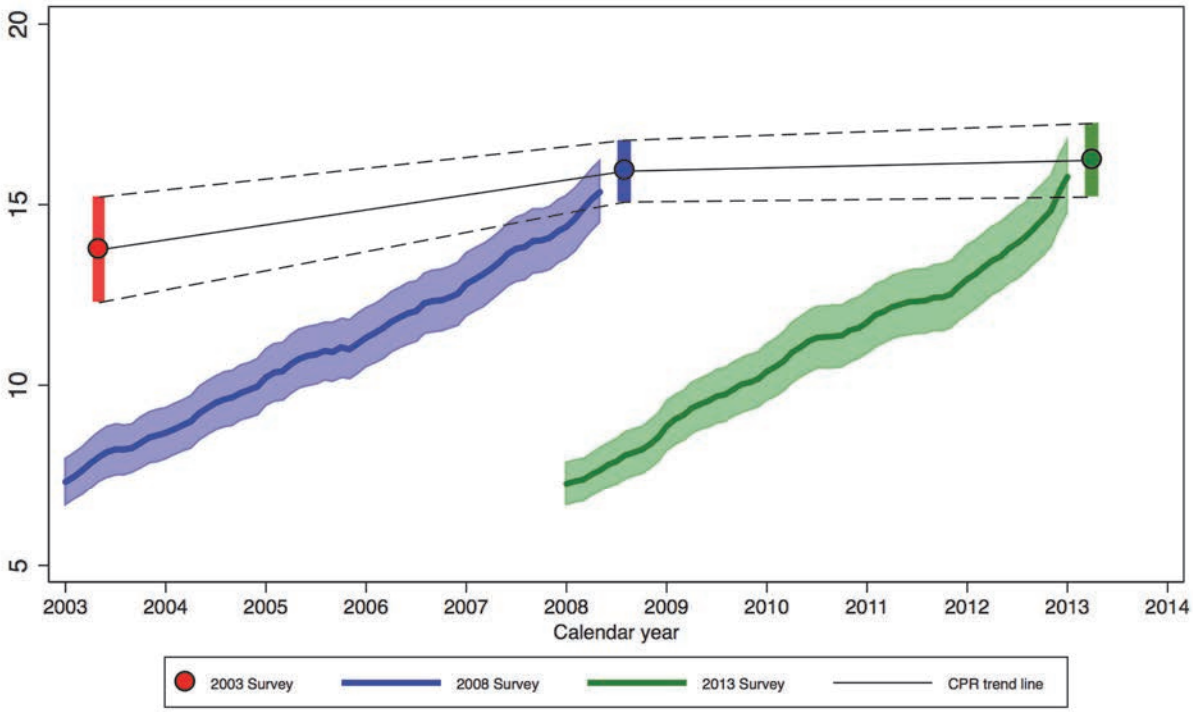
The estimated CPR from Ghana's 2008 calendar for 2003 is 11.7 percent (CI 10.5-13.0), while the 2003 current status data estimate is 9.4 percentage points higher at 21.1 (CI 19.6-22.7), suggesting that the 2008 calendar captured only about 55 percent of women's contraceptive use in 2003 (Appendix Table 13). The calendar does not appear to accurately capture women's contraceptive use, especially farther back in time. Condom, pill, injectable, periodic abstinence, and LAM use all appear to be substantially underreported in the calendar.

Figure 21. Total contraceptive prevalence rate among women 15-43, Mali



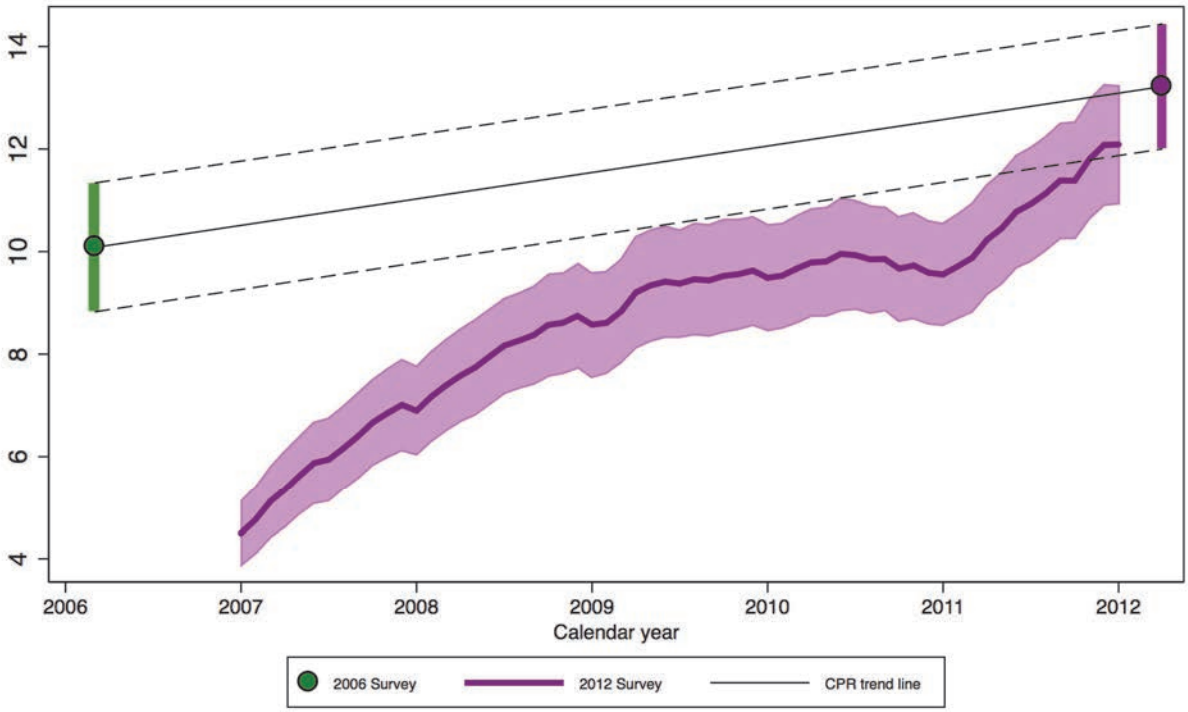
Mali's 2012-13 calendar begins in January 2007, four months after the median date of the 2006 survey, so the surveys do not precisely overlap. Given that the two current status survey points show the CPR increasing over time, however, it is highly unlikely that the CPR dropped from 7.8 percent in August 2006 (CI 6.9-8.8) to 1.5 percent (CI 1.2-1.8) four months later (Appendix Table 14). The 2012-13 calendar data appear to underestimate women's contraceptive use in 2007 by approximately 81 percent.

Figure 22. Total contraceptive prevalence rate among women 15-43, Nigeria



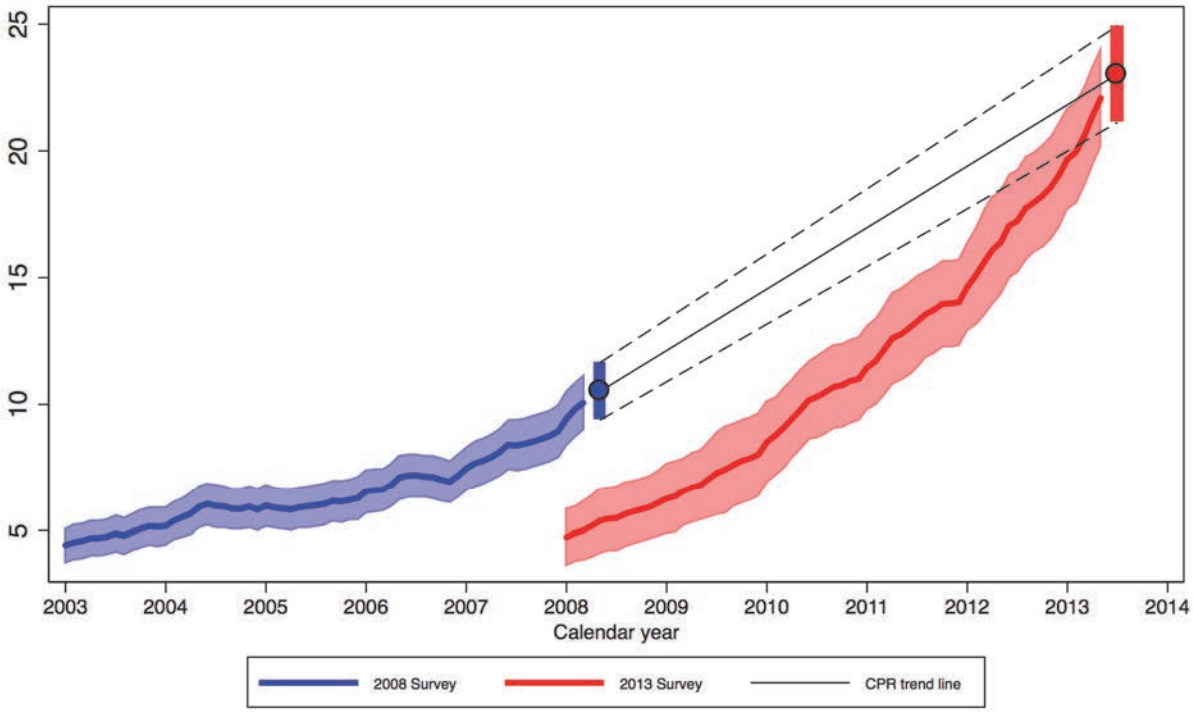
Both the 2008 and 2013 Nigeria calendars appear to substantially underestimate contraceptive use. The current status CPR in 2003 is estimated at 13.7 percent (CI 12.4-15.3) (Appendix Table 15). The calendar data for the same point shows the CPR to be only 8.0 percent (CI 7.4-8.7), 42 percent lower than the current status estimate. The 2013 calendar appears to underestimate contraceptive use to a higher degree than the 2008 calendar: the current status CPR for 2008 is 15.9 percent (CI 15.1-16.8), while the calendar estimate is almost 8 percentage points lower, at 8.1 percent (CI 7.4-8.7), or about half of the current status estimate. Condoms, pills, injectables, periodic abstinence, and LAM appear underreported in both calendars, and withdrawal appears underreported in the 2013 calendar compared with the 2008 current status data.

Figure 23. Total contraceptive prevalence rate among women 15-43, Niger



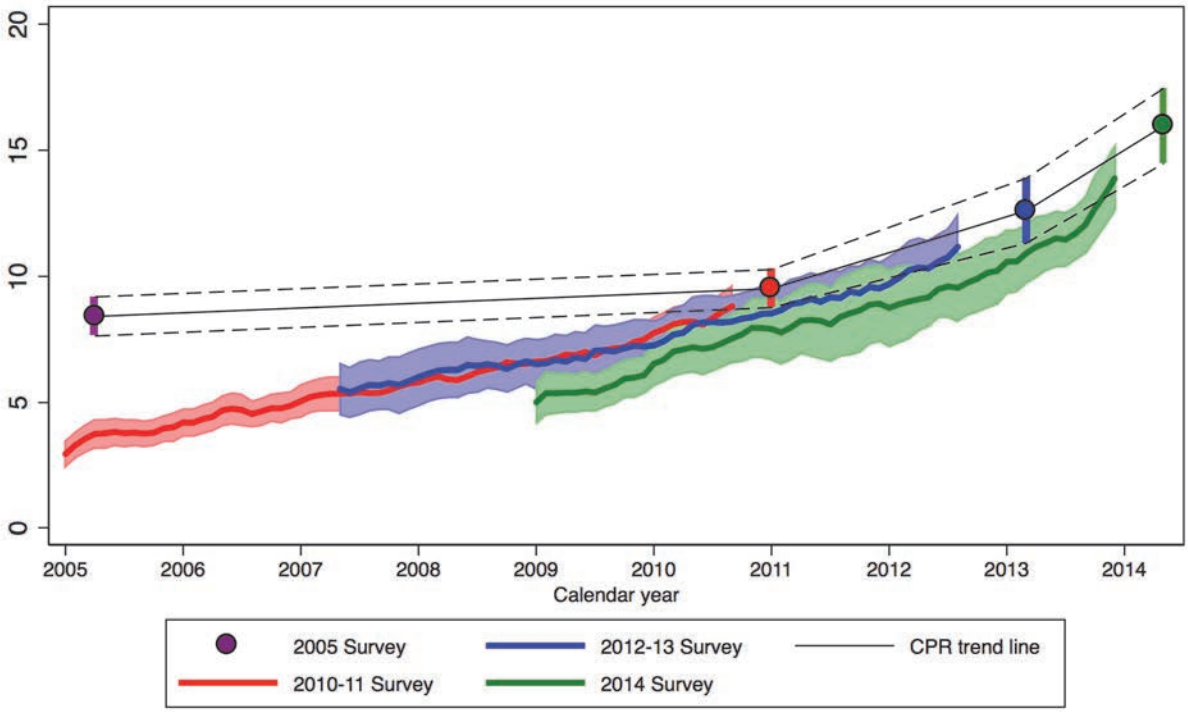
The Niger 2012 calendar does not cover the year 2006, so we cannot precisely compare the calendar and current status data from the same date. Even so, the calendar appears to show substantial underreporting of contraceptive use compared with the linear interpolation between the two current status estimates shown by the current status CPR trend line. Ten percent of women 15-43 in the 2006 survey reported they were using contraception (CI 8.9-11.4), while the calendar from the 2012 survey produces a CPR of 4.5 percent (CI 3.9-5.2) for January 2007, less than half of the 2006 current status CPR (Appendix Table 16). The prevalence of each method is lower in the calendar than the current status data for 2006, but the difference is particularly pronounced for LAM. LAM prevalence was reported to be 4.2 percent in 2006 and only 1.1 percent in January 2007 in the calendar.

Figure 24. Total contraceptive prevalence rate among women 15-43, Sierra Leone



Sierra Leone's CPR was estimated to be 10.5 percent at the time of the 2008 survey (CI 9.4-11.7) (Appendix Table 17). This is 5 percentage points higher than the 2008 CPR estimated from the 2013 calendar, at 5.4 percent (CI 4.3-6.8), representing just over half of the current status CPR. All methods other than withdrawal, which is reported at less than 0.3 percent prevalence in both the calendar and current status data, appear to be underreported in Sierra Leone's 2013 calendar.

Figure 25. Total contraceptive prevalence rate among women 15-43, Senegal



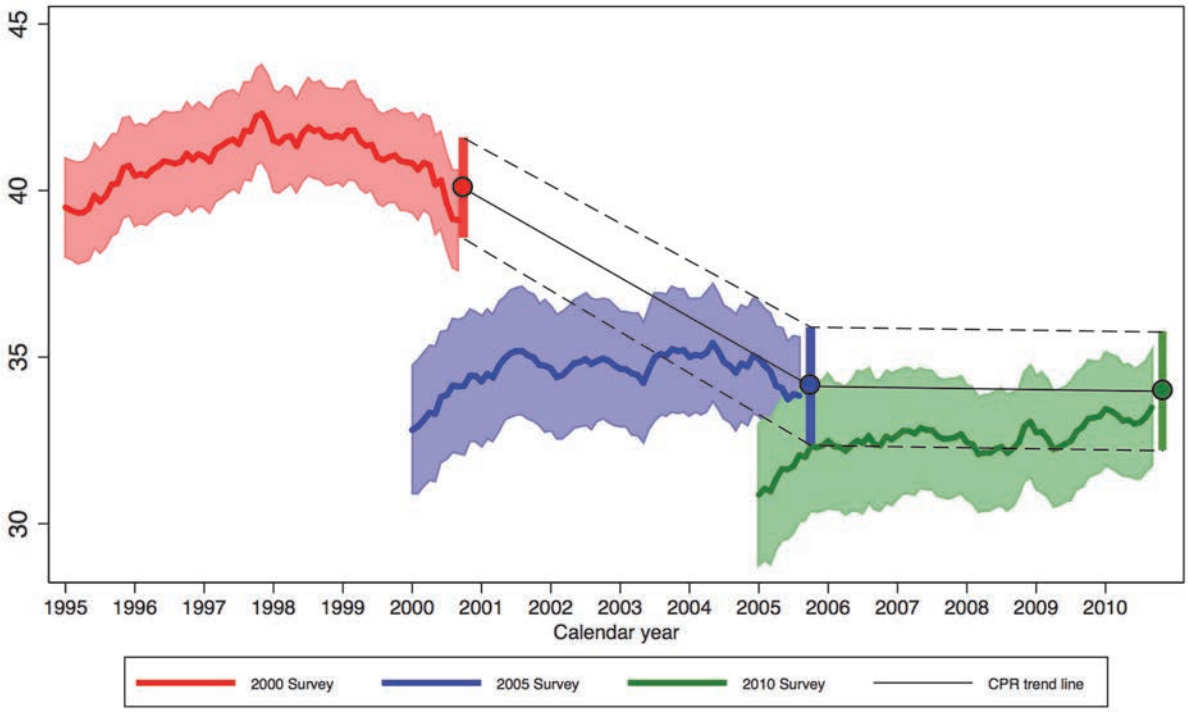
Senegal is the second country to implement a continuous DHS, in which data are collected in consecutive rounds every year. The continuous survey began in Senegal in 2010 after having been first implemented in Peru in 2004.

The calendar data from the Senegal continuous survey appear to estimate contraceptive use reasonably well in recent years, but all three rounds of the continuous survey seem to underestimate contraceptive use further back in time. The 2005 Senegal DHS found a CPR of 8.4 percent (CI 7.7-9.2 percent) compared with the 2010-11 calendar estimate of 3.8 percent (CI 3.3-4.3) in 2005, which is less than half of the current status estimate (Appendix Table 18). Pills, injectables, condoms, periodic abstinence, and sterilization all appear to be underreported in the 2010-11 calendar compared with the 2005 current status reports.

The current status CPR trend line shown in black simply connects the current status point estimates and is not based on any additional data, so we cannot say with confidence that contraceptive use in the period 2006-2010 is underestimated by the 2010, 2012-13, and 2014 Senegal calendars. It seems unlikely, however, that contraceptive use in Senegal was 8.4 percent in 2005 and increased to 9.5 percent in 2011, but dropped to less than 6 percent between those two points. We therefore find it unlikely that the Senegal calendars adequately captured contraceptive use during this period.

3.3.3 North Africa/West Asia/Europe

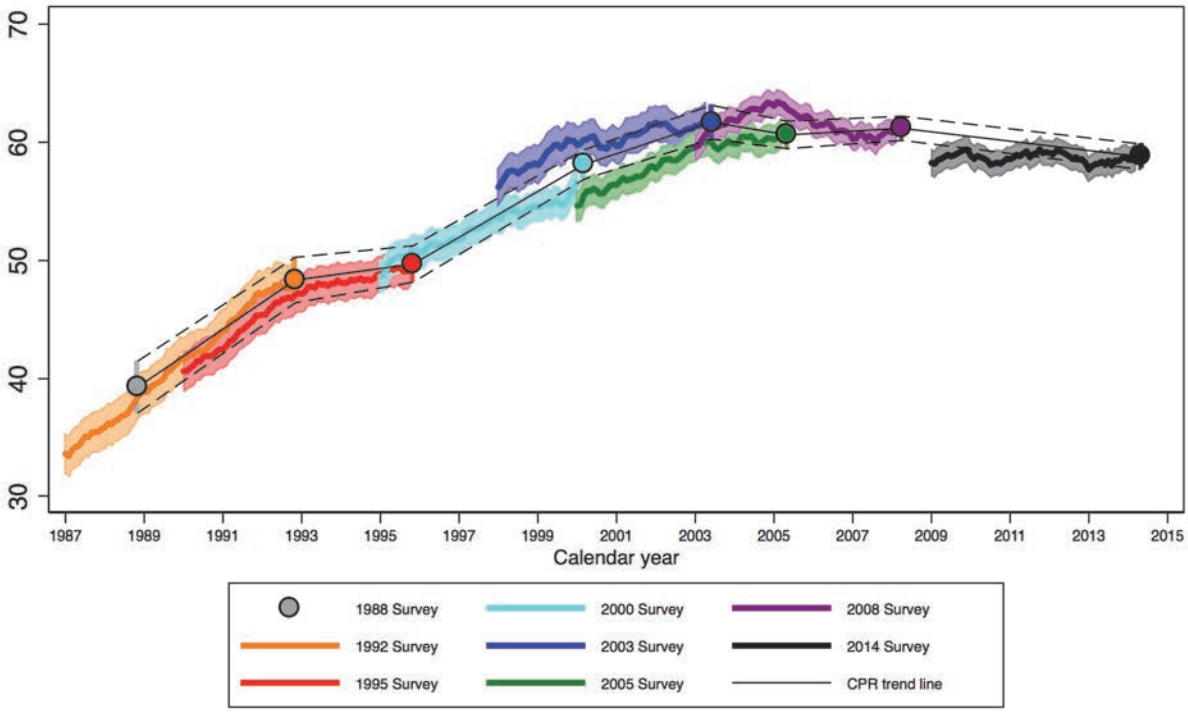
Figure 26. Total contraceptive prevalence rate among women 15-43, Armenia



The Armenia 2010 survey seems to capture most, if not all, contraceptive use in the calendar period. The 2005 CPR was estimated at 34.1 percent in the 2005 survey (CI 32.4-35.9) and 32.3 percent (CI 30.4-34.3) in the calendar data (Appendix Table 19). Most of the difference is explained by lower reporting of LAM, withdrawal, and "other traditional methods" in the 2010 calendar compared with the 2005 current status data, although condom use also appears to be underreported.

The Armenia 2005 calendar appears to underestimate contraceptive use more substantially compared with the earlier survey. The 2000 CPR was estimated at 40.1 percent in the 2000 survey (CI 38.6-41.6) and 34.1 percent (CI 32.1-36.2) in the calendar data. Reporting of withdrawal and LAM use are lower in the calendar data than the current status data. Surprisingly, IUD and sterilization use also appear underreported in the 2000 calendar compared with the current status data: 6.3 percent of women reported IUD use in current status compared with 5.0 percent in the calendar; 1.4 percent reported sterilization in the current status data compared with 0.4 percent in the calendar. This is surprising, as we expect reporting to be more consistent for long-term and permanent methods than short-term ones, and is unlike the results for most other countries.

Figure 27. Total contraceptive prevalence rate among currently married women 15-43, Egypt

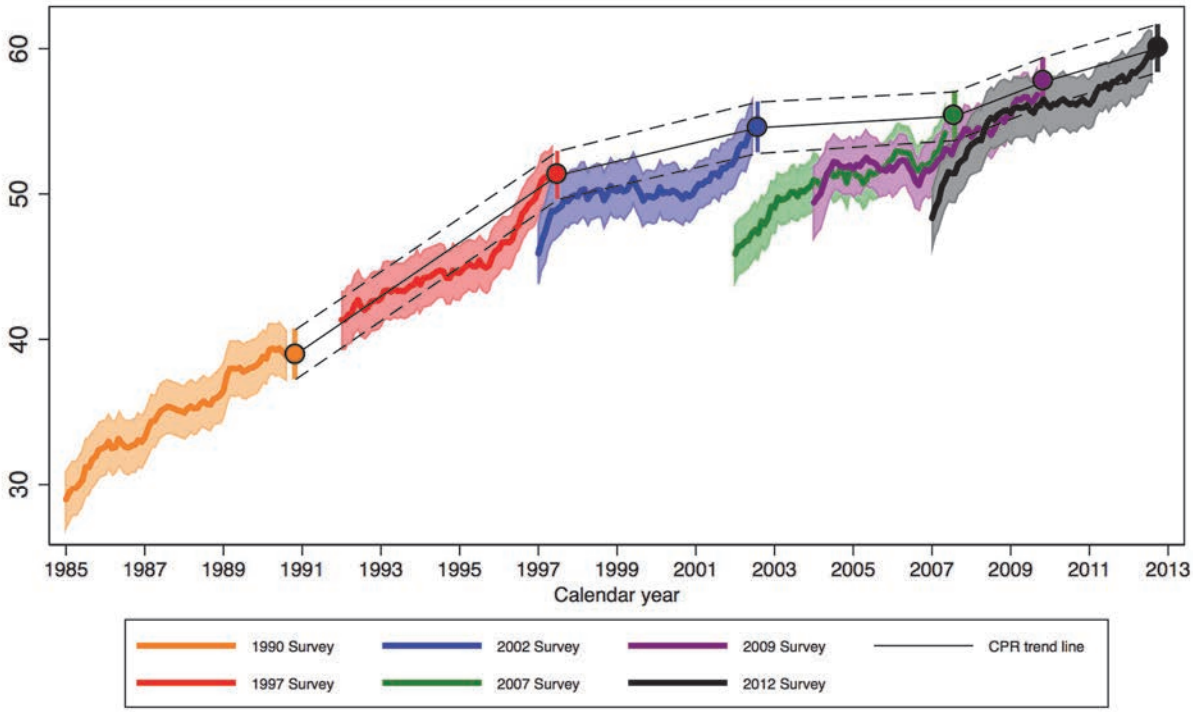


Contraceptive use as reported in the eight Egypt surveys presented here, seven of which contain calendar data, is remarkably consistent. Covering the time period from 1987 to 2014, the multiple calendars track contraceptive prevalence almost perfectly over time, with the vast majority of the calendar data points falling within the confidence intervals around the current status data points. The calendar in the 2003 survey appears to slightly overestimate contraceptive prevalence: the 2000 CPR from current status was reported to be 58.1 percent (CI 56.9-59.4), while the CPR from the 2003 calendar is two percentage points higher, at 60.1 percent (CI 58.7-61.6) (Appendix Table 20). We compared the current status estimates to each calendar that contained the same time point, so the 2000 current status estimate shown in Figure 27 was compared with the 2003 (dark blue) and 2005(green) calendars. In these comparisons, there were several statistically significant differences between the current status and calendar CPRs, but because Egypt's CPR is so high each difference represented only a 3-5 percent difference in the overall CPR.

Condom use appears underreported in almost every calendar in Egypt. Comparisons of the calendar data for January 2009 from the 2014 calendar (shown in black) and the current status data from 2008 (shown in purple) suggest additional underreporting of IUD use and overreporting of pill and injectable use in the 2014 calendar, although it could be possible that use patterns changed in Egypt between 2008 and 2009.

Aside from the exceptions noted above, all other contraceptive methods appear to be consistently reported in the Egypt calendars. The overall consistency of calendar in Egypt is impressive.

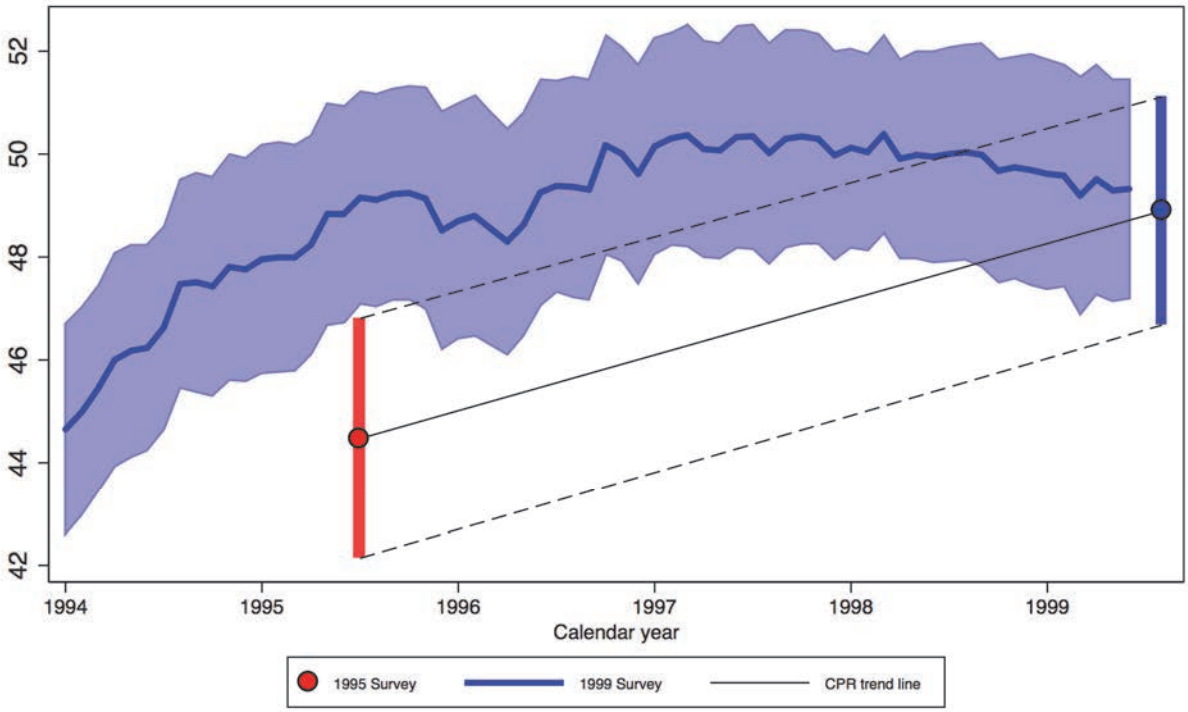
Figure 28. Total contraceptive prevalence rate among ever-married women 15-43, Jordan



Jordan's 2002 calendar, shown in blue in Figure 28, appears to accurately capture contraceptive use in 1997, as compared with current status data. The 1997 (red) calendar also appears to fit with the trend suggested by the 1990 (orange) data, although the 1997 calendar did not collect data as far back as 1990.

In contrast to the earlier calendars, Jordan's 2007, 2009, and 2012 calendars all show evidence of underreporting, especially in the early years of each calendar. For example, the 2002 current status CPR estimate is 54.6 percent (CI 52.8-56.3), while the estimate from the 2007 calendar (green) is 47.3 (45.4-49.1) (Appendix Table 21). IUD, condom, periodic abstinence, and LAM use all appear underreported in the 2007 calendar compared with the 2002 current status data. The 2009 calendar (purple) aligns closely with the 2007 data with a total CPR of 53.3 in the calendar and 55.4 in the 2007 current use data, but the reported prevalence in the 2009 calendar decreases going further back in time, falling below 50 percent in 2004, which is unlikely to be accurate. The 2012 calendar data (black) follow a similar path back in time, aligning well with the 2009 current status data, falling slightly below the 2007 current status data, and dropping to 50 percent by January 2007.

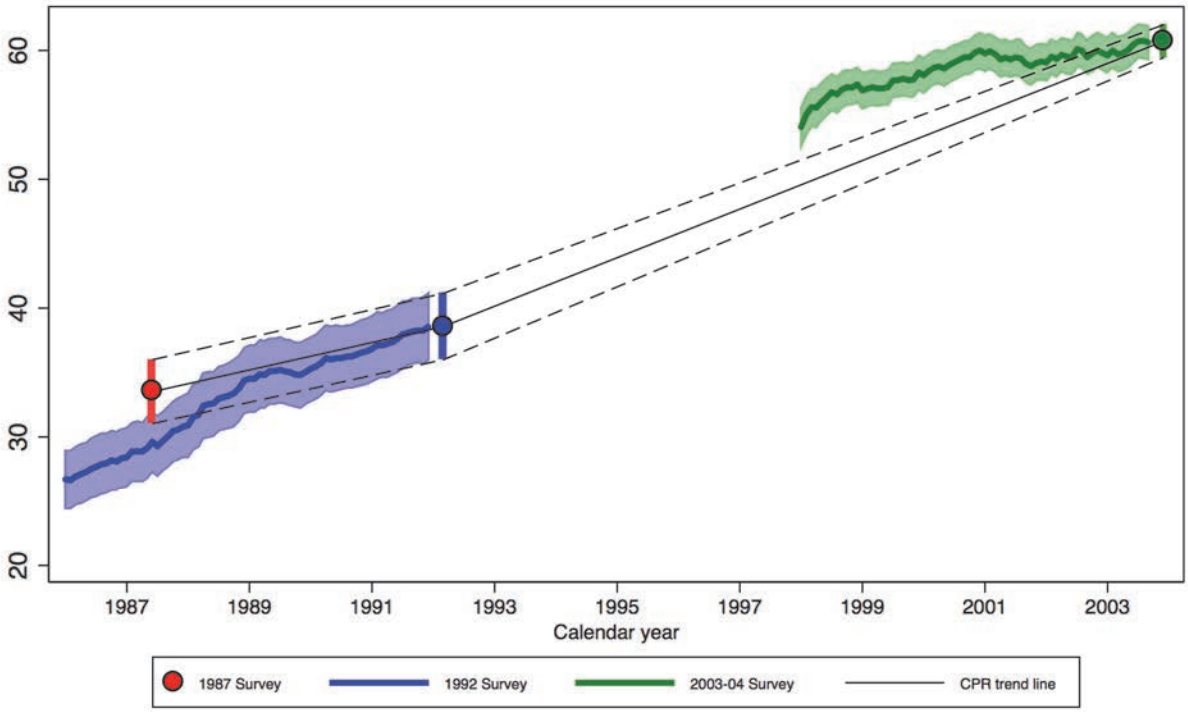
Figure 29. Total contraceptive prevalence rate among women 15-43, Kazakhstan



Kazakhstan's 1999 calendar seems, surprisingly, to overestimate the CPR compared with the 1995 survey. The 1995 current status CPR is 44.5 (CI 42.2-46.8), while the 1999 calendar estimate is 48.1 (CI 46.0-50.3) for the same time point (Appendix Table 22). The difference is primarily due to what seems to be overreporting of IUD and sterilization use in the calendar versus the current status data. IUD use was reported at 29.1 percent in the 1995 current status data versus 33.6 percent in the calendar, and sterilization was reported at 0.5 percent current status versus 1.5 percent in the calendar.

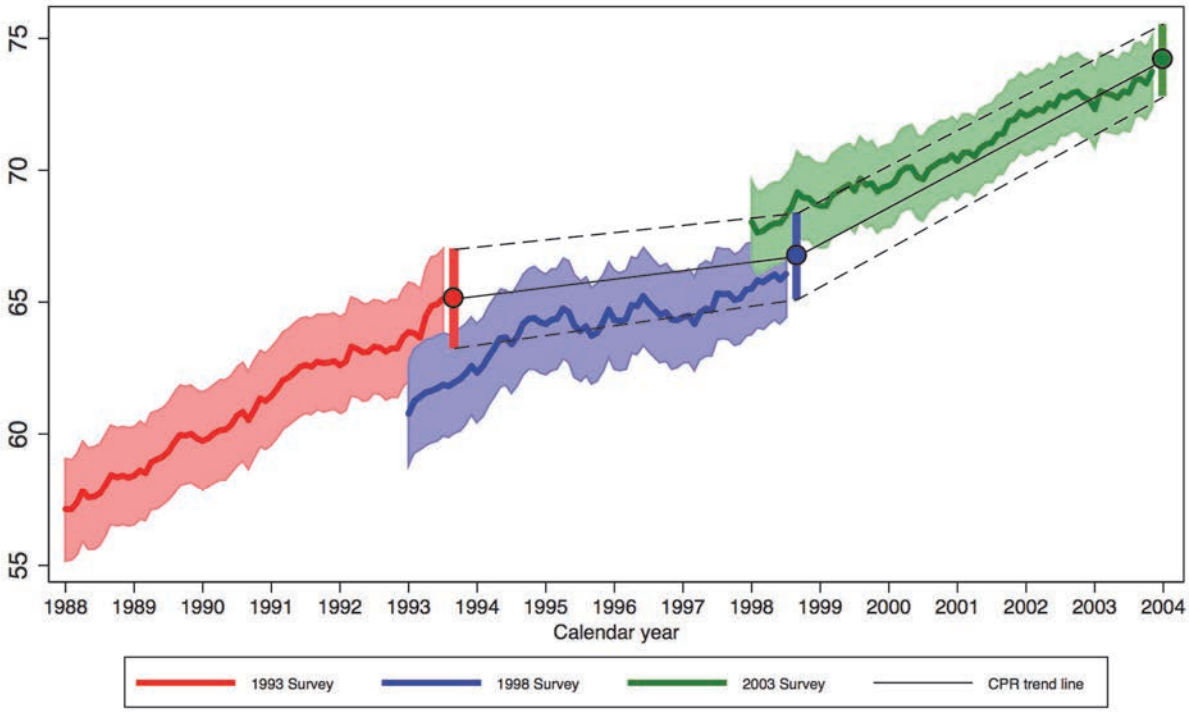
A possible explanation for this surprising discrepancy is that our assumption that the populations of women interviewed in the 1995 and 1999 surveys were the same was violated. The Kazakhstan 1999 DHS final report notes that 472,273 people were recorded as having migrated out of the country in 1998, which represents almost one-third of the country's estimated population of 14.9 million (Academy of Preventive Medicine [Kazakhstan] and Macro International Inc. 2000, p. 1). Such large and rapid changes in the country's population make it likely that the populations interviewed in 1995 and 1999 were, in fact, different. This is a likely explanation for the seeming discrepancies in the calendar and current-status data.

Figure 30. Total contraceptive prevalence rate among ever-married women 15-43, Morocco



The 2003-04 Morocco survey was implemented more than 11 years after the 1992 survey was conducted. We cannot therefore compare the 2003-04 calendar data to the earlier surveys and have included the later survey in Figure 30 only to give a sense of the general trend in the CPR. The 1992 survey appears to underestimate the 1989 CPR: the 1989 current status CPR estimate is 33.4 percent (CI 31.0-35.9) and the calendar estimate is 29.7 percent (CI 27.3-32.1) (Appendix Table 23). The only methods that are reported at significantly different levels are withdrawal, reported at 2.9 percent in the current status data and 1.8 percent in the calendar, and "other traditional methods," reported at 1.2 percent in the current status data and 0.4 percent in the calendar. All other contraceptive methods appear to be adequately captured in the calendar.

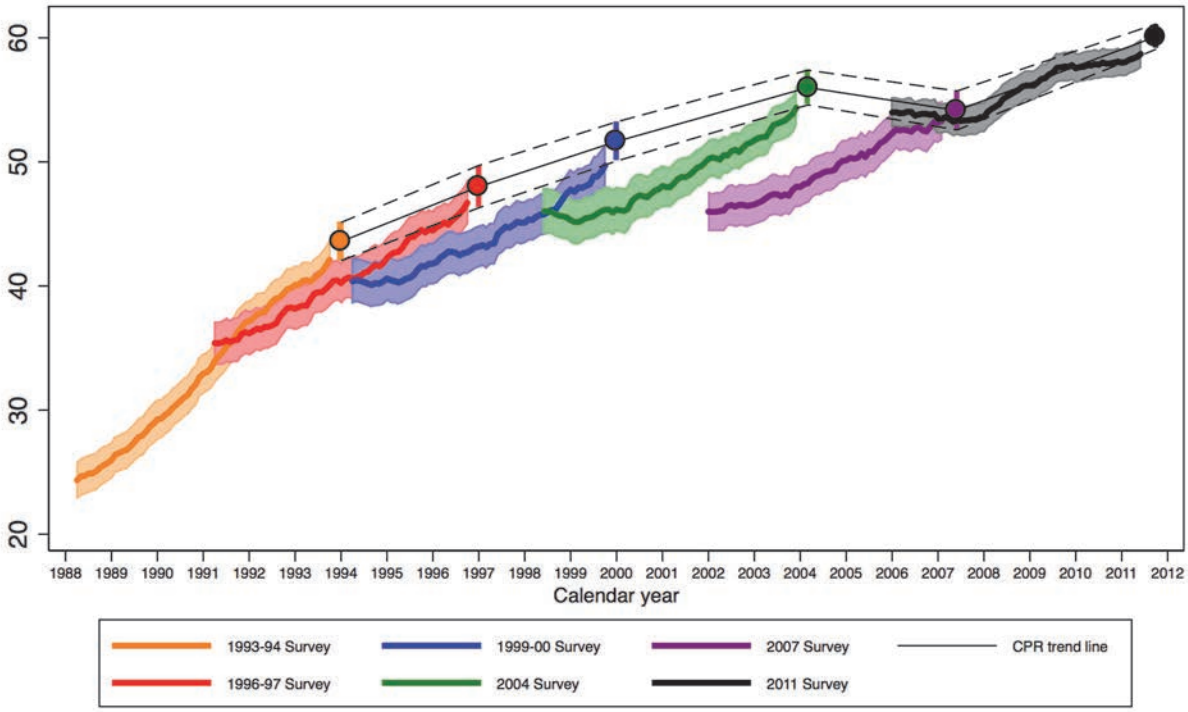
Figure 31. Total contraceptive prevalence rate among currently married women 15-43, Turkey



The CPRs estimated from Turkey's 1998 survey are lower than those recorded in the 1993 current status data and the 2003 calendar. The magnitude of the differences, although statistically significant, is small in both absolute and relative terms. The 1993 survey current-status CPR estimate is 65.1 (CI 63.2-67.0), and the estimate for the same time point from the 1998 calendar is 62.0 (CI 60.0-63.8)—a difference of 3.2 percentage points representing 4.8 percent of the total CPR (Appendix Table 24). Reporting of withdrawal and condom use are both lower in the 1998 calendar than in the 1993 current status data for the same time point. The CPR estimates for 1998 are 66.7 percent in the current status data (CI 65.1-68.3) and 69.2 in the 2003 calendar (CI 67.6-70.7), a difference of 2.4 percentage points or 3.6 percent of the total CPR. The only contraceptive method reported at statistically significant levels between the two data sources is LAM, which was not captured at all in the 1998 survey.

3.3.4 South and Southeast Asia

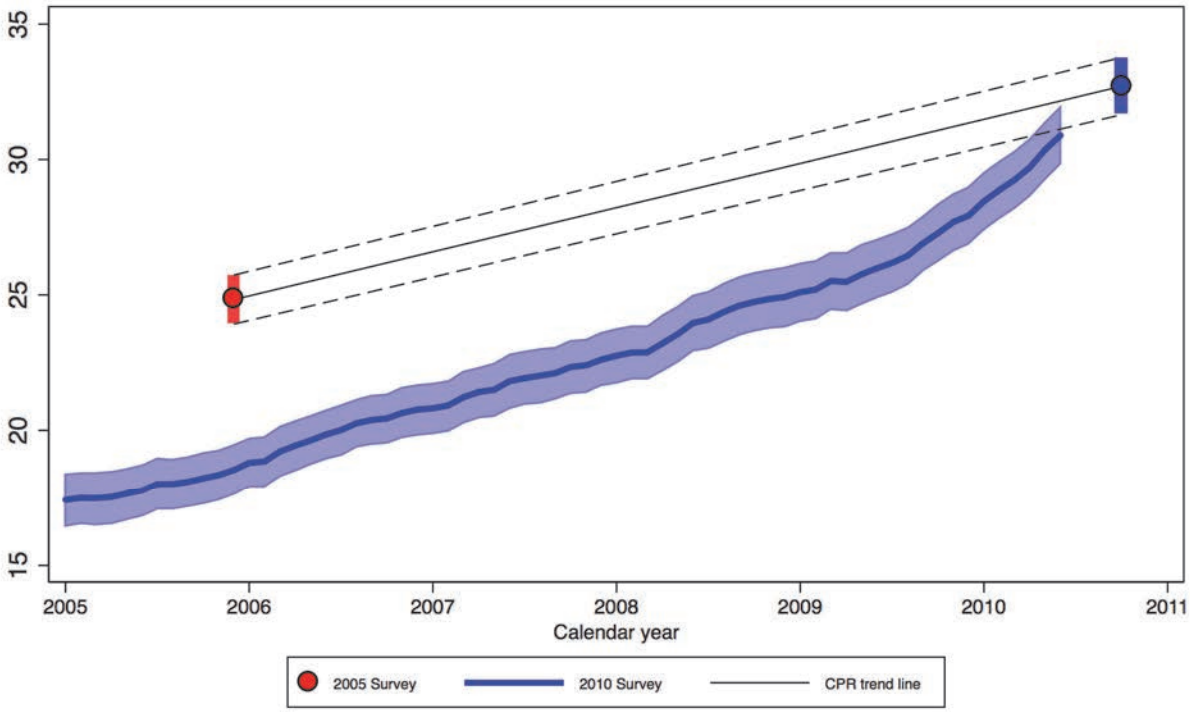
Figure 32. Total contraceptive prevalence rate among ever-married women 15-43, Bangladesh



The calendar data from the six Bangladesh DHSs pictured here show a relatively consistent pattern of increasing contraceptive use according to the current status points (with 2011 the only exception, discussed below), but the calendar data seem to underestimate contraceptive use slightly in all time points with a consistent slope. The largest difference is seen comparing the 2004 current status and 2007 calendar data: the current CPR was estimated at 56.0 percent (CI 54.6-57.4) in 2004, but only 48.3 percent (CI 46.8-49.8) by the 2007 calendar, a 7.7 percentage point decrease (Appendix Table 25). The 2011 survey is the only calendar in which the current use CPR from the prior survey (2007 current use CPR of 54.2 percent, CI 52.6-55.7) matches the CPR captured by the calendar (53.3 percent, CI 52.2-54.5). It is possible, however, that this is a coincidence: the slope of the 2011 calendar is similar to all the other surveys, but the prior current status point is lower. If the 2007 current status estimate had been higher (shifting the purple data points higher), the 2011 survey would not overlap the 2009 current status estimate, and the pattern would be consistent with all the other Bangladesh calendars.

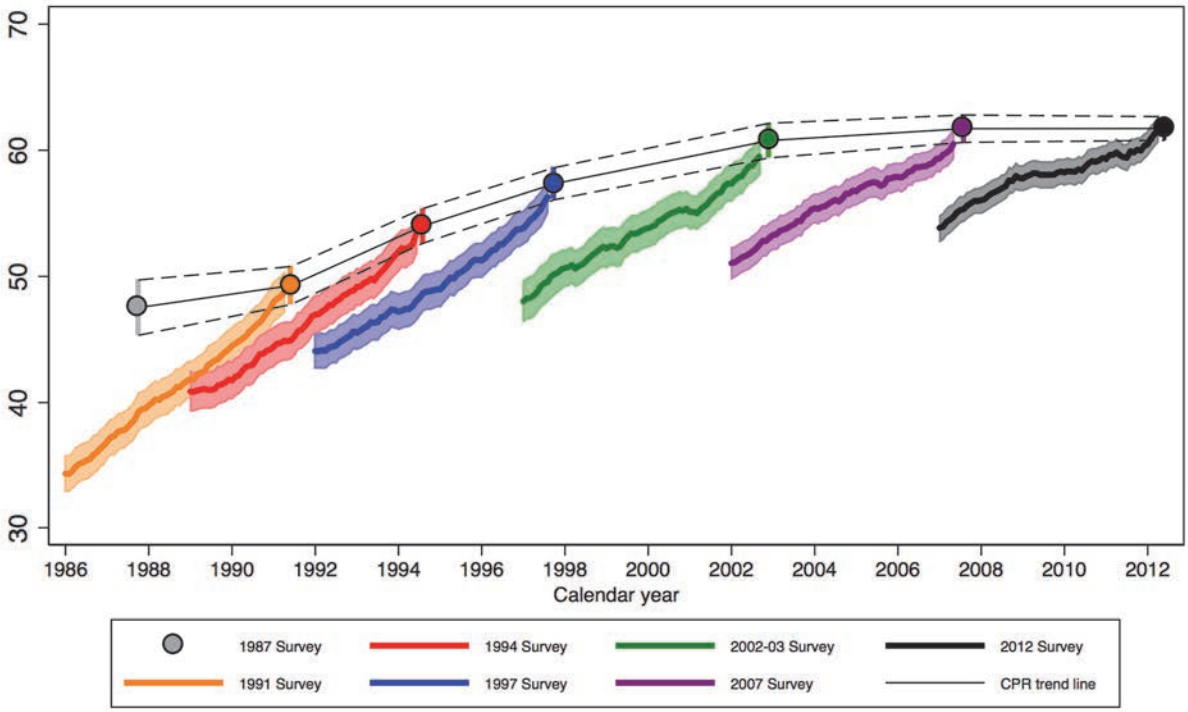
The decrease in CPR between 2004 and 2007 appears to be explained by a shortage of injectable supplies that affected both non-governmental and public sector family planning clinics in 2006-07, according to the 2007 Bangladesh DHS final report (NIPORT et al. 2009, p. 60). As the 2011 calendar appears to accurately capture this decrease between 2006 and 2007, followed by consistently increasing use, it is possible that the 2011 calendar accurately captures trends in women's contraceptive use. None of the other calendars in Bangladesh, however, appear to capture retrospective contraceptive use as accurately.

Figure 33. Total contraceptive prevalence rate among women 15-43, Cambodia



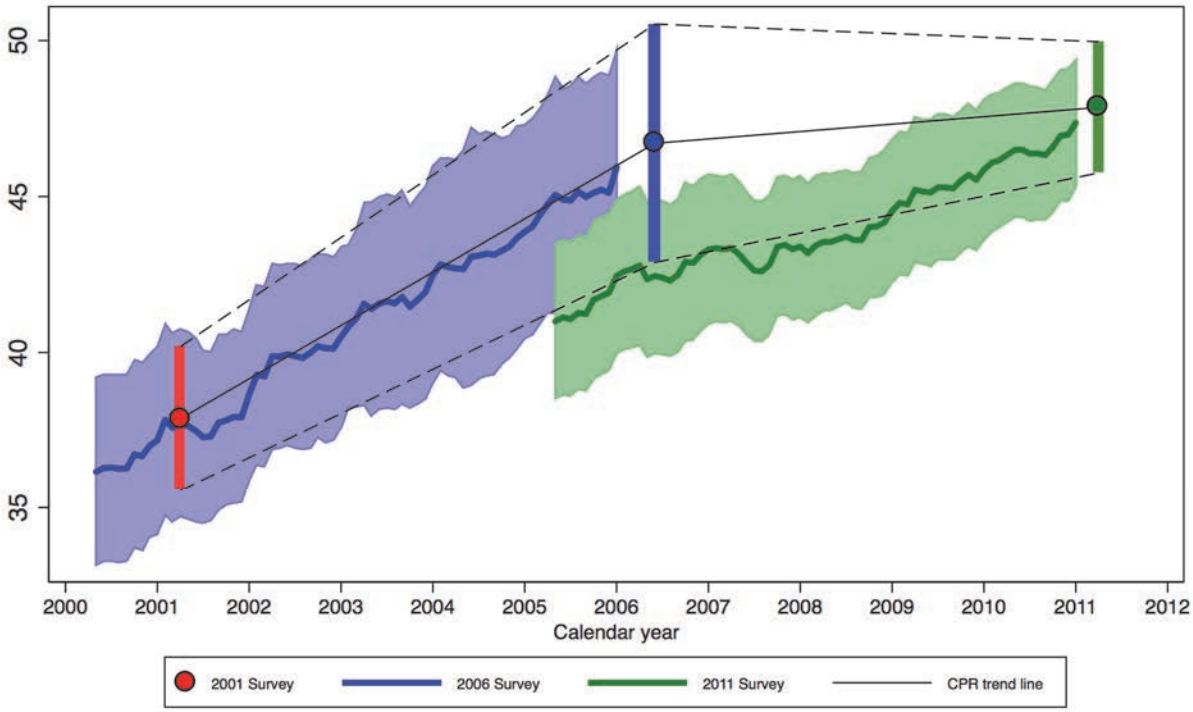
The calendar in Cambodia's 2010 DHS does not appear to accurately capture contraceptive use in 2006. The 2006 survey estimate of current CPR was 24.8 (CI 23.9-25.7), while the calendar estimate of the 2006 CPR was more than six percentage points lower, at 18.5 (CI 17.6-19.4) (Appendix Table 26). IUDs, injectables, condoms, periodic abstinence, and LAM all appear to be underreported in the calendar.

Figure 34. Total contraceptive prevalence rate among ever-married women 15-43, Indonesia



The six calendars from Indonesia analyzed here all seem to underestimate contraceptive use as compared with current status data. The level of underestimation ranges from 8.3 percentage points in 1987, when the CPR was estimated to be 47.5 (CI 45.3-49.7) in current status data and 39.3 percent (CI 37.8-40.7) in the overlapping 1991 calendar, to 4.2 percentage points in 1991, when the current estimate of CPR was 49.3 percent (CI 47.8-50.8) in current status data and 44.9 percent (43.5-46.4) in the overlapping 1994 calendar (Appendix Table 27). The 2002-03, 2007, and 2012 calendars appear to have underestimated the current-status CPR in the prior survey by 7.2, 7.7, and 6.4 percentage points, respectively. Pill and condom use appear underreported in most of Indonesia's calendars, and injectables, which are the dominant method in Indonesia in recent time points, appears underreported in the three most recent calendars relative to the current status estimates.

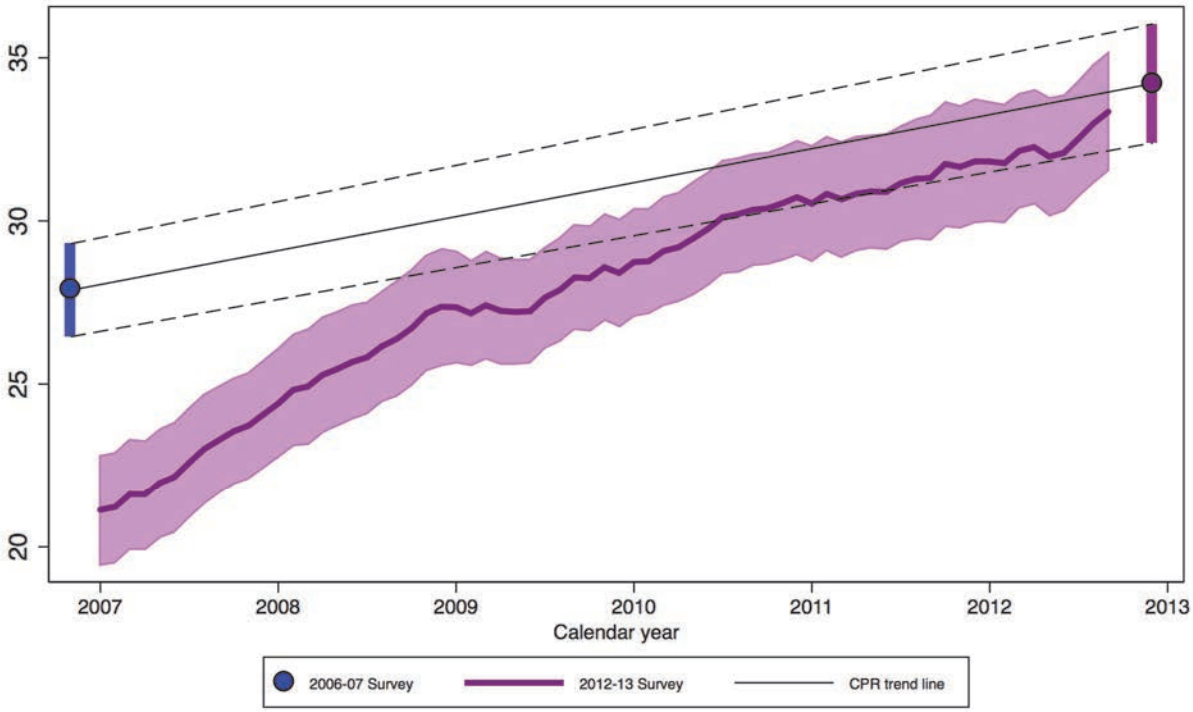
Figure 35. Total contraceptive prevalence rate among ever-married women 15-43, Nepal



The calendars in the 2006 and 2011 Nepal DHSs appear to capture total contraceptive use accurately, but the method mixes differ between sources. The current CPR was estimated to be 37.9 percent (CI 35.5-40.3) in 2001, which matches almost perfectly with the calendar estimate of 37.7 percent (CI 34.7-40.9) (Appendix Table 28). Interestingly, this correspondence is not due to matching reports of each method, but apparent overreporting of pill use in the calendar compared with the current status data, which is balanced by apparent underreporting of condom, periodic abstinence, and withdrawal use.

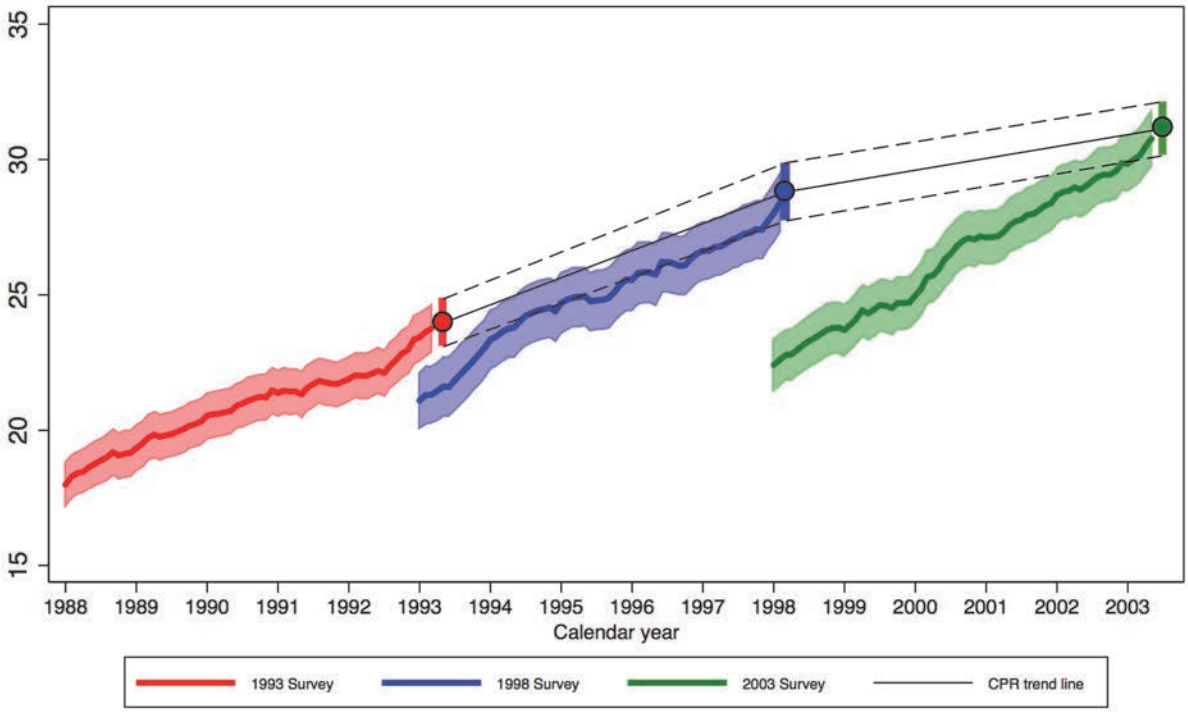
The 2011 calendar estimate of contraceptive use is not statistically significantly lower than 2006 current status estimate, at 46.7 percent (CI 42.8-50.7) and 42.5 percent (40.0-45.0) respectively, but again the method mixes differ. As in the 2006 calendar, condom use appears underestimated in the 2011 calendar at 5.1 percent in current status data but 2.7 percent in the calendar. By contrast, withdrawal appears overreported in the 2011 calendar, which balances out the apparent underreporting of condom use to make the difference between the total CPRs non-significant.

Figure 36. Total contraceptive prevalence rate among ever-married women 15-43, Pakistan



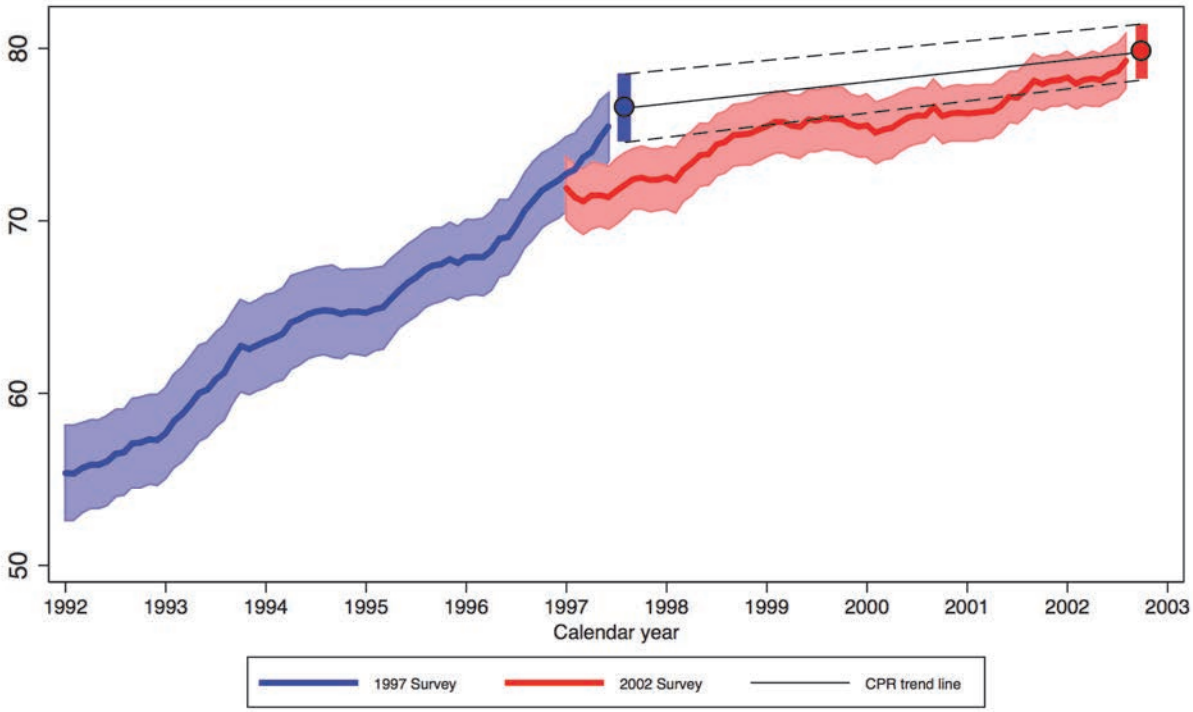
The Pakistan 20006-07 DHS was implemented between September 2006 and March 2006, with a median date of November 2006. The calendar from the 2012-13 DHS begins two months later, in January 2007. The current use CPR from the 2006-07 survey was reported to be 27.9 percent (CI 26.5-29.3), while the CPR estimated from the January 2007 calendar data is 6.6 percentage points lower, at 21.3 percent (CI 19.7-23.1), underestimating the current status CPR by about one quarter (Appendix Table 29). Periodic abstinence in particular appears substantially underreported, with 3.3 percent reported current use in 2006-07 compared with 0.2 percent in the calendar in January 2007. Withdrawal use matches in the calendar and current status data, but all other short-term methods do not appear to be accurately captured in at least the earliest portion of Pakistan's 2012-13 calendar.

Figure 37. Total contraceptive prevalence rate among women 15-43, Philippines



The 1998 and 2003 calendars from the Philippines DHSs both appear to underestimate contraceptive use, with more underestimation evident in the more recent survey. The 1998 current status CPR was estimated to be 28.8 percent (CI 27.7-29.9) compared with 22.8 percent (CI 21.9-23.7) from the 2003 calendar, a gap of 6 percentage points or 21 percent of the current status CPR (Appendix Table 30). Withdrawal and periodic abstinence, which are fairly widely used in the Philippines, are both underreported in the 2003 calendar, and withdrawal is underreported in the 1998 calendar.

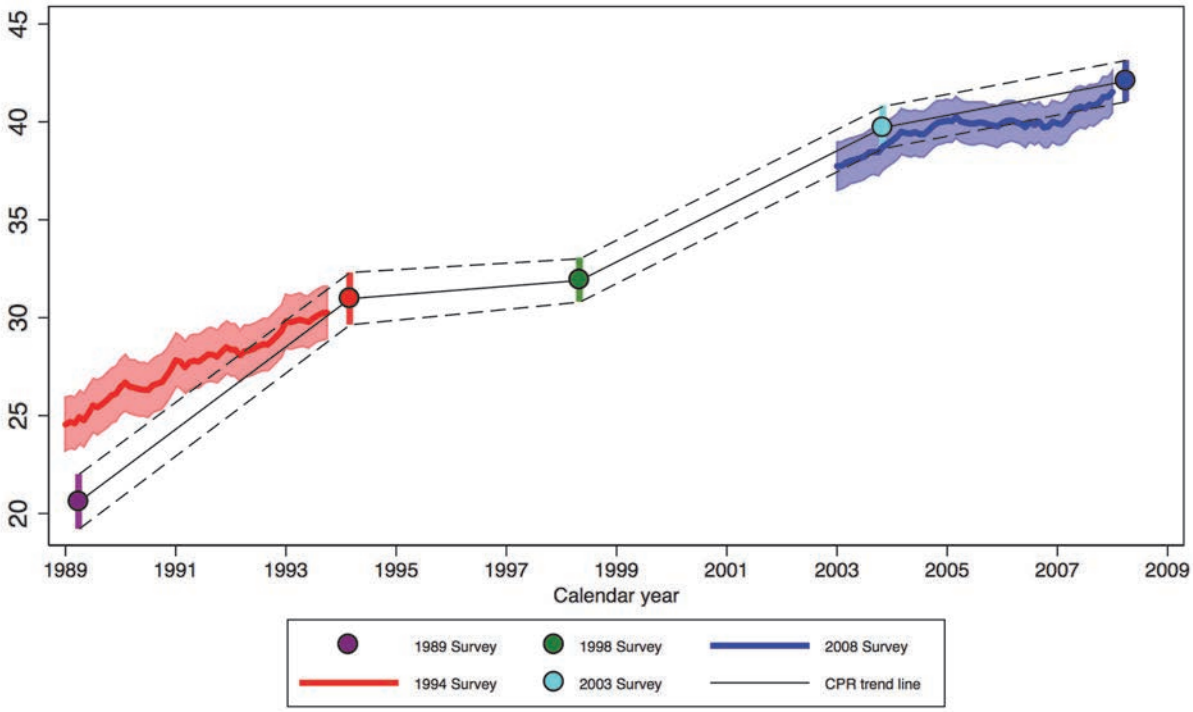
Figure 38. Total contraceptive prevalence rate among currently married women 15-43, Vietnam



Current status data from Vietnam's 1997 DHS produce a CPR of 76.5 (CI 74.5-78.5), while calendar data for the same time point from the 2002 DHS show a CPR 4.4 percentage points lower, at 72.1 (70.2-73.9) (Appendix Table 31). The difference is primarily due to apparent underreporting of condom use, at 6.3 percent current status data and 4.5 percent from the calendar data.

3.3.5 Latin America and the Caribbean

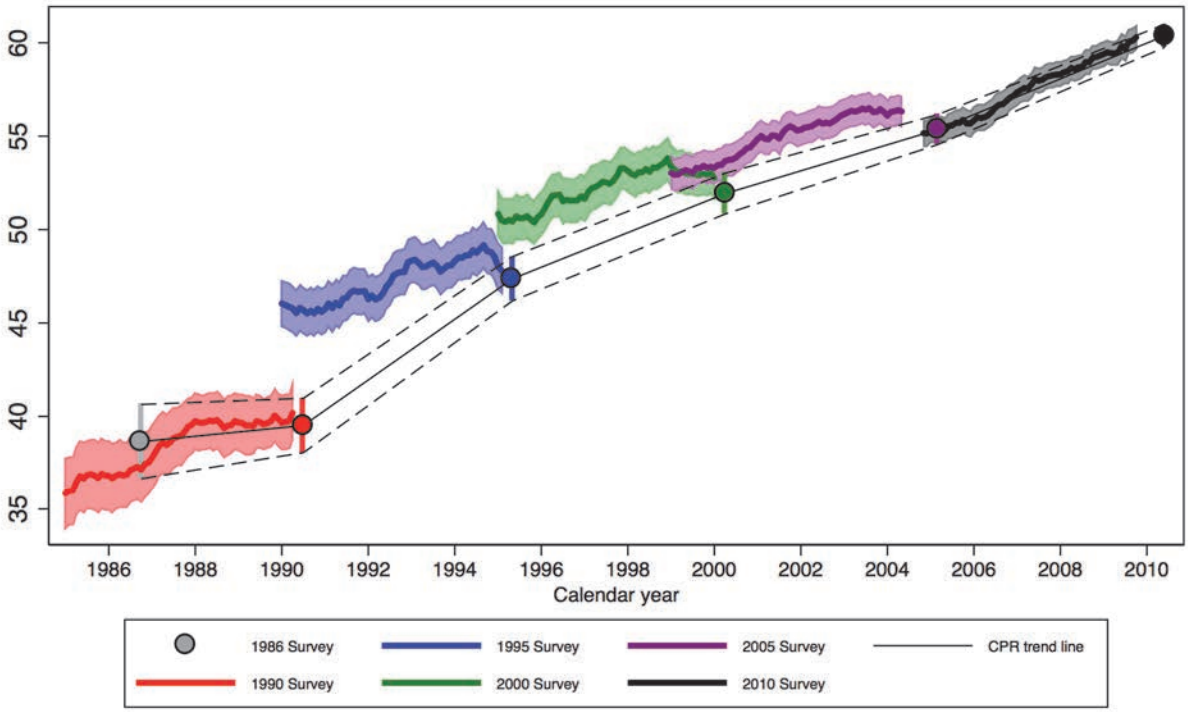
Figure 39. Total contraceptive prevalence rate among women 15-43, Bolivia



Although the five Bolivia surveys pictured here cover the time span between 1989 and 2008, we can only draw comparisons between the calendar and a prior survey at two points in time: 1989 and 2003. The 1994 calendar data appear to overestimate the CPR in 1989 compared with current status data, which is contrary to the normal pattern. The 1998 current status CPR was estimated at 20.6 percent (CI 19.3-22.0), while the calendar estimate is 4.4 percentage points higher, at 25.0 percent (CI 23.7-26.4) (Appendix Table 32). The difference is predominantly due to higher reporting of periodic abstinence in the calendar, at 13.5 percent, compared with 11.1 percent in current status data.

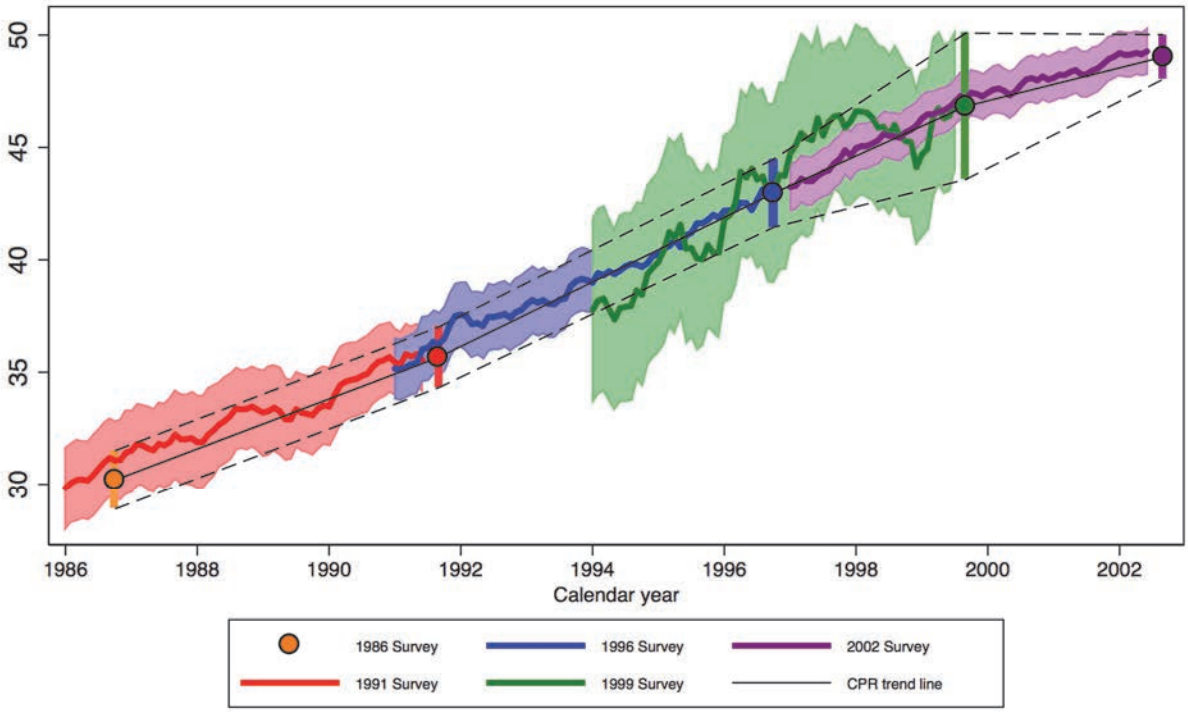
The 2008 Bolivia DHS calendar appears to accurately capture total contraceptive use as recorded in the 2003 DHS. The 2003 current status CPR was recorded as 39.7 percent (CI 38.6-40.8) and the calendar estimate was 38.8 (CI 37.6-39.9). Interestingly, periodic abstinence again appears slightly overreported in the calendar: prevalence is reported as 14.5 percent in the calendar (CI 13.7-15.4) versus 12.9 percent in the 2003 current status data (CI 12.0-13.9). This apparent overreporting is balanced by apparent underreporting of condom, LAM, and sterilization use.

Figure 40. Total contraceptive prevalence rate among women 15-43, Colombia



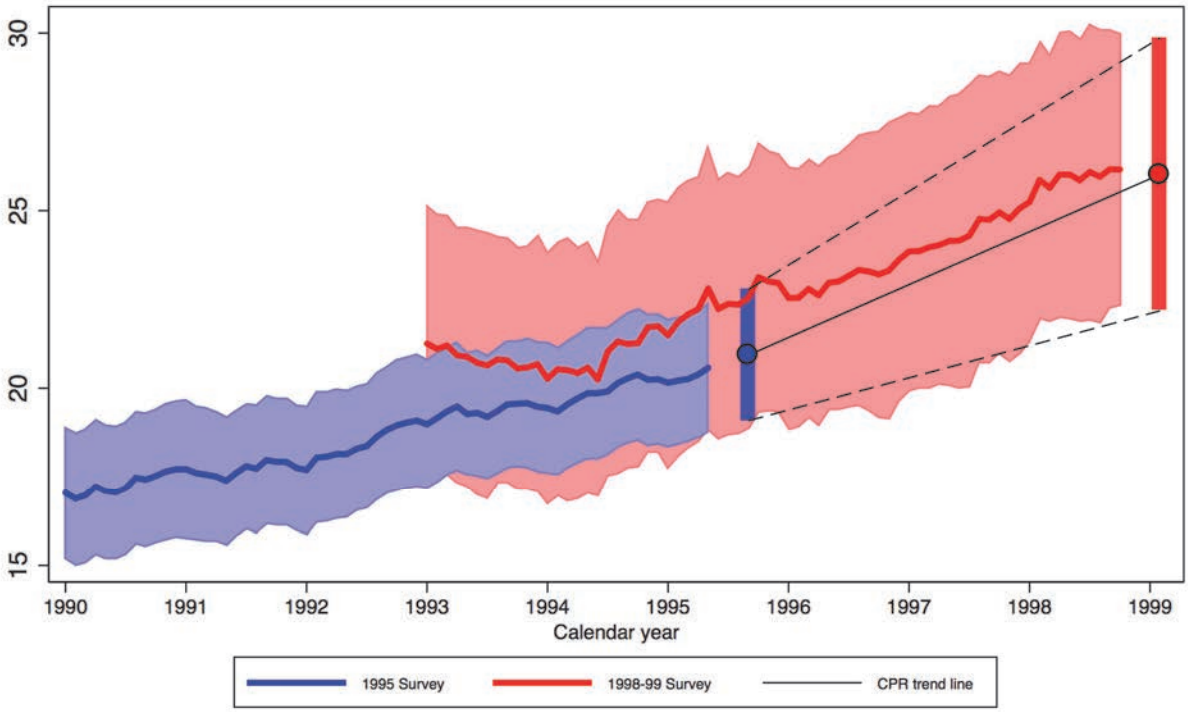
Two of the surveys collected in Colombia, the 1990 and 2010 DHSs, appear to accurately capture women's contraceptive use, as compared with the current status surveys. The other three surveys appear to overestimate contraceptive use in the calendar. The largest gap in reporting is between the 1990 current status data and the reporting from the 1995 calendar. The 1990 current status CPR was estimated at 39.5 (CI 38.1-41.0), and the 1990 estimate from the 1995 calendar was 6.2 percentage points higher, at 45.7 (CI 44.5-46.9) (Appendix Table 33). The difference between the 1995 current status and 2000 calendar estimates of the 1995 CPR was only 3 percentage points, and the gap between the 2000 current status and 2005 calendar estimates was small, at 1.8 percentage points. The two most recent surveys in Colombia, the 2005 and 2010 DHSs, were implemented using Computer Assisted Personal Interviews or CAPI (mentioned earlier in this text discussing underreporting in the Zimbabwe associated with moving from paper questionnaires to CAPI). It is unclear whether the use of CAPI may be associated with what we assume to be more accurate reporting of contraceptive use in the two most recent Colombia surveys (2005 and 2010), compared with the two prior surveys (1995 and 2000).

Figure 41. Total contraceptive prevalence rate among women 15-43, Dominican Republic



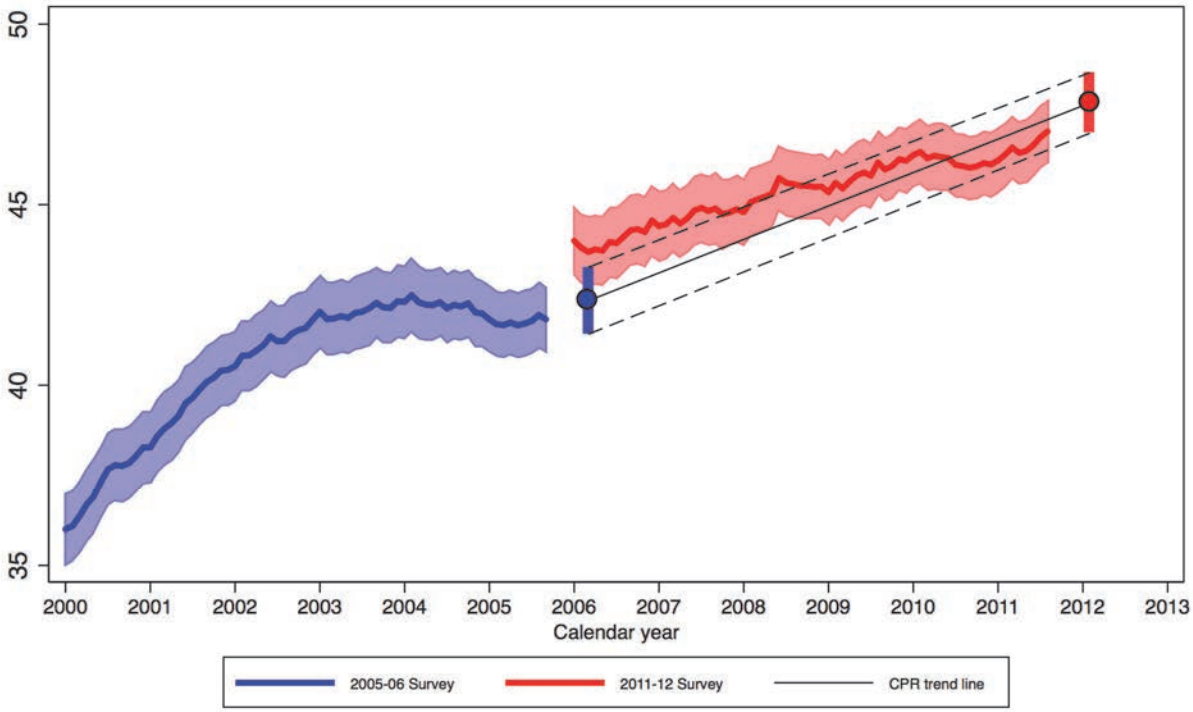
The quality of the calendar data collected in the four Dominican Republic surveys pictured here appears to be excellent. The 1999 Dominican Republic DHS was an experimental survey with a small sample size of 1,286 women, which is about one-twentieth the size of the 2002 Dominican Republic DHS sample. Even in the small 1999 sample, the estimated CPR matches up perfectly with current status and calendar data from 1996, as well as with calendar data from 2002. There is some apparent overreporting of sterilization in the 2002 calendar compared with the 1996 current status data: 27.9 percent in the calendar and 25.9 percent in the current status data (Appendix Table 34). Differences in sterilization reporting are not statistically significant, however, when comparing surveys closer in time: the 2002 calendar and 1999 current status data capture very similar levels of sterilization, as do the 1999 calendar and 1994 current status data. The overall level of precision and consistency in the Dominican Republic's calendars is quite impressive.

Figure 42. Total contraceptive prevalence rate among women 15-43, Guatemala



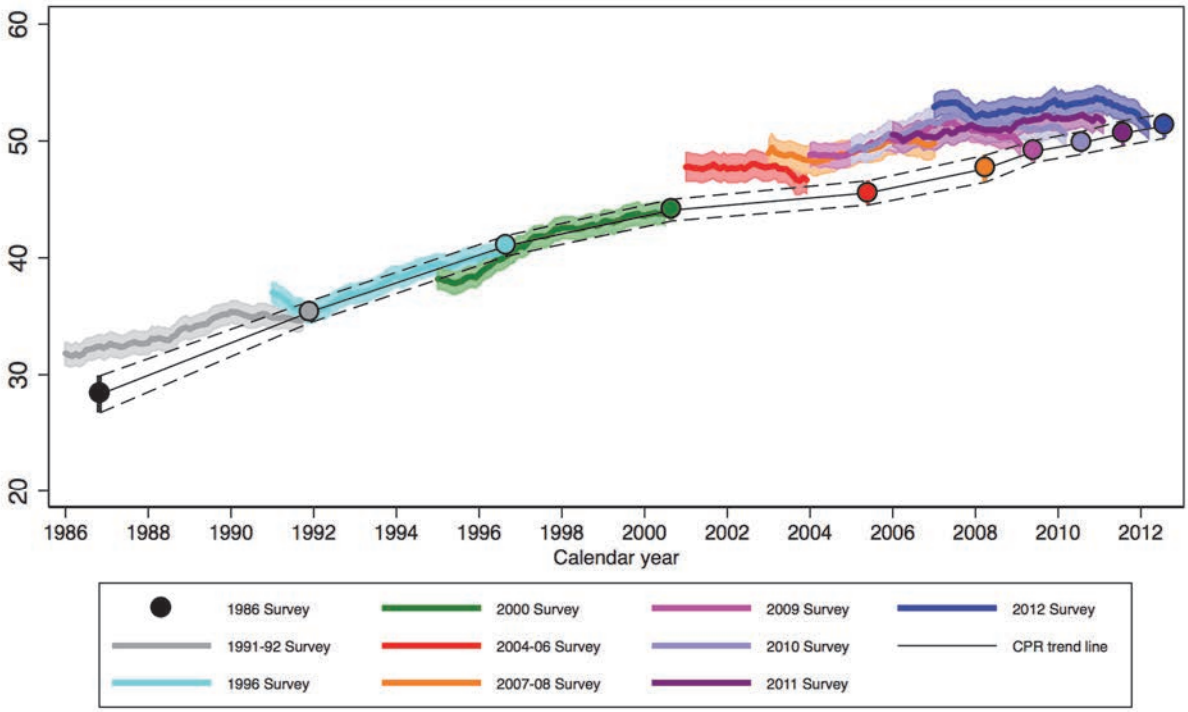
The calendars collected in Guatemala's 1995 and 1998-99 surveys appear to match up well, and the current status CPR estimated from the 1995 survey is very close to the estimate from the 1998-99 calendar: 20.9 percent (CI 19.1-22.8) in current status data and 22.5 percent (CI 19.1-26.4) from the calendar (Appendix Table 35). There appears to be some overreporting of periodic abstinence in the 1998-99 calendar, but the method is not commonly used enough for the difference to substantially affect the total CPR. All other contraceptive methods appear to be consistently reported.

Figure 43. Total contraceptive prevalence rate among women 15-43, Honduras



The calendar data from Honduras's 2011-12 survey appear to very slightly overestimate total contraceptive use as reported in the 2005-06 survey. The CPR in 2006 was recorded as 42.3 percent from the current status data (CI 41.4-43.3)—1.4 percentage points lower than the calendar estimate of 43.7 percent (CI 42.7-44.6) (Appendix Table 36). IUD use appears overrreported in the calendar (5.3 percent in the calendar versus 4.5 percent current use) and LAM appears underreported (0.009 percent in the calendar versus 0.1 percent current use). Although these differences are statistically significant, the magnitude of the differences is very small. All other contraceptive methods appear to be accurately reported in the calendar as compared with the current status data.

Figure 44. Total contraceptive prevalence rate among women 15-43, Peru



The calendars from Peru's 1996 and 2000 calendars match the overlapping current status CPRs almost perfectly, although there are odd patterns in showing higher levels of contraceptive use in the first few months of each calendar. Calendars in the other seven Peru surveys appear to consistently overestimate contraceptive prevalence relative to the current status data. The amount of apparent overestimation in these more recent surveys ranges from 2.0 to 7.4 percentage points, and the overestimation is consistent in all of Peru surveys collected since 2004 (Appendix Table 37). Notably, the 2004-06 survey was the same survey in which Peru discontinued use of paper questionnaires and became the first DHS to implement surveys on computers, the aforementioned CAPI. All of the Peru surveys beginning in 2004-06 were conducted on PDAs rather than on paper. It is interesting to note that CAPI use seems to be associated with overreporting of contraceptive use in Peru and Colombia and with underreporting of contraceptive use in Zimbabwe. This issue warrants further investigation.

3.3.6 Reporting of contraceptive use by method

Recall of contraceptive use is anticipated to vary by contraceptive method. Table 2.1 summarizes the degree to which the survey pairs match or do not match up by contraceptive method type (all methods combined, modern, or traditional methods) and specific contraceptive method. Our basic metric for matching is whether or not there is a statistically significant difference between the retrospectively recalled contraceptive use (using the calendar) and the current use in the preceding survey. We are also interested in whether or not the estimates of contraceptive use tabulated with the calendar are over-estimates or under-estimates relative to the current use in the previous survey. Table 2.1 presents the number and percentage of survey pairs in which the use of a (particular) method is significantly different between the results generated from the calendar and current use at the time of the previous survey. For survey pairs in which estimates of use are statistically significantly different, Table 2.1 presents the magnitude of the difference, both as the percentage point difference between the two estimates and the percent of method use this represents, compared with the current status estimate.

Table 6. Summary comparisons between calendar and previous survey by contraceptive method

	Total comparisons with statistically significant differences				Calendar significantly over estimates FP use				Calendar significantly under estimates FP use				Number of survey pairs
	Number of comparisons	Percent of comparisons	Percentage point difference	% difference	Number of comparisons	Percent of comparisons	Percentage point difference	% difference	Number of comparisons	Percent of comparisons	Percentage point difference	% difference	
All methods	78	73.6	5.2	19.1	26	24.5	3.4	8.0	52	49.1	6.2	24.6	106
Modern methods	66	62.3	4.4	20.6	20	18.9	2.8	8.6	46	43.4	5.1	25.9	106
Traditional methods	63	59.4	2.0	34.5	18	17.0	1.7	22.1	45	42.5	2.1	39.4	106
LAM	45	66.2	0.7	-	9	13.2	0.6		36	52.9	0.7		68
Male Condom	59	55.7	1.3	47.1	3	2.8	1.3	70.6	56	52.8	1.3	45.9	106
Injectable	45	42.9	2.0	36.5	16	15.2	1.6	46.5	29	27.6	2.2	31.0	105
Periodic abstinence	43	40.6	1.4	46.0	15	14.2	1.5	30.5	28	26.4	1.4	54.3	106
Pills	41	38.7	1.6	31.0	12	11.3	1.2	23.8	29	27.4	1.7	34.0	106
Withdrawal	41	38.7	1.1	42.2	9	8.5	0.9	34.0	32	30.2	1.1	44.5	106
Sterlization	21	19.8	0.7	69.7	7	6.6	1.1	127.7	14	13.2	0.6	40.7	106
IUD	17	16.0	1.4	28.0	4	3.8	2.1	14.3	13	12.3	1.2	32.2	106
Implants	12	13.3	0.4	-	7	7.8	0.1	-	5	5.6	0.8	-	90

LAM: Lactational Amenorrhea Method

In the top line of Table 6, we see that in 74 percent (78 out of 106) of the survey pairs the measures of total contraceptive use are statistically different. We also see that an under-estimation of contraceptive use in the calendar is twice as frequent as an over-estimation (49 percent versus 25 percent). The magnitude of the difference varies by whether the total CPR is under- or over-estimated by the calendar compared with current use estimates. In comparisons in which the calendar appears to underestimate contraceptive use, the average CPR is 6.2 percentage points lower, underestimating the current use CPR by 25 percent. In comparisons in which the calendar appears to overestimate contraceptive use, the average difference is much smaller, at 3.4 percentage points, overestimating the current use CPR by 8 percent. The next rows of the table present disaggregates of the same measures by contraceptive method type and specific method.

Estimates of the percentage of women using modern methods of contraception were significantly different in 62 percent of comparisons, and estimates of traditional method use were significantly different in 59 percent of comparisons.[17] Modern methods do not appear to be reported any more or less accurately in the calendar than traditional methods, on average. Again, the magnitude of the differences is larger in surveys in which the calendar underestimates contraceptive use than surveys in which the calendar gives an overestimate.

In the second part of Table 6, contraceptive methods are ordered from the method most frequently differently reported in the calendar versus current use to the method most consistently reported. LAM[18] and male condoms are reported at significantly different levels in the calendar and current status data in well over half of survey pairs. The preponderance of these discordances are due to an overestimate of the prevalence by the calendar. These methods are fraught with difficulty for measurement. LAM is notoriously difficult to measure (Fabic and Choi 2013) and is frequently confused with simple breastfeeding. Condom use is coitus-dependent and may frequently be transitory. Continuous use of these methods at any point in the past may be misremembered or not remembered at all. The other coitus-dependent methods, periodic abstinence and withdrawal, are also frequently problematic: about 41

[17] Please note that in some survey pairs, neither the modern CPR nor traditional CPR difference was statistically significant, but when all methods were combined, the total CPRs were statistically significantly different in the calendar versus current status data. The same is also true for specific methods. It may be the case that in one pair of surveys, none of the method-specific levels of use are statistically different, but when combined together the total all-method CPR estimates are significantly different.

[18] Comparisons of LAM use are limited to survey pairs in which LAM use was reported in both data sources. Because some surveys did not capture any LAM use in either the calendar or current use data, LAM can only be compared in 68 survey pairs. For the same reason, implant use can only be compared in 89 survey pairs.

percent of the survey pairs show a significant difference between the prevalence of periodic abstinence calculated with the calendar and current use reported in the preceding survey, and 39 percent show a difference for withdrawal. Similar levels of problematic reporting are true for the resupply methods pills and injectables, at 39 and 43 percent respectively. Similar to LAM and condom, use of these methods can be temporary and their use may be subject to misremembering or forgetting intervals of use. Finally, the long-acting and permanent methods have the lowest incidence of discordance between the estimate made using the calendar and current use in the earlier survey. For all methods except implants, underestimation in the calendar is much more likely than overestimation. (Implant use appears to be overreported slightly more often than it is underreported in 8 and 6 percent of surveys respectively, but the numbers are quite small.)

3.3.7 Reporting of contraceptive use by region and survey characteristics

Table 7 presents the same analysis of survey pairs as Table 6, summarized by geographic region. The sub-Saharan African and South/Southeast Asian regions show worse performance on the matching CPR metric than Latin America and the Caribbean and North Africa/West Asia/Europe, with more than 80 percent of survey comparisons in the sub-Saharan African and Asian regions showing statistically significant differences. The higher level of disagreement between CPR estimates in the sub-Saharan Africa and East/Southeast Asia sub-regions is almost exclusively due to a lower estimate of family planning use by the calendar. In Latin America and the Caribbean, calendars that produced estimates that were statistically significantly different from the current status data consistently overestimated the CPR, and in North Africa/West Asia/Europe the cases of significant disagreement were distributed across both overestimation and underestimation by the calendar relative to the corresponding current status data. The magnitude of the differences in reporting is particularly large in the sub-Saharan African region. In survey comparisons in which the calendar significantly underestimated contraceptive use as compared with current status data, the surveys in East and Southern Africa underestimated contraceptive use by an average of 29 percent in the calendar, and the surveys in West and Central Africa underestimated contraceptive use on average by 51 percent. Please note that broad conclusions are not possible since the number of survey pairs is relatively small and the Latin America and Caribbean region is dominated by surveys conducted in Peru. However, the high levels of apparent underestimation and the magnitude of the differences between the calendar and current use estimates of the CPR in sub-Saharan Africa and East/Southeast Asia suggest that the great majority of calendars from these regions are likely to be unreliable.

Table 7. Summary comparisons between calendar and previous survey by region

	Total comparisons with statistically significant differences				Calendar significantly over estimates FP use				Calendar significantly under estimates FP use				
	Number of compar-isons	Percent of compar-isons	Percent-age point difference	% differ-ence	Number of compar-isons	Percent of compar-isons	Percent-age point difference	% differ-ence	Number of compar-isons	Percent of compar-isons	Percent-age point difference	% differ-ence	Number of survey pairs
All	78	73.6	5.2	19.1	26	24.5	3.4	8.0	52	49.1	6.2	24.6	106
Latin America and the Caribbean	21	65.6	3.6	8.5	21	65.6	3.6	8.5	0	0.0	NA	NA	32
Asia	17	85.0	5.5	12.7	0	0.0	NA	NA	17	85.0	5.5	12.7	20
North Africa/West Asia/Europe	11	55.0	3.6	7.2	4	20.0	2.6	4.7	7	35.0	4.2	8.6	20
East and Southern Africa	20	87.0	7.1	27.9	1	4.3	2.5	9.7	19	82.6	7.3	28.9	23
West and Central Africa	9	81.8	6.3	50.5	0	0.0	NA	NA	9	81.8	6.3	50.5	11

NA: Not applicable

Table 8 summarizes the comparison of survey pairs by average level of contraceptive use, education level, and survey length. Education is measured by the percent of survey respondents who have ever attended school. If the percent of women in a survey who have at least some education exceeds the median level for all surveys, that survey is counted as having a relatively high level of education. Similarly, for the length of the survey, if the number of questions in the survey in which we use the

calendar exceeds the median number of questions across the collection of surveys, the survey is counted as having a relatively long survey. We also disaggregated surveys by whether the country's contraceptive use at the time of the calendar survey was higher or lower than the median level of use across all surveys analyzed.

A potential hypothesis concerning the calendar is that reporting of contraceptive use is more reliable in countries with higher levels of family planning use. We do find that the frequency of significant differences between the CPR in the calendar versus current use is somewhat improved for the countries with relatively high family planning use at the time of survey compared with low family planning use, but the difference is small (72 versus 75 percent). Perhaps mimicking the regional patterns in Table 7, there were large differences in the underestimation versus the overestimation. Notably, among countries with lower levels of family planning use, the calendar underestimated the current status CPR in 72 percent of survey pairs analyzed.

Another potential hypothesis concerning the apparent poor recall of contraceptive use in the calendar is that the surveys are long and the interviewers and/or interviewees are fatigued by the length of the survey. If this is the case, interviewers may not ask sufficient probing questions to accurately capture contraceptive use, and we should see poorer performance of the calendar at replicating the current use CPR in longer surveys than in shorter surveys. The survey pairs in which there was a relatively long survey instrument for the calendar implementation were more likely to overestimate the family planning use relative to the survey pairs in which the survey instrument was shorter (more than double, 34 percent versus 15 percent). This may be related again to regional variation, particularly the relatively lengthy Peru surveys. There was not a large difference in terms of underestimation (47 percent versus 51 percent).

Table 8. Summary of comparisons between calendar and previous survey by survey characteristics

	Total comparisons with statistically significant differences		Calendar significantly over estimates FP use		Calendar significantly under estimates FP use		
	Number of comparisons	Percent of comparisons	Number of comparisons	Percent of comparisons	Number of comparisons	Percent of comparisons	Number of survey pairs
All	78	73.6	26	24.5	52	49.1	106
High family planning use	38	71.7	24	45.3	14	26.4	53
Low family planning use	40	75.5	2	3.8	38	71.7	53
Long survey	43	81.1	18	34.0	25	47.2	53
Short survey	35	66.0	8	15.1	27	50.9	53
High education	37	69.8	21	39.6	16	30.2	53
Low education	41	77.4	5	9.4	36	67.9	53
High Education (LAC/MENA)	24	63.2	21	55.3	3	7.9	38
High Education (Africa/Asia)	13	86.7	0	0.0	13	86.7	15
Low Education (LAC/MENA)	8	57.1	4	28.6	4	28.6	14
Low Education (Africa/Asia)	33	84.6	1	2.6	32	82.1	39

LAC: Latin America and the Caribbean
MENA: North Africa/West Asia/Europe

An additional potential hypothesis is that in surveys conducted in areas of low literacy or low education, women would have poorer recall of dates related to prior family planning use. In Table 8 there are two groups of output related to education that show the numbers and percentages of surveys in which the current use and calendar estimates are significantly different. In the first group we look at the survey pairs in which the country has a relatively high level of education versus those with a relatively low level of education. There is not a great difference between the two for the overall level of disagreement between contraceptive use estimates from the calendar versus current status data. There are large differences in the degrees of overestimation and underestimation of the CPR by the calendar. However, we recall the underestimation phenomenon is largely restricted to the LAC survey pairs. The second group of rows relating to education disaggregates the high and low levels of education by regional groups. The North Africa/West Asia/Europe and LAC regions had lower levels of disagreement, while the sub-Saharan Africa and Asia regions had higher levels of disagreement between CPR estimates. Therefore, we cut the educational categories by these broad regional groups to help control potential regional bias. This

disaggregation shows the counterintuitive result that the survey pairs for countries with relatively low education have less incidence of disagreement between estimates of contraceptive use than the survey pairs for countries with relatively high education, although differences are not large.

3.4 Discussion and Recommendations

3.4.1 Discussion

One key issue to keep in mind when interpreting the results of this analysis is that the calendar was not necessarily intended to provide estimates of the CPR that would perfectly match prior estimates of contraceptive use, and calendar data are not used for reports of contraceptive prevalence in DHS final reports. The calendar, as first implemented in the experimental 1986 Dominican Republic and Peru surveys, was to provide "monthly data on contraceptive practice, amenorrhea, postpartum abstinence and exposure to risk… for estimates of fecundability, natural fertility, and contraceptive efficacy," (Goldman, Moreno, and Westoff 1989b, p.1) and not necessarily to estimate contraceptive prevalence for a specific month in time. In this report we compare women's reports of the method they are "currently" using to avoid pregnancy to reports from other women of the method they were using at a specific point in time. Because the wording of the question is different, and because the recall of episodes of contraceptive use that occurred many years ago could be expected to be imperfect, it is not clear that we should expect a perfect match between levels of use reported retrospectively in the calendar with reported levels of current use.

There has been, however, a decades-long history within the DHS of evaluating the quality of calendar data by comparing estimates of contraceptive use in a specific month from the calendar with prior estimates of current use from an earlier survey. The first evaluation of the experimental calendar data from Peru compared estimates of contraceptive use in 1981 collected from the 1986 experimental calendar to current use estimates collected in the 1981 Contraceptive Prevalence Survey (CPS), and judged the accuracy of the 1986 calendar by how well the total and method-specific CPRs from the then experimental calendar matched current use estimates for the same time point collected in the 1981 CPS (Goldman, Moreno, and Westoff 1989b). The calendar was judged to show "complete reporting of the most effective methods (pill and IUD) for a date more than five years prior to the survey," (Goldman, Moreno, and Westoff 1989b, p.43) because the estimated use of these methods matched almost perfectly between the DHS calendar and the CPS estimate for the same date (differences were 0.1 percentage point for both pill and IUD). Reports of use of injectables, condoms, diaphragm,[19] periodic abstinence, withdrawal, and sterilization were all within 1.1 percentage points of each other in the calendar compared with current status data. The authors noted that the total CPR of 34.6 percent collected in the calendar was still significantly lower than the CPS estimate of 38.1 percent. Based on the table of results shown in the 1986 report, readers can see that the underestimation of 3.5 percentage points, 9 percent of the current status CPR, is predominantly due to reporting of "other" methods in the calendar at 1.9 percentage points lower than the level reported in the CPS. As the initial evaluation of the contraceptive calendar compared retrospective estimates from the calendar with current use estimates for the same date and tested whether or not any differences were statistically significantly different, we believe it is appropriate to use the same methodology in this comprehensive analysis.

Given that even the first implementation of the calendar produced estimates of the total CPR that were statistically significantly different between the calendar and current status data for the same time, it is worth questioning whether statistical significance is an appropriate guideline for determining the reliability of calendar data. In compiling the results of this analysis, we considered whether there should be some cutoff for what was considered "poor" correspondence between contraceptive use levels

[19] Injectables, condoms, and diaphragms were grouped together in the 1986 analysis.

recorded in the calendar and current use data. Should a gap of five percentage points in estimates of the total CPR between the two estimates be considered an indicator of poor correspondence? Or should such a cutoff be relative to the level of contraceptive use, i.e. an underestimate of 10 percent or more of the current use CPR by the calendar?

Determining such cutoffs seemed arbitrary and subjective, so we followed the more objective convention of calculating whether levels of contraceptive use were statistically significantly different between the two sources. Please note, therefore, that while we have incorporated statistical significance as a useful guideline in determining whether the calendar accurately captures contraceptive use, we caution readers to keep in mind that a statistically significant difference may not necessarily be a meaningful difference. For example, the 2006 Honduras CPR was estimated to be 42.3 percent from current status data and 43.7 percent from the 2011-12 calendar, a difference of 1.4 percentage points or 3 percent of the current-use CPR. This difference is statistically significant at the $p<0.05$ level, but that does not imply that the difference is meaningful. Rather, the finding of statistical significance is due in part to the large sample sizes of more than 16,500 women in each of the two Honduras surveys analyzed, which allows for detection of small differences. Nepal provides a counter-example. The 2006 CPR was estimated at 46.7 percent from current-status and 42.5 percent from calendar data, a difference of 4.2 percentage points. This much larger difference is not statistically significant, however, due in large part to the much smaller sample sizes of under 8,000 women ages 15-43 in each survey. Additionally, the difference in the total CPR estimates in Nepal would be larger if the underreporting of condom use in the calendar was not balanced by overreporting of withdrawal in the calendar. These examples reinforce the point that statistical significance, while useful as a summary measure, is only one piece of information that should be used to determine whether calendar data plausibly capture past contraceptive use. We therefore urge readers interested in the quality of specific surveys not to place too much value on statistical significance and to focus more on the differences in CPR between estimates, including method-specific results.

An additional concern about comparing current and retrospective data on contraceptive use is that the questions are phrased differently. In the calendar, women are asked about their contraceptive use during a specific time, while for current use no time limit is given and women may have different interpretations of what constitutes “currently doing anything to avoid pregnancy.” We expect that women using hormonal or long-term methods would report that they are currently using a method, but this expectation may not hold for coitus-dependent methods such as condoms, diaphragms, withdrawal, or other traditional methods. Women could report they are “currently” using a coitus-dependent method even if they have not used the method that month, while in the calendar women are asked if they used that method during a specific time period. If women report they are currently using a method even if they have not used the method that month, this would bias the current use CPR upwards and potentially lead to understandably poorer consistency between the current use and calendar CPRs. On the other hand, we do not know whether or not women consider coitus-dependent methods to reflect “current” use. If they do not, some users of these methods may report that they are not currently using any method despite intending to use such a method the next time they have sex. If women do not report such methods as “current” use, but do report them in the calendar, this would bias current use estimates downwards. Such a downward bias might lead to better correspondence between current use and calendar data because estimates of use from the calendar are generally lower. We cannot determine from existing data whether these two potential biases may cancel each other out, or if the bias in one direction may be larger than the other.

Another potential bias in these comparisons relates to the fact that births, pregnancies, and terminations are recorded in the calendar prior to recording any methods of contraceptive use, and only one event per month is recorded in the calendar. Women who had a live birth or a pregnancy termination during the calendar period are asked how many months they were pregnant at the time of the birth/termination, and P’s are put in all of the cells in months when they were pregnant. If women were using contraception immediately prior to the pregnancy, contraceptive use is filled in up to the beginning of the pregnancy,

but even if the woman was using contraception during the first few months of pregnancy (as may be true in the case of contraceptive failure when the woman has not yet recognized she is pregnant), contraceptive use is not recorded in those early months of pregnancy, as the P has already been filled in and multiple entries are not allowed. The same is not true for current use: if, at the time of interview, a woman does not report she is currently pregnant, she is asked if she is currently using contraception; she can be recorded as a current user, even if she is (unknowingly) in her first trimester of pregnancy. Similarly, if a woman had a birth or termination and began using contraception in the same month, she will have a B or T recorded in the calendar for that month, rather than contraceptive use. If the same birth or termination occurs during the month of interview and the woman has begun using contraception (for example, a post-delivery sterilization or IUD insertion), that woman will be counted as a user in the current use estimate. The result of this different recording in current use versus the calendar is that the current CPR will be systematically higher than the CPR calculated from an earlier part of the calendar even when contraceptive prevalence has not changed over time. While this is certainly a real bias, a thought experiment makes clear that the impact on estimates of CPR is likely to be quite small. If nine percent of women in a survey were pregnant in a given month of the calendar (a reasonable estimate for many sub-Saharan African surveys), perhaps two percent were in their first or second months of pregnancy. If we assume that half of these women did not know they were pregnant, that would result in one percent of all women in the survey being unknowingly pregnant in a specific month. Given the general low levels of contraceptive use in surveys analyzed, and the fact that the women have become pregnant, it seems implausible that more than 10 percent of this group of women were using contraception while pregnant. If 10 percent of the one percent of unknowingly pregnant women in their first or second month of pregnancy were using contraception, this issue would thus affect only 0.1 percent of women in the entire population, and therefore is unlikely to significantly impact the comparisons between contraceptive use in the calendar and current status data.

The best answer to the question of whether we should expect estimates of total and/or method-specific CPRs to match when calculated from the calendar and current use data for the same point would seem to come from the data. The calendars in the 1994 and 1999 surveys in Zimbabwe shown in Figure 18, for example, demonstrate near-perfect correspondence between contraceptive use reported retrospectively in the calendar and currently in the prior survey. Data from the Dominican Republic and Egypt also show very good correspondence between the two data sources. Many other survey pairs, especially in Latin America and the Caribbean and North Africa/West Asia/Eastern Europe, show close correspondence. These examples suggest that, although the expectation of perfect or near-perfect matching between contraceptive use levels collected from the retrospective calendar and prior current use data is clearly a high bar, such results are possible and feasible in at least some countries. The data from Zimbabwe are particularly relevant: even though the most recent survey showed substantial underestimation of contraceptive use in the calendar, previous surveys in the same country have shown that the collection of contraceptive use data in the calendar that is consistent with other data sources is clearly achievable.

3.4.2 Summary and recommendations

Overall, our analysis found that in most comparisons, calendar data appear to underestimate contraceptive use, often substantially. Levels of total contraceptive use differ significantly between the calendar and current use reports in 74 percent of survey pairs analyzed. While statistical significance is not a perfect indicator of calendar data quality, we note that in the vast majority of surveys with statistically significant differences in CPR, the gap in estimates was large enough to demonstrate that the contraceptive use data from the calendar are clearly implausible, given the levels reported for the same time point in previous surveys. In the 74 percent of survey pairs that were statistically significantly different, the average difference in total contraceptive use was 5.2 percentage points, resulting in an average discrepancy of 19 percent relative to the current use CPR data. Ignoring statistical significance, the gap between CPR

estimates was 4.1 percentage points on average across the 106 survey pairs analyzed, or 15 percent of the average current status CPR.

Condom use does not appear to be accurately captured in calendar data, with significantly lower levels of condom use reported in more than half of calendars as compared with current use data. On average across the 56 survey pairs in which condom use appears underreported in the calendar, it was recorded in the calendar at levels 46 percent lower than those recorded in current use data. In countries where LAM is reported at all, it appears to be reported inconsistently. Reported levels of use of traditional methods, specifically periodic abstinence and withdrawal, and short-term resupply modern methods, specifically pills, and injectables, differ significantly between calendar and corresponding current use data in about 40 percent of survey pairs. The long-term methods of IUDs, implants, and sterilization appear to be reported much more consistently. The pattern of better reporting of longer-term methods is consistent with previous studies, both of DHS and other surveys, as summarized by Callahan and Becker (2012).

The correspondence between levels of contraceptive use collected in the calendar versus current status data appears to vary regionally. The level of agreement between calendar and current use estimates of contraceptive use is generally high in several surveys in Latin America and the Caribbean, particularly in the Dominican Republic and Guatemala. None of the calendars from this region appear to underestimate contraceptive use, although overestimation of use in the calendar is evident in several surveys in Peru and Colombia, especially in surveys conducted using CAPI. In the North Africa/West Asia/Eastern Europe region, the level of consistency between calendar and current use estimates of contraceptive prevalence is also generally high for several surveys, with near perfect matches between data sources in multiple Egypt surveys. In most of the Asian and sub-Saharan African surveys, the picture looks bleak. In more than 80 percent of surveys in these regions, the calendar does not appear to accurately capture the level of contraceptive use measured from current status data. In many surveys in these regions, particularly in lower contraceptive prevalence countries, the calendar underestimates the current use estimate of total CPR by 25 to 50 percent. The West African surveys analyzed show particularly large discrepancies between estimates of CPR from the calendar and current use data, although we note that the number of surveys analyzed per region is small. The only survey pairs from West Africa in which there are not statistically significantly different levels of contraceptive use between calendar and current status estimates are from Senegal, and in both cases, the data compared were collected less than two years apart. This finding again suggests that poor recall is indeed a problem for the comparability of calendar and current use data in some settings, and also suggests a potential way forward, summarized below.

In the majority of the figures shown in this report, the CPR in the calendar decreases as the calendar moves further back in time, from right to left in each image. In many cases, this represents the calendar CPR estimate falling further and further below levels reported in earlier surveys for periods further back in time. Worse reporting for events further in the past is to be expected, but this trend also suggests a troubling pattern of underreporting of contraceptive discontinuations. In the month of interview, women's current contraceptive method (if any) is recorded in the calendar, and it is filled in for all the previous months in which she continuously used the same method. As the calendar progresses further back in time, it is less and less likely that women would have been using the same contraceptive method without stopping. Instead, any episodes of use that occurred many years ago would likely have been stopped, at least temporarily, or switched to a different method at some point during the past several years. In most calendars, we see that the gap between the calendar CPR and the line showing the interpolated current status CPR grows wider as the calendar progresses further back in time. This pattern strongly suggests that discontinuations during the calendar period are underreported.

Underreporting of discontinued episodes of contraceptive use is of particular concern for reports of contraceptive discontinuation rates, including failure rates. If discontinued episodes of use, particularly those that ended in contraceptive failure, are underreported, this will bias estimates of contraceptive

failure and other rates of contraceptive discontinuation, which are a primary use of contraceptive calendar data. There is evidence from U.S. surveys that episodes of contraceptive use that end in failures—particularly those that result in abortion—are underreported in survey data (Trussell and Vaughan 1999; Jones and Kost 2007). It seems likely that this would be the case in DHS calendars as well, although we cannot confirm this because reliable external sources of information about abortion are not available in most countries analyzed in this report. It is unclear whether the omitted episodes of discontinuation would be balanced by omitted episodes of contraceptive acceptance; one could imagine situations in which discontinuation rates would be over- or under-estimated due to these omissions. On the whole, however, because we expect better reporting of episodes of use that continued into current use (and are censored in discontinuation rate calculations) than those that have been discontinued, we anticipate that on average such omissions will lead to underestimates of contraceptive discontinuation rates.

Based on the results of this analysis, we recommend that The DHS Program:

- Experiment with the length of the calendar to see if a shorter calendar—perhaps two years shorter, beginning in January of the calendar year three years prior to the start of the survey—could produce better quality data by limiting the recall period while still gathering enough episodes of contraception to be useful for analysis. Note that in order to calculate one-year contraceptive discontinuation rates as in the standard DHS final report, the calendar period needs to be long enough for respondents to have a chance to take up a method, use it for some length of time, and have the possibility of discontinuing use during the calendar period. If a shorter calendar is adopted, we also recommend including a question about when contraceptive method use began for any method that was being used at the beginning of the calendar in order to include left truncated episodes.[20]
- Experiment with ways to enhance the use of CAPI in calendar data collection. Although we only were able to analyze a handful of surveys that used CAPI to collect calendar data, results so far suggest that collecting calendar data with CAPI appears problematic as currently implemented. The analysis of additional surveys using CAPI that are ongoing or recently completed (but not available for analysis at the time of this writing) will help shed light on this issue. As the Program moves forward collecting more data electronically, experiments should be conducted with alternative ways to collect the calendar to take advantage of the technology and provide the visual cues available from the paper questionnaire.
    - For these two types of experiments, households could be randomized to receive different versions of the calendar section of the questionnaire to test the effect of different data collection mechanisms. We strongly recommend comparing results from different data collection methods within the same survey, especially regarding calendar length. If this step is not taken, it will be difficult to draw conclusions about the impact of questionnaire changes. Shorter calendars would no longer overlap with prior surveys, as DHS surveys are typically conducted approximately five years apart. Therefore, the only way to assess shorter

[20] Episodes of use that were ongoing at the time the calendar began (the earliest month in which calendar data were collected) are left truncated. In standard analyses of calendar data, such as one-year discontinuation rates in DHS final reports, these left truncated episodes of use are dropped from analysis because the date of the start of use is unknown and so the duration of use cannot be determined. In a shorter calendar, the number of left truncated episodes would not change on average, but the number of episodes starting inside the calendar would be reduced substantially, and thus the proportion of all episodes that are left truncated would be much greater. We therefore recommend that, for all episodes of use that were ongoing when the calendar began, a question be included asking when that episode of use began so that the duration of use can be calculated. The question about date of first use for ongoing episodes has been included in previous rounds of the DHS, e.g. Q333 in the DHS II Model A Questionnaire.

calendars in countries without frequent repeat surveys would be to compare shorter and longer calendar results from the same survey.

- Investigate the successful strategies of surveys that appear to have collected high-quality information on contraceptive use in the calendar to see if some of the strategies used in these surveys could be applied more broadly, especially to surveys in Asia and sub-Saharan Africa. Individuals' memories are fallible, and the extent to which women do not remember their contraceptive use episodes cannot likely be changed. At the same time, all reasonable measures must be taken in training and supervision to ensure that the data collected are of the highest quality possible. The results of this analysis suggest that additional efforts in this area are warranted.

For users of calendar data, this analysis shows that caution must be used when analyzing and interpreting results from calendar data in certain surveys. It is clear that the quality of contraceptive use data from each survey must be examined. The consistency of contraceptive use data collected in the calendar clearly varies across regions and even across surveys within the same country, as noted previously in the Zimbabwe example. We also note that although many surveys may not accurately capture total contraceptive prevalence in the calendar, this is often due to unreliable reporting of certain short-term methods, most notably LAM and condom use. For users interested in analysis of other contraceptive methods, calendar data in many surveys can and should still be used.

Previous assessments of the quality of contraceptive use collected with the DHS calendar data using similar methods found DHS contraceptive calendar data to be generally of high quality (Curtis and Blanc 1997) or to slightly underestimate contraceptive use (Bradley, Schwandt and Khan 2009). The results of this analysis are more negative, in large part because this analysis includes more recent surveys and more surveys from sub-Saharan Africa, particularly West Africa, which tend to have greater levels of underreporting of contraceptive use in the calendar. Overall, this analysis finds evidence of substantial underreporting of contraceptive use as captured by the calendars compared with current status estimates in the majority of surveys analyzed.

Chapter 4: Conclusions

In this report we have assessed the quality and consistency of birth histories, pregnancy histories, and the reproductive calendar, by comparing results estimated from the data to external sources of information believed to be more reliable. We evaluated the estimation of perinatal mortality based on how close the ratio of stillbirths to early neonatal mortality approaches the ratio calculated from international vital statistics data. We then evaluated the reports of contraceptive use collected using the reproductive calendar by how closely calendar-based contraceptive prevalence rates matched rates calculated from current status data for the same time point from an earlier survey.

Both of these types of comparisons have limitations. The 2006 WHO report states that the stillbirth to early neonatal mortality ratio of 1.2 is applicable when the early neonatal mortality rate is greater than 20. However, in many of the surveys analyzed here, we found that the early neonatal mortality rate was less than 20, so it is not clear that the 1.2 standard is applicable. It is also possible that the 1.2 standard may not be applicable in all settings even when early neonatal mortality is high. In the analysis of contraceptive use data, we compared retrospectively collected data from one survey to current use data from another. It is possible that women answer questions differently when asked what they are currently doing to avoid pregnancy and what they did in a specific month in the past. It also seems logical that women may not be able to recall precisely episodes of contraceptive use, particularly for methods that are coitus-dependent and occurred multiple years ago. For this reason, some level of disagreement between data sources is to be expected and is simply reflective of the fallibility of human memory. These discrepancies do not necessarily provide information about the quality of data collection.

Regarding perinatal mortality, we found that in general there appears to be underreporting of stillbirths in most surveys, regardless of the data collection method. The pregnancy history and the birth history supplemented by special questions generally appear to perform better at collecting perinatal mortality information than the birth history supplemented by the reproductive calendar.

Regarding contraceptive use in the calendar, we found that in general there appears to be poor correspondence between CPRs reported from the calendar and from current status data for the same time point. Most calendar data CPRs are lower than current use CPRs, suggesting that the calendar does not completely capture episodes of contraceptive use. Similarly, use of specific contraceptive methods varies substantially between calendar and current use estimates, with far higher levels of correspondence for long-term and permanent methods and lower levels of correspondence for short-term methods such as condoms. There is also substantial variation in the level of correspondence by geographic region.

Both of the analyses presented here assessed the reliability of calendar data, first focusing on perinatal mortality collected from the birth history combined with the reproductive calendar, and then contraceptive use collected from the calendar alone. Both analyses found that calendar data appear to frequently underestimate reproductive events—specifically stillbirths and episodes of contraceptive use—relative to external sources of information.

Neither of the analyses presented here is able to answer questions about why the correspondence between estimates is better in some surveys than others, or to draw firm conclusions regarding the best strategy of data collection. To answer those questions, we recommend that controlled trials be conducted within a particular Demographic and Health Survey so that results can be compared directly. Specific recommendations include:

- To assess which data collection tool best identifies stillbirths, conduct experiments in which women (or households) are randomly assigned to receive a questionnaire with one of the following:
  - Birth history only (with reproductive calendar identifying pregnancies not ending with live births)
  - Birth history with supplemental questions to identify pregnancies not ending with live births
  - Pregnancy history, potentially with variations for the order in which pregnancies are queried: most recent pregnancy to first pregnancy versus first pregnancy to most recent pregnancy
- To assess whether a shorter calendar could produce more reliable data by limiting the recall period while still gathering enough information to be useful for analysis, randomly assign some households to receive a shorter calendar while others receive the standard calendar within the same survey, and compare the results.
- Experimentation with alternative ways of collecting calendar data using Computer Assisted Personal Interviews (CAPI) that would allow interviewers to draw on the visual cues provided in the paper questionnaire when filling in the electronic calendar record.

We hope that the information in this report will be useful for data users and helpful for the continued improvement of DHS survey data quality in decades to come.

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Appendix

Appendix Table 1. Comparison of calendar and current status data for Ethiopia 2000, 2005, and 2011 surveys

	Current-status data from 2000				Calendar data from 2005				Current-status data from 2005				Calendar data from 2011			
	Women ages 15-43 at time of survey				Women ages 15-43 in April 2000				Women ages 15-43 at time of survey				Women ages 15-43 in September 2005			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	93.8	0.3	93.2	94.4	95.8	0.3	95.2	96.3	89.4	0.5	88.3	90.3	88.8	0.7	87.4	90.1
Pill	2.0	0.2	1.7	2.5	1.5	0.2	1.2	1.9	2.2	0.2	1.8	2.6	1.5	0.2	1.2	1.9
IUD	0.1	0.0	0.0	0.2	0.2	0.1	0.1	0.3	0.1	0.0	0.1	0.2	0.2	0.1	0.1	0.3
Injections	2.2	0.2	1.8	2.7	1.6	0.2	1.3	2.1	7.0	0.4	6.2	7.9	8.2	0.6	7.1	9.3
Male Condom	0.4	0.1	0.3	0.7	0.2	0.1	0.1	0.3	0.3	0.1	0.2	0.5	0.2	0.1	0.1	0.3
Sterilization	0.2	0.0	0.1	0.3	0.1	0.1	0.1	0.3	0.1	0.0	0.1	0.2	0.3	0.1	0.2	0.5
Periodic Abstinence	1.1	0.1	0.8	1.3	0.3	0.1	0.2	0.5	0.5	0.1	0.4	0.7	0.4	0.1	0.3	0.6
Withdrawal	0.1	0.0	0.1	0.2	0.1	0.0	0.0	0.2	0.2	0.1	0.1	0.3	0.1	0.1	0.1	0.3
Implant	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.1	0.0	0.1	0.3	0.3	0.1	0.1	0.4
LAM					0.1	0.0	0.0	0.2	0.1	0.0	0.1	0.3	0.0	0.0	0.0	0.0
Other Traditional Methods	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1					0.0	0.0	0.0	0.1
Other Modern Methods									0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Any Method	6.2	0.3	5.6	6.8	4.2	0.3	3.7	4.8	10.7	0.5	9.7	11.7	11.2	0.7	9.9	12.6
Any Modern Method	4.9	0.3	4.3	5.5	3.7	0.3	3.3	4.3	9.8	0.5	8.9	10.8	10.4	0.6	9.2	11.7
N	13,886				10,485				12,792				11,902			

Appendix Table 2. Comparison of calendar and current status data for Kenya 1993, 1998, 2003, and 2008-09 surveys

	Current-status data from 1993				Calendar data from 1998				Current-status data from 1998				Calendar data from 2003				Current-status data from 2003				Calendar data from 2008-09			
	Women ages 15-43 at time of survey				Women ages 15-43 in May 1993				Women ages 15-43 at time of survey				Women ages 15-43 in April 1998				Women ages 15-43 at time of survey				Women ages 15-43 in June 2003			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	74.3	0.8	72.7	75.8	71.8	0.8	70.2	73.3	70.2	0.7	68.7	71.6	76.2	0.8	74.5	77.8	70.9	0.7	69.5	72.3	74.1	1.1	71.8	76.2
Pill	7.9	0.5	6.9	8.9	7.8	0.5	7.0	8.8	6.8	0.4	6.0	7.6	5.8	0.4	5.1	6.6	5.3	0.4	4.6	6.0	5.7	0.5	4.8	6.8
IUD	2.8	0.3	2.3	3.4	2.6	0.3	2.1	3.2	1.7	0.2	1.4	2.1	2.0	0.2	1.6	2.5	1.5	0.2	1.2	1.9	1.0	0.2	0.7	1.4
Injections	5.6	0.3	5.0	6.3	6.3	0.4	5.6	7.1	9.1	0.5	8.3	10.0	7.6	0.5	6.8	8.6	11.3	0.5	10.4	12.3	11.5	0.7	10.2	12.9
Male Condom	0.9	0.1	0.7	1.2	1.0	0.2	0.7	1.4	1.5	0.2	1.2	1.9	0.7	0.1	0.5	1.0	1.9	0.2	1.5	2.3	1.3	0.2	1.0	1.7
Sterilization	3.3	0.3	2.9	3.8	3.4	0.3	2.9	4.0	3.6	0.3	3.1	4.2	2.5	0.2	2.1	2.9	2.2	0.2	1.9	2.6	1.9	0.2	1.5	2.5
Periodic Abstinence	4.5	0.3	3.9	5.2	6.0	0.4	5.3	6.8	5.4	0.3	4.8	6.1	4.0	0.3	3.4	4.7	4.6	0.3	4.0	5.3	2.9	0.5	2.1	4.0
Withdrawal	0.3	0.1	0.2	0.4	0.2	0.1	0.1	0.4	0.4	0.1	0.3	0.7	0.2	0.1	0.1	0.5	0.5	0.1	0.3	0.7	0.4	0.1	0.2	0.7
Implant	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.4	0.7	0.1	0.5	1.0	0.6	0.1	0.4	0.9	1.3	0.2	1.0	1.7	0.8	0.2	0.5	1.2
LAM																					0.2	0.1	0.1	0.4
Other Traditional Methods	0.4	0.1	0.2	0.6	0.4	0.1	0.2	0.7	0.6	0.1	0.4	0.8	0.3	0.1	0.2	0.5	0.5	0.1	0.3	0.7	0.2	0.1	0.1	0.3
Other Modern Methods	0.1	0.0	0.0	0.2	0.1	0.1	0.0	0.3	0.0	0.0	0.0	0.2					0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1
Missing/Unknown if Using					0.1	0.1	0.1	0.3																
Any Method, Including Missing	25.7	0.8	24.2	27.3	28.2	0.8	26.7	29.8	29.8	0.7	28.4	31.3	23.8	0.8	22.2	25.5	29.1	0.7	27.7	30.5	25.9	1.1	23.8	28.2
Any Method, Excluding Missing					28.1	0.8	26.6	29.6					23.8	0.8	22.2	25.5					25.9	1.1	23.8	28.2
Any Modern Method	20.5	0.8	19.1	22.1	21.3	0.8	19.8	22.8	22.8	0.7	21.4	24.2	18.6	0.8	17.1	20.2	22.2	0.7	20.8	23.7	21.6	1.0	19.8	23.6
Any Traditional Method	5.2	0.4	4.5	5.9	6.6	0.4	5.9	7.5	6.4	0.4	5.7	7.2	4.6	0.4	3.9	5.3	5.6	0.3	4.9	6.3	3.5	0.5	2.6	4.6
N	7,003				5,979				7,285				6,225				7,255				6,380			

Appendix Table 3. Comparison of calendar and current status data for Lesotho 2004 and 2009 surveys

	Current-status data from 2004				Calendar data from 2009			
	Women ages 15-43 at time of survey				Women ages 15-43 in November 2004			
	%	SE	CI		%	SE	CI	
Not using	70.4	0.7	68.9	71.8	76.0	0.8	74.4	77.5
Pill	7.5	0.4	6.7	8.3	6.0	0.4	5.2	6.8
IUD	1.4	0.2	1.1	1.8	1.6	0.2	1.3	2.1
Injections	11.3	0.5	10.3	12.3	7.8	0.5	6.9	8.7
Male Condom	6.6	0.4	5.9	7.3	6.0	0.4	5.3	6.8
Sterilization	1.6	0.2	1.3	2.0	1.4	0.2	1.1	1.8
Periodic Abstinence	0.0	0.0			0.1	0.1	0.0	0.3
Withdrawal	0.5	0.1	0.3	0.7	0.6	0.1	0.4	0.9
LAM	0.1	0.0	0.0	0.3				
Other Traditional Methods	0.8	0.1	0.5	1.1	0.4	0.1	0.2	0.6
Other Modern Methods	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.6
Any Method	29.6	0.7	28.2	31.1	23.9	0.8	22.4	25.4
Any Modern Method	28.4	0.8	27.0	29.9	22.9	0.7	21.4	24.4
Any Traditional Method	1.2	0.2	1.0	1.6	1.0	0.2	0.7	1.4
N	6,343				5,703			

Appendix Table 4. Comparison of calendar and current status data for Madagascar 2003-04 and 2008-09 surveys

	Current-status data from 2003-04				Calendar data from 2008-09			
	Women ages 15-43 at time of survey				Women ages 15-43 in January 2004			
	%	SE	CI		%	SE	CI	
Not using	77.9	1.2	75.4	80.2	81.4	0.6	80.3	82.6
Pill	3.1	0.3	2.5	3.9	2.8	0.2	2.3	3.3
IUD	0.4	0.1	0.2	0.7	0.2	0.1	0.1	0.5
Injections	7.9	0.7	6.6	9.3	6.9	0.4	6.2	7.7
Male Condom	1.2	0.2	0.9	1.5	0.6	0.1	0.5	0.8
Sterilization	0.5	0.1	0.3	0.8	0.5	0.1	0.4	0.7
Periodic Abstinence	7.0	0.7	5.8	8.5	6.2	0.3	5.7	6.8
Withdrawal	0.4	0.1	0.3	0.6	0.3	0.1	0.2	0.5
Implant	0.3	0.1	0.1	0.6	0.3	0.1	0.2	0.4
LAM	1.3	0.2	1.0	1.7	0.3	0.1	0.2	0.5
Other Traditional Methods	0.1	0.0	0.0	0.3	0.4	0.1	0.3	0.6
Other Modern Methods	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Any Method	22.1	1.2	19.8	24.6	18.6	0.6	17.4	19.7
Any Modern Method	14.3	0.9	12.6	16.2	11.3	0.5	10.5	12.3
Any Traditional Method	7.5	0.7	6.3	9.0	6.9	0.3	6.4	7.5
N	7,119				13,157			

Appendix Table 5. Comparison of calendar and current status data for Malawi 2000, 2004, and 2010 surveys

	Current-status data from 2000				Calendar data from 2004				Current-status data from 2004				Calendar data from 2010			
	Women ages 15-43 at time of survey				Women ages 15-43 in September 2000				Women ages 15-43 at time of survey				Women ages 15-43 in January 2005			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	74.9	0.6	73.7	76.1	85.7	0.5	84.6	86.6	74.7	0.6	73.5	75.8	80.8	0.4	80.0	81.6
Pill	2.4	0.2	2.1	2.8	1.2	0.1	0.9	1.5	1.5	0.1	1.3	1.8	1.3	0.1	1.1	1.5
IUD	0.1	0.0	0.1	0.2	0.1	0.0	0.1	0.2	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.1
Injections	13.5	0.5	12.5	14.5	7.8	0.4	7.2	8.6	14.6	0.5	13.7	15.5	11.0	0.3	10.4	11.7
Male Condom	2.0	0.2	1.7	2.4	0.4	0.1	0.3	0.6	1.9	0.2	1.6	2.2	1.0	0.1	0.8	1.2
Sterilization	3.3	0.2	2.9	3.7	2.6	0.2	2.2	3.0	3.7	0.2	3.3	4.2	3.7	0.2	3.4	4.2
Periodic Abstinence	0.7	0.1	0.5	0.9	0.3	0.1	0.2	0.5	0.4	0.1	0.3	0.5	0.4	0.1	0.3	0.5
Withdrawal	1.1	0.1	0.9	1.4	1.2	0.2	0.9	1.6	1.6	0.2	1.3	1.9	0.9	0.1	0.8	1.1
Implant	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.4	0.1	0.3	0.6	0.2	0.0	0.2	0.4
LAM	0.4	0.1	0.3	0.5												
Other Traditional Methods	1.5	0.1	1.3	1.8	0.6	0.1	0.5	0.9	1.2	0.1	1.0	1.4	0.6	0.1	0.4	0.7
Other Modern Methods	0.0	0.0	0.0	0.1									0.0	0.0	0.0	0.1
Any Method	25.1	0.6	23.9	26.3	14.3	0.5	13.4	15.4	25.3	0.6	24.2	26.5	19.2	0.4	18.4	20.0
Any Modern Method	21.7	0.6	20.4	22.9	12.1	0.4	11.3	13.0	21.8	0.5	20.8	22.9	17.1	0.4	16.3	17.9
Any Traditional Method	3.4	0.2	3.0	3.8	2.2	0.2	1.8	2.6	3.1	0.2	2.7	3.6	1.9	0.1	1.6	2.2
N	12,099				9,466				10,778				17,373			

Appendix Table 6. Comparison of calendar and current status data for Namibia 2000, 2006-07, and 2013 surveys

	Current-status data from 2000				Calendar data from 2006-07				Current-status data from 2006-07				Calendar data from 2013			
	Women ages 15-43 at time of survey				Women ages 15-43 in January 2001				Women ages 15-43 at time of survey				Women ages 15-43 in January 2008			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	61.8	1.2	59.3	64.2	76.1	0.8	74.5	77.6	53.1	0.7	51.7	54.6	67.2	0.6	65.9	68.4
Pill	6.0	0.4	5.2	6.8	3.6	0.3	3.0	4.2	5.6	0.3	5.0	6.3	4.0	0.3	3.4	4.7
IUD	0.7	0.1	0.4	1.0	0.4	0.1	0.3	0.7	0.6	0.1	0.4	0.8	0.4	0.1	0.3	0.7
Injections	17.9	0.9	16.3	19.7	8.1	0.5	7.3	9.1	18.3	0.6	17.2	19.5	12.4	0.5	11.4	13.4
Male Condom	9.4	0.6	8.3	10.7	7.4	0.5	6.5	8.3	17.7	0.6	16.5	19.0	13.3	0.5	12.3	14.4
Sterilization	3.4	0.3	2.8	4.1	3.8	0.3	3.2	4.4	3.3	0.3	2.8	3.9	2.1	0.2	1.8	2.6
Periodic Abstinence	0.1	0.0	0.0	0.2	0.2	0.1	0.1	0.4	0.3	0.1	0.2	0.5	0.0	0.0	0.0	0.1
Withdrawal	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.4	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.2
Implant					0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.3	0.0	0.0	0.0	0.1
Other Traditional Methods	0.5	0.1	0.4	0.8	0.2	0.1	0.1	0.4	0.5	0.1	0.4	0.7	0.1	0.0	0.0	0.2
Other Modern Methods	0.1	0.1	0.0	0.3	0.2	0.1	0.1	0.3	0.4	0.1	0.3	0.6	0.3	0.1	0.2	0.5
Any Method	38.2	1.2	35.8	40.7	23.9	0.8	22.4	25.5	46.9	0.7	45.4	48.3	32.8	0.6	31.6	34.1
Any Modern Method	37.5	1.3	35.1	40.0	23.4	0.8	21.8	25.0	45.9	0.8	44.4	47.4	32.6	0.6	31.4	33.8
Any Traditional Method	0.7	0.1	0.5	1.0	0.5	0.1	0.3	0.8	0.9	0.1	0.7	1.2	0.2	0.1	0.1	0.3
N	6,244				7,162				8,960				6,994			

Appendix Table 7. Comparison of calendar and current status data for Rwanda 2005, 2007-08, and 2010 surveys

	Current-status data from 2005				Calendar data from 2010				Current-status data from 2007-08				Calendar data from 2010			
	Women ages 15-43 at time of survey				Women ages 15-43 in May 2005				Women ages 15-43 at time of survey				Women ages 15-43 in February 2008			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	90.5	0.3	89.8	91.2	94.7	0.3	94.1	95.3	75.6	0.9	73.7	77.4	85.4	0.4	84.6	86.2
Pill	1.3	0.1	1.1	1.7	0.9	0.1	0.7	1.1	3.7	0.3	3.1	4.3	2.2	0.2	1.9	2.5
IUD	0.1	0.0	0.1	0.2	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.2	0.0	0.1	0.2
Injections	2.4	0.2	2.1	2.8	2.3	0.2	1.9	2.6	9.4	0.5	8.4	10.4	8.1	0.3	7.5	8.7
Male Condom	0.9	0.1	0.7	1.1	0.3	0.1	0.2	0.4	1.5	0.2	1.2	1.9	0.7	0.1	0.5	0.9
Sterilization	0.2	0.0	0.1	0.3	0.2	0.0	0.2	0.3	0.5	0.1	0.3	0.6	0.3	0.1	0.2	0.4
Periodic Abstinence	2.3	0.2	2.0	2.6	0.6	0.1	0.5	0.8	6.0	0.6	4.8	7.4	0.9	0.1	0.7	1.1
Withdrawal	1.4	0.1	1.2	1.7	0.7	0.1	0.5	0.9	1.6	0.2	1.3	2.0	1.0	0.1	0.8	1.2
Implant	0.1	0.0	0.1	0.2	0.1	0.0	0.1	0.2	1.0	0.1	0.7	1.3	1.1	0.1	0.9	1.3
LAM	0.4	0.1	0.3	0.6	0.1	0.0	0.0	0.1	0.6	0.1	0.4	0.9	0.2	0.0	0.1	0.3
Other Traditional Methods					0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Other Modern Methods	0.2	0.0	0.1	0.3	0.1	0.0	0.0	0.2	0.2	0.1	0.1	0.4	0.2	0.0	0.1	0.3
Any Method	9.5	0.3	8.8	10.2	5.3	0.3	4.8	5.9	24.4	0.9	22.6	26.3	14.6	0.4	13.8	15.4
Any Modern Method	5.7	0.3	5.1	6.2	3.9	0.2	3.4	4.4	15.9	0.6	14.7	17.2	11.6	0.4	10.9	12.3
Any Traditional Method	3.7	0.2	3.3	4.1	1.3	0.1	1.1	1.5	7.6	0.7	6.3	9.0	1.9	0.1	1.6	2.2
N	10,220				10,326				6,564				11,149			

Appendix Table 8. Comparison of calendar and current status data for Tanzania 1999, 2004-05, and 2010 surveys

	Current-status data from 1999				Calendar data from 2004-05				Current-status data from 2004-05				Calendar data from 2010			
	Women ages 15-43 at time of survey				Women ages 15-43 in October 1999				Women ages 15-43 at time of survey				Women ages 15-43 in January 2005			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	77.0	1.3	74.3	79.5	85.4	0.6	84.2	86.6	77.3	0.6	76.1	78.5	80.8	0.7	79.4	82.1
Pill	5.0	0.7	3.8	6.5	3.5	0.3	3.0	4.1	4.9	0.3	4.4	5.5	4.1	0.3	3.6	4.7
IUD	0.4	0.1	0.2	0.8	0.2	0.1	0.1	0.4	0.1	0.0	0.1	0.3	0.2	0.1	0.1	0.4
Injections	5.6	0.6	4.5	6.8	4.5	0.3	3.8	5.2	7.2	0.4	6.4	8.1	7.5	0.4	6.7	8.4
Male Condom	3.8	0.6	2.7	5.2	0.8	0.1	0.6	1.1	3.3	0.3	2.8	3.8	1.8	0.2	1.4	2.3
Sterilization	1.1	0.3	0.6	1.9	1.3	0.2	1.0	1.7	1.4	0.2	1.1	1.7	1.4	0.2	1.1	1.8
Periodic Abstinence	2.3	0.4	1.7	3.1	1.4	0.2	1.0	1.8	1.8	0.2	1.5	2.3	1.9	0.2	1.6	2.4
Withdrawal	2.7	0.5	1.8	3.9	1.6	0.2	1.2	2.0	2.2	0.2	1.7	2.7	1.0	0.2	0.7	1.4
Implant	0.1	0.1	0.0	0.3	0.2	0.1	0.1	0.4	0.4	0.1	0.3	0.6	0.5	0.1	0.3	0.8
LAM	1.4	0.3	0.9	2.1	0.3	0.1	0.2	0.5	0.4	0.1	0.2	0.6	0.4	0.2	0.2	0.9
Other Traditional Methods	0.6	0.2	0.4	1.2	0.8	0.2	0.5	1.2	0.9	0.2	0.6	1.3	0.3	0.1	0.2	0.5
Other Modern Methods	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1				
Any Method	23.0	1.3	20.5	25.7	14.6	0.6	13.4	15.8	22.7	0.6	21.5	23.9	19.2	0.7	17.9	20.6
Any Modern Method	17.2	1.2	14.9	19.8	10.7	0.6	9.6	11.9	17.4	0.7	16.1	18.7	15.4	0.6	14.3	16.6
Any Traditional Method	5.6	0.6	4.5	7.0	3.7	0.3	3.1	4.4	4.9	0.4	4.2	5.7	3.3	0.3	2.8	3.9
N	3,682				7,896				9,422				7,810			

Appendix Table 9. Comparison of calendar and current status data for Uganda 2000-01, 2006, and 2011 surveys

	Current-status data from 2000-01				Calendar data from 2006				Current-status data from 2006				Calendar data from 2011			
	Women ages 15-43 at time of survey				Women ages 15-43 in January 2001				Women ages 15-43 at time of survey				Women ages 15-43 in July 2006			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	79.4	0.9	77.6	81.1	88.9	0.6	87.8	90.0	80.4	0.6	79.1	81.6	87.0	0.8	85.4	88.4
Pill	2.8	0.3	2.3	3.5	1.8	0.2	1.5	2.2	2.5	0.2	2.1	3.0	1.7	0.2	1.4	2.2
IUD	0.2	0.0	0.1	0.3	0.1	0.0	0.0	0.2	0.1	0.0	0.1	0.2	0.1	0.0	0.0	0.2
Injections	5.2	0.3	4.6	5.9	4.0	0.3	3.4	4.6	8.0	0.4	7.3	8.9	6.6	0.5	5.7	7.5
Male Condom	4.0	0.3	3.4	4.7	1.7	0.2	1.3	2.2	3.4	0.2	2.9	3.9	1.0	0.2	0.8	1.4
Sterilization	1.3	0.2	0.9	1.7	1.1	0.1	0.8	1.4	1.3	0.1	1.1	1.6	1.4	0.2	1.0	1.8
Periodic Abstinence	2.1	0.2	1.7	2.6	1.3	0.2	1.0	1.7	2.0	0.2	1.7	2.4	0.5	0.1	0.3	0.8
Withdrawal	0.9	0.1	0.6	1.1	0.7	0.1	0.5	1.0	1.4	0.2	1.1	1.7	1.1	0.2	0.8	1.6
Implant	0.2	0.1	0.1	0.4	0.1	0.0	0.0	0.2	0.3	0.1	0.2	0.5	0.3	0.1	0.1	0.4
LAM	3.2	0.3	2.6	4.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.2
Other Traditional Methods	0.7	0.1	0.5	0.9	0.3	0.1	0.2	0.4	0.6	0.1	0.4	0.9	0.1	0.0	0.0	0.2
Other Modern Methods	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2					0.2	0.1	0.1	0.4
Any Method	20.6	0.9	18.9	22.4	11.1	0.6	10.0	12.2	19.6	0.6	18.4	20.9	13.0	0.8	11.6	14.6
Any Modern Method	16.7	0.8	15.2	18.4	8.7	0.5	7.8	9.7	15.4	0.6	14.2	16.5	11.0	0.6	9.9	12.3
Any Traditional Method	3.6	0.3	3.1	4.2	2.3	0.2	1.9	2.8	4.0	0.3	3.5	4.6	1.7	0.3	1.2	2.4
N	6,755				6,269				7,813				6,457			

Appendix Table 10. Comparison of calendar and current status data for Zambia 2001-02, 2007, and 2013-14 surveys

	Current-status data from 2001-02				Calendar data from 2007				Current-status data from 2007				Calendar data from 2013-14			
	Women ages 15-43 at time of survey				Women ages 15-43 in February 2002				Women ages 15-43 at time of survey				Women ages 15-43 in January 2008			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	74.6	0.7	73.3	75.9	82.3	0.7	80.9	83.7	69.7	0.7	68.2	71.1	82.2	0.5	81.1	83.3
Pill	8.6	0.5	7.7	9.6	7.0	0.5	6.1	7.9	7.8	0.4	7.1	8.5	7.6	0.4	7.0	8.3
IUD	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.3
Injections	3.2	0.3	2.7	3.9	2.2	0.2	1.8	2.7	6.5	0.4	5.7	7.3	4.5	0.3	4.1	5.1
Male Condom	4.3	0.3	3.8	4.9	1.8	0.2	1.4	2.3	5.3	0.4	4.6	6.1	1.5	0.1	1.3	1.8
Sterilization	1.2	0.2	0.9	1.5	1.1	0.2	0.7	1.5	0.9	0.2	0.7	1.3	1.0	0.1	0.8	1.3
Periodic Abstinence	0.8	0.1	0.6	1.0	0.6	0.1	0.4	0.9	0.9	0.1	0.6	1.1	0.4	0.1	0.3	0.6
Withdrawal	3.4	0.3	2.9	3.9	2.3	0.3	1.8	2.9	3.6	0.4	2.9	4.4	1.5	0.2	1.2	1.8
Implant	0.2	0.1	0.1	0.5	0.2	0.1	0.1	0.4	0.3	0.1	0.2	0.5	0.6	0.1	0.4	0.8
LAM	1.8	0.2	1.5	2.2	1.9	0.2	1.5	2.5	4.3	0.3	3.7	5.1	0.1	0.0	0.1	0.3
Other Traditional Methods	1.7	0.2	1.4	2.1	0.6	0.1	0.4	0.9	0.7	0.1	0.5	0.9	0.2	0.0	0.1	0.3
Other Modern Methods	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.3
Any Method	25.4	0.7	24.1	26.7	17.7	0.7	16.3	19.1	30.3	0.7	28.9	31.8	17.8	0.5	16.8	18.9
Any Modern Method	19.3	0.7	18.0	20.6	14.0	0.6	12.8	15.3	24.9	0.6	23.6	26.1	15.1	0.5	14.2	16.1
Any Traditional Method	5.9	0.3	5.2	6.6	3.5	0.3	2.9	4.2	5.2	0.4	4.4	6.0	2.1	0.2	1.8	2.5
N	7,079				5,424				6,569				12,179			

Appendix Table 11. Comparison of calendar and current status data for Zimbabwe 1988, 1994, 1999, 2005-06, and 2010-11 surveys

	Current-status data from 1988				Calendar data from 1994				Current-status data from 1994				Calendar data from 1999				Current-status data from 1999				Calendar data from 2005-06				Current-status data from 2005-06				Calendar data from 2010-11			
	Women ages 15-43 at time of survey				Women ages 15-43 in January 1989				Women ages 15-43 at time of survey				Women ages 15-43 in September 1994				Women ages 15-43 at time of survey				Women ages 15-43 in January 2000				Women ages 15-43 at time of survey				Women ages 15-43 in October 2005			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	66.9	0.9	65.0	68.6	67.3	1.0	65.4	69.2	64.1	0.8	62.4	65.7	65.9	0.9	64.2	67.6	61.7	1.0	59.8	63.7	64.8	0.7	63.4	66.3	59.1	0.7	57.6	60.5	67.6	0.6	66.3	68.8
Pill	25.0	0.9	23.1	26.9	25.0	0.9	23.2	26.8	24.9	0.8	23.3	26.5	25.8	0.9	24.1	27.5	25.0	1.0	23.2	27.0	25.2	0.6	24.0	26.5	28.2	0.8	26.7	29.8	22.3	0.6	21.2	23.6
IUD	0.7	0.2	0.4	1.1	0.7	0.1	0.5	1.1	0.7	0.1	0.5	1.0	0.8	0.2	0.5	1.1	0.6	0.1	0.4	0.9	0.2	0.1	0.1	0.4	0.2	0.0	0.1	0.3	0.2	0.1	0.1	0.4
Injections	0.2	0.1	0.1	0.5	0.5	0.1	0.3	0.8	2.5	0.3	2.0	3.1	2.5	0.3	2.1	3.1	5.9	0.4	5.2	6.7	5.6	0.3	4.9	6.3	7.3	0.4	6.6	8.1	5.4	0.3	4.9	6.1
Male Condom	0.9	0.2	0.7	1.3	1.1	0.2	0.8	1.5	2.6	0.2	2.1	3.1	1.0	0.2	0.7	1.4	2.5	0.3	2.0	3.0	1.3	0.2	1.0	1.7	2.0	0.2	1.7	2.4	2.0	0.2	1.7	2.4
Sterilization	1.4	0.2	1.0	2.0	1.0	0.2	0.7	1.3	1.3	0.2	1.0	1.7	1.4	0.2	1.0	1.8	1.5	0.2	1.1	1.9	1.2	0.2	0.9	1.5	0.8	0.1	0.7	1.1	0.8	0.1	0.6	1.0
Periodic Abstinence	0.5	0.2	0.3	0.9	0.2	0.1	0.1	0.5	0.2	0.1	0.1	0.4	0.1	0.1	0.1	0.3	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.1	0.2	0.1	0.0	0.0	0.2
Withdrawal	3.2	0.4	2.6	4.0	3.1	0.3	2.5	3.8	2.5	0.3	2.0	3.2	1.7	0.3	1.3	2.3	1.4	0.2	1.0	2.0	0.8	0.1	0.6	1.0	0.7	0.1	0.5	0.9	0.5	0.1	0.4	0.8
Implant									0.1	0.1	0.0	0.3	0.1	0.0	0.0	0.3	0.4	0.1	0.2	0.7	0.2	0.1	0.1	0.3	0.9	0.1	0.7	1.2	0.8	0.2	0.5	1.1
LAM													0.4	0.1	0.3	0.7	0.6	0.1	0.4	0.9	0.1	0.1	0.1	0.3	0.4	0.1	0.3	0.6	0.0	0.0	0.0	0.1
Other Traditional Methods	1.2	0.2	0.9	1.6	1.1	0.2	0.9	1.5	1.2	0.2	0.9	1.6	0.3	0.1	0.2	0.6	0.3	0.1	0.2	0.5	0.4	0.1	0.3	0.6	0.2	0.1	0.1	0.3	0.1	0.0	0.1	0.3
Other Modern Methods	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1					0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.3
Any Method	33.1	0.9	31.4	35.0	32.7	1.0	30.8	34.6	35.9	0.8	34.3	37.6	34.1	0.9	32.4	35.8	38.3	1.0	36.3	40.2	35.2	0.7	33.7	36.6	40.9	0.7	39.5	42.4	32.4	0.6	31.2	33.7
Any Modern Method	28.3	1.0	26.4	30.2	28.3	0.9	26.4	30.2	31.9	0.9	30.2	33.6	31.9	0.9	30.2	33.6	36.1	1.0	34.1	38.2	33.7	0.7	32.3	35.2	39.0	0.7	37.6	40.5	30.9	0.7	29.7	32.2
Any Traditional Method	4.9	0.4	4.1	5.8	4.4	0.3	3.8	5.2	3.9	0.4	3.3	4.7	2.1	0.3	1.6	2.7	1.8	0.3	1.3	2.4	1.2	0.1	1.0	1.6	1.0	0.1	0.8	1.3	0.7	0.1	0.5	1.0
N	3,871				4,451				5,637				4,400				5,471				6,438				8,210				7,083			

Appendix Table 12. Comparison of calendar and current status data for Benin 2006 and 2011-12 surveys

	Current-status data from 2006				Calendar data from 2011-12			
	Women ages 15-43 at time of survey				Women ages 15-43 in September 2006			
	%	SE	CI		%	SE	CI	
Not using	82.3	0.5	81.4	83.2	93.1	0.4	92.3	93.8
Pill	1.4	0.1	1.2	1.6	0.5	0.1	0.4	0.7
IUD	0.5	0.1	0.4	0.6	0.2	0.0	0.1	0.2
Injections	1.5	0.1	1.3	1.7	0.6	0.1	0.5	0.8
Male Condom	2.8	0.2	2.5	3.1	0.8	0.1	0.6	1.1
Sterilization	0.2	0.0	0.2	0.3	0.1	0.0	0.0	0.1
Periodic Abstinence	7.4	0.3	6.9	8.0	1.2	0.2	1.0	1.6
Withdrawal	2.9	0.2	2.6	3.3	0.3	0.1	0.2	0.4
Implant	0.5	0.1	0.4	0.6	0.2	0.0	0.1	0.3
LAM	0.2	0.0	0.1	0.3	0.0	0.0	0.0	0.1
Other Traditional Methods	0.2	0.0	0.1	0.3	0.2	0.0	0.2	0.3
Other Modern Methods	0.2	0.0	0.1	0.3	0.4	0.1	0.3	0.6
Missing/Unknown if Using					2.3	0.2	1.9	2.8
Any Method, Including Missing	17.7	0.5	16.8	18.6	6.9	0.4	6.2	7.7
Any Method, Excluding Missing					4.6	0.3	4.1	5.2
Any Modern Method	6.7	0.3	6.2	7.2	2.7	0.2	2.3	3.1
Any Traditional Method	10.5	0.4	9.9	11.3	1.7	0.2	1.4	2.1
N	16,217				13,346			

Appendix Table 13. Comparison of calendar and current status data for Ghana 2003 and 2008 surveys

	Current-status data from 2003				Calendar data from 2008			
	Women ages 15-43 at time of survey				Women ages 15-43 in September 2003			
	%	SE	CI		%	SE	CI	
Not using	78.9	0.8	77.3	80.4	88.3	0.6	87.0	89.5
Pill	4.3	0.4	3.6	5.1	2.2	0.3	1.7	2.9
IUD	0.6	0.1	0.4	0.9	0.3	0.1	0.2	0.6
Injections	3.7	0.3	3.2	4.4	2.4	0.3	1.9	3.1
Male Condom	4.8	0.4	4.1	5.6	1.7	0.2	1.3	2.2
Sterilization	0.9	0.2	0.6	1.2	0.7	0.1	0.5	1.0
Periodic Abstinence	4.2	0.4	3.5	5.1	3.0	0.3	2.4	3.7
Withdrawal	0.8	0.1	0.6	1.1	0.8	0.2	0.5	1.1
Implant	0.6	0.1	0.4	0.9	0.3	0.1	0.1	0.7
LAM	0.2	0.1	0.1	0.4				
Other Traditional Methods	0.5	0.1	0.3	0.8	0.2	0.1	0.1	0.4
Other Modern Methods	0.5	0.1	0.3	0.8	0.1	0.1	0.0	0.3
Any Method	21.1	0.8	19.6	22.7	11.7	0.6	10.5	13.0
Any Modern Method	15.0	0.7	13.7	16.3	7.5	0.5	6.5	8.6
Any Traditional Method	5.5	0.5	4.7	6.5	3.9	0.4	3.3	4.7
N	5,136				3,829			

Appendix Table 14. Comparison of calendar and current status data for Mali 2006 and 2012-13 surveys

	Current-status data from 2006				Calendar data from 2012-13			
	Women ages 15-43 at time of survey				Women ages 15-43 in January 2007			
	%	SE	CI		%	SE	CI	
Not using	92.2	0.5	91.2	93.1	98.5	0.2	98.2	98.8
Pill	2.7	0.2	2.3	3.2	0.4	0.1	0.3	0.6
IUD	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1
Injections	2.3	0.2	2.0	2.7	0.5	0.1	0.3	0.8
Male Condom	0.5	0.1	0.4	0.7	0.0	0.0	0.0	0.1
Sterilization	0.2	0.1	0.1	0.3	0.0	0.0	0.0	0.1
Periodic Abstinence	0.7	0.1	0.5	1.0				
Withdrawal	0.0	0.0	0.0	0.1				
Implant	0.1	0.0	0.1	0.2	0.1	0.0	0.1	0.2
LAM	0.5	0.1	0.4	0.7	0.0	0.0	0.0	0.1
Other Traditional Methods	0.5	0.1	0.4	0.7	0.1	0.0	0.0	0.2
Other Modern Methods	0.1	0.0	0.0	0.2				
Missing/Unknown if Using					0.2	0.1	0.1	0.3
Any Method, Including Missing	7.8	0.5	6.9	8.8	1.5	0.2	1.2	1.8
Any Method, Excluding Missing					1.2	0.2	1.0	1.6
Any Modern Method	6.4	0.4	5.6	7.2	1.0	0.2	0.8	1.4
Any Traditional Method	1.3	0.2	1.0	1.7	0.1	0.0	0.0	0.2
N	13,276				7,932			

Appendix Table 15. Comparison of calendar and current status data for Nigeria 2003, 2008, and 2013 surveys

	Current-status data from 2003				Calendar data from 2008				Current-status data from 2008				Calendar data from 2013			
	Women ages 15-43 at time of survey				Women ages 15-43 in May 2003				Women ages 15-43 at time of survey				Women ages 15-43 in August 2008			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	86.3	0.7	84.7	87.7	92.0	0.3	91.3	92.6	84.1	0.4	83.2	84.9	91.9	0.3	91.3	92.6
Pill	2.1	0.2	1.6	2.6	0.8	0.1	0.6	0.9	1.6	0.1	1.4	1.8	1.1	0.1	0.9	1.2
IUD	0.6	0.1	0.4	0.8	0.5	0.1	0.4	0.6	0.6	0.1	0.5	0.7	0.5	0.1	0.4	0.6
Injections	1.6	0.2	1.2	2.0	0.9	0.1	0.8	1.0	2.0	0.1	1.8	2.2	1.2	0.1	1.0	1.4
Male Condom	3.6	0.3	3.0	4.4	1.9	0.1	1.7	2.2	5.1	0.2	4.7	5.5	1.9	0.1	1.6	2.1
Sterilization	0.1	0.0	0.1	0.2	0.2	0.0	0.1	0.3	0.2	0.0	0.1	0.3	0.2	0.0	0.1	0.3
Periodic Abstinence	2.3	0.3	1.7	3.0	1.6	0.1	1.4	1.8	2.1	0.1	1.9	2.4	1.4	0.1	1.2	1.7
Withdrawal	1.3	0.2	0.9	1.7	1.0	0.1	0.8	1.2	1.9	0.1	1.6	2.1	1.0	0.1	0.8	1.2
Implant	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1
LAM	1.1	0.2	0.8	1.4	0.4	0.1	0.4	0.6	1.2	0.1	1.0	1.4	0.2	0.0	0.2	0.3
Other Traditional Methods	1.0	0.2	0.7	1.3	0.7	0.1	0.6	0.9	1.2	0.1	1.0	1.4	0.3	0.0	0.2	0.4
Other Modern Methods	0.2	0.1	0.1	0.4	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.3	0.0	0.2	0.3
Any Method	13.7	0.7	12.4	15.3	8.0	0.3	7.4	8.7	15.9	0.4	15.1	16.8	8.1	0.3	7.4	8.7
Any Modern Method	9.2	0.5	8.3	10.2	4.7	0.2	4.3	5.1	10.8	0.3	10.2	11.4	5.3	0.2	4.9	5.8
Any Traditional Method	4.5	0.5	3.7	5.5	3.3	0.2	2.9	3.8	5.1	0.2	4.7	5.6	2.7	0.2	2.4	3.0
N	6,976				25,992				30,178				30,499			

Appendix Table 16. Comparison of calendar and current status data for Niger 2006 and 2012 surveys

	Current-status data from 2006				Calendar data from 2012			
	Women ages 15-43 at time of survey				Women ages 15-43 in January 2007			
	%	SE	CI		%	SE	CI	
Not using	89.9	0.6	88.6	91.1	95.5	0.3	94.8	96.1
Pill	2.8	0.3	2.3	3.3	2.0	0.2	1.7	2.4
IUD	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.2
Injections	1.3	0.2	1.0	1.7	0.7	0.1	0.5	1.0
Male Condom	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.1
Sterilization	0.2	0.0	0.1	0.3	0.1	0.0	0.0	0.1
Periodic Abstinence	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.1
Withdrawal	0.0	0.0	0.0	0.1				
Implant	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
LAM	4.2	0.5	3.3	5.4	1.1	0.2	0.8	1.4
Other Traditional Methods	1.3	0.2	1.0	1.7	0.5	0.1	0.3	0.7
Other Modern Methods	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Any Method	10.1	0.6	8.9	11.4	4.5	0.3	3.9	5.2
Any Modern Method	8.7	0.6	7.6	9.8	3.9	0.3	3.4	4.6
Any Traditional Method	1.4	0.2	1.1	1.8	0.5	0.1	0.4	0.7
N	8,498				9,003			

Appendix Table 17. Comparison of calendar and current status data for Sierra Leone 2008 and 2013 surveys

	Current-status data from 2008				Calendar data from 2013			
	Women ages 15-43 at time of survey				Women ages 15-43 in May 2008			
	%	SE	CI		%	SE	CI	
Not using	89.5	0.6	88.3	90.6	94.6	0.6	93.2	95.7
Pill	3.1	0.3	2.7	3.7	1.8	0.3	1.3	2.5
IUD	0.3	0.1	0.2	0.5	0.1	0.0	0.1	0.3
Injections	3.2	0.3	2.6	3.9	1.7	0.2	1.4	2.1
Male Condom	1.2	0.1	0.9	1.5	0.5	0.2	0.3	0.9
Sterilization	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.4
Periodic Abstinence	0.6	0.1	0.4	0.9	0.1	0.1	0.1	0.3
Withdrawal	0.2	0.1	0.1	0.3	0.1	0.0	0.0	0.2
Implant					0.2	0.1	0.1	0.5
LAM	0.6	0.1	0.4	0.9	0.2	0.1	0.1	0.4
Other Traditional Methods	1.2	0.2	0.9	1.7	0.4	0.1	0.3	0.6
Other Modern Methods					0.0	0.0	0.0	0.1
Any Method	10.5	0.6	9.4	11.7	5.4	0.6	4.3	6.8
Any Modern Method	8.5	0.5	7.6	9.6	4.6	0.5	3.7	5.7
Any Traditional Method	2.0	0.2	1.6	2.5	0.6	0.1	0.4	0.9
N	6,774				12,414			

Appendix Table 18. Comparison of calendar and current status data for Senegal 2005, 2010-11, 2012-13, and 2014 surveys

	Current-status data from 2005				Calendar data from 2010-11				Current-status data from 2010-11				Calendar data from 2012-13				Current-status data from 2010-11				Calendar data from 2014				Current-status data from 2012-13				Calendar data from 2014			
	Women ages 15-43 at time of survey				Women ages 15-43 in April 2005				Women ages 15-43 at time of survey				Women ages 15-43 in January 2011				Women ages 15-43 at time of survey				Women ages 15-43 in January 2011				Women ages 15-43 at time of survey				Women ages 15-43 in March 2013			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	91.6	0.4	90.8	92.3	96.2	0.3	95.7	96.7	90.5	0.4	89.7	91.2	91.4	0.5	90.3	92.3	90.5	0.4	89.7	91.2	92.1	0.6	90.8	93.2	87.4	0.7	86.1	88.6	89.1	0.6	87.8	90.2
Pill	2.5	0.2	2.2	2.9	1.2	0.2	0.9	1.6	2.9	0.2	2.5	3.4	2.9	0.4	2.3	3.8	2.9	0.2	2.5	3.4	2.7	0.3	2.2	3.4	3.5	0.4	2.8	4.3	2.8	0.3	2.3	3.4
IUD	0.3	0.1	0.2	0.5	0.3	0.1	0.1	0.5	0.4	0.1	0.3	0.6	0.4	0.1	0.2	0.8	0.4	0.1	0.3	0.6	0.2	0.1	0.1	0.5	0.6	0.2	0.4	1.0	0.3	0.1	0.2	0.7
Injections	2.3	0.2	2.0	2.7	1.0	0.1	0.8	1.4	3.7	0.2	3.3	4.1	2.9	0.2	2.5	3.4	3.7	0.2	3.3	4.1	3.0	0.5	2.2	4.1	4.4	0.4	3.7	5.1	4.2	0.4	3.4	5.2
Male Condom	1.4	0.1	1.1	1.7	0.3	0.1	0.2	0.5	0.7	0.1	0.5	0.9	0.5	0.1	0.4	0.8	0.7	0.1	0.5	0.9	0.7	0.2	0.4	1.2	0.7	0.1	0.5	1.0	0.8	0.2	0.5	1.3
Sterilization	0.2	0.0	0.1	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.3	0.1	0.0	0.1	0.2	0.1	0.0	0.0	0.2	0.2	0.1	0.1	0.4	0.2	0.1	0.1	0.5
Periodic Abstinence	0.4	0.1	0.3	0.6	0.2	0.1	0.1	0.4	0.2	0.1	0.1	0.4					0.2	0.1	0.1	0.4	0.2	0.1	0.1	0.5	0.3	0.1	0.2	0.5	0.4	0.1	0.2	0.8
Withdrawal	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.3	0.1	0.0	0.1	0.3	0.3	0.1	0.2	0.6	0.1	0.0	0.1	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.1
Implant	0.4	0.1	0.3	0.5	0.3	0.1	0.2	0.5	0.9	0.1	0.7	1.2	0.8	0.1	0.6	1.2	0.9	0.1	0.7	1.2	0.7	0.1	0.5	1.0	2.0	0.3	1.5	2.8	1.8	0.2	1.4	2.3
LAM	0.2	0.1	0.1	0.4	0.1	0.0	0.1	0.3	0.1	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.3	0.0	0.0	0.0	0.1
Other Traditional Methods	0.5	0.1	0.4	0.7	0.1	0.0	0.1	0.2	0.3	0.1	0.2	0.5	0.4	0.1	0.3	0.6	0.3	0.1	0.2	0.5	0.2	0.1	0.1	0.4	0.7	0.1	0.5	1.0	0.3	0.1	0.2	0.4
Other Modern Methods	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1					0.1	0.0	0.0	0.2				
Any Method	8.4	0.4	7.7	9.2	3.8	0.3	3.3	4.3	9.5	0.4	8.8	10.3	8.6	0.5	7.7	9.7	9.5	0.4	8.8	10.3	7.9	0.6	6.8	9.2	12.6	0.7	11.4	13.9	10.9	0.6	9.8	12.1
Any Modern Method	7.1	0.4	6.4	7.8	3.0	0.2	2.6	3.5	7.9	0.3	7.3	8.6	7.0	0.5	6.2	8.0	7.9	0.3	7.3	8.6	6.8	0.5	5.8	7.9	9.5	0.6	8.3	10.8	8.4	0.6	7.3	9.5
Any Traditional Method	1.0	0.1	0.8	1.2	0.4	0.1	0.3	0.7	0.7	0.1	0.5	1.0	0.8	0.1	0.6	1.1	0.7	0.1	0.5	1.0	0.5	0.1	0.3	0.8	1.1	0.1	0.8	1.4	0.7	0.1	0.5	1.1
N	13,376				11,606				14,525				7,420				14,525				7,014				7,950				7,499			

Appendix Table 19. Comparison of calendar and current status data for Armenia 2000, 2005, and 2010 surveys

	Current-status data from 2000				Calendar data from 2005				Current-status data from 2005				Calendar data from 2010			
	Women ages 15-43 at time of survey				Women ages 15-43 in October 2000				Women ages 15-43 at time of survey				Women ages 15-43 in October 2005			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	59.9	0.8	58.4	61.4	65.9	1.0	63.8	67.9	65.9	0.9	64.1	67.6	67.7	1.0	65.7	69.6
Pill	0.8	0.1	0.6	1.1	0.9	0.2	0.6	1.2	0.6	0.1	0.4	0.8	0.7	0.1	0.4	1.0
IUD	6.3	0.4	5.6	7.2	5.0	0.4	4.4	5.8	6.5	0.5	5.6	7.4	5.8	0.4	5.0	6.8
Injections	0.0	0.0	0.0	0.2									0.1	0.0	0.0	0.3
Male Condom	4.9	0.3	4.2	5.6	5.0	0.4	4.2	5.9	5.9	0.5	5.1	6.8	8.1	0.8	6.6	9.9
Sterilization	1.4	0.2	1.1	1.7	0.4	0.1	0.2	0.7	0.3	0.1	0.2	0.6	0.2	0.1	0.1	0.5
Periodic Abstinence	2.9	0.2	2.5	3.5	2.4	0.3	1.9	3.0	2.1	0.3	1.7	2.7	1.3	0.2	1.0	1.7
Withdrawal	21.2	0.6	20.0	22.5	19.1	0.7	17.7	20.6	17.1	0.7	15.8	18.5	15.5	0.6	14.3	16.7
Implant	0.0	0.0	0.0	0.1												
LAM	1.4	0.2	1.1	1.9	0.0	0.0	0.0	0.2	0.3	0.1	0.2	0.5	0.1	0.0	0.0	0.2
Other Traditional Methods	0.8	0.1	0.6	1.2	1.2	0.2	0.9	1.5	1.2	0.2	0.9	1.7	0.3	0.1	0.2	0.6
Other Modern Methods	0.1	0.1	0.1	0.3	0.1	0.1	0.0	0.3	0.1	0.1	0.0	0.6	0.3	0.1	0.2	0.6
Any Method	40.1	0.8	38.6	41.6	34.1	1.0	32.1	36.2	34.1	0.9	32.4	35.9	32.3	1.0	30.4	34.3
Any Modern Method	15.0	0.6	13.9	16.2	11.5	0.6	10.3	12.8	13.7	0.6	12.5	14.9	15.2	0.9	13.6	17.0
Any Traditional Method	25.0	0.7	23.7	26.3	22.7	0.8	21.1	24.4	20.5	0.8	19.0	22.0	17.1	0.6	15.9	18.4
N	5,437				5,300				5,404				4,905			

Appendix Table 20. Comparison of calendar and current status data for currently married women for Egypt 1988, 1992, 1995, 2000, 2003, 2005, 2008, and 2014 surveys

	Current-status data from 1988				Calendar data from 1992				Current-status data from 1992				Calendar data from 1995				Current-status data from 1995				Calendar data from 2000			
	Women ages 15-43 at time of survey				Women ages 15-43 in November 1988				Women ages 15-43 at time of survey				Women ages 15-43 in November 1992				Women ages 15-43 at time of survey				Women ages 15-43 in November 1995			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	60.7	1.1	58.5	62.9	61.6	0.9	59.7	63.4	51.7	1.0	49.7	53.6	52.9	0.8	51.3	54.5	50.3	0.8	48.8	51.8	49.1	0.7	47.8	50.4
Pill	15.9	0.6	14.8	17.2	14.8	0.5	13.8	15.9	13.6	0.5	12.6	14.6	13.2	0.4	12.4	14.1	10.8	0.4	10.0	11.6	11.4	0.4	10.6	12.2
IUD	16.8	0.7	15.4	18.3	17.9	0.7	16.5	19.4	29.4	0.8	27.9	31.0	28.9	0.8	27.4	30.5	31.8	0.7	30.4	33.3	33.4	0.6	32.2	34.6
Injections	0.1	0.0	0.0	0.2	0.3	0.1	0.2	0.4	0.5	0.1	0.3	0.7	0.7	0.1	0.5	1.0	2.6	0.2	2.2	3.0	2.4	0.2	2.1	2.7
Male Condom	2.5	0.2	2.1	3.0	1.8	0.2	1.5	2.3	1.7	0.2	1.4	2.1	1.2	0.1	0.9	1.4	1.3	0.1	1.0	1.6	0.8	0.1	0.6	1.0
Sterilization	1.2	0.1	1.0	1.5	0.8	0.1	0.6	1.1	0.8	0.1	0.6	1.1	0.8	0.1	0.6	1.0	0.9	0.1	0.7	1.2	1.0	0.1	0.8	1.2
Periodic Abstinence	0.5	0.1	0.4	0.8	0.8	0.1	0.6	1.0	0.6	0.1	0.4	0.8	0.6	0.1	0.4	0.8	0.6	0.1	0.5	0.8	0.5	0.1	0.4	0.7
Withdrawal	0.4	0.1	0.3	0.6	0.5	0.1	0.3	0.7	0.5	0.1	0.4	0.7	0.3	0.1	0.2	0.5	0.4	0.1	0.3	0.6	0.1	0.0	0.0	0.2
Implant					0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
Other Traditional Methods	1.4	0.2	1.1	1.7	1.3	0.2	0.9	1.7	1.0	0.2	0.7	1.4	1.2	0.1	0.9	1.5	1.2	0.1	0.9	1.5	1.2	0.1	1.0	1.5
Other Modern Methods	0.4	0.1	0.2	0.5	0.3	0.1	0.2	0.5	0.3	0.1	0.2	0.5	0.1	0.0	0.1	0.3	0.1	0.0	0.1	0.3	0.1	0.0	0.1	0.2
Any Method	39.3	1.1	37.1	41.5	38.4	0.9	36.6	40.3	48.3	1.0	46.4	50.3	47.1	0.8	45.5	48.7	49.7	0.8	48.2	51.2	50.9	0.7	49.6	52.2
Any Modern Method	36.9	1.1	34.8	39.1	35.9	0.9	34.2	37.7	46.3	1.0	44.4	48.2	45.0	0.8	43.4	46.6	47.5	0.8	45.9	49.0	49.1	0.7	47.8	50.4
Any Traditional Method	2.3	0.2	2.0	2.8	2.5	0.2	2.1	3.0	2.0	0.2	1.7	2.5	2.1	0.2	1.8	2.5	2.2	0.2	1.9	2.6	1.8	0.1	1.6	2.1
N	7,260				7,619				8,051				11,387				11,881				11,432			

	Current-status data from 2000				Calendar data from 2003				Current-status data from 2000				Calendar data from 2005				Current-status data from 2003				Calendar data from 2005			
	Women ages 15-43 at time of survey				Women ages 15-43 in March 2000				Women ages 15-43 at time of survey				Women ages 15-43 in March 2000				Women ages 15-43 at time of survey				Women ages 15-43 in June 2003			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	41.9	0.6	40.6	43.1	39.8	0.7	38.4	41.3	41.9	0.6	40.6	43.1	44.5	0.6	43.3	45.7	38.3	0.7	36.9	39.7	40.0	0.6	38.9	41.2
Pill	9.9	0.4	9.3	10.7	10.6	0.4	9.7	11.5	9.9	0.4	9.3	10.7	9.6	0.3	9.0	10.3	9.7	0.4	8.9	10.5	10.0	0.3	9.5	10.6
IUD	37.4	0.6	36.2	38.6	39.1	0.8	37.5	40.7	37.4	0.6	36.2	38.6	36.0	0.7	34.8	37.3	38.1	0.8	36.6	39.7	37.8	0.6	36.5	39.0
Injections	6.3	0.3	5.8	6.9	5.7	0.3	5.1	6.4	6.3	0.3	5.8	6.9	5.6	0.3	5.2	6.2	8.1	0.4	7.4	8.9	7.1	0.3	6.6	7.7
Male Condom	0.8	0.1	0.7	1.0	0.5	0.1	0.4	0.7	0.8	0.1	0.7	1.0	0.7	0.1	0.6	0.9	0.8	0.1	0.6	1.1	0.7	0.1	0.5	0.9
Sterilization	1.0	0.1	0.9	1.3	0.7	0.1	0.5	1.0	1.0	0.1	0.9	1.3	0.9	0.1	0.7	1.1	0.6	0.1	0.4	0.8	0.9	0.1	0.8	1.1
Periodic Abstinence	0.5	0.1	0.4	0.7	0.5	0.1	0.3	0.7	0.5	0.1	0.4	0.7	0.5	0.1	0.4	0.7	0.6	0.1	0.4	0.9	0.6	0.1	0.4	0.8
Withdrawal	0.2	0.1	0.2	0.4	0.3	0.1	0.2	0.5	0.2	0.1	0.2	0.4	0.3	0.1	0.2	0.4	0.4	0.1	0.3	0.6	0.2	0.0	0.2	0.4
Implant	0.3	0.1	0.2	0.4	0.3	0.1	0.1	0.5	0.3	0.1	0.2	0.4	0.4	0.1	0.3	0.5	0.9	0.1	0.7	1.3	0.7	0.1	0.6	0.9
Other Traditional Methods	1.5	0.1	1.3	1.8	2.5	0.2	2.1	3.0	1.5	0.1	1.3	1.8	1.4	0.1	1.2	1.7	2.5	0.2	2.1	3.0	1.8	0.1	1.5	2.0
Other Modern Methods	0.1	0.0	0.1	0.2					0.1	0.0	0.1	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.1
Any Method	58.1	0.6	56.9	59.4	60.1	0.7	58.7	61.6	58.1	0.6	56.9	59.4	55.5	0.6	54.2	56.7	61.7	0.7	60.3	63.1	59.9	0.6	58.7	61.1
Any Modern Method	55.6	0.6	54.4	56.9	56.6	0.7	55.1	58.1	55.6	0.6	54.4	56.9	53.0	0.6	51.7	54.2	57.3	0.7	55.8	58.7	56.6	0.6	55.4	57.8
Any Traditional Method	2.2	0.2	2.0	2.6	3.3	0.3	2.8	3.8	2.2	0.2	2.0	2.6	2.2	0.2	1.9	2.5	3.5	0.2	3.0	4.0	2.6	0.2	2.3	2.9
N	12,239				6,866				12,239				13,913				7,225				14,962			

(Continued…)

Appendix Table 20. – *Continued*

	Current-status data from 2003				Calendar data from 2008				Current-status data from 2005				Calendar data from 2008				Current-status data from 2008				Calendar data from 2014			
	Women ages 15-43 at time of survey				Women ages 15-43 in June 2003				Women ages 15-43 at time of survey				Women ages 15-43 in May 2005				Women ages 15-43 at time of survey				Women ages 15-43 in January 2009			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	38.3	0.7	36.9	39.7	38.7	0.5	37.7	39.8	39.4	0.6	38.2	40.5	37.2	0.5	36.2	38.2	38.8	0.5	37.8	39.8	41.7	0.5	40.7	42.8
Pill	9.7	0.4	8.9	10.5	10.3	0.3	9.7	11.0	10.3	0.3	9.7	11.0	10.9	0.3	10.2	11.6	12.5	0.3	11.8	13.2	13.6	0.4	12.9	14.3
IUD	38.1	0.8	36.6	39.7	39.7	0.6	38.6	40.8	37.6	0.6	36.3	38.8	39.7	0.6	38.6	40.9	36.4	0.6	35.3	37.5	33.6	0.6	32.5	34.6
Injections	8.1	0.4	7.4	8.9	7.8	0.3	7.2	8.5	7.4	0.3	6.9	8.0	7.9	0.3	7.2	8.5	7.7	0.3	7.1	8.3	8.8	0.3	8.2	9.5
Male Condom	0.8	0.1	0.6	1.1	0.5	0.1	0.3	0.6	0.8	0.1	0.7	1.0	0.5	0.1	0.3	0.6	0.6	0.1	0.4	0.8	0.3	0.1	0.2	0.4
Sterilization	0.6	0.1	0.4	0.8	0.8	0.1	0.6	1.0	0.9	0.1	0.7	1.1	0.7	0.1	0.5	0.8	0.8	0.1	0.6	0.9	0.8	0.1	0.6	1.0
Periodic Abstinence	0.6	0.1	0.4	0.9	0.4	0.1	0.3	0.5	0.6	0.1	0.5	0.8	0.4	0.1	0.3	0.6	0.4	0.1	0.3	0.5	0.3	0.1	0.2	0.4
Withdrawal	0.4	0.1	0.3	0.6	0.1	0.0	0.1	0.2	0.3	0.0	0.2	0.4	0.2	0.0	0.1	0.3	0.2	0.0	0.1	0.3	0.2	0.0	0.1	0.3
Implant	0.9	0.1	0.7	1.3	0.7	0.1	0.5	0.9	0.8	0.1	0.7	1.0	0.8	0.1	0.7	1.0	0.5	0.1	0.4	0.6	0.5	0.1	0.4	0.7
Other Traditional Methods	2.5	0.2	2.1	3.0	1.0	0.1	0.8	1.2	1.9	0.2	1.6	2.2	1.8	0.1	1.6	2.1	0.0	0.0	0.0	0.1	0.2	0.0	0.1	0.3
Other Modern Methods	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1					2.3	0.1	2.0	2.6	0.0	0.0	0.0	0.1
Any Method	61.7	0.7	60.3	63.1	61.3	0.5	60.2	62.3	60.6	0.6	59.5	61.8	62.8	0.5	61.8	63.8	61.2	0.5	60.2	62.2	58.3	0.5	57.2	59.3
Any Modern Method	57.3	0.7	55.8	58.7	59.1	0.5	58.0	60.1	57.0	0.6	55.8	58.2	59.6	0.5	58.5	60.6	60.1	0.5	59.1	61.2	57.1	0.6	56.0	58.1
Any Traditional Method	3.5	0.2	3.0	4.0	1.5	0.1	1.3	1.8	2.8	0.2	2.4	3.1	2.4	0.2	2.1	2.8	0.6	0.1	0.5	0.8	0.6	0.1	0.5	0.8
N	7,225				11,657				15,582				12,116				13,206				15,524			

Appendix Table 21. Comparison of calendar and current status data for ever-married women in Jordan 1997, 2002, 2007, 2009, and 2012 surveys

	Current-status data from 1997				Calendar data from 2002				Current-status data from 2002				Calendar data from 2007				Current-status data from 2007				Calendar data from 2009			
	Women ages 15-43 at time of survey				Women ages 15-43 in July 1997				Women ages 15-43 at time of survey				Women ages 15-43 in August 2002				Women ages 15-43 at time of survey				Women ages 15-43 in August 2007			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	48.7	0.8	47.1	50.4	51.0	1.0	49.1	52.9	45.4	0.9	43.7	47.2	52.7	0.9	50.9	54.6	44.7	0.9	43.0	46.3	46.7	0.9	44.9	48.4
Pill	6.8	0.4	6.0	7.6	7.9	0.5	7.0	8.9	7.8	0.5	6.9	8.8	8.0	0.5	7.1	9.0	8.9	0.5	8.0	9.9	8.4	0.5	7.5	9.5
IUD	23.4	0.7	22.2	24.7	23.0	0.9	21.3	24.8	23.5	0.9	21.8	25.3	21.1	0.7	19.7	22.6	21.7	0.7	20.4	23.0	21.9	0.8	20.4	23.4
Injections	0.8	0.1	0.6	1.1	0.5	0.1	0.3	0.8	0.9	0.2	0.7	1.3	0.8	0.1	0.5	1.1	0.7	0.1	0.5	1.0	0.6	0.1	0.4	0.8
Male Condom	2.5	0.2	2.0	3.0	1.8	0.3	1.4	2.4	3.4	0.3	2.9	4.0	2.5	0.3	2.1	3.2	5.6	0.4	4.9	6.4	4.1	0.4	3.5	4.9
Sterilization	2.9	0.3	2.4	3.5	2.0	0.2	1.6	2.5	1.8	0.2	1.4	2.3	2.4	0.3	2.0	3.0	2.1	0.2	1.7	2.7	1.6	0.2	1.2	2.1
Periodic Abstinence	4.4	0.3	3.7	5.1	4.4	0.4	3.7	5.2	4.8	0.4	4.1	5.6	3.2	0.3	2.6	3.9	3.7	0.3	3.2	4.4	3.5	0.4	2.9	4.3
Withdrawal	7.4	0.4	6.7	8.3	6.4	0.4	5.6	7.2	9.1	0.5	8.3	10.1	7.2	0.5	6.3	8.1	10.8	0.5	9.9	11.8	10.9	0.6	9.8	12.1
Implant	0.1	0.1	0.1	0.3	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0				
LAM					2.4	0.2	2.0	2.9	2.9	0.2	2.4	3.4	1.9	0.3	1.4	2.4	1.5	0.2	1.2	2.0	2.0	0.2	1.6	2.5
Other Traditional Methods	2.5	0.2	2.1	3.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1					0.0	0.0			0.4	0.1	0.2	0.6
Other Modern Methods	0.5	0.1	0.3	0.8	0.5	0.1	0.3	0.8	0.2	0.1	0.1	0.5	0.2	0.1	0.1	0.4	0.3	0.1	0.1	0.5	0.0	0.0	0.0	0.1
Any Method	51.3	0.8	49.6	52.9	49.0	1.0	47.1	50.9	54.6	0.9	52.8	56.3	47.3	0.9	45.4	49.1	55.4	0.9	53.7	57.0	53.3	0.9	51.6	55.1
Any Modern Method	36.8	0.8	35.3	38.4	38.2	0.9	36.4	40.0	40.6	0.9	38.8	42.3	36.9	0.9	35.2	38.6	40.8	0.8	39.2	42.5	38.6	0.9	36.8	40.4
Any Traditional Method	14.3	0.6	13.3	15.4	10.8	0.5	9.8	11.8	13.9	0.6	12.8	15.1	10.4	0.5	9.4	11.5	14.5	0.5	13.5	15.6	14.8	0.6	13.5	16.1
N	4,829				4,649				5,189				8,492				9,315				8,317			

	Current-status data from 2007				Calendar data from 2012				Current-status data from 2009				Calendar data from 2012			
	Women ages 15-43 at time of survey				Women ages 15-43 in August 2007				Women ages 15-43 at time of survey				Women ages 15-43 in November 2009			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	44.7	0.9	43.0	46.3	48.6	1.0	46.6	50.6	42.3	0.9	40.6	44.0	43.5	0.9	41.6	45.3
Pill	8.9	0.5	8.0	9.9	8.4	0.5	7.5	9.5	8.9	0.5	8.0	9.9	9.2	0.5	8.2	10.2
IUD	21.7	0.7	20.4	23.0	20.6	0.8	19.0	22.2	21.7	0.8	20.1	23.4	21.3	0.8	19.8	23.0
Injections	0.7	0.1	0.5	1.0	0.6	0.1	0.5	0.9	0.8	0.1	0.6	1.1	0.7	0.1	0.5	1.0
Male Condom	5.6	0.4	4.9	6.4	4.3	0.4	3.6	5.2	6.4	0.4	5.7	7.2	5.8	0.5	4.9	6.7
Sterilization	2.1	0.2	1.7	2.7	1.4	0.3	1.0	2.1	1.5	0.2	1.1	2.0	1.3	0.3	0.9	1.9
Periodic Abstinence	3.7	0.3	3.2	4.4	3.3	0.5	2.5	4.4	2.9	0.3	2.3	3.6	3.1	0.4	2.4	3.9
Withdrawal	10.8	0.5	9.9	11.8	9.9	0.5	8.9	11.0	13.3	0.6	12.1	14.6	11.9	0.6	10.7	13.1
Implant	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.1
LAM	1.5	0.2	1.2	2.0	1.9	0.2	1.5	2.5	1.7	0.2	1.3	2.1	1.7	0.2	1.3	2.1
Other Traditional Methods	0.0	0.0			0.7	0.2	0.5	1.1	0.4	0.1	0.2	0.7	1.5	0.2	1.2	2.0
Other Modern Methods	0.3	0.1	0.1	0.5	0.1	0.1	0.0	0.3	0.1	0.1	0.0	0.4	0.1	0.1	0.1	0.4
Any Method	55.4	0.9	53.7	57.0	51.4	1.0	49.4	53.4	57.7	0.9	56.0	59.4	56.5	0.9	54.7	58.4
Any Modern Method	40.8	0.8	39.2	42.5	37.4	0.9	35.7	39.2	41.1	0.9	39.2	42.9	40.1	0.8	38.6	41.6
Any Traditional Method	14.5	0.5	13.5	15.6	14.0	0.7	12.7	15.3	16.6	0.8	15.1	18.1	16.4	0.7	15.1	17.8
N	9,315				8,810				8,523				9,185			

Appendix Table 22. Comparison of calendar and current status data for Kazakhstan 1995 and 1999 surveys

	Current-status data from 1995				Calendar data from 1999			
	Women ages 15-43 at time of survey				Women ages 15-43 in July 1995			
	%	SE	CI		%	SE	CI	
Not using	55.5	1.2	53.2	57.8	50.8	1.1	48.8	52.9
Pill	1.7	0.3	1.2	2.2	2.0	0.4	1.4	2.9
IUD	29.1	0.9	27.3	31.0	33.6	0.9	31.9	35.3
Injections	0.2	0.1	0.1	0.5	0.0	0.0	0.0	0.2
Male Condom	3.5	0.4	2.8	4.4	3.6	0.4	3.0	4.5
Sterilization	0.5	0.1	0.3	0.8	1.5	0.3	1.1	2.1
Periodic Abstinence	4.9	0.5	4.0	6.0	3.4	0.4	2.8	4.2
Withdrawal	2.5	0.5	1.7	3.6	1.3	0.2	1.0	1.9
Other Traditional Methods	2.1	0.3	1.6	2.8	2.5	0.3	2.0	3.1
Other Modern Methods	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.3
Any Method	44.5	1.2	42.2	46.8	48.1	1.1	46.0	50.3
Any Modern Method	35.0	1.0	33.2	37.0	40.9	1.0	39.0	42.8
Any Traditional Method	9.4	0.9	7.8	11.3	7.2	0.5	6.3	8.3
N	3,322				3,972			

Appendix Table 23. Comparison of calendar and current status data for ever-married women in Morocco 1987 and 1992 surveys

	Current-status data from 1987				Calendar data from 1992			
	Women ages 15-43 at time of survey				Women ages 15-43 in June 1987			
	%	SE	CI		%	SE	CI	
Not using	66.5	1.3	64.0	68.9	70.3	1.2	67.9	72.7
Pill	22.2	1.0	20.3	24.2	20.0	1.0	18.1	22.0
IUD	2.6	0.3	2.1	3.2	2.6	0.3	2.1	3.3
Injections	0.3	0.1	0.1	0.5	0.1	0.1	0.1	0.3
Male Condom	0.5	0.1	0.3	0.7	0.4	0.1	0.2	0.7
Sterilization	1.6	0.2	1.3	2.0	1.8	0.2	1.4	2.2
Periodic Abstinence	2.0	0.3	1.6	2.6	2.5	0.3	2.0	3.2
Withdrawal	2.9	0.4	2.2	3.7	1.8	0.3	1.3	2.4
Other Traditional Methods	1.2	0.2	0.9	1.5	0.4	0.1	0.2	0.6
Other Modern Methods	0.1	0.0	0.1	0.3	0.1	0.1	0.0	0.3
Any Method	33.4	1.3	31.0	35.9	29.7	1.2	27.3	32.1
Any Modern Method	27.3	1.1	25.2	29.6	25.0	1.1	23.0	27.2
Any Traditional Method	6.1	0.5	5.2	7.1	4.6	0.4	3.8	5.6
N	5,094				4,413			

Appendix Table 24. Comparison of calendar and current status data for currently married women for Turkey 1993, 1998, and 2003 surveys

	Current-status data from 1993				Calendar data from 1998				Current-status data from 1998				Calendar data from 2003			
	Women ages 15-43 at time of survey				Women ages 15-43 in September 1993				Women ages 15-43 at time of survey				Women ages 15-43 in September 1998			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	34.9	1.0	33.0	36.8	38.0	1.0	36.2	40.0	33.3	0.8	31.7	34.9	30.8	0.8	29.3	32.4
Pill	5.3	0.4	4.6	6.1	5.9	0.4	5.1	6.8	4.7	0.4	4.0	5.6	5.3	0.3	4.7	6.0
IUD	20.3	0.7	18.9	21.7	20.7	0.8	19.2	22.3	21.5	0.7	20.1	23.0	22.6	0.7	21.2	24.0
Injections	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.5	0.1	0.4	0.8	0.3	0.1	0.2	0.5
Male Condom	7.0	0.4	6.2	7.8	5.9	0.4	5.1	6.7	9.0	0.5	8.0	10.1	8.6	0.6	7.6	9.8
Sterilization	2.7	0.2	2.3	3.1	2.4	0.3	1.9	2.9	4.0	0.3	3.4	4.7	3.6	0.3	3.1	4.2
Periodic Abstinence	1.0	0.2	0.7	1.4	1.3	0.2	0.9	1.8	0.9	0.2	0.6	1.3	1.3	0.2	1.0	1.7
Withdrawal	26.9	0.8	25.3	28.5	24.8	0.8	23.2	26.4	25.0	0.8	23.4	26.6	25.7	0.7	24.2	27.1
LAM													0.8	0.1	0.6	1.1
Other Traditional Methods	0.7	0.1	0.5	1.0	0.6	0.1	0.4	0.9	0.5	0.1	0.3	0.8	0.4	0.1	0.3	0.7
Other Modern Methods	1.2	0.1	1.0	1.6	0.5	0.1	0.4	0.8	0.6	0.1	0.4	0.9	0.5	0.1	0.3	0.8
Any Method	65.1	1.0	63.2	67.0	62.0	1.0	60.0	63.8	66.7	0.8	65.1	68.3	69.2	0.8	67.6	70.7
Any Modern Method	36.5	0.8	34.9	38.2	35.4	1.0	33.5	37.3	40.4	0.9	38.5	42.2	41.7	0.9	40.0	43.5
Any Traditional Method	28.6	0.8	27.0	30.2	26.6	0.8	25.0	28.2	26.4	0.8	24.8	28.0	27.4	0.8	26.0	28.9
N	5,528				4,696				5,131				6,241			

Appendix Table 25. Comparison of calendar and current status data for ever-married women in Bangladesh 1993-94, 1996-97, 1999-00, 2004, 2007, and 2011 surveys

	Current-status data from 1993-94				Calendar data from 1996-97				Current-status data from 1993-94				Calendar data from 1999-00				Current-status data from 1996-97				Calendar data from 1999-00			
	Women ages 15-43 at time of survey				Women ages 15-43 in January 1994				Women ages 15-43 at time of survey				Women ages 15-43 in April 1994				Women ages 15-43 at time of survey				Women ages 15-43 in January 1997			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	56.4	0.8	54.9	58.0	59.8	0.8	58.2	61.3	56.4	0.8	54.9	58.0	59.2	0.9	57.5	61.0	52.0	0.9	50.3	53.7	56.8	0.8	55.2	58.4
Pill	17.4	0.6	16.3	18.6	17.6	0.6	16.5	18.7	17.4	0.6	16.3	18.6	18.0	0.7	16.8	19.4	21.0	0.7	19.8	22.4	19.5	0.6	18.3	20.7
IUD	2.2	0.2	1.9	2.7	1.7	0.2	1.3	2.1	2.2	0.2	1.9	2.7	1.5	0.2	1.2	1.9	1.7	0.2	1.4	2.1	1.5	0.2	1.2	1.8
Injections	4.5	0.3	3.9	5.2	3.7	0.3	3.2	4.3	4.5	0.3	3.9	5.2	4.1	0.3	3.5	4.8	6.3	0.4	5.6	7.0	5.3	0.3	4.7	6.0
Male Condom	3.0	0.2	2.6	3.4	2.3	0.2	1.9	2.8	3.0	0.2	2.6	3.4	2.4	0.2	2.0	2.8	3.8	0.3	3.3	4.4	2.6	0.2	2.3	3.1
Sterilization	8.8	0.5	7.9	9.7	8.9	0.5	8.0	10.0	8.8	0.5	7.9	9.7	7.9	0.5	7.1	8.9	7.8	0.5	7.0	8.8	6.9	0.4	6.1	7.7
Periodic Abstinence	4.4	0.3	3.9	5.0	4.3	0.3	3.8	4.8	4.4	0.3	3.9	5.0	4.1	0.3	3.6	4.7	4.7	0.3	4.1	5.3	4.1	0.2	3.6	4.6
Withdrawal	2.3	0.2	2.0	2.7	1.3	0.2	1.0	1.6	2.3	0.2	2.0	2.7	2.1	0.2	1.7	2.4	1.8	0.2	1.5	2.1	2.6	0.2	2.2	3.1
Implant					0.1	0.0	0.0	0.2					0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.2	0.1	0.0	0.1	0.3
LAM																								
Other Traditional Methods	0.9	0.1	0.8	1.2	0.5	0.1	0.3	0.6	0.9	0.1	0.8	1.2	0.5	0.1	0.4	0.7	0.7	0.1	0.5	1.0	0.6	0.1	0.4	0.8
Other Modern Methods																	0.0	0.0	0.0	0.1				
Any Method	43.6	0.8	42.0	45.1	40.2	0.8	38.7	41.8	43.6	0.8	42.0	45.1	40.7	0.9	39.0	42.5	48.0	0.9	46.3	49.7	43.1	0.8	41.6	44.8
Any Modern Method	35.9	0.8	34.4	37.4	34.2	0.8	32.7	35.7	35.9	0.8	34.4	37.4	34.0	0.9	32.3	35.7	40.7	0.8	39.1	42.4	35.7	0.8	34.3	37.3
Any Traditional Method	7.7	0.4	7.1	8.4	6.0	0.3	5.4	6.7	7.7	0.4	7.1	8.4	6.7	0.4	6.0	7.5	7.2	0.4	6.5	7.9	7.3	0.4	6.6	8.0
N	8,693				7,490				8,693				7,807				8,167				8,556			

	Current-status data from 1999-00				Calendar data from 2004				Current-status data from 2004				Calendar data from 2007				Current-status data from 2007				Calendar data from 2011			
	Women ages 15-43 at time of survey				Women ages 15-43 in January 2000				Women ages 15-43 at time of survey				Women ages 15-43 in March 2004				Women ages 15-43 at time of survey				Women ages 15-43 in June 2007			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	48.4	0.8	46.8	49.9	53.8	0.9	52.1	55.5	44.0	0.7	42.6	45.4	51.7	0.8	50.2	53.2	45.9	0.8	44.3	47.4	46.7	0.6	45.5	47.8
Pill	23.2	0.7	21.9	24.5	22.8	0.6	21.6	24.1	26.5	0.6	25.3	27.8	24.5	0.6	23.3	25.8	28.8	0.7	27.4	30.3	28.9	0.6	27.8	30.0
IUD	1.2	0.1	1.0	1.5	1.0	0.1	0.8	1.4	0.6	0.1	0.5	0.8	0.8	0.1	0.6	1.1	0.9	0.1	0.7	1.2	0.6	0.1	0.5	0.8
Injections	7.4	0.4	6.5	8.3	6.0	0.4	5.3	6.8	9.8	0.5	8.8	10.8	9.0	0.5	8.1	10.1	7.1	0.4	6.3	8.0	8.8	0.4	8.1	9.5
Male Condom	4.2	0.3	3.7	4.8	2.3	0.2	1.9	2.8	4.1	0.3	3.6	4.7	3.1	0.3	2.7	3.7	4.6	0.3	4.0	5.2	3.0	0.2	2.7	3.5
Sterilization	5.8	0.4	5.2	6.6	6.0	0.4	5.2	6.8	4.5	0.3	3.9	5.2	4.2	0.3	3.6	4.8	4.5	0.3	3.9	5.1	4.0	0.2	3.5	4.5
Periodic Abstinence	4.7	0.3	4.2	5.3	5.4	0.3	4.8	6.0	5.8	0.3	5.2	6.5	3.8	0.2	3.4	4.3	4.3	0.3	3.8	4.8	5.9	0.2	5.5	6.4
Withdrawal	3.8	0.2	3.4	4.3	1.8	0.2	1.5	2.2	3.2	0.2	2.8	3.6	1.6	0.2	1.3	2.0	2.7	0.2	2.4	3.2	1.2	0.1	1.0	1.5
Implant	0.5	0.1	0.3	0.6	0.5	0.1	0.3	0.8	0.8	0.1	0.6	1.1	0.8	0.1	0.6	1.1	0.8	0.1	0.6	1.0	0.7	0.1	0.5	0.9
LAM	0.0	0.0	0.0	0.1																				
Other Traditional Methods	0.8	0.1	0.6	1.0	0.3	0.1	0.2	0.5	0.6	0.1	0.4	0.8	0.3	0.1	0.2	0.5	0.5	0.1	0.3	0.7	0.2	0.0	0.1	0.3
Other Modern Methods																								
Any Method	51.7	0.8	50.1	53.2	46.2	0.9	44.5	47.9	56.0	0.7	54.6	57.4	48.3	0.8	46.8	49.8	54.2	0.8	52.6	55.7	53.3	0.6	52.2	54.5
Any Modern Method	41.9	0.8	40.3	43.5	38.1	0.8	36.5	39.8	45.5	0.7	44.1	47.0	41.7	0.8	40.2	43.2	45.9	0.8	44.4	47.4	45.3	0.6	44.2	46.5
Any Traditional Method	9.3	0.4	8.5	10.2	7.5	0.4	6.8	8.3	9.6	0.4	8.9	10.4	5.8	0.3	5.2	6.4	7.5	0.4	6.8	8.2	7.4	0.3	6.8	7.9
N	9,291				8,975				10,029				8,902				9,735				14,254			

Appendix Table 26. Comparison of calendar and current status data for Cambodia 2005 and 2010 surveys

	Current-status data from 2005				Calendar data from 2010			
	Women ages 15-43 at time of survey				Women ages 15-43 in December 2005			
	%	SE	CI		%	SE	CI	
Not using	75.2	0.5	74.3	76.1	81.5	0.5	80.5	82.4
Pill	7.1	0.3	6.6	7.7	6.5	0.3	5.9	7.2
IUD	1.1	0.1	0.8	1.4	0.7	0.1	0.6	0.9
Injections	5.0	0.3	4.5	5.6	3.8	0.2	3.3	4.3
Male Condom	1.9	0.1	1.6	2.1	0.7	0.1	0.5	0.9
Sterilization	0.9	0.1	0.7	1.1	0.7	0.1	0.5	0.9
Periodic Abstinence	2.6	0.2	2.3	2.9	1.6	0.2	1.3	1.9
Withdrawal	5.0	0.2	4.6	5.5	4.4	0.3	3.9	4.9
Implant	0.1	0.0	0.1	0.2	0.1	0.0	0.1	0.2
LAM	0.1	0.0	0.0	0.2				
Other Traditional Methods	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
Other Modern Methods	1.0	0.1	0.8	1.2	0.0	0.0	0.0	0.0
Any Method	24.8	0.5	23.9	25.7	18.5	0.5	17.6	19.4
Any Modern Method	17.0	0.4	16.2	17.9	12.4	0.4	11.6	13.2
Any Traditional Method	7.7	0.3	7.1	8.2	6.0	0.3	5.5	6.6
N	14,705				14,692			

Appendix Table 27. Comparison of calendar and current status data for ever-married women in Indonesia 1987, 1991, 1994, 1997, 2002, 2007, and 2012 surveys

	Current-status data from 1987				Calendar data from 1991				Current-status data from 1991				Calendar data from 1994				Current-status data from 1991				Calendar data from 1997				Current-status data from 1994			
	Women ages 15-43 at time of survey				Women ages 15-43 in October 1987				Women ages 15-43 at time of survey				Women ages 15-43 in June 1991				Women ages 15-43 at time of survey				Women ages 15-43 in January 1992				Women ages 15-43 at time of survey			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	52.5	1.1	50.3	54.7	60.7	0.7	59.3	62.2	50.7	0.8	49.2	52.2	55.1	0.7	53.6	56.5	50.7	0.8	49.2	52.2	54.9	0.7	53.5	56.3	46.0	0.7	44.6	47.4
Pill	16.5	0.8	14.9	18.2	12.8	0.5	11.9	13.8	14.9	0.5	13.9	16.0	14.3	0.5	13.4	15.4	14.9	0.5	13.9	16.0	13.5	0.5	12.5	14.5	17.2	0.6	16.1	18.4
IUD	12.8	0.9	11.1	14.8	11.8	0.6	10.7	13.1	12.8	0.6	11.7	14.1	10.8	0.5	9.8	11.9	12.8	0.6	11.7	14.1	9.6	0.5	8.7	10.6	9.4	0.5	8.5	10.4
Injections	9.7	0.6	8.6	10.9	8.7	0.4	8.0	9.5	12.3	0.5	11.4	13.2	10.8	0.5	9.8	11.7	12.3	0.5	11.4	13.2	13.3	0.5	12.4	14.2	15.8	0.5	14.7	16.8
Male Condom	1.5	0.2	1.2	1.9	0.8	0.1	0.6	1.0	0.8	0.1	0.6	0.9	0.7	0.1	0.5	0.9	0.8	0.1	0.6	0.9	0.4	0.1	0.3	0.5	0.8	0.1	0.7	1.0
Sterilization	2.8	0.3	2.3	3.5	2.3	0.2	2.0	2.7	2.9	0.2	2.5	3.3	2.8	0.2	2.4	3.3	2.9	0.2	2.5	3.3	2.7	0.2	2.3	3.1	3.2	0.2	2.8	3.7
Periodic Abstinence	1.2	0.1	0.9	1.4	0.9	0.1	0.7	1.2	1.0	0.1	0.9	1.3	1.0	0.1	0.9	1.2	1.0	0.1	0.9	1.3	1.0	0.1	0.8	1.2	1.0	0.1	0.8	1.2
Withdrawal	1.2	0.2	0.9	1.6	0.6	0.1	0.5	0.7	0.7	0.1	0.5	0.8	0.7	0.1	0.5	0.8	0.7	0.1	0.5	0.8	0.5	0.1	0.4	0.6	0.8	0.1	0.6	1.0
Implant	0.4	0.1	0.2	0.8	0.5	0.1	0.4	0.7	3.2	0.3	2.7	3.8	3.1	0.3	2.6	3.6	3.2	0.3	2.7	3.8	3.4	0.3	2.9	4.0	5.1	0.4	4.3	5.9
LAM																												
Other Traditional Methods	1.4	0.2	1.1	1.8	0.8	0.1	0.6	0.9	0.7	0.1	0.6	0.9	0.7	0.1	0.6	0.9	0.7	0.1	0.6	0.9	0.8	0.1	0.6	1.0	0.8	0.1	0.6	0.9
Other Modern Methods	0.0	0.0	0.0	0.0					0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Any Method	47.5	1.1	45.3	49.7	39.3	0.7	37.8	40.7	49.3	0.8	47.8	50.8	44.9	0.7	43.5	46.4	49.3	0.8	47.8	50.8	45.1	0.7	43.7	46.5	54.0	0.7	52.6	55.4
Any Modern Method	43.4	1.1	41.1	45.6	36.5	0.7	35.0	37.9	43.7	0.8	42.1	45.2	39.4	0.7	38.0	40.9	43.7	0.8	42.1	45.2	39.4	0.7	38.0	40.8	46.4	0.8	44.9	47.9
Any Traditional Method	3.7	0.3	3.3	4.3	2.3	0.2	2.0	2.6	2.4	0.2	2.1	2.7	2.4	0.2	2.1	2.7	2.4	0.2	2.1	2.7	2.3	0.2	2.0	2.6	2.5	0.2	2.2	2.8
N	10,153				18,728				19,816				23,466				19,816				22,007				24,564			

	Calendar data from 1997				Current-status data from 1997				Calendar data from 2002				Current-status data from 2002				Calendar data from 2007				Current-status data from 2007				Calendar data from 2012			
	Women ages 15-43 in August 1994				Women ages 15-43 at time of survey				Women ages 15-43 in October 1997				Women ages 15-43 at time of survey				Women ages 15-43 in December 2002				Women ages 15-43 at time of survey				Women ages 15-43 in August 2007			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	51.3	0.7	50.0	52.7	42.7	0.6	41.4	43.9	49.8	0.8	48.2	51.4	39.2	0.7	37.9	40.6	46.9	0.6	45.8	48.1	38.3	0.6	37.2	39.4	44.7	0.5	43.7	45.6
Pill	14.0	0.5	13.0	15.0	15.8	0.5	14.8	16.9	12.8	0.5	11.8	13.9	13.6	0.5	12.6	14.6	11.0	0.4	10.2	11.8	13.5	0.4	12.6	14.3	12.5	0.4	11.7	13.2
IUD	8.6	0.5	7.7	9.6	7.2	0.4	6.4	8.1	6.8	0.4	6.1	7.6	5.5	0.3	4.9	6.2	5.3	0.3	4.7	6.0	4.0	0.3	3.5	4.5	3.7	0.2	3.3	4.2
Injections	15.7	0.5	14.7	16.7	22.2	0.7	21.0	23.6	20.0	0.6	18.9	21.2	29.7	0.7	28.4	31.1	26.6	0.6	25.5	27.7	34.0	0.6	32.8	35.3	30.7	0.5	29.8	31.7
Male Condom	0.4	0.1	0.3	0.5	0.6	0.1	0.5	0.8	0.4	0.1	0.3	0.5	0.8	0.1	0.6	1.0	0.7	0.1	0.6	0.9	1.3	0.1	1.1	1.6	0.9	0.1	0.7	1.1
Sterilization	2.6	0.2	2.3	3.0	2.7	0.2	2.4	3.2	3.5	0.3	3.0	4.1	3.1	0.3	2.6	3.7	2.6	0.3	2.2	3.2	2.2	0.2	1.8	2.6	2.2	0.2	1.9	2.6
Periodic Abstinence	1.0	0.1	0.8	1.2	1.0	0.1	0.9	1.2	1.2	0.1	1.0	1.5	1.5	0.1	1.2	1.8	1.3	0.1	1.1	1.5	1.5	0.1	1.2	1.7	1.1	0.1	1.0	1.3
Withdrawal	0.6	0.1	0.5	0.8	0.8	0.1	0.6	1.0	1.1	0.2	0.8	1.5	1.5	0.2	1.1	1.9	1.4	0.1	1.2	1.6	2.0	0.1	1.7	2.2	1.7	0.1	1.5	2.0
Implant	4.9	0.4	4.2	5.8	6.2	0.4	5.4	7.1	3.8	0.3	3.2	4.4	4.5	0.4	3.7	5.4	3.8	0.3	3.3	4.4	2.9	0.2	2.5	3.4	2.2	0.2	1.9	2.5
LAM									0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
Other Traditional Methods	0.7	0.1	0.6	0.9	0.7	0.1	0.6	0.8	0.5	0.1	0.3	0.7	0.5	0.1	0.3	0.6	0.4	0.1	0.3	0.5	0.4	0.1	0.3	0.5	0.3	0.0	0.2	0.4
Other Modern Methods	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0									0.0	0.0	0.0	0.0
Any Method	48.7	0.7	47.3	50.0	57.3	0.6	56.1	58.6	50.2	0.8	48.6	51.8	60.8	0.7	59.4	62.1	53.1	0.6	51.9	54.2	61.7	0.6	60.6	62.8	55.3	0.5	54.4	56.3
Any Modern Method	41.3	0.7	39.9	42.8	48.7	0.8	47.2	50.1	43.6	0.9	41.9	45.3	52.9	0.8	51.4	54.4	46.3	0.6	45.0	47.5	55.0	0.6	53.9	56.1	50.0	0.5	49.0	51.0
Any Traditional Method	2.4	0.2	2.1	2.7	2.5	0.2	2.2	2.8	2.8	0.2	2.4	3.3	3.4	0.3	2.9	4.0	3.0	0.2	2.7	3.3	3.8	0.2	3.4	4.2	3.1	0.2	2.8	3.5
N	23,715				24,741				23,607				24,748				26,382				27,105				28,134			

Appendix Table 28. Comparison of calendar and current status data for ever-married women in Nepal 2001, 2006 and 2011 surveys

	Current-status data from 2001				Calendar data from 2006				Current-status data from 2006				Calendar data from 2011			
	Women ages 15-43 at time of survey				Women ages 15-43 in April 2001				Women ages 15-43 at time of survey				Women ages 15-43 in June 2006			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	62.1	1.2	59.7	64.5	62.3	1.6	59.1	65.3	53.3	2.0	49.3	57.2	57.5	1.3	55.0	60.0
Pill	1.7	0.2	1.3	2.2	2.8	0.4	2.0	3.8	3.7	0.4	2.9	4.6	3.2	0.3	2.6	4.0
IUD	0.4	0.1	0.3	0.6	0.4	0.1	0.2	0.8	0.7	0.1	0.5	0.9	0.7	0.1	0.5	1.1
Injections	8.8	0.6	7.7	10.0	9.1	0.8	7.7	10.8	10.4	0.8	9.0	12.0	9.3	0.5	8.3	10.4
Male Condom	3.1	0.3	2.6	3.7	1.8	0.2	1.4	2.2	5.1	0.4	4.3	6.0	2.7	0.3	2.2	3.3
Sterilization	19.2	1.0	17.4	21.2	20.3	1.4	17.7	23.2	22.5	1.8	19.2	26.2	21.1	1.1	18.9	23.3
Periodic Abstinence	1.1	0.1	0.9	1.5	0.7	0.1	0.5	1.0	1.0	0.2	0.7	1.4	0.9	0.1	0.6	1.2
Withdrawal	2.6	0.3	2.1	3.1	1.8	0.2	1.4	2.4	2.6	0.3	2.2	3.2	3.7	0.4	3.0	4.5
Implant	0.7	0.2	0.4	1.1	0.8	0.2	0.5	1.2	0.7	0.1	0.5	1.0	0.8	0.1	0.5	1.1
Other Traditional Methods	0.2	0.1	0.1	0.4	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1
Other Modern Methods	0.1	0.0	0.0	0.1									0.0	0.0	0.0	0.1
Any Method	37.9	1.2	35.5	40.3	37.7	1.6	34.7	40.9	46.7	2.0	42.8	50.7	42.5	1.3	40.0	45.0
Any Modern Method	33.3	1.2	31.1	35.6	34.4	1.6	31.3	37.7	42.3	2.1	38.3	46.4	37.1	1.2	34.7	39.5
Any Traditional Method	3.9	0.3	3.3	4.5	2.5	0.3	2.0	3.2	3.6	0.3	3.1	4.3	4.6	0.4	3.8	5.5
N	7,719				6,762				7,521				7,829			

Appendix Table 29. Comparison of calendar and current status data for ever-married women in Pakistan 2006-07 and 2012-13 surveys

	Current-status data from 2006-07				Calendar data from 2012-13			
	Women ages 15-43 at time of survey				Women ages 15-43 in January 2007			
	%	SE	CI		%	SE	CI	
Not using	72.1	0.7	70.7	73.5	78.7	0.9	76.9	80.3
Pill	2.1	0.2	1.8	2.4	1.0	0.1	0.7	1.2
IUD	2.3	0.2	2.0	2.7	1.7	0.2	1.3	2.1
Injections	2.3	0.2	2.0	2.8	1.5	0.2	1.2	1.9
Male Condom	7.0	0.4	6.3	7.8	5.5	0.4	4.7	6.3
Sterilization	6.6	0.3	5.9	7.3	6.5	0.4	5.7	7.3
Periodic Abstinence	3.3	0.3	2.7	4.0	0.2	0.1	0.1	0.4
Withdrawal	4.0	0.3	3.4	4.7	4.4	0.3	3.8	5.1
Implant	0.1	0.1	0.0	0.3	0.1	0.0	0.0	0.2
LAM					0.5	0.1	0.3	0.8
Other Traditional Methods	0.1	0.1	0.1	0.3	0.1	0.0	0.0	0.2
Other Modern Methods					0.0	0.0	0.0	0.1
Any Method	27.9	0.7	26.5	29.3	21.3	0.9	19.7	23.1
Any Modern Method	20.3	0.6	19.2	21.5	16.6	0.7	15.3	18.0
Any Traditional Method	7.4	0.4	6.7	8.3	4.7	0.3	4.1	5.4
N	8,598				9,931			

Appendix Table 30. Comparison of calendar and current status data for Philippines 1993, 1998, and 2003 surveys

	Current-status data from 1993				Calendar data from 1998				Current-status data from 1998				Calendar data from 2003			
	Women ages 15-43 at time of survey				Women ages 15-43 in May 1993				Women ages 15-43 at time of survey				Women ages 15-43 in March 1998			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	76.0	0.4	75.1	76.9	78.4	0.5	77.3	79.4	71.2	0.5	70.1	72.3	77.2	0.5	76.3	78.1
Pill	5.5	0.2	5.1	6.0	4.5	0.3	4.0	5.1	6.5	0.3	6.0	7.1	6.0	0.3	5.5	6.5
IUD	1.9	0.1	1.6	2.2	1.6	0.2	1.3	1.9	2.3	0.2	2.0	2.7	2.0	0.2	1.8	2.4
Injections	0.0	0.0	0.0	0.1	0.2	0.0	0.1	0.3	1.6	0.2	1.3	1.9	1.3	0.1	1.1	1.5
Male Condom	0.6	0.1	0.5	0.8	0.5	0.1	0.3	0.7	1.0	0.1	0.8	1.3	0.6	0.1	0.5	0.8
Sterilization	6.7	0.2	6.2	7.2	6.0	0.3	5.5	6.6	5.4	0.3	4.9	5.9	6.0	0.3	5.5	6.5
Periodic Abstinence	4.5	0.2	4.1	4.9	4.6	0.2	4.2	5.1	5.1	0.2	4.7	5.6	3.2	0.2	2.9	3.6
Withdrawal	4.5	0.2	4.1	4.9	3.5	0.2	3.1	4.0	5.4	0.2	4.9	5.8	3.3	0.2	3.0	3.7
LAM									0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
Other Traditional Methods	0.2	0.0	0.2	0.3	0.2	0.1	0.2	0.4	1.4	0.1	1.1	1.6	0.2	0.1	0.2	0.4
Other Modern Methods	0.0	0.0	0.0	0.1					0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1
Any Method	24.0	0.4	23.1	24.9	21.0	0.5	20.0	22.1	28.8	0.5	27.7	29.9	22.8	0.5	21.9	23.7
Any Modern Method	14.8	0.4	14.1	15.5	12.7	0.4	11.8	13.6	17.0	0.4	16.1	17.8	16.0	0.4	15.2	16.8
Any Traditional Method	9.2	0.3	8.6	9.7	8.4	0.3	7.8	9.0	11.8	0.3	11.2	12.5	6.8	0.3	6.3	7.4
N	13,625				10,847				12,544				10,691			

Appendix Table 31. Comparison of calendar and current status data for currently married women for Vietnam 1997 and 2002 surveys

	Current-status data from 1997				Calendar data from 2002			
	Women ages 15-43 at time of survey				Women ages 15-43 in August 1997			
	%	SE	CI		%	SE	CI	
Not using	23.5	1.0	21.5	25.5	27.9	1.0	26.1	29.8
Pill	4.8	0.6	3.8	6.0	4.0	0.3	3.5	4.7
IUD	39.7	1.3	37.0	42.3	37.9	1.3	35.4	40.5
Injections	0.2	0.1	0.1	0.4	0.2	0.1	0.1	0.4
Male Condom	6.3	0.5	5.3	7.4	4.5	0.4	3.7	5.3
Sterilization	6.3	0.6	5.2	7.6	5.1	0.5	4.2	6.1
Periodic Abstinence	7.3	0.6	6.2	8.5	7.3	0.5	6.4	8.4
Withdrawal	11.7	0.8	10.3	13.3	13.0	1.0	11.2	15.1
Other Traditional Methods	0.3	0.1	0.2	0.6	0.0	0.0	0.0	0.2
Any Method	76.5	1.0	74.5	78.5	72.1	1.0	70.2	73.9
Any Modern Method	57.2	1.2	54.8	59.5	51.7	1.3	49.2	54.2
Any Traditional Method	19.3	1.0	17.4	21.4	20.4	1.2	18.1	22.9
N	4,706				4,466			

Appendix Table 32. Comparison of calendar and current status data for Bolivia 1989, 1994, 2003, and 2008 surveys

	Current-status data from 1989				Calendar data from 1994				Current-status data from 2003				Calendar data from 2008			
	Women ages 15-43 at time of survey				Women ages 15-43 in April 1989				Women ages 15-43 at time of survey				Women ages 15-43 in November 2003			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	79.4	0.7	78.0	80.7	75.0	0.7	73.6	76.3	60.3	0.5	59.2	61.4	61.2	0.6	60.1	62.4
Pill	1.3	0.2	1.0	1.7	1.9	0.2	1.6	2.4	2.6	0.2	2.3	3.0	3.0	0.2	2.6	3.4
IUD	3.4	0.3	2.9	4.0	4.0	0.3	3.5	4.6	7.0	0.3	6.5	7.6	6.9	0.3	6.4	7.5
Injections	0.5	0.1	0.3	0.7	0.7	0.1	0.5	1.0	5.7	0.3	5.2	6.2	5.2	0.3	4.8	5.8
Male Condom	0.2	0.1	0.1	0.4	0.4	0.1	0.3	0.6	3.4	0.2	3.0	3.8	2.4	0.2	2.1	2.7
Sterilization	2.7	0.2	2.3	3.2	2.3	0.2	1.9	2.7	3.6	0.2	3.2	3.9	3.0	0.2	2.6	3.4
Periodic Abstinence	11.1	0.5	10.1	12.2	13.5	0.5	12.5	14.5	12.9	0.5	12.0	13.9	14.5	0.4	13.7	15.4
Withdrawal	0.7	0.1	0.5	1.0	1.0	0.1	0.8	1.3	2.4	0.2	2.0	2.9	3.0	0.2	2.6	3.4
LAM									1.7	0.1	1.5	2.0	0.4	0.1	0.3	0.6
Other Traditional Methods	0.6	0.1	0.4	0.9	1.1	0.1	0.9	1.5	0.2	0.0	0.1	0.3	0.1	0.0	0.1	0.2
Other Modern Methods	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.1	0.0	0.1	0.2	0.2	0.0	0.1	0.3
Any Method	20.6	0.7	19.3	22.0	25.0	0.7	23.7	26.4	39.7	0.5	38.6	40.8	38.8	0.6	37.6	39.9
Any Modern Method	8.2	0.4	7.4	9.1	9.4	0.5	8.5	10.4	24.2	0.5	23.1	25.2	21.2	0.5	20.2	22.2
Any Traditional Method	12.4	0.6	11.3	13.5	15.6	0.5	14.6	16.7	15.5	0.5	14.6	16.6	17.6	0.5	16.7	18.6
N	7,115				6,706				15,812				13,294			

Appendix Table 33. Comparison of calendar and current status data for Colombia 1986, 1990, 1995, 2000, 2005, and 2010 surveys

	Current-status data from 1986				Calendar data from 1990				Current-status data from 1990				Calendar data from 1995				Current-status data from 1995			
	Women ages 15-43 at time of survey				Women ages 15-43 in October 1986				Women ages 15-43 at time of survey				Women ages 15-43 in July 1990				Women ages 15-43 at time of survey			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	61.4	1.0	59.3	63.3	62.9	0.9	61.0	64.6	60.5	0.7	59.0	61.9	54.3	0.6	53.1	55.5	52.6	0.6	51.4	53.8
Pill	10.6	0.6	9.4	11.9	10.0	0.5	9.1	11.1	9.1	0.5	8.2	10.1	11.7	0.4	10.9	12.5	9.2	0.4	8.6	9.9
IUD	6.7	0.4	5.9	7.6	7.7	0.4	6.8	8.6	7.9	0.5	7.1	8.9	7.1	0.3	6.5	7.7	7.7	0.3	7.1	8.3
Injections	1.6	0.2	1.2	2.0	1.4	0.2	1.1	1.8	1.5	0.2	1.2	1.9	1.1	0.1	0.9	1.3	2.0	0.1	1.7	2.3
Male Condom	1.1	0.2	0.8	1.4	1.3	0.3	0.9	1.9	1.6	0.2	1.3	2.0	1.8	0.2	1.5	2.2	3.4	0.2	3.0	3.8
Sterilization	10.3	0.6	9.2	11.5	9.5	0.5	8.5	10.5	11.6	0.5	10.7	12.7	13.2	0.6	12.1	14.3	15.0	0.5	14.0	16.1
Periodic Abstinence	3.3	0.3	2.8	4.0	3.9	0.3	3.4	4.5	3.5	0.3	3.1	4.1	5.1	0.3	4.6	5.7	4.1	0.2	3.7	4.6
Withdrawal	2.9	0.3	2.3	3.5	2.0	0.3	1.5	2.7	2.8	0.4	2.2	3.6	3.3	0.2	2.9	3.8	3.6	0.2	3.2	4.0
Implant													0.1	0.0	0.0	0.2	0.4	0.1	0.3	0.6
LAM																				
Other Traditional Methods	0.6	0.1	0.4	0.8	0.3	0.1	0.2	0.5	0.3	0.1	0.2	0.5	1.2	0.1	1.0	1.5	1.0	0.1	0.8	1.2
Other Modern Methods	1.7	0.2	1.3	2.1	1.1	0.1	0.8	1.3	1.1	0.1	0.9	1.4	1.1	0.1	0.9	1.3	1.0	0.1	0.8	1.2
Any Method	38.7	1.0	36.7	40.7	37.1	0.9	35.4	39.0	39.5	0.7	38.1	41.0	45.7	0.6	44.5	46.9	47.4	0.6	46.2	48.6
Any Modern Method	31.9	1.0	30.0	33.9	30.9	0.8	29.3	32.6	32.8	0.8	31.4	34.4	36.0	0.6	34.7	37.2	38.2	0.6	37.0	39.4
Any Traditional Method	6.8	0.4	6.0	7.7	6.2	0.4	5.4	7.1	6.7	0.4	5.9	7.6	9.7	0.4	9.0	10.4	8.7	0.3	8.1	9.3
N	4,869				6,798				7,681				8,854				9,951			

	Calendar data from 2000				Current-status data from 2000				Calendar data from 2005				Current-status data from 2005				Calendar data from 2010			
	Women ages 15-43 in May 1995				Women ages 15-43 at time of survey				Women ages 15-43 in April 2000				Women ages 15-43 at time of survey				Women ages 15-43 in March 2005			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	49.6	0.6	48.4	50.7	48.1	0.6	47.0	49.2	46.3	0.4	45.5	47.2	44.6	0.4	43.8	45.4	44.7	0.3	44.0	45.3
Pill	10.7	0.4	10.0	11.4	8.8	0.3	8.2	9.5	10.7	0.3	10.2	11.2	7.9	0.2	7.5	8.3	8.8	0.2	8.4	9.2
IUD	8.5	0.3	7.8	9.2	8.5	0.3	7.8	9.2	8.8	0.2	8.3	9.3	8.5	0.3	8.0	9.0	8.4	0.2	8.0	8.7
Injections	2.0	0.2	1.7	2.3	3.5	0.2	3.1	3.9	4.3	0.2	4.0	4.7	5.6	0.2	5.3	6.0	6.2	0.2	5.9	6.6
Male Condom	3.3	0.2	2.9	3.8	6.0	0.3	5.5	6.6	5.2	0.2	4.8	5.6	7.3	0.2	6.8	7.8	6.0	0.2	5.7	6.4
Sterilization	14.8	0.4	14.0	15.7	15.2	0.4	14.4	16.0	15.8	0.3	15.2	16.3	18.4	0.3	17.8	19.0	20.0	0.3	19.5	20.5
Periodic Abstinence	5.4	0.3	4.9	5.9	4.0	0.2	3.6	4.4	3.9	0.2	3.6	4.2	2.5	0.1	2.3	2.8	2.4	0.1	2.2	2.6
Withdrawal	3.4	0.2	3.0	3.9	4.4	0.2	4.0	4.9	3.5	0.1	3.2	3.8	4.0	0.1	3.8	4.3	2.5	0.1	2.3	2.7
Implant	0.4	0.1	0.2	0.5	0.2	0.1	0.1	0.4	0.3	0.0	0.2	0.4	0.2	0.0	0.2	0.3	0.4	0.0	0.4	0.5
LAM	0.5	0.1	0.4	0.7	0.4	0.1	0.3	0.6	0.4	0.0	0.4	0.5	0.4	0.0	0.3	0.5				
Other Traditional Methods	0.6	0.1	0.4	0.8	0.5	0.1	0.4	0.7	0.3	0.0	0.3	0.5	0.4	0.0	0.3	0.5	0.2	0.0	0.2	0.3
Other Modern Methods	0.8	0.1	0.6	1.0	0.5	0.1	0.4	0.7	0.5	0.1	0.4	0.7	0.2	0.0	0.1	0.3	0.3	0.0	0.2	0.4
Any Method	50.4	0.6	49.3	51.6	51.9	0.6	50.8	53.0	53.7	0.4	52.8	54.5	55.4	0.4	54.6	56.2	55.3	0.3	54.7	56.0
Any Modern Method	40.7	0.6	39.5	41.8	42.9	0.6	41.8	44.0	45.7	0.4	44.8	46.5	48.2	0.4	47.4	49.0	49.7	0.3	49.1	50.4
Any Traditional Method	9.4	0.4	8.7	10.1	8.9	0.3	8.3	9.5	7.8	0.2	7.3	8.2	6.9	0.2	6.6	7.3	5.2	0.1	4.9	5.5
N	9,139				10,258				30,717				33,051				39,410			

Appendix Table 34. Comparison of calendar and current status data for Dominican Republic 1986, 1991, 1996, 1999, and 2002 surveys

	Current-status data from 1986				Calendar data from 1991				Current-status data from 1991				Calendar data from 1996				Current-status data from 1996			
	Women ages 15-43 at time of survey				Women ages 15-43 in October 1986				Women ages 15-43 at time of survey				Women ages 15-43 in September 1991				Women ages 15-43 at time of survey			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	69.8	0.7	68.5	71.1	68.9	0.9	67.1	70.6	64.3	0.7	63.0	65.6	63.7	0.7	62.3	65.1	57.0	0.8	55.5	58.5
Pill	5.8	0.3	5.2	6.5	5.6	0.4	4.9	6.4	6.6	0.4	5.9	7.4	7.5	0.4	6.7	8.3	9.1	0.4	8.3	10.0
IUD	2.0	0.2	1.6	2.5	2.1	0.3	1.6	2.8	1.4	0.2	1.1	1.9	1.6	0.2	1.2	2.1	2.0	0.2	1.7	2.5
Injections	0.0	0.0	0.0	0.2					0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.2	0.4	0.1	0.3	0.6
Male Condom	0.8	0.1	0.6	1.1	0.6	0.2	0.3	1.0	0.8	0.2	0.6	1.2	0.6	0.1	0.4	0.9	1.3	0.2	1.1	1.6
Sterilization	19.4	0.6	18.3	20.5	20.1	0.8	18.6	21.6	23.6	0.6	22.4	24.8	23.1	0.6	21.9	24.4	25.9	0.6	24.7	27.1
Periodic Abstinence	0.8	0.1	0.5	1.1	1.6	0.3	1.1	2.2	1.4	0.2	1.0	1.9	1.5	0.2	1.2	2.0	1.6	0.2	1.2	2.0
Withdrawal	0.9	0.1	0.6	1.2	0.8	0.2	0.5	1.1	1.5	0.2	1.1	2.0	1.0	0.2	0.7	1.3	1.5	0.2	1.2	1.9
Implant	0.1	0.1	0.0	0.3	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.2	0.2	0.1	0.1	0.4	0.6	0.1	0.4	0.8
LAM													0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.3
Other Traditional Methods	0.3	0.1	0.2	0.5	0.3	0.1	0.2	0.6	0.2	0.1	0.1	0.4	0.4	0.1	0.3	0.7	0.3	0.1	0.2	0.5
Other Modern Methods	0.2	0.1	0.1	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.1	0.1	0.0	0.3	0.2	0.1	0.1	0.3
Any Method	30.2	0.7	28.9	31.5	31.1	0.9	29.4	32.9	35.7	0.7	34.4	37.0	36.3	0.7	34.9	37.7	43.0	0.8	41.5	44.5
Any Modern Method	28.2	0.7	26.9	29.5	28.4	0.9	26.8	30.1	32.5	0.7	31.2	33.9	33.1	0.7	31.8	34.5	39.1	0.8	37.6	40.6
Any Traditional Method	1.9	0.2	1.5	2.4	2.6	0.3	2.1	3.3	3.1	0.3	2.6	3.7	3.0	0.2	2.5	3.4	3.4	0.2	2.9	3.9
N	7,034				5,545				6,761				6,502				7,704			

	Calendar data from 1999				Current-status data from 1996				Calendar data from 2002				Current-status data from 1999				Calendar data from 2002			
	Women ages 15-43 in October 1996				Women ages 15-43 at time of survey				Women ages 15-43 in January 1997				Women ages 15-43 at time of survey				Women ages 15-43 in September 1999			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	57.0	1.8	53.3	60.6	57.0	0.8	55.5	58.5	56.8	0.5	55.7	57.8	53.2	1.6	50.0	56.3	52.8	0.5	51.8	53.8
Pill	9.3	1.0	7.6	11.5	9.1	0.4	8.3	10.0	9.4	0.3	8.8	10.0	10.7	0.9	9.1	12.5	10.9	0.3	10.3	11.5
IUD	1.4	0.4	0.8	2.4	2.0	0.2	1.7	2.5	1.9	0.2	1.6	2.2	2.3	0.5	1.4	3.5	2.3	0.2	1.9	2.6
Injections	0.5	0.2	0.2	1.3	0.4	0.1	0.3	0.6	0.5	0.1	0.4	0.7	0.6	0.2	0.3	1.3	0.9	0.1	0.7	1.1
Male Condom	0.5	0.3	0.2	1.4	1.3	0.2	1.1	1.6	0.7	0.1	0.5	1.0	1.6	0.4	1.0	2.8	1.0	0.1	0.8	1.2
Sterilization	26.2	1.8	22.8	29.9	25.9	0.6	24.7	27.1	27.9	0.5	27.0	28.9	27.2	1.5	24.3	30.2	28.2	0.5	27.3	29.1
Periodic Abstinence	2.1	0.5	1.3	3.4	1.6	0.2	1.2	2.0	1.3	0.1	1.1	1.6	1.4	0.4	0.8	2.4	1.4	0.1	1.2	1.7
Withdrawal	1.9	0.5	1.2	3.1	1.5	0.2	1.2	1.9	0.6	0.1	0.5	0.8	2.1	0.5	1.3	3.2	1.1	0.1	0.9	1.3
Implant	0.5	0.3	0.2	1.5	0.6	0.1	0.4	0.8	0.4	0.1	0.2	0.5	0.6	0.3	0.2	1.7	0.4	0.1	0.3	0.6
LAM					0.1	0.1	0.1	0.3	0.0	0.0	0.0	0.1	0.2	0.2	0.1	1.0	0.3	0.1	0.2	0.4
Other Traditional Methods	0.3	0.2	0.1	1.1	0.3	0.1	0.2	0.5	0.5	0.1	0.4	0.6	0.1	0.1	0.0	0.9	0.7	0.1	0.6	0.9
Other Modern Methods					0.2	0.1	0.1	0.3	0.0	0.0	0.0	0.2					0.0	0.0	0.0	0.1
Any Method	42.7	1.8	39.1	46.3	43.0	0.8	41.5	44.5	43.2	0.5	42.2	44.3	46.8	1.6	43.7	50.0	47.2	0.5	46.2	48.2
Any Modern Method	37.9	2.0	34.1	41.9	39.1	0.8	37.6	40.6	40.5	0.5	39.5	41.5	42.7	1.6	39.5	45.9	43.6	0.5	42.6	44.5
Any Traditional Method	4.2	0.7	3.1	5.8	3.4	0.2	2.9	3.9	2.4	0.2	2.1	2.8	3.6	0.6	2.5	5.0	3.2	0.2	2.9	3.6
N	1,039				7,704				18,063				1,149				19,374			

Appendix Table 35. Comparison of calendar and current status data for Guatemala 1995 and 1998-99 surveys

	Current-status data from 1995				Calendar data from 1998-99			
	Women ages 15-43 at time of survey				Women ages 15-43 in September 1995			
	%	SE	CI		%	SE	CI	
Not using	79.1	0.9	77.2	80.9	77.5	1.9	73.6	80.9
Pill	2.9	0.2	2.4	3.4	2.9	0.4	2.2	3.7
IUD	1.9	0.3	1.5	2.5	1.3	0.3	0.8	2.0
Injections	1.8	0.2	1.4	2.2	2.1	0.4	1.4	3.0
Male Condom	1.6	0.2	1.3	2.1	1.0	0.4	0.5	2.1
Sterilization	9.7	0.5	8.7	10.8	10.0	0.9	8.3	11.9
Periodic Abstinence	2.4	0.2	2.0	2.9	3.9	0.5	3.0	5.1
Withdrawal	0.6	0.1	0.4	0.9	0.9	0.3	0.6	1.6
Other Traditional Methods	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.6
Other Modern Methods	0.0	0.0	0.0	0.1	0.3	0.1	0.1	0.8
Any Method	20.9	0.9	19.1	22.8	22.5	1.9	19.1	26.4
Any Modern Method	17.9	0.9	16.2	19.7	17.5	1.6	14.6	20.8
Any Traditional Method	3.1	0.2	2.6	3.6	5.1	0.7	3.8	6.7
N	11,133				4,835			

Appendix Table 36. Comparison of calendar and current status data for Honduras 2005-06 and 2011-12 surveys

	Current-status data from 2005-06				Calendar data from 2011-12			
	Women ages 15-43 at time of survey				Women ages 15-43 in March 2006			
	%	SE	CI		%	SE	CI	
Not using	57.7	0.5	56.7	58.6	56.3	0.5	55.4	57.3
Pill	7.6	0.3	7.1	8.1	8.1	0.3	7.5	8.6
IUD	4.5	0.2	4.2	4.9	5.3	0.2	4.8	5.8
Injections	9.4	0.3	8.8	9.9	9.6	0.3	9.1	10.2
Male Condom	2.3	0.1	2.1	2.6	2.0	0.1	1.8	2.3
Sterilization	13.1	0.3	12.4	13.7	12.8	0.4	12.1	13.5
Periodic Abstinence	1.8	0.1	1.5	2.0	2.1	0.1	1.9	2.4
Withdrawal	3.5	0.2	3.2	3.8	3.7	0.2	3.3	4.0
LAM	0.1	0.0	0.1	0.3	0.0	0.0	0.0	0.1
Other Traditional Methods	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2
Other Modern Methods	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.1
Any Method	42.3	0.5	41.4	43.3	43.7	0.5	42.7	44.6
Any Modern Method	37.1	0.5	36.2	38.0	37.8	0.5	36.8	38.8
Any Traditional Method	5.2	0.2	4.9	5.6	5.9	0.2	5.5	6.4
N	18,053				16,890			

Appendix Table 37. Comparison of calendar and current status data for Peru 1986, 1991-92, 1996, 2000, 2004-06, 2007-08, 2009, 2010, 2011, and 2012 surveys

	Current-status data from 1986				Calendar data from 1991-92				Current-status data from 1991-92				Calendar data from 1996				Current-status data from 1996				Calendar data from 2000			
	Women ages 15-43 at time of survey				Women ages 15-43 in November 1986				Women ages 15-43 at time of survey				Women ages 15-43 in December 1991				Women ages 15-43 at time of survey				Women ages 15-43 in September 1996			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	71.7	0.8	70.1	73.2	67.6	0.5	66.6	68.5	64.6	0.5	63.7	65.5	64.7	0.4	63.9	65.6	59.0	0.4	58.1	59.8	59.8	0.5	58.9	60.7
Pill	4.3	0.4	3.6	5.1	4.3	0.2	3.9	4.8	3.8	0.2	3.5	4.2	4.4	0.2	4.0	4.8	4.2	0.2	3.9	4.6	4.9	0.2	4.5	5.3
IUD	4.7	0.4	4.0	5.4	5.6	0.2	5.1	6.1	8.3	0.3	7.8	8.9	7.7	0.3	7.2	8.2	8.0	0.2	7.5	8.4	7.9	0.3	7.4	8.4
Injections	0.9	0.1	0.7	1.3	1.1	0.1	0.9	1.3	1.2	0.1	1.0	1.5	1.2	0.1	1.1	1.4	5.5	0.2	5.1	5.9	5.1	0.2	4.7	5.5
Male Condom	0.5	0.1	0.3	0.7	1.2	0.1	1.0	1.5	1.9	0.2	1.7	2.3	1.6	0.1	1.4	1.9	3.2	0.2	2.9	3.5	2.8	0.2	2.6	3.2
Sterilization	3.1	0.3	2.6	3.8	3.6	0.2	3.2	4.0	3.9	0.2	3.6	4.3	3.6	0.2	3.2	4.0	5.4	0.2	5.0	5.8	5.2	0.2	4.9	5.6
Periodic Abstinence	11.1	0.5	10.2	12.2	12.9	0.3	12.2	13.6	12.3	0.3	11.7	12.9	13.2	0.3	12.6	13.9	11.2	0.3	10.7	11.8	10.6	0.3	10.1	11.2
Withdrawal	2.2	0.2	1.8	2.7	1.9	0.1	1.7	2.2	2.2	0.1	2.0	2.5	1.8	0.1	1.6	2.1	2.0	0.1	1.8	2.3	1.9	0.1	1.7	2.2
Implant													0.0	0.0	0.0	0.1	0.2	0.0	0.1	0.3	0.2	0.0	0.1	0.2
LAM																					0.6	0.1	0.5	0.7
Other Traditional Methods	0.9	0.1	0.7	1.2	1.1	0.1	0.9	1.3	0.9	0.1	0.8	1.1	1.1	0.1	1.0	1.3	0.9	0.1	0.8	1.1	0.6	0.1	0.5	0.7
Other Modern Methods	0.7	0.1	0.5	1.0	0.8	0.1	0.7	1.0	0.7	0.1	0.6	0.9	0.6	0.1	0.4	0.7	0.5	0.1	0.4	0.6	0.3	0.0	0.2	0.4
Any Method	28.3	0.8	26.8	29.9	32.4	0.5	31.5	33.4	35.4	0.5	34.5	36.3	35.3	0.4	34.4	36.1	41.0	0.4	40.2	41.9	40.2	0.5	39.3	41.1
Any Modern Method	14.1	0.6	12.9	15.4	16.6	0.4	15.8	17.4	20.0	0.4	19.2	20.8	19.1	0.4	18.4	19.8	26.7	0.4	25.9	27.5	26.9	0.4	26.1	27.7
Any Traditional Method	14.2	0.6	13.1	15.4	15.8	0.4	15.1	16.6	15.4	0.3	14.8	16.1	16.2	0.3	15.5	16.9	14.2	0.3	13.6	14.8	13.1	0.3	12.5	13.8
N	4,515				12,163				14,403				22,660				26,135				22,344			

	Current-status data from 2000				Calendar data from 2004-06				Current-status data from 2004-06				Calendar data from 2007-08				Current-status data from 2004-06				Calendar data from 2009			
	Women ages 15-43 at time of survey				Women ages 15-43 in January 2001				Women ages 15-43 at time of survey				Women ages 15-43 in June 2005				Women ages 15-43 at time of survey				Women ages 15-43 in June 2005			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	55.9	0.5	55.0	56.8	51.9	0.6	50.8	53.1	54.4	0.5	53.4	55.5	48.3	0.6	47.1	49.5	54.4	0.5	53.4	55.5	50.3	0.5	49.3	51.4
Pill	4.6	0.2	4.3	5.0	5.0	0.2	4.5	5.5	4.9	0.2	4.5	5.4	6.2	0.3	5.7	6.7	4.9	0.2	4.5	5.4	5.6	0.2	5.1	6.1
IUD	5.9	0.2	5.5	6.4	5.8	0.3	5.3	6.4	3.6	0.2	3.1	4.0	3.2	0.2	2.8	3.7	3.6	0.2	3.1	4.0	4.0	0.2	3.6	4.5
Injections	10.1	0.3	9.5	10.6	10.5	0.4	9.8	11.3	9.5	0.4	8.8	10.2	12.1	0.4	11.3	12.9	9.5	0.4	8.8	10.2	12.2	0.3	11.6	12.9
Male Condom	4.0	0.2	3.7	4.4	4.4	0.3	3.9	4.9	6.9	0.3	6.3	7.6	7.8	0.3	7.2	8.5	6.9	0.3	6.3	7.6	6.7	0.3	6.1	7.2
Sterilization	6.9	0.2	6.5	7.4	6.4	0.3	5.9	7.0	5.2	0.2	4.7	5.7	5.6	0.3	5.1	6.1	5.2	0.2	4.7	5.7	5.4	0.2	5.0	5.8
Periodic Abstinence	9.0	0.2	8.6	9.5	12.2	0.4	11.5	13.0	11.2	0.3	10.5	11.9	12.4	0.4	11.7	13.1	11.2	0.3	10.5	11.9	10.9	0.3	10.4	11.5
Withdrawal	2.1	0.1	1.9	2.3	2.1	0.2	1.8	2.5	2.7	0.2	2.4	3.1	3.3	0.2	2.9	3.7	2.7	0.2	2.4	3.1	3.6	0.2	3.3	4.0
Implant	0.2	0.0	0.1	0.2	0.2	0.0	0.1	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
LAM	0.4	0.0	0.4	0.5	0.2	0.1	0.1	0.3	0.4	0.1	0.3	0.5	0.2	0.0	0.1	0.2	0.4	0.1	0.3	0.5	0.2	0.0	0.1	0.3
Other Traditional Methods	0.5	0.1	0.4	0.6	1.0	0.1	0.8	1.2	0.9	0.1	0.7	1.1	0.7	0.1	0.6	0.9	0.9	0.1	0.7	1.1	0.8	0.1	0.7	1.0
Other Modern Methods	0.4	0.1	0.3	0.5	0.2	0.1	0.1	0.3	0.3	0.1	0.2	0.5	0.2	0.0	0.1	0.3	0.3	0.1	0.2	0.5	0.2	0.0	0.1	0.3
Any Method	44.1	0.5	43.2	45.0	48.1	0.6	46.9	49.2	45.6	0.5	44.5	46.6	51.7	0.6	50.4	52.9	45.6	0.5	44.5	46.6	49.7	0.5	48.6	50.7
Any Modern Method	32.3	0.5	31.4	33.2	32.6	0.6	31.5	33.7	30.8	0.5	29.7	31.8	35.2	0.6	33.9	36.4	30.8	0.5	29.7	31.8	34.2	0.5	33.2	35.3
Any Traditional Method	11.6	0.3	11.1	12.1	15.4	0.4	14.5	16.2	14.8	0.4	14.0	15.6	16.4	0.4	15.6	17.2	14.8	0.4	14.0	15.6	15.4	0.4	14.7	16.1
N	24,769				14,069				15,306				18,874				15,306				19,401			

(Continued…)

Appendix Table 37. – *Continued*

	Current-status data from 2004-06				Calendar data from 2010				Current-status data from 2004-06				Calendar data from 2011				Current-status data from 2007-08				Calendar data from 2009			
	Women ages 15-43 at time of survey				Women ages 15-43 in June 2005				Women ages 15-43 at time of survey				Women ages 15-43 in January 2006				Women ages 15-43 at time of survey				Women ages 15-43 in April 2008			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	54.4	0.5	53.4	55.5	50.5	0.6	49.4	51.6	54.4	0.5	53.4	55.5	49.5	0.5	48.4	50.5	52.4	0.6	51.2	53.5	49.4	0.5	48.4	50.3
Pill	4.9	0.2	4.5	5.4	5.6	0.3	5.1	6.1	4.9	0.2	4.5	5.4	5.5	0.2	5.1	6.0	5.8	0.3	5.2	6.3	5.8	0.2	5.3	6.3
IUD	3.6	0.2	3.1	4.0	3.5	0.2	3.1	4.0	3.6	0.2	3.1	4.0	3.7	0.2	3.3	4.1	2.5	0.2	2.2	3.0	2.9	0.2	2.5	3.3
Injections	9.5	0.4	8.8	10.2	12.0	0.4	11.3	12.7	9.5	0.4	8.8	10.2	12.9	0.4	12.2	13.7	11.4	0.4	10.7	12.1	12.6	0.3	12.0	13.3
Male Condom	6.9	0.3	6.3	7.6	7.0	0.3	6.4	7.6	6.9	0.3	6.3	7.6	7.1	0.3	6.5	7.7	8.4	0.4	7.7	9.1	8.1	0.3	7.6	8.7
Sterilization	5.2	0.2	4.7	5.7	5.5	0.2	5.1	6.0	5.2	0.2	4.7	5.7	5.0	0.2	4.6	5.4	4.2	0.2	3.8	4.6	4.5	0.2	4.2	4.9
Periodic Abstinence	11.2	0.3	10.5	11.9	10.9	0.3	10.3	11.6	11.2	0.3	10.5	11.9	11.4	0.3	10.8	12.0	10.6	0.3	9.9	11.2	11.2	0.3	10.6	11.8
Withdrawal	2.7	0.2	2.4	3.1	3.9	0.2	3.5	4.3	2.7	0.2	2.4	3.1	4.0	0.2	3.6	4.4	3.6	0.2	3.2	4.0	4.4	0.2	4.0	4.8
Implant	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.1	0.0	0.1	0.3	0.1	0.0	0.0	0.2
LAM	0.4	0.1	0.3	0.5	0.1	0.0	0.1	0.2	0.4	0.1	0.3	0.5	0.0	0.0	0.0	0.1	0.2	0.0	0.1	0.3	0.1	0.0	0.1	0.2
Other Traditional Methods	0.9	0.1	0.7	1.1	0.7	0.1	0.5	0.8	0.9	0.1	0.7	1.1	0.7	0.1	0.6	0.9	0.6	0.1	0.5	0.7	0.6	0.1	0.5	0.8
Other Modern Methods	0.3	0.1	0.2	0.5	0.2	0.1	0.1	0.4	0.3	0.1	0.2	0.5	0.2	0.0	0.1	0.3	0.3	0.1	0.2	0.5	0.3	0.1	0.2	0.4
Any Method	45.6	0.5	44.5	46.6	49.5	0.6	48.4	50.6	45.6	0.5	44.5	46.6	50.5	0.5	49.5	51.6	47.6	0.6	46.5	48.8	50.6	0.5	49.7	51.6
Any Modern Method	30.8	0.5	29.7	31.8	34.0	0.5	33.0	35.1	30.8	0.5	29.7	31.8	34.4	0.5	33.4	35.5	32.8	0.6	31.6	33.9	34.4	0.5	33.4	35.4
Any Traditional Method	14.8	0.4	14.0	15.6	15.5	0.4	14.8	16.2	14.8	0.4	14.0	15.6	16.0	0.4	15.3	16.8	14.7	0.4	14.0	15.5	16.2	0.4	15.5	17.0
N	15,306				18,155				15,306				17,838				19,860				20,567			

	Current-status data from 2007-08				Calendar data from 2010				Current-status data from 2007-08				Calendar data from 2011				Current-status data from 2007-08				Calendar data from 2012			
	Women ages 15-43 at time of survey				Women ages 15-43 in April 2008				Women ages 15-43 at time of survey				Women ages 15-43 in April 2008				Women ages 15-43 at time of survey				Women ages 15-43 in April 2008			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	52.4	0.6	51.2	53.5	48.4	0.5	47.4	49.5	52.4	0.6	51.2	53.5	49.1	0.5	48.1	50.1	52.4	0.6	51.2	53.5	47.8	0.5	46.7	48.8
Pill	5.8	0.3	5.2	6.3	5.7	0.3	5.3	6.2	5.8	0.3	5.2	6.3	5.8	0.2	5.4	6.3	5.8	0.3	5.2	6.3	6.2	0.3	5.7	6.7
IUD	2.5	0.2	2.2	3.0	2.6	0.2	2.3	2.9	2.5	0.2	2.2	3.0	3.0	0.2	2.6	3.4	2.5	0.2	2.2	3.0	2.8	0.2	2.4	3.3
Injections	11.4	0.4	10.7	12.1	12.8	0.4	12.1	13.5	11.4	0.4	10.7	12.1	12.6	0.4	11.9	13.3	11.4	0.4	10.7	12.1	13.9	0.4	13.2	14.6
Male Condom	8.4	0.4	7.7	9.1	9.0	0.3	8.4	9.7	8.4	0.4	7.7	9.1	8.6	0.3	8.0	9.2	8.4	0.4	7.7	9.1	8.9	0.3	8.2	9.6
Sterilization	4.2	0.2	3.8	4.6	4.8	0.2	4.4	5.2	4.2	0.2	3.8	4.6	4.5	0.2	4.1	4.9	4.2	0.2	3.8	4.6	4.5	0.2	4.2	4.9
Periodic Abstinence	10.6	0.3	9.9	11.2	10.9	0.3	10.3	11.4	10.6	0.3	9.9	11.2	11.0	0.3	10.4	11.6	10.6	0.3	9.9	11.2	10.7	0.3	10.2	11.3
Withdrawal	3.6	0.2	3.2	4.0	4.6	0.2	4.2	5.1	3.6	0.2	3.2	4.0	4.3	0.2	3.9	4.8	3.6	0.2	3.2	4.0	4.1	0.2	3.7	4.5
Implant	0.1	0.0	0.1	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.3	0.0	0.0	0.0	0.1
LAM	0.2	0.0	0.1	0.3	0.2	0.0	0.1	0.3	0.2	0.0	0.1	0.3	0.1	0.0	0.0	0.1	0.2	0.0	0.1	0.3	0.1	0.0	0.0	0.1
Other Traditional Methods	0.6	0.1	0.5	0.7	0.7	0.1	0.6	0.9	0.6	0.1	0.5	0.7	0.9	0.1	0.7	1.1	0.6	0.1	0.5	0.7	0.8	0.1	0.6	1.0
Other Modern Methods	0.3	0.1	0.2	0.5	0.3	0.1	0.2	0.4	0.3	0.1	0.2	0.5	0.2	0.0	0.1	0.3	0.3	0.1	0.2	0.5	0.2	0.1	0.1	0.4
Any Method	47.6	0.6	46.5	48.8	51.6	0.5	50.5	52.6	47.6	0.6	46.5	48.8	50.9	0.5	49.9	51.9	47.6	0.6	46.5	48.8	52.2	0.5	51.2	53.3
Any Modern Method	32.8	0.6	31.6	33.9	35.3	0.5	34.3	36.4	32.8	0.6	31.6	33.9	34.7	0.5	33.7	35.7	32.8	0.6	31.6	33.9	36.6	0.6	35.5	37.7
Any Traditional Method	14.7	0.4	14.0	15.5	16.2	0.4	15.5	16.9	14.7	0.4	14.0	15.5	16.2	0.4	15.4	17.0	14.7	0.4	14.0	15.5	15.6	0.3	15.0	16.3
N	19,860				18,992				19,860				18,425				19,860				19,226			

(Continued…)

Appendix Table 37. – *Continued*

	Current-status data from 2009				Calendar data from 2010				Current-status data from 2009				Calendar data from 2011				Current-status data from 2009				Calendar data from 2012			
	Women ages 15-43 at time of survey				Women ages 15-43 in June 2009				Women ages 15-43 at time of survey				Women ages 15-43 in June 2009				Women ages 15-43 at time of survey				Women ages 15-43 in June 2009			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	50.9	0.5	50.0	51.8	48.9	0.5	47.8	49.9	50.9	0.5	50.0	51.8	48.2	0.5	47.1	49.2	50.9	0.5	50.0	51.8	47.4	0.5	46.5	48.4
Pill	5.6	0.2	5.2	6.1	5.7	0.2	5.3	6.2	5.6	0.2	5.2	6.1	5.7	0.2	5.3	6.2	5.6	0.2	5.2	6.1	6.5	0.2	6.0	7.0
IUD	2.4	0.2	2.1	2.8	2.3	0.2	2.0	2.7	2.4	0.2	2.1	2.8	2.6	0.2	2.3	2.9	2.4	0.2	2.1	2.8	2.5	0.2	2.1	2.9
Injections	12.8	0.3	12.2	13.5	12.8	0.4	12.1	13.5	12.8	0.3	12.2	13.5	12.8	0.4	12.1	13.5	12.8	0.3	12.2	13.5	14.3	0.4	13.6	15.1
Male Condom	8.7	0.3	8.1	9.4	9.3	0.3	8.7	10.0	8.7	0.3	8.1	9.4	9.5	0.3	8.9	10.2	8.7	0.3	8.1	9.4	9.1	0.3	8.4	9.8
Sterilization	4.4	0.2	4.1	4.9	4.4	0.2	4.1	4.9	4.4	0.2	4.1	4.9	4.4	0.2	4.0	4.8	4.4	0.2	4.1	4.9	4.1	0.2	3.7	4.4
Periodic Abstinence	9.7	0.3	9.2	10.3	10.8	0.3	10.2	11.3	9.7	0.3	9.2	10.3	11.1	0.3	10.5	11.6	9.7	0.3	9.2	10.3	10.8	0.3	10.3	11.4
Withdrawal	4.3	0.2	3.9	4.7	4.6	0.2	4.2	5.1	4.3	0.2	3.9	4.7	4.6	0.2	4.2	5.0	4.3	0.2	3.9	4.7	4.1	0.2	3.8	4.5
Implant	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.1
LAM	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.2	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.3	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.1
Other Traditional Methods	0.6	0.1	0.5	0.8	0.6	0.1	0.5	0.8	0.6	0.1	0.5	0.8	0.8	0.1	0.7	1.0	0.6	0.1	0.5	0.8	0.8	0.1	0.7	1.0
Other Modern Methods	0.2	0.1	0.2	0.4	0.3	0.1	0.2	0.5	0.2	0.1	0.2	0.4	0.2	0.1	0.2	0.4	0.2	0.1	0.2	0.4	0.2	0.1	0.1	0.4
Any Method	49.1	0.5	48.2	50.0	51.1	0.5	50.1	52.2	49.1	0.5	48.2	50.0	51.8	0.5	50.8	52.9	49.1	0.5	48.2	50.0	52.6	0.5	51.6	53.5
Any Modern Method	34.4	0.5	33.4	35.3	35.1	0.5	34.1	36.1	34.4	0.5	33.4	35.3	35.3	0.5	34.4	36.3	34.4	0.5	33.4	35.3	36.8	0.5	35.8	37.8
Any Traditional Method	14.7	0.4	14.0	15.4	16.0	0.4	15.3	16.7	14.7	0.4	14.0	15.4	16.5	0.4	15.7	17.2	14.7	0.4	14.0	15.4	15.8	0.4	15.1	16.5
N	21,057				19,389				21,057				18,825				21,057				19,557			

	Current-status data from 2010				Calendar data from 2011				Current-status data from 2010				Calendar data from 2012				Current-status data from 2011				Calendar data from 2012			
	Women ages 15-43 at time of survey				Women ages 15-43 in August 2010				Women ages 15-43 at time of survey				Women ages 15-43 in August 2010				Women ages 15-43 at time of survey				Women ages 15-43 in August 2011			
	%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI		%	SE	CI	
Not using	50.2	0.5	49.2	51.1	47.8	0.5	46.8	48.8	50.2	0.5	49.2	51.1	46.7	0.5	45.7	47.7	49.3	0.5	48.2	50.4	47.2	0.5	46.2	48.3
Pill	6.2	0.2	5.7	6.7	5.9	0.3	5.4	6.4	6.2	0.2	5.7	6.7	6.8	0.3	6.3	7.3	6.1	0.2	5.6	6.6	6.9	0.3	6.4	7.4
IUD	2.0	0.2	1.7	2.3	2.1	0.1	1.8	2.4	2.0	0.2	1.7	2.3	2.3	0.2	1.9	2.6	1.7	0.1	1.4	2.0	2.0	0.2	1.7	2.4
Injections	12.5	0.3	11.9	13.2	13.2	0.4	12.5	13.9	12.5	0.3	11.9	13.2	14.2	0.4	13.5	15.0	12.9	0.4	12.2	13.6	13.8	0.4	13.2	14.5
Male Condom	9.2	0.3	8.6	9.9	10.3	0.4	9.6	11.0	9.2	0.3	8.6	9.9	9.8	0.3	9.2	10.5	9.9	0.3	9.3	10.6	10.1	0.4	9.4	10.8
Sterilization	4.1	0.2	3.8	4.6	4.3	0.2	3.9	4.7	4.1	0.2	3.8	4.6	3.9	0.2	3.5	4.2	4.3	0.2	3.9	4.7	3.7	0.2	3.3	4.1
Periodic Abstinence	10.0	0.3	9.5	10.5	10.7	0.3	10.2	11.3	10.0	0.3	9.5	10.5	10.7	0.3	10.2	11.3	10.0	0.3	9.4	10.5	10.5	0.3	9.9	11.1
Withdrawal	4.8	0.2	4.4	5.2	4.6	0.2	4.3	5.1	4.8	0.2	4.4	5.2	4.5	0.2	4.1	4.9	4.7	0.2	4.3	5.1	4.5	0.2	4.1	4.9
Implant	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.2
LAM	0.1	0.0	0.1	0.2	0.1	0.0	0.1	0.2	0.1	0.0	0.1	0.2	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.2	0.1	0.0	0.1	0.2
Other Traditional Methods	0.6	0.1	0.4	0.7	0.7	0.1	0.6	0.8	0.6	0.1	0.4	0.7	0.7	0.1	0.5	0.8	0.6	0.1	0.5	0.8	0.7	0.1	0.6	0.9
Other Modern Methods	0.2	0.1	0.2	0.4	0.4	0.1	0.3	0.5	0.2	0.1	0.2	0.4	0.3	0.1	0.2	0.5	0.4	0.1	0.3	0.5	0.4	0.1	0.3	0.5
Any Method	49.8	0.5	48.9	50.8	52.2	0.5	51.2	53.2	49.8	0.5	48.9	50.8	53.3	0.5	52.3	54.3	50.7	0.5	49.6	51.8	52.8	0.5	51.7	53.8
Any Modern Method	34.4	0.5	33.4	35.4	36.2	0.5	35.2	37.1	34.4	0.5	33.4	35.4	37.3	0.5	36.3	38.4	35.3	0.5	34.3	36.4	37.0	0.5	36.0	38.1
Any Traditional Method	15.3	0.3	14.7	16.0	16.1	0.3	15.4	16.7	15.3	0.3	14.7	16.0	15.8	0.3	15.2	16.5	15.3	0.4	14.6	16.0	15.7	0.4	15.0	16.4
N	19,818				19,179				19,818				19,864				19,484				20,260			