Peru

Peru Experimental Study

An Evaluation of Fertility and Child Health Information

⊕DHS

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An Evaluation of Fertility
and Child Health Information

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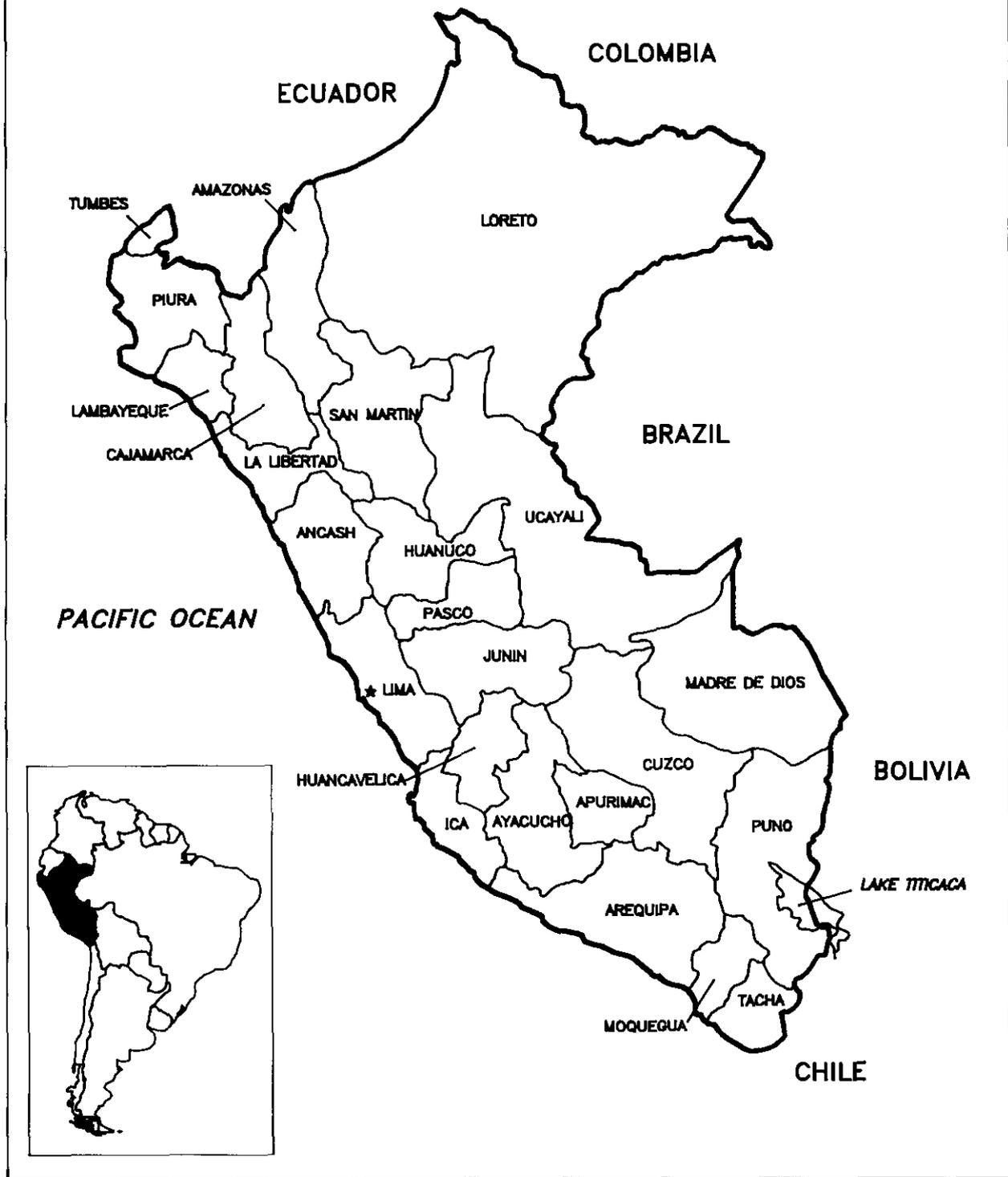
CHAPTER 1

PURPOSE AND DESIGN OF THE STUDY

1.1 Objectives

Over the past three decades, there have been hundreds of large-scale fertility and health surveys carried out in developing and developed countries. However, relatively little effort has been expended in exploring the extent to which the specific approaches to the measurement of key variables affect the reliability and usefulness of the resulting data. The principal objective of this study is to resolve a variety of methodological issues in connection with the measurement of levels and determinants of fertility, contraception, child health, and infant and child mortality in survey research. These issues include:

- the comparative merits and disadvantages of a truncated (six-year) vs. a full birth history;

- the significance of questions on fetal deaths for estimating infant mortality and fertility;

- 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;

- the usefulness of the calendar for collecting monthly data on a woman's employment history and residence and migration history;

- the comparative merits of different approaches to collecting data on immunization and the prevalence and treatment of diarrhea for young children;

- the effects of variations in questions about other topics, including fertility preferences, coital frequency, knowledge of methods, future use of contraception, availability of methods, reasons for nonuse, and current pregnancy status.

Within the scope of the Demographic and Health Surveys (DHS) project, an experimental questionnaire was developed and administered in Peru between September and December of 1986 to a national sample of 2,534 women of reproductive age; at the same time, a national sample of 4,997 women was interviewed with the standard DHS questionnaire.[1]

The importance of this experimental field study lies in its potential for improving the quality of data routinely collected in sample surveys of fertility, contraception, infant and child mortality, and child health.

1.2 Background and Context of the Experimental Study

The idea for an experimental study emerged during the development of the core questionnaire for the Demographic and Health Surveys project. The core questionnaire went through more than 20 drafts

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[1] Instituto Nacional de Estadística (INE) and Consejo Nacional de Población and Institute for Resource Development/Westinghouse. 1988. *Encuesta Demográfica y de Salud Familiar (ENDES 1986): Informe General.* Lima, Peru: INE.

and was reviewed by 50 demographers prominent in fertility research and more than a dozen epidemiologists. The persons chiefly responsible for the core questionnaire were Charles Westoff, John Cleland, Germán Rodríguez, and Martin Vaessen (the latter three having been associated with the World Fertility Survey).

Two core questionnaires were developed for DHS: one for use in countries with high contraceptive prevalence rates and one for use in low prevalence (mostly African) countries. The two core questionnaires differed mainly in the amount of detail focused on contraception; with the exception of other minor differences in emphasis, they were very similar. A slightly modified version of the high prevalence core questionnaire was used in this experimental project. The modifications to the core were intended to improve the design of the comparisons with the experimental questionnaire.

The idea of an experimental survey grew out of some of the controversies encountered in the development of the core questionnaire. These included the question of whether a full birth history was necessary, given the increasing availability of past surveys from which to infer trends (and the costs associated with collecting such data), or whether a truncated five-year history would suffice. Another issue involved the pros and cons of including a fetal death history, which might improve estimates of neonatal deaths and births, but which characteristically is subject to serious amounts of underreporting. Another major issue that was debated for months was the value of collecting monthly data on contraception and other proximate determinants with the use of a calendar. Such a procedure was introduced in the United States in the 1975 National Fertility Survey and has been used in the subsequent National Surveys of Family Growth. Despite the extensive use in the United States and more recent use in the Third World, there has been no evaluation of the quality of such data.

In addition to these issues, a variety of other differences among experts became apparent during development of the questionnaire, relating to the measurement of subjects such as: women's employment, coital frequency, immunization for childhood diseases, length of time for recall of episodes of diarrhea, the impact of the ordering of contraceptive methods on knowledge, different measures of contraceptive availability, different measures of fertility preferences, and other questions described in later chapters.

Consistent with the emphasis on methodological development in the DHS project, it was decided to design an experimental questionnaire and to administer the questionnaire to a supplementary national sample of women at the same time that the core questionnaire was being administered to a separate sample. The objective was to make a statistical comparison of the same variables, measured in different ways, in order to determine the robustness of different approaches and, in general, to evaluate the comparative advantages and disadvantages of alternative measures. Also, the experimental questionnaire could be used to determine whether certain new information not obtained in the core questionnaire could be reliably collected. Another objective of the experimental survey was to improve the quality of the basic questionnaire to be used in later DHS and other surveys. Any empirically-based conclusions about the comparative merits of different measurement approaches to surveys of fertility, contraception, infant and child health, and mortality will be valuable in planning future surveys.

1.3   Selection of Field Site

The next step in the development of the project was to select a country in which the methodological research could be carried out. Because the subject of contraception is an important part of the experimental design, it was necessary to select a country with at least a moderate level of contraceptive practice. Another consideration was that the language spoken in the country be the same as in many other countries in the DHS project. These two considerations pointed to Latin America. Peru, Ecuador, and the Dominican Republic were leading candidates for two additional reasons: they had conducted prior surveys (WFS and CPS) in the past decade that would facilitate cohort comparisons and provide additional data for evaluating the experimental and core questionnaires; and they had a proven institutional capability for conducting sample surveys. The U.S.A.I.D. office in Lima was approached

about the proposed project, and they agreed to coordinate DHS visits with the appropriate in-country personnel. The new Peruvian government, which had come into power in July 1985, was supportive of population activities and facilitated efforts to implement the survey. Several visits to Lima were made, during which time the concept of the experiment was discussed, a draft of the core questionnaire was reviewed, the sampling plan was drawn up and the sample frame evaluated. A budget, time schedule, and contract for the fieldwork were developed.

1.4   Sampling and Interviewing Procedures

The sample design for the 1986 Demographic and Health Survey in Peru is based on a procedure for subsampling from a 1984 Master Sample; the latter was created for a government health survey (National Survey of Nutrition and Health) carried out in Peru between May and November 1984. The sampling plan for the DHS survey in Peru involved a sample design target of 9,600 women aged 15-49; with a 20 percent allowance for under-coverage and non-response, this target would produce the 7,500 desired interviews: 5,000 were to be interviewed with the core questionnaire and 2,500 with the experimental questionnaire. The sample was a stratified cluster sample with two stages of sampling. The first stage consisted of the random selection of a specific number of clusters within each of 17 geographical domains in Peru; the number of clusters ranged from under 10 in some coastal and jungle areas to over 100 in metropolitan Lima. The exact number of clusters selected in each geographic domain was calculated to insure that the sample would be self-weighting within each domain. A new dwelling list (involving updates from the 1984 survey) was drawn up within each of the selected clusters. The second stage involved the selection of dwellings (and eligible women) within each of the clusters. Interviewers were instructed to make a list of all persons who spent the past night in each selected dwelling and to interview all women aged 15-49 in the list. In the event of failure to contact a household or person identified as eligible, the interviewer was required to make three return visits before the interview was abandoned. The overall two-stage sample design is a self-weighting one: i.e., every eligible woman had an equal probability of selection (1 in 500).

Since the goal of this study was to ascertain response differences resulting from two sets of questions, field conditions for the experimental and standard survey were held constant as much as possible. After the selection of dwellings within each cluster, a systematic subsample of 1 in 3 dwellings was assigned to the experimental survey and the remainder used for the standard survey. The same interviewers administered the two questionnaires.   In most cases, interviewers administered the experimental questionnaire on separate days from the standard questionnaire.

Field operations began in June 1986 with the training of supervisors and a pretest of the two questionnaires. (A small-scale pretest of the experimental questionnaire had been carried out in the U.S. during December 1985.) Final changes in the questionnaires were made at that time. Interviewers received a three- to four-week intensive training course (and were closely supervised throughout the project). The approximately 7,500 interviews took place between September and December of 1986. The core and the experimental questionnaires for the Peru survey are reproduced in Appendix B and C.

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CHAPTER 2

COMPARISON OF BASIC CHARACTERISTICS OF THE SAMPLES

2.1   Introduction

The initial stage of the analysis involved an examination of the characteristics of the samples of women in the core and the experimental surveys and an assessment of the comparability of the two samples.

Table 2.1 presents some of the results of the fieldwork from the core and experimental samples. The rate of completed individual interviews is virtually identical for both questionnaires--almost 95 percent--as are the number of visits needed before the final interview was achieved. The final sample sizes were 4,997 women interviewed with the core questionnaire and 2,534 women with the experimental questionnaire, roughly a ratio of 2 to 1.

Table 2.1. Comparison of sampling characteristics between the core and experimental questionnaires

Response Rates for Women			Number of Visits		
	Core	Exper		Core	Exper
Completed	94.6	94.5	1	83.6	84.1
Absent	4.0	3.4	2	11.5	11.6
Refused	0.5	0.7	3	3.2	2.1
Partial	0.1	0.2	4	1.6	2.2
Other	0.8	1.2			
			Total	100	100
Total	100	100			

Number of Women Interviewed		Duration of Interview (Minutes)		
Core	Exper		Core	Exper
4997	2534	Mean	29.8	30.9
		Median	26.0	26.3

Because the two surveys used such different questionnaires, it is of particular interest to compare the lengths of the interview. While the core questionnaire collected a completed birth history, the experimental used a truncated one. However, the latter survey collected several pieces of information (e.g., marriage, residence and employment histories) not included in the core. The close agreement in both mean and median duration of the interviews suggests that the time saved by collecting a truncated birth history was compensated for by the collection of the additional calendar information. Although the interviewing time for sections of the questionnaire is not available, it appears that inclusion of the calendar in the experimental questionnaire did not substantially increase the duration of interview.

A more difficult comparison is ascertaining the extent to which interviewers preferred one questionnaire over the other. Our experience in the training of supervisors and interviewers indicated that their initial preference was for the core questionnaire, because its complete specification of questions

required less training. However, after about one week of training, the majority of interviewers preferred the experimental questionnaire because it more naturally allows for the probing of information and it permits interviewers to check the consistency of one type of data against another. In particular, interviewers could easily determine if reported dates of pregnancy and birth were consistent with reported dates of contraceptive use. In contrast, there was no method for reconciling these two types of data in the core questionnaire. One consequence of this preference for the experimental questionnaire was that interviewers attempted to use calendar-type probes in the core questionnaire, which may have compromised the comparison to some degree.

2.2   Sampling Errors

In order to determine whether differences in estimates derived from the two questionnaires are significantly different, the calculation of sampling errors is required. Sampling errors were computed for both questionnaires for a list of variables proposed by DHS staff (Institute for Resource Development, 1988), as well as for many of the variables included in this evaluation. The sampling errors were computed on the basis of the actual multi-stage cluster sampling design in the Peru DHS surveys and were calculated with an updated version of the WFS program CLUSTERS (Verma and Pierce, 1987). In several cases in the following chapters, sampling errors are calculated on the assumption of simple random samples--the required calculation based on the actual sampling design would have been very complicated. These cases are noted in the text.

Sampling errors for some of the variables used in this report are shown in Table 2.2.1 and 2.2.2. Several measures of fertility are examined, including parity and the general fertility rate, mean age at first union, current and ever use of contraception, and sex ratios at birth. The following is presented for each variable: the base population for the estimator, the actual estimate, its standard error, the number of cases used in the calculation, the design effect (i.e., the ratio between the standard error from the actual sampling design and the standard error from a simple random sampling scheme), the rate of homogeneity (roh, which is a function of the nature and size of the clusters) and, finally, the relative error (the standard error divided by the estimate in percentage terms).

The reported values show that relative (standard) errors are under 5 percent for most of the variables in both samples. Those from the experimental sample are predictably larger than those from the core. The following summary statistics provide a general sense of the magnitude of the sampling errors: the average relative error is 2.6 percent in the core and 3.5 percent in the experimental sample; the mean design effect is 1.14 in the core and 1.07 in the experimental sample; and, roh averages 0.036 and 0.035 in the two samples respectively.

2.3   Comparability of the Samples

In order to assess the degree to which the two samples are comparable, several pieces of information collected with the same questions in the two surveys were compared: age, marital status, and years since first union. The results, presented in Table 2.3, indicate remarkably similar distributions for the two surveys. A comparison of mean parity by age of women (presented in Chapter 3) also yields similar values for both surveys. These comparisons suggest that the core and experimental samples are statistically comparable.[1]

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[1] One discrepancy that arose in the comparison between the two questionnaires concerns estimates of age at first union. Table 2.2 indicates that the mean age at first union for all ever-married women equals 19.6 in the core and 20.4 in the experimental questionnaire; further analysis demonstrates that the differences are concentrated among cohorts aged 30 and above. These differences are indeed surprising since the date at first union is obtained with the same questions in both surveys.

Table 2.2.1 Sampling errors for some selected variables, core sample

Variable	Base Population	Estimated Value	Standard Error	Number of Cases	Design Effect	ROH	Relative Error (%)
Percent ever married	All	0.648	0.008	4997	1.148	0.012	1.23
Mean age at first union	Ever married	19.590	0.086	3237	1.183	0.056	0.44
% currently married	All	0.580	0.008	4997	1.098	0.017	1.38
% currently pregnant	All	0.065	0.004	4997	1.055	0.010	6.15
Mean number children ever born	All	2.659	0.046	4997	1.087	0.016	1.73
Sex ratio at birth 1980-82	All	1.031	0.047	4997	1.018	0.046	4.56
Sex ratio at birth 1983-86	All	1.068	0.043	4997	1.006	0.041	4.03
GFR 1980-82	All	0.180	0.005	4997	1.260	0.051	2.78
GFR 1983-86	All	0.138	0.004	4997	1.296	0.059	2.90
% ever used contraception	All	0.428	0.009	4997	1.283	0.056	2.10
% currently using	Currently married	0.458	0.011	2899	1.207	0.071	2.40
% wanting no more children	Currently married, not sterilized	0.678	0.010	2701	1.092	0.033	1.47
% children with diarrhea in the past two weeks	All births since January 1981	0.293	0.010	3388	1.116	0.022	3.41

Table 2.2.2 Sampling errors for some selected variables, experimental sample

Variable	Base Population	Estimated Value	Standard Error	Number of Cases	Design Effect	ROH	Relative Error (%)
Percent ever married	All	0.663	0.011	2534	1.128	0.050	1.66
Mean age at first union	Ever married	20.370	0.123	1678	1.053	*	0.60
% currently married	All	0.588	0.011	2534	1.159	0.060	1.87
% currently pregnant	All	0.069	0.005	2534	1.008	0.003	7.25
Mean number children ever born	All	2.668	0.060	2534	1.020	0.007	2.25
Sex ratio at birth 1980-82	All	0.974	0.061	2534	0.982	0.062	6.26
Sex ratio at birth 1983-86	All	1.109	0.063	2534	1.005	0.057	5.68
GFR 1980-82	All	0.170	0.006	2534	1.096	0.033	3.53
GFR 1983-86	All	0.146	0.004	2534	1.112	0.030	2.74
% ever used contraception	All	0.436	0.011	2534	1.149	0.059	2.52
% currently using	Currently married	0.452	0.013	1493	1.019	0.007	2.88
% wanting no more children	Currently married, not sterilized	0.695	0.023	1386	1.015	*	3.31
% children with diarrhea in the past two weeks	All births since January 1981	0.290	0.013	1775	1.093	0.036	4.48

*Not calculated because the average size per cluster is less than six for the denominator.

Table 2.3 Comparison of basic distributions between core and experimental
          questionnaires

	Completed Years of Age			Woman's Education	
	Core	Exper		Core	Exper
15-19	22.1	20.9	< 4 yrs.	28.8	28.7
20-24	18.8	19.5	4-6	20.2	21.1
25-29	16.1	15.7	1-4 sec.	21.1	21.0
30-34	13.7	13.7	5-6 sec.	20.7	20.3
35-39	11.5	11.8	Higher	9.2	8.9
40-44	9.7	10.0			
45-49	7.8	8.1	Total	100	100
Don't Know	0.2	0.3			
Missing	0.1	0.1			
Total	100	100			

	Marital Status			Years Since First Union	
	Core	Exper		Core	Exper
Living together	17.9	17.9	0-4	19.5	18.5
Married	40.1	41.0	5-9	21.6	23.5
Widowed	1.4	1.8	10-14	19.6	20.3
Divorced	0.4	0.2	15-19	15.5	15.0
Separated	5.0	5.2	20-24	11.9	11.2
Never married	35.2	33.7	25+	11.9	11.5
Total	100	100	Total	100	100

References

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Verma, V. and M. Pierce. 1987. *CLUSTERS: User's Manual. Version 3.0.* International Statistical Institute Research Center. Document No. 131. Voorburg, Netherlands: International Statistical Institute.

CHAPTER 3

ESTIMATES OF FERTILITY AND INFANT AND CHILD MORTALITY

3.1   Introduction

One of the most important differences between the experimental and core questionnaires is the application of a truncated birth history in the experimental survey, in contrast to the full birth history collected in the core DHS questionnaire. Information on fetal deaths as well as dates of infant and child deaths were collected as part of the truncated birth history in the experimental survey. By comparison, no data on fetal mortality were collected in the core survey, and dates of infant and child deaths were collected for the entire birth history. The evaluation of the truncated history has been a particularly important part of the analysis because of its recent use by the Centers for Disease Control in several fertility surveys, as well as the potential implementation of a truncated history in future surveys.

Fertility surveys conducted in developing countries over the past several decades have differed widely in their approaches to collecting data on births. The complexity of questionnaires has ranged from those typically found in the Contraceptive Prevalence Surveys which include only a simple question on the number of births within the past year or the date of the last live birth, to those in the World Fertility Survey which include a complete birth history. In the past decade, several intermediate strategies for collecting fertility data have been adopted: e.g., surveys conducted by POPLAB and the Centers for Disease Control collected information on the date of the last live birth and the penultimate pregnancy (Sullivan et al., 1981; Anderson, 1983).

There are obvious advantages and disadvantages to each of these approaches. Complete birth histories clearly provide a much richer data set to analyze trends in fertility, variations across cohort and time period, and characteristics of birth intervals. In addition, such data permit the analyst to use a variety of consistency checks to assess the extent of reporting errors in the birth histories (e.g., omission of vital events and reference period errors in the dating of events). On the other hand, complete histories are more expensive to collect and to code, are more likely to contain errors with regard to past events, and often require a substantial amount of imputation, especially with regard to information for periods distant from the survey.

Although simple questions with regard to the last live birth are relatively easy and inexpensive to obtain, the resulting estimate of fertility is restricted to the year prior to the survey and is subject to large sampling and reference period errors. Questions based on the last two births obviously produce estimates with smaller sampling errors but may not provide an efficient strategy for obtaining estimates of recent fertility because much of the data collected would ultimately be disregarded.

An alternative approach to collecting recent fertility information is to use a truncated history approach: i.e., to obtain information for all and only those births which occurred during the five-year period prior to survey. There are several advantages to this type of history: the quality of date reporting for the most recent five-year period tends to be considerably better than that for earlier periods of a birth history, and the information in a truncated history is easier and quicker to obtain from respondents. A five-year truncated history also has the advantage of providing almost twice the sample size for recent age-specific fertility rates than would data on the most recent two births.

Although the truncated history has some clear advantages, there is very little experience with its use. Several demographers have stressed the importance of evaluating the truncated history design (for example, Cleland, 1985; Anderson, 1983). Their concerns stem from some of the potential misreporting problems associated with collecting information for a fixed time period. Specifically, respondents may

omit dead children, an error which is less likely with a full history because the interviewer can check against an earlier report of the total number of children who died; and, the interviewers may consciously shift dates of birth backwards against the reference boundary (e.g., the date five years prior to survey) so as to minimize their workload.

3.2 Peru Questionnaire

In both the core and the experimental questionnaires in Peru, the first questions pertaining to fertility are the standard set of Brass questions on sons and daughters ever born, with separate questions for living children, children who died, and children who are no longer living at home. The remainder of the fertility section is entirely different for the two questionnaires since the core survey is based on a full birth history and the experimental survey incorporates a truncated history, with an additional component for fetal deaths.

The full birth history design is similar to that used in World Fertility Surveys. Specifically, interviewers are instructed to record the name, sex, survival status, date of birth, age at death where applicable, current age, and living arrangement of each child ever born to the woman, beginning with the first birth. The truncated history in the experimental questionnaire proceeds as follows: interviewers are instructed to record the date of birth, name, sex, survival status, and age at death where applicable, for all births since January 1981 and for one prior birth, beginning with the most recent birth. Since interviews took place during the fall of 1986, interviewers are actually recording all births during a period just short of six years in length (five years and ten months, on average). The inclusion of the birth preceding January 1981 effectively extends the reference period to almost seven years. Additional reasons for inclusion of the prior birth are to minimize the possibility that interviewers shift dates of birth across the January 1981 boundary (in order to greatly reduce the amount of data collection in subsequent sections of the questionnaire) and to permit calculation of the length of the preceding interval for births in the reference period. Because of the importance for demographic analysis of the woman's age at first birth, an additional question on date of first birth follows the truncated history.

Calculations from the core survey in Peru indicate that births between January 1981 and interview date constitute 29 percent of all of the births collected in the full history. These are the births for which extensive information is collected in the truncated history. Information on date of birth is also collected for the most recent birth prior to 1981 and for the first birth. Taken all together, these births comprise 62 percent of the births in the full history. These estimates suggest that the truncated history would take roughly half as long to collect as would the full history. This could easily be an overestimate, however, since respondents are apt to supply information for recent events much more easily than for more distant events.[1]

Following the truncated history in the experimental questionnaire, interviewers collected data on "other pregnancies": pregnancies which terminated in a miscarriage, abortion, or stillbirth. Interviewers recorded the dates and durations of those that terminated subsequent to January 1981 and determined whether any such pregnancies of duration seven months or greater showed signs of life. The objective of these questions is twofold: to improve estimates of contraceptive failure and exposure to pregnancy; and, to evaluate the resulting impact on estimates of fertility and infant (neonatal) mortality--i.e., to determine the frequency with which pregnancies are initially characterized as miscarriages or stillbirths but are subsequently acknowledged to have shown some sign of life. No questions with regard to "other pregnancies" are included in the core questionnaire.

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[1] As described in Chapter 2, the median length of the interview was 26.0 and 26.3 minutes in the core and experimental surveys, respectively. It appears as if the time reduction brought about by the truncated history was compensated for by the additional information collected in the experimental survey, such as the fetal death, union, employment, and migration histories.

There is another important difference between the birth histories collected in the two questionnaires. Following the truncated birth history and the "other pregnancy" history in the experimental survey, interviewers were required to code months of pregnancy[2] in the first column of the calendar. These are the first pieces of information entered into the calendar. Although it is possible that the recording of dates in the calendar improved their accuracy (i.e., interviewers might have checked the reported pregnancy dates with the respondent, particularly if pregnancy intervals appeared to be short), it is more likely that these recorded dates improved the accuracy of subsequent information such as contraceptive use, dates of union, and the employment history; indeed, this is one of the rationales for implementation of a calendar. Another important feature of the experimental questionnaire is the use of the calendar to record months that the respondent spent in a union (consensual union or marriage) for the period 1981-86. These data are important for the calculation of marital fertility rates. Marital fertility rates cannot be obtained directly from data in the core questionnaire since the only relevant information collected was the date of first union.

3.3   Results

Age-Specific Fertility Rates

Table 3.1 presents average numbers of children ever born by five-year group, as estimated from the Brass parity questions in the two surveys. The comparison indicates rather close agreement between the two samples: the only statistically significant difference is the higher parity estimate for 20-24 year olds in the experimental survey.

Table 3.1   Mean number of children ever born, by age

	Core	Experimental
15-19	0.14	0.15
20-24	0.87	1.05
25-29	2.22	2.17
30-34	3.49	3.43
35-39	4.87	4.71
40-44	5.71	5.53
45-49	6.34	6.17
15-49	2.65	2.66

Of particular interest is the comparison of fertility estimates for the recent past. Although only the period 1981-86 is specifically covered by the truncated history (and the calendar), respondents also supplied the date of the most recent birth prior to 1981 as part of the truncated history. These additional dates allow us to calculate fertility for the year 1980 as well. In total, for the period 1980-86, there were

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[2] All pregnancies that terminated in a live birth were recorded in the calendar as eight months of pregnancy followed by a month in which a birth occurred.

2,280 births in the experimental survey and 4,421 in the core. Because interviewers administering the experimental questionnaire were required to enter dates of birth for the period 1981-86 into the calendar, there were no missing dates for these births; two births which occurred during 1980 had missing months. In the core survey, months of birth were missing for a total of 37 births during 1980-86, or less than 1 percent of births.

Overall, the core and experimental surveys yield almost identical estimates of total fertility for the period 1980-86: 4.58 and 4.59, respectively. Thus, there is no evidence of overall omission of births from the truncated history. Cumulative fertility rates through exact age 45, by single calendar year for the period 1980 through 1986, are shown in Table 3.2 and in the left graph of Figure 3.1.[3] In general, both surveys offer a similar impression with regard to the level of fertility and the pattern of recent decline: total fertility rates slightly higher than five in 1980 with a decline to about four by the mid-decade. The sequence of rates is more erratic for the experimental survey, but this is not surprising in view of the fact that the sample size is half as large as that for the core. The differences in estimates between the two surveys are statistically significant for the calendar years 1981 and 1985.[4]

Table 3.2   Cumulative fertility rates through exact age 45, by calendar year

	Core	Experimental
1980	5.44	5.16
1981	5.15	4.66
1982	5.03	4.96
1983	4.53	4.48
1984	4.22	4.38
1985	4.03	4.57
1986	3.89	4.06
1980-82	5.21	4.92
1983-86	4.17	4.38
1980-86	4.58	4.59

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[3] Since no women over age 49 are interviewed, the fertility calculation terminates at age 45. In fact, for calendar year 1980 and the first part of 1981 there is censoring in the age group 44. Since the estimated age-specific fertility rate for the age group 45-49 equals 1.3 per 1,000 for 1985-1986, the cumulative rates in Table 3.4 are only about 0.1 lower than the estimated total fertility rate. Estimates for the calendar year 1986 are based on information through month of interview; on average, 10 months of the year are included in the calculation.

[4] We have used an approximation suggested by Little (1982) to estimate the sampling error of the total fertility rate. This approximation is based on the estimated design effect of the general fertility rate applied to the estimated standard error of the TFR for a simple random sample. The resulting comparison of estimated total fertility rates for single calendar years from 1980 to 1986 yields significant differences (at the 5 percent level) between the core and experimental surveys for 1981 and 1985.

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Figure 3.1
Cumulative Fertility Rates Through Age 44
By Calendar Year
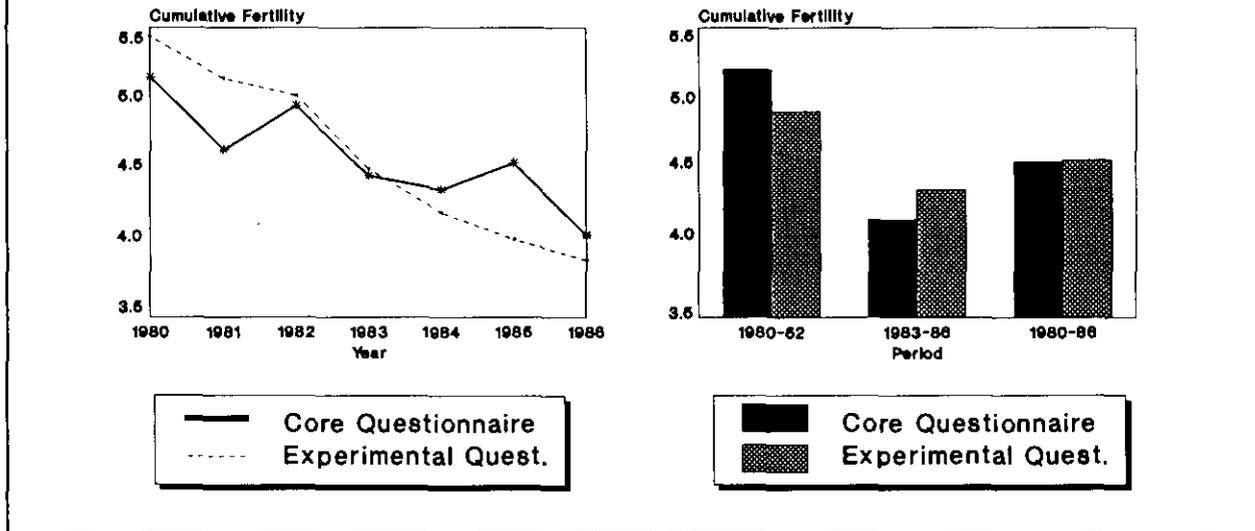
The differences between the two series of estimates is more apparent when the estimates are grouped for the periods 1980-82 and 1983-86. As shown in Table 3.2 and the right panel of Figure 3.1, the two questionnaires provide a different impression of the magnitude of the decline during that time: the estimated decline is almost twice as large based on the core survey (20 percent) as compared with the experimental survey (10 percent). Once again, these differences are larger than those one would expect solely on the basis of sampling error.[5] The differences between surveys imply either a forward displacement of births in the truncated history (i.e., with the period 1983-86 receiving births from the period 1980-82), or a backward displacement of recent births in the core. The estimated age-specific fertility rates for these periods, shown in Table 3.3, indicate that the discrepancies cannot be attributed to a particular age group. Overall, as shown in Figure 3.2, the age-specific pattern of recent fertility looks quite similar for the two surveys.

Unfortunately, we have little external information with which to assess the relative plausibility of the two trends. A national Contraceptive Prevalence Survey that took place between August and December of 1981 provides estimates of age-specific fertility for one year prior to survey. The uncorrected cumulative fertility rate through exact age 45 equals 4.9 and the corrected rate (derived from the P/F procedure applied to first births) equals 5.2 (Instituto Nacional de Estadística, 1983, pp. 60 and 62). These numbers are generally consistent with those in Table 3.2 for both the core and experimental surveys for the years 1980 and 1981. Although birth registration is not complete in Peru, it would be useful to compare the estimated decline in fertility over the period 1980-86 from registration data with those obtained from the DHS data. Unfortunately, birth registration data are available (in unpublished form) only through the early 1980s.

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[5] A comparison of estimated total fertility rates for these periods indicates that the differences between the core and experimental surveys for both periods (1980-82 and 1983-86) are statistically significant (at the 5 percent level).

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Table 3.3 Age-specific fertility rates (per 1,000) for 1980-82 and 1983-86

	1980-82		1983-86	
	Core	Experimental	Core	Experimental
15-19	106.6	108.9	79.8	91.5
20-24	230.7	231.5	189.6	207.3
25-29	248.0	221.5	202.6	213.9
30-34	212.1	198.3	169.1	181.0
35-39	146.7	134.0	130.1	123.2
40-44	97.2	89.7	62.3	58.7

Figure 3.2
Age-specific Fertility Rates
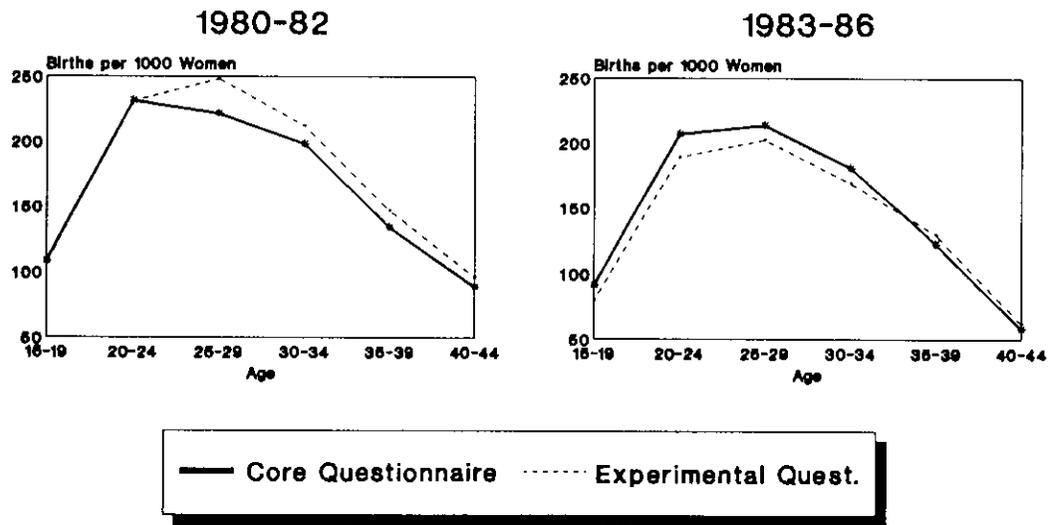
Given the relatively modest increase in contraceptive use during the 1980s, it appears as if the estimated fertility decline derived from the core survey is too large.[6] This concern prompted more thorough evaluation of the data collected in the full birth history of the core survey. In particular, estimates were made of cumulative fertility rates through exact age 35 for single calendar years back to 1970; these were compared with the comparable estimates obtained from the World Fertility Survey (Table 3.4). In addition, estimates of age-specific fertility and mean parity as of dates in the past were reconstructed, so that they could be compared with the corresponding information published in Céspedes (1982) for both the 1977-78 World Fertility Survey (WFS) and the 1975-76 National Demographic Survey (EDEN). The latter estimates consist of mean numbers of children ever born per five-year age group of woman (Table 3.5) and age-specific fertility rates for three-year periods from the period 1962-64 through 1974-76 (Table 3.6). The comparisons shown in these tables reveal several inconsistencies. First, as shown in Table 3.4, there is a substantial amount of heaping in the DHS survey on even calendar years, particularly 1974 and 1976.[7] In addition, estimates derived from the DHS tend to be higher for the 1970s than those derived from the WFS. This discrepancy is confirmed in subsequent calculations. Estimated parities shown in Table 3.5 indicate that as of the mid- and late-1970s, the reported numbers of births in the DHS survey exceed those in both of the earlier surveys for most age groups. Comparisons of age-specific fertility by period with WFS data (in Table 3.6) indicate that the relative surplus in the DHS is particularly large in the mid-1970s (and in the early 1960s) and it occurs for most age groups.

A reported excess of births for a period approximately a decade prior to survey is consistent with the Potter hypothesis of misreporting (Potter, 1977), which is based on the supposition that the oldest cohorts of women displace dates of birth forward from the earlier periods toward the survey date. There is, however, only slight evidence (not shown here) that women over age 40 in the DHS survey have lower than expected fertility at the youngest ages. Of more importance, it is not clear from these comparisons whether this surplus of births in the past is produced partly as a result of backward displacement of dates of birth from the 1980s, a type of error which would, of course, greatly exaggerate the estimated recent decline in fertility. It is also possible that the DHS survey obtained a more complete count of births than did the earlier surveys, although the general agreement between WFS and EDEN (Céspedes, 1982) casts doubt on this hypothesis.

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[6] We undertook a more complete analysis of fertility change during the period 1980-86, based on data from the 1981 CPS and the 1986 DHS core questionnaires. Estimates of the TFR for 1980 (from the CPS) and for the period 1984-86 (from the DHS core) indicate a decline of exactly one child (from 5.0 to 4.0); the corresponding estimates based solely on data from the DHS core suggest an even greater decline. Yet, estimates of the proximate determinants derived from current status data in the CPS and in the DHS core indicate almost no change in the proportions of women married, in the prevalence and efficacy of contraceptive use, and in the extent of lactational amenorrhea. Taken together (e.g., in the context of Bongaarts' model of the proximate determinants of fertility), the relevant indices would imply no change in the expected total fertility rate over this time period. The two most plausible explanations for this inconsistency are: (1) underestimates of recent fertility from the core (and possibly also from the experimental) questionnaire; or (2) a large increase in the number of abortions over this period.

It is quite possible that abortions account for a substantial part of the estimated decline. For example, based on estimates from the Bongaarts model, reported levels of total fertility for 1980 and 1984-86 would be consistent with total abortion rates of about 0.8 and 1.1 respectively (or abortion ratios of about 0.17 and 0.27 abortions per live birth). Estimates based on the number of abortion complications admitted to hospitals in 1977 and 1981 indicate that between these years, the number of abortions in Peru approximately doubled. The estimates imply an abortion ratio of between about 160 and 270 abortions per 1,000 live births in 1977 and between 280 and 470 abortions per 1,000 live births in 1981 (Singh, 1989). Although the abortion data refer to an earlier time interval than do the estimated fertility rates from the CPS and DHS surveys, the data suggest that an increase in the abortion rate could account for much of the reported fertility decline.

[7] The latter may be due to a reporting of the age of the child as 10 years.

Table 3.4   Cumulative fertility through exact age 35, reconstructed
            from the core DHS questionnaire and the World Fertility
            Survey, for single years from 1970 to 1981

	WFS	DHS (Core)
1970	4.9	(4.9)*
1971	4.4	(4.4)*
1972	4.8	4.8
1973	4.5	4.7
1974	4.4	5.0
1975	4.1	4.1
1976	4.0	4.9
1977		4.1
1978		4.5
1979		3.8
1980		4.2
1981		3.9

Note: Estimates from the World Fertility Survey are taken from
Céspedes (1982), p. 31.

*   Values in parentheses are censored because the oldest ages of
women from the DHS survey during 1970 and 1971 are 33 and 34,
respectively.

The numbers presented earlier in Table 3.2 offer little evidence that interviewers minimized their workload in the experimental survey by displacing birth dates over the January 1981 boundary. The slightly higher estimate of fertility for 1980 from the core survey could be a consequence of some displacement error on the part of the interviewer, but could just as well be the result of heaping on the calendar year 1980. It is important to recognize that, although the core survey in Peru contained a full birth history, such displacement could still have occurred since only women whose births occurred during 1981 or later were eligible for certain sections of the questionnaire (health and breastfeeding and fertility planning). There is some evidence from other DHS surveys that displacement of dates of birth occurred from the first year of eligibility to the preceding year; in the case of Peru, this would imply a displacement of births from 1981 to 1980.

Although the "other pregnancy" history was included in the experimental survey, in part to improve collection of fertility data, it had absolutely no impact on the estimated count of births. A total of 173 fetal deaths were reported to have occurred since January 1981, constituting 8 percent of all pregnancies reported in this period.[8] Of these fetal deaths, 7.5 percent were interrupted at duration seven months or later. However, none of these was acknowledged to have shown any signs of life.

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[8] A comparison with survey data in the U.S. and Matlab, Bangladesh, (Pebley et al., 1985) indicates a substantial underreporting of abortions and stillbirths in the fetal death history.

Table 3.5 Mean number of children ever born, by five-year age group, reconstructed from the core DHS questionnaire and reported in EDEN (1975-76) and WFS (1977-78)

Age group	As of survey date of EDEN		As of survey date of WFS	
	DHS	EDEN*	DHS	WFS*
15-19	0.22	0.14	0.22	0.16
20-24	1.22	1.01	1.23	1.07
25-29	2.91	2.55	2.73	2.55
30-34	4.37	3.95	4.30	4.02
35-39	5.26	5.22	5.42	5.46

*These estimates are taken from Céspedes (1982), pp. 29 and 35.

Table 3.6 Age-specific fertility rates reconstructed from the core DHS questionnaire and the World Fertility Survey for three-year periods

Age Group	1962-64		1965-67		1968-70		1971-73		1974-76	
	WFS	DHS	WFS	DHS	WFS	DHS	WFS	DHS	WFS	DHS
15-19	110.6	134.9	122.1	132.2	104.9	110.8	95.7	113.7	90.2	107.4
20-24	273.3	304.6	280.6	278.0	286.1	291.0	265.1	277.2	238.9	266.0
25-29	301.7	(303.4)	303.2	(294.6)	311.7	304.5	291.3	294.4	263.0	305.4
30-34					266.7	(286.6)	255.0	245.2	238.9	261.4
35-39									164.1	(196.6)

Note: Values in parentheses are censored because the oldest age of women from the DHS Survey during the respective years is below the endpoint of the age group.

Note: Estimates from the World Fertility Survey are taken from Céspedes (1982), p. 32.

Marital Fertility

Data collected in the experimental survey allow for calculation of marital fertility rates for the period covered by the calendar. Although the only dates of union collected in the main body of the experimental questionnaire are the months and years of first union and most recent union, each month spent in a union during the years 1981 to 1986 is coded in column 5 of the calendar. The resulting estimates of marital fertility by duration since the first union for the period 1981-86 are shown in the first column of Table 3.7. Only months spent in a union (legal marriage or consensual union) are included in

the denominator of these rates and only births which occurred during a union are included in the numerator. By contrast, the estimates in the second column are ever-married fertility rates, also based on the experimental questionnaire: all births and exposure since the date of first union are included in the calculation.[9] Estimates based on the calendar are higher than those based only on the date of first union, but the extent of extra-marital fertility seems overall to be quite modest: i.e., the difference in the estimated total marital fertility rate (based on the first 25 years of marriage duration) is about one-quarter of a child higher based on the calendar. Overall, for the 1981-86 period, 92 percent of months since first union were spent within a union and 96 percent of births after first union occurred within a union.

Table 3.7 Duration-specific fertility rates (per 1,000) for 1981-86, based on marital exposure, experimental questionnaire

Years Since First Marriage	Married	Ever married
0-4	367.3	361.4
5-9	256.1	243.2
10-14	161.5	150.3
15-19	127.8	115.7
20-24	97.3	89.5
Total Marital Fertility Rate*	5.05	4.80

*The Total Marital Fertility Rate is defined here as five times the sum of the duration-specific fertility rates for 25 years since first marriage.

Infant and Child Mortality

Table 3.8 and Figure 3.3 compare estimates of infant and child mortality, as derived from the full and truncated birth histories, for the period 1981-86. These estimates are derived from a life table program[10] based on exposure between birth and age at interview for all births in the period 1981-86. For both sexes combined, the estimates for neonatal, infant, and child mortality are in close agreement between the two surveys. Thus, there is no apparent overall omission of deaths from the truncated history. Differences by gender appear larger, but are not statistically significant.[11] The surprising result is

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[9] This latter calculation is the only type of marital fertility rate which can be calculated from the core survey.

[10] The computer program was adapted from that used by the World Fertility Survey; see Rutstein (1984) for details.

[11] The tests for significant differences between the core and the experimental surveys were calculated for $_5q_0$, based on the assumption of simple random samples.

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a reversal of the expected sex difference in mortality as estimated from the experimental survey, with females having slightly higher mortality than males in all age groups. Since the only questions explicitly dealing with gender are the same in the two questionnaires, there is no apparent explanation for this difference.

Table 3.8 Probability of infant and child death (per 1,000) for 1981-86, by sex

	Core	Experimental
Males		
Neonatal	37.8	28.7
$_1q_0$	81.9	73.5
$_4q_1$	38.9	27.3
$_5q_0$	117.6	90.8
Females		
Neonatal	28.7	35.3
$_1q_0$	69.7	78.3
$_4q_1$	37.6	37.9
$_5q_0$	104.7	113.2
Both Sexes		
Neonatal	33.4	32.0
$_1q_0$	76.0	75.9
$_4q_1$	38.2	32.5
$_5q_0$	111.3	105.9

Figure 3.3
Probabilities of Infant and Child Death
For 1981-86, by Sex
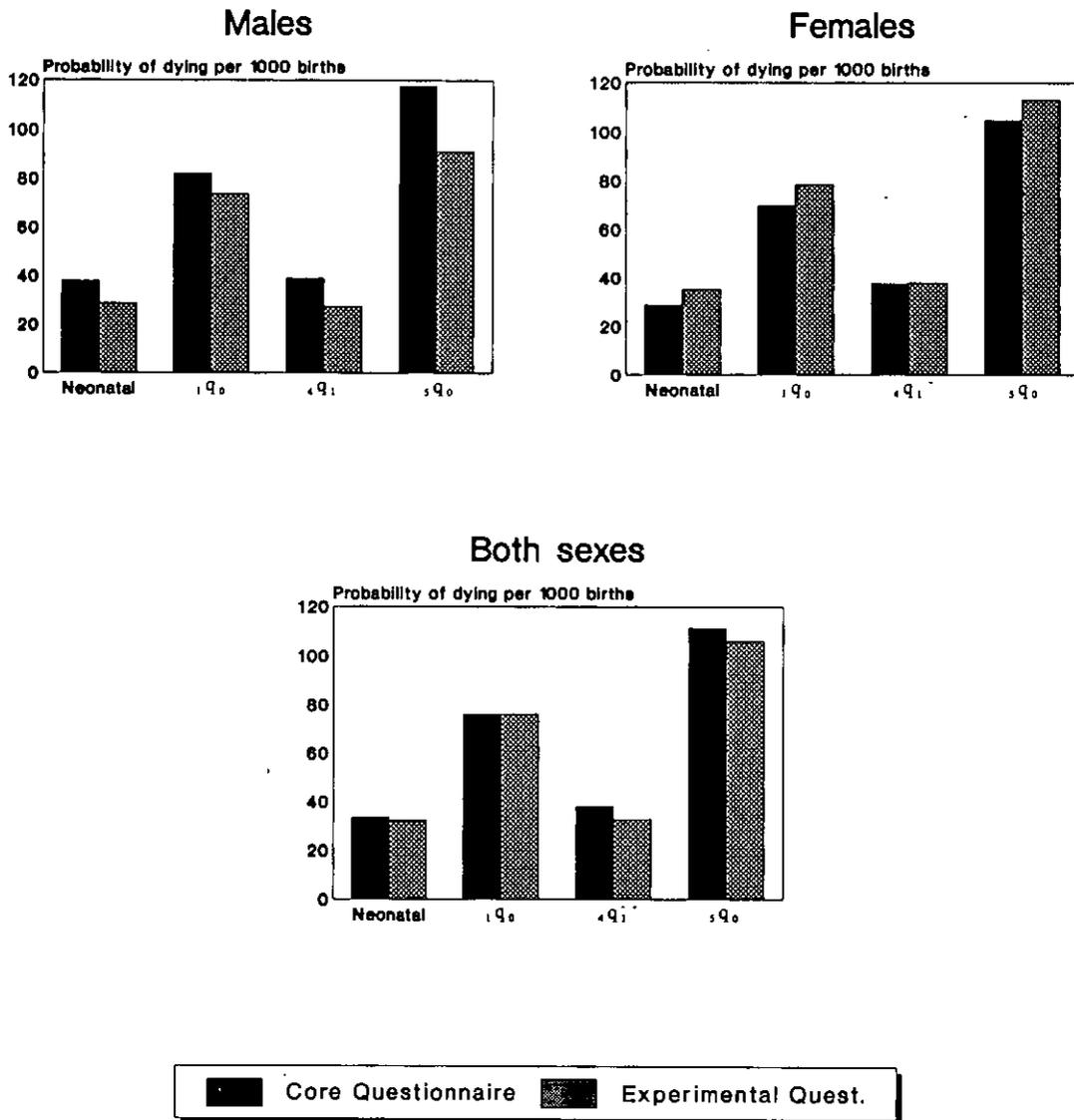
3.4   Conclusions

When the goal of a fertility survey is to collect information on time trends in fertility or to analyze fertility behavior by cohort, it is clear that a truncated history cannot replace a full birth history. However, when the objective is to estimate recent fertility rates, the type of truncated history incorporated into the experimental questionnaire appears to be an efficient and reliable data collection strategy. The results presented above indicate close agreement between the estimates of fertility and mortality derived from the truncated history and those estimated from the complete history for the most recent six- to seven-year period. The most important discrepancy is the difference in the estimated trend in fertility within the period 1980-86.

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CHAPTER 4

CONTRACEPTIVE KNOWLEDGE, EVER USE, ACCEPTABILITY, AVAILABILITY, AND REASONS FOR NONUSE

4.1   Introduction

A major focus of the experimental questionnaire is the subject of contraception. For the purposes of this report, the topic has been divided into two chapters. The current chapter considers reported information on contraceptive knowledge, ever use, acceptability, availability, and reasons for nonuse of contraception. The subsequent chapter focuses on information collected via the calendar: in particular, estimates of contraceptive prevalence and the implications for the resulting estimates of contraceptive failure and discontinuation. The first question of interest is whether knowledge of different methods of contraception and reports of ever use are influenced by the order of the presentation of the methods in the interview.

4.2   Knowledge of Contraception

The third section of each questionnaire is devoted to the collection of information on contraception. In the first part of this section, data are collected on contraceptive knowledge, ever use, availability and acceptability. Questions on knowledge and ever use are essentially the same in the two questionnaires: the respondent is first asked (Q. 302) to mention spontaneously any method she knows; the interviewer subsequently reads a description of each method and asks the respondent whether she has heard about the method (Q. 303) and whether she has ever used it (Q. 304). However, the questionnaires differ with regard to the ordering of methods. In the core questionnaire, the ordering proceeds, in general, from more to less effective methods: pill, IUD, injection, vaginal methods, condom, sterilization, rhythm, and withdrawal. By contrast, in the experimental questionnaire, the order is basically reversed: rhythm, withdrawal, condom, sterilization, injection, vaginal methods, IUD, and pill.

The comparison of responses is shown in Table 4.1. The percentages of women who know about each method, both with and without hearing the description read by the interviewer, are very similar as derived from the core and the experimental surveys. For only two methods do the estimates disagree by more than three percentage points: after having been probed, the percentage of women who heard of injection is slightly higher in the experimental survey and the percentage who heard of rhythm is slightly higher in the core survey. These are the only differences which are statistically significant. It appears that the order in which the methods are presented does not have a large effect on the resulting estimates of knowledge.

4.3   Ever Use of Contraception

Estimates of the percent of ever-married women who have ever used each of the contraceptive methods are presented in Table 4.2. The basic questions are the same in the two questionnaires; only the ordering of the methods is different. The agreement between the core and experimental survey is remarkable: 63.6 percent and 63.4 percent have ever used any method of contraception, as derived from the core and experimental surveys, respectively. The estimates are very similar for each of the specific methods as well. None of the differences between the two questionnaires are statistically significant.

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Table 4.1 Knowledge of contraception by method, all women, core and experimental questionnaires

| | Percent Who Heard of Method | | | |
| | Yes (Spontaneous) | | Yes (Probed) | |
Method	Core	Experimental	Core	Experimental
Pill	50.9	49.9	24.4	25.7
IUD	37.3	34.9	31.1	33.1
Injection	27.9	27.2	36.0	40.0
Diaphragm, Foam, Jelly	13.7	14.2	28.0	30.3
Condom	9.8	9.8	37.6	39.3
Female Sterilization	8.8	8.7	63.6	64.9
Male Sterilization	1.2	1.4	24.0	26.6
Rhythm	22.1	23.3	49.0	43.6
Withdrawal	2.6	2.9	39.1	37.0
Number of Women	4997	2534		

Note: In the core survey, methods were presented in the following order: pill, IUD, injection, diaphragm, condom, female sterilization, male sterilization, rhythm, and withdrawal; in the experimental survey, methods were presented as follows: rhythm, withdrawal, condom, male sterilization, female sterilization, injection, diaphragm, IUD, and pill.

Table 4.2 Ever use of contraception by method, ever-married women, core and experimental questionnaires

| | Percent Ever Using Method | |
Method	Core	Experimental
Pill	21.7	21.1
IUD	10.9	10.9
Injection	9.0	9.8
Diaphragm, Foam, Jelly	7.9	8.0
Condom	9.4	9.4
Female Sterilization	5.8	6.8
Male Sterilization	0.0	0.2
Rhythm	38.5	36.6
Withdrawal	18.3	17.5
Any Method	63.6	63.4
Number of Women	3237	1679

Note: For a given method, the number of responses classified as "unknown" ranges between 1 and 14 in the core and 0 and 8 in the experimental survey.

The agreement between estimates of ever use occurred, however, in spite of the fact that only in the experimental questionnaire did interviewers probe respondents who did not acknowledge ever having used any of the listed methods to determine whether this was actually the case. A total of 79 women responded positively to this probe, of whom about one-third acknowledged having used rhythm and one-fifth did not acknowledge a specific method. If women who responded positively to this probe question are eliminated from the count of ever users, the estimate of the percent of ever-married women who ever used contraception declines from 63.4 percent to 59.0 percent. These estimates suggest that the inclusion of a probe question for ever use had a significant effect on the resulting estimate; however, there is no apparent explanation for the agreement of estimates from the two surveys.

4.4 Acceptability

Two different approaches were made to assess the acceptability and reputation of specific contraceptive methods in the two questionnaires. The question (Q. 307) in the core questionnaire, addressed to all women who have ever heard of the method, is:

"What do you think is the main problem with using (METHOD)?"

In the experimental questionnaire (Q. 304A), the respondent was cast in the role of an advisor:

"If a woman did not want to become pregnant, would you advise her or her partner to use this method? If no, why not?"

In both instances, a similar list of reasons was provided for the interviewer to code the open-ended response.

Our interest here is three-fold: (1) Do the different approaches yield the same method-specific profiles of problems? (2) Do the different methods have the same relative acceptability when judged by the two different questions? and (3) Which question is better to include in the next version of the model questionnaire?

Reputation of the Methods

The pre-coded response categories had many identical terms but a few that were different. The identical or very similar codes consisted of health concerns, not easily available, ineffective, interferes with sex, too expensive, irreversible, other reason, and "don't know." The differences consisted of two categories in the core but not in the experimental questionnaire ("fear, forgetfulness," and "partner disapproves") and one in the experimental questionnaire but not in the core ("against contraception"). None of these two categories attracted many responses, so they were added to the "other" category, along with "cost" or "too expensive" (which also did not show a high frequency of response). Hence, only "health concerns," "ineffective," and "don't know" are frequent responses to the nonacceptability of a method. For some methods, "interferes with sex" and "other" responses occur reasonably often, so that for convenience we show these categories as well.

The distribution of perceived problems is based on women who recognized the method and responded that they saw a problem with its use (core questionnaire) or that they would not advise a woman to use the method (experimental questionnaire). Even among this subset, however, there is a substantial fraction of women who reply "don't know" to the question about the main problem with using the method or to the "why not?" question addressed to women who would not recommend the method. Such responses range from a low of around 20 percent for the pill and the IUD to quite high values for the diaphragm and male sterilization.

Most of the responses are predictable (Table 4.3). The pill, the IUD, injection, and female sterilization stimulate mainly health concerns, although the percent of "don't know" responses to female sterilization is the same as that for health concerns. Male sterilization is simply not known by most Peruvian women, so the information on its "problems" is not revealing. Periodic abstinence is faulted mainly for being ineffective. The modal response about the two male methods of the condom and withdrawal is "don't know" with more substantive complaints spread across several categories.

Table 4.3 Perception of problems about methods among women who ever heard of the method

Method	Health Concerns	Ineffective	Interferes with Pleasure	Other Problems	Don't Know*	Percent Total	Number of Women
Pill							
Core	70.9	6.1	--	3.5	19.4	100	3050
Experimental	62.4	4.7	0.2	9.1	23.4	100	1041
IUD							
Core	56.1	21.0	0.7	2.3	19.8	100	2646
Experimental	54.7	8.9	0.9	8.5	26.9	100	740
Periodic Abstinence							
Core	1.5	60.7	0.3	2.6	34.7	100	2130
Experimental	3.5	50.2	2.4	7.6	36.2	100	538
Injection							
Core	53.1	8.8	--	3.0	35.0	100	2187
Experimental	55.2	5.6	--	10.1	29.1	100	939
Diaphragm							
Core	14.4	25.4	1.3	2.1	56.7	100	1109
Experimental	20.8	24.3	4.0	8.2	42.6	100	793
Condom							
Core	15.1	21.2	11.1	2.3	50.3	100	1491
Experimental	25.8	16.3	16.5	7.7	33.7	100	793
Female Sterilization							
Core	42.0	5.4	0.5	11.4	40.7	100	2136
Experimental	30.8	1.8	0.7	37.0	29.8	100	711
Male Sterilization							
Core	13.6	1.0	1.6	10.8	72.9	100	690
Experimental	17.6	0.5	2.8	44.2	34.7	100	386
Withdrawal							
Core	20.0	15.4	13.5	2.7	48.4	100	1166
Experimental	22.5	19.4	19.0	9.5	29.5	100	484

*Includes a small number of "no answers."

For most methods, the profile of negative reactions is similar for the two questions. This generalization applies to the pill, the IUD, periodic abstinence, injection, the diaphragm and, to a lesser degree, to the condom and withdrawal. Only the responses about sterilization appear to be different. As noted above, male sterilization is not sufficiently known to make these results of interest. Female sterilization seems to elicit more health concerns and more "don't knows" in the core questionnaire than in the experimental version. Many of the women who reply "don't know" to these questions are probably

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only vaguely or superficially aware of the method. With only few exceptions, the core questionnaire elicits more of these "don't know" responses than the experimental questionnaire.

In order to anchor these perceptions more firmly and to reduce the frequency of the "don't know" responses, this tabulation was repeated for the subset of women who ever used the method and who perceived some problem with its use (Table 4.4). This restriction, of course, considerably reduces the number of women in the denominator, but it confirms the similarity of the distributions of problems elicited by the two questions.

Table 4.4 Perception of problems about methods among women who had ever used the method

Method	Health Concerns	Ineffective	Interferes with Pleasure	Other Problems	Don't Know*	Percent Total	Number of Women
Pill							
Core	86.4	5.9	0.2	3.8	3.7	100	573
Experimental	83.6	3.1	--	7.8	5.5	100	128
IUD							
Core	66.9	27.9	--	3.4	1.7	100	233
Experimental	66.7	12.1	--	6.0	15.1	100	33
Periodic Abstinence							
Core	1.3	77.8	0.1	2.9	17.9	100	699
Experimental	1.3	71.6	6.1	12.2	8.8	100	148
Injection							
Core	82.1	8.7	--	4.3	4.8	100	207
Experimental	76.5	8.8	--	10.3	4.4	100	68
Diaphragm							
Core	26.7	55.1	0.8	4.7	12.6	100	127
Experimental	16.0	62.0	16.0	4.0	2.0	100	50
Condom							
Core	25.1	35.0	22.9	4.9	12.0	100	183
Experimental	23.7	30.0	25.0	10.0	11.2	100	80
Female Sterilization							
Core	61.1	15.3	--	12.5	11.1	100	72
Experimental	47.8	--	--	43.4	8.7	100	23
Withdrawal							
Core	27.7	19.3	24.0	3.7	25.3	100	296
Experimental	19.6	27.1	23.4	8.4	21.5	100	107

*Includes a small number of "no answers."

Method-Specific Acceptability

The method-specific profiles of problems perceived in Tables 4.3 and 4.4 are limited to the women who perceive a problem with a method or would not recommend it to others. As such, the relative acceptability of different methods cannot be assessed directly. In a crude sense, acceptability can be indexed by the proportions who see no problem or who would recommend the method. These statistics (Table 4.5) are based on the denominators of women who have ever heard of the method. The

ordering of methods by the proportions replying "none" to the main problem question (in the core) and "yes" to the question on whether she would advise a woman to use the method (in the experimental questionnaire) is not the same for the two questionnaires (Table 4.5). Regardless of whether the denominator is all women who ever heard of the method or ever-users of the method, these two questions yield sufficiently different rank orders of imputed acceptability to force the conclusion that they are not tapping the same underlying dimension.

Table 4.5 Method acceptability as inferred from two different questions for all women who ever heard of the method and for all women who ever used the method

| | Percent Responding "None" (Core) or "Yes" (Experimental) | | | |
| | Among Women Who Ever Heard | | Among Women Who Ever Used | |
Method	Core	Experimental	Core	Experimental
Pill	18.9	45.7	20.1	64.8
IUD	22.6	57.1	34.7	82.1
Injection	9.2	44.9	29.8	59.5
Diaphragm	46.7	49.4	52.1	65.0
Condom	37.1	36.3	43.0	51.5
Female Sterilization	41.0	61.7	61.5	79.8
Male Sterilization	45.2	45.5	*	*
Periodic Abstinence	40.0	68.2	46.0	76.7
Withdrawal	44.0	52.1	52.3	65.5

Comparison of the Two Questions

It has been seen that the problems mentioned in response to the two different questions reveal similar patterns by method. Thus, there is little reason to prefer one question over the other. The experimental version is slightly preferable since it evokes fewer "don't know" responses. However, the issue of which question is a better measure of acceptability is inconclusive. In fact, it is far from clear whether either question yields useful information.

4.5 Availability

The subject of the availability of family planning has figured prominently in fertility surveys conducted in Third World countries. Nevertheless, the measurement of availability has never been satisfactorily resolved. In DHS, for example, the emphasis was placed on the actual availability of services as determined primarily through a separate community questionnaire. The subject was represented in the experimental and core questionnaires by the following questions (Q. 305): "Where would you go to obtain the method?" (core) and "What is the nearest place or person from which you or your partner could obtain (this method)?" (experimental). In the case of periodic abstinence, both questionnaires altered the phrasing to one of obtaining advice about the method. Both questions listed the same categories for coding the response.

The results are shown in Table 4.6. There is essentially no difference between the two questions in the distributions of responses; it appears that where the woman would go and the closest place elicit the

same type of answer. The question in the core questionnaire seems marginally preferable because it tends to draw fewer "don't know" responses.

Table 4.6 Sources of supply for different methods as perceived by women who ever heard of the method

	Ministry of Health	Other Hospital	Private Clinic	Doctor's Office	Pharmacy	Other	Don't Know*	Percent Total	N
Pill									
Core	33.6	1.9	0.9	9.3	44.1	2.7	7.4	100	3760
Experimental	31.5	1.4	0.7	4.4	52.9	1.7	7.4	100	1917
IUD									
Core	62.9	3.4	4.1	17.7	3.7	1.7	6.4	100	3417
Experimental	66.1	3.1	3.7	12.5	5.5	1.4	7.6	100	1725
Injection									
Core	34.1	1.6	0.9	13.8	41.8	1.7	6.0	100	3191
Experimental	31.6	0.9	0.8	7.0	49.9	1.6	8.1	100	1704
Diaphragm									
Core	28.1	2.1	1.0	11.4	48.3	1.8	7.4	100	2083
Experimental	24.2	1.1	0.6	4.2	60.3	1.9	7.8	100	1128
Condom									
Core	18.7	1.0	0.6	4.8	58.2	3.0	13.7	100	2370
Experimental	19.3	0.9	0.4	2.6	57.2	4.0	15.6	100	1245
Female Sterilization									
Core	73.2	4.5	11.2	6.6	0.2	0.8	3.4	100	3621
Experimental	74.1	3.9	11.6	3.3	0.2	0.4	6.5	100	1865
Male Sterilization									
Core	59.1	5.0	16.4	9.5	0.2	0.9	8.7	100	1259
Experimental	56.0	4.4	19.2	4.8	0.4	0.8	14.4	100	709
Periodic Abstinence									
Core	52.1	2.3	1.6	18.0	0.4	18.4	7.2	100	3551
Experimental	51.0	2.1	1.8	14.3	--	20.1	10.7	100	1697

*Includes a small number of "no answers."

4.6   Intentions to Use Contraception

Women who were not using a method at the time of interview were asked about whether they intended to use in the future. Two questions were asked in each questionnaire: one about the future in general, and the other about a woman's intention to use in the next 12 months. The experimental variation reversed the order of the two questions from that in the core.

The specific questions in the core questionnaire (Q. 338 and Q. 341) are:

"Do you intend to use a method to avoid pregnancy at any time in the future?"

If the response is affirmative,

"Do you intend to use (PREFERRED METHOD) in the next 12 months?"

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The corresponding questions in the experimental questionnaire (Q. 329 and Q. 329A) are:

"Do you intend to use a method to avoid pregnancy in the next 12 months?"

If the response is "no" or "don't know",

"Do you intend to use a method to avoid pregnancy at some time in the future, say within two, three or more years?"

The results appear in Table 4.7. The experimental questionnaire (in which the "next 12 months" question is asked first) yields a somewhat higher estimate of intentions to use than the core questionnaire. This is true with regard to estimates of intentions to use in the next 12 months, as well as for estimates of intentions to use at any time in the future. There is no obvious explanation for this difference; however, it appears as if the ordering of questions in the experimental questionnaire produced fewer "don't know" responses on aggregate to the two types of information.

Table 4.7 Distribution of intention to use contraception in the future among currently married women not using a method

	Core	Experimental
Use in the Future		
Yes	50.5	56.3
No	41.6	35.0
Don't know	7.8	8.6
Missing	0.1	0.1
Total	100.0	100.0
Use in the Next 12 Months		
Yes	38.9	46.9
No	47.3	45.3
Don't know	13.5[1]	7.4
Missing	0.3	0.4
Total	100.0	100.0
Number of Women[2]	1573	814

Note: Pregnant women are included.

[1] Includes 122 women (7.8 percent) who did not know whether they intended to use in the future (these women were not asked about use in the next 12 months) and 90 women (5.7 percent) who did not know whether they intended to use in the next 12 months.

[2] The number of women who were asked Q. 338 in the core questionnaire and Q. 329 in the experimental questionnaire.

Both questionnaires followed these questions with a question about what method would be preferred by those who intended to use; the distributions of preferred methods were very similar (not shown).

4.7   Reasons for Nonuse

Since fertility and family planning surveys are focused in part on attempting to explain what kinds of people use or do not use contraception, the direct approach of asking women who are not using any method the reasons for nonuse has some appeal and is frequently included in these surveys.

The core questionnaire filtered out several categories of women whose reasons for not using contraception are not revealing, viz., those who have never had sex or have not had sex in the last four weeks, women who are not yet menstruating or have never menstruated, those who are pregnant, and those who would be happy if they became pregnant in the next few weeks. The remaining nonusers (14 percent of the total sample) were asked (Q. 527):

"What is the main reason that you are not using a method to avoid pregnancy?"

The 14 percent are distributed by reasons for nonuse as follows:

Infrequent sex	6.1
Postpartum/breastfeeding	14.4
Menopause/subfecund	2.9
Lack of knowledge or source	9.2
Difficult access	5.2
Religion	1.0
Partner's opposition	6.3
Fear of side effects	15.9
Fatalistic	1.0
Opposed to family planning	0.4
Cost	5.0
Other reasons	11.7
Don't know	17.8
No answer	2.9
Total	100

There are several problems with this approach. First, the category composed of other women who would be "happy" if they became pregnant soon probably includes some infecund women. The proportion of the remaining nonusers who are subfecund or infecund is only 2.9 percent, which seems far too low. Of course, some infecund women could have been excluded because they had not had sex in the past four weeks. Thus, it seems that both the "happy" and the "no sex in past four weeks" categories should not be excluded. This would also have the effect of eliminating the question (Q. 526) on whether they would be happy or unhappy if they became pregnant in the next few weeks. The main reason for retaining some form of this question is to classify some women as nonexposed who have not been detected by other screening criteria.

The core questionnaire also included a question for all respondents (Q. 342) which was designed to probe women's perceptions about reasons for nonuse of contraception:

"Some women do not want to become pregnant and do not use any method. Why do you think that they do not use any contraceptive method?"

The theory is that the question might elucidate social norms about the practice of contraception and indicate what kinds of cultural or other obstacles to use exist. A dozen possible reasons were listed for the interviewer's eyes only, and the interviewer was instructed to circle all reasons mentioned. The responses were as follows:

Lack of knowledge	41.9
Partner disapproves	14.4
Too expensive	12.2
Health concerns	30.5
Method not available	3.9
Religion	4.6
Opposed to family planning	6.3
Fatalistic	2.7
Other people opposed	0.6
Interferes with sex	0.6
Other	9.2
Don't know	29.4
Number of women	4,997

A comparison of the leading reasons with those cited in the later question (Q. 527) addressed to nonusers at risk indicates that health concerns, "don't know," and lack of knowledge are three of the most commonly offered responses.

Does one learn anything from the answers to this question? "Lack of knowledge" is clearly an inaccurate judgment since only 10 percent of Peruvian women are totally ignorant of contraception. The fact that 30.5 percent attribute nonuse to health concerns is informative. Aside from that, the only significant lesson from these data is that there seem to be few cultural impediments to contraceptive practice. In sum, it is not clear that such questions are worthwhile.

In the experimental survey, for the 31 percent of women who are not using any method and who do not intend to use contraception, the following question (Q. 332) was asked:

"What are the main reasons you do not intend to use a method?"

Responses are as follows:

Wants children	8.7
Lack of knowledge	6.9
Partner opposed	1.7
Costs too much	0.8
Health concerns	10.4
Hard to get	0.5
Religion	0.9
Opposed to family planning	0.6
Fatalistic	0.9
Other people opposed	0.1
Subfecund	19.2
Inconvenient	1.7
Not married	31.2
Don't know	15.5
NA	0.9
Total	100

Once again, the resulting information does not appear useful. The main categories of response are not married (31.2), don't know (15.5), subfecund (19.2) and wants children (8.7). The only other answers which have a significant number of responses are lack of knowledge (6.9) and health concerns (10.4). Hence, if such questions are retained in future surveys, at least six answer categories could be eliminated.

CHAPTER 5

CONTRACEPTIVE PREVALENCE AND FAILURE

5.1 Introduction

In spite of the increased utilization and growing complexity of surveys for family planning evaluation, very few assessments of the reliability of data on contraception from these surveys have been carried out, even though standard types of demographic data from the same surveys have undergone rigorous evaluation. There have been virtually no attempts to evaluate the quality of contraceptive data associated with the use of a calendar. Among the few existing studies of the reliability of contraceptive data, most have evaluated only reports of current use. Nevertheless, there is clear evidence that such evaluations are essential. For example, a recent assessment of the consistency of reporting of contraceptive use in three Korean national fertility surveys indicates large inter-survey differences in the completeness of reporting and demonstrates that reports of use for periods in the past are substantially less complete than reports of current use (Pebley et al., 1986). Good questionnaire design is extremely important for eliciting accurate contraceptive histories.

The objective of this analysis is to compare two very different approaches to the collection of information on contraceptive use. The primary concern in this analysis is the comparability of two types of estimates: (1) levels and trends in contraceptive practice during the 1980s, as derived from the standard DHS survey and from the experimental survey; and (2) contraceptive failure and discontinuation which, in turn, are based on reports of prevalence in the two questionnaires. These comparisons implicitly involve an assessment of the calendar approach to collecting dates of use (and reasons for discontinuation) with the tabular format incorporated in the standard DHS survey, which obtains information on use for each birth interval in a recent period prior to survey.

5.2 Peru Questionnaire

As described in the previous chapter, in the third section of both the experimental and the standard questionnaires, the first data to be collected concern contraceptive knowledge, ever use, availability, and acceptability. The next part of this section deals primarily with information on current use of contraception and use within a recent period prior to the survey. Both questionnaires first obtain information with regard to the current method and its duration of use.[1] The remainder of this section differs completely in the standard and the experimental questionnaire. The standard questionnaire next obtains information (including the timing of use) regarding the method used prior to the current method but subsequent to the last birth or marriage (i.e., in the open interval). For women not currently using a method, information on type of method and duration of use is obtained only for the last method used in the open interval. Subsequently, in the standard questionnaire, information on use is collected in a tabular format for the interval preceding **each birth since January 1981**. The questionnaire allows for the coding of up to two methods within an interval; however, duration of use is reported only for the last method in an interval.

By contrast, in the experimental survey, after obtaining information on current use and entering it into the calendar, interviewers used the calendar to probe for all previous segments of use between 1981

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[1] As with the question on ever use, the experimental survey, but not the core survey, refers to the woman's partner: "Are you or **your partner** currently doing something or using any method to avoid getting pregnant?" Both surveys have separate questions for sterilized couples; i.e., the date of sterilization is obtained separately from information on the duration of use of the current method.

and interview date. Interviewers were trained to use information already coded in the calendar to aid the respondent's recall; note that only months of pregnancy and birth had been entered into the calendar at this stage of the interview. Months of pregnancy and months of contraceptive use (including a code of "0" for nonuse) were entered into the first column of the calendar and each month of this column contained one and only one code--a code for pregnancy, birth, nonuse, or use of a particular method (or a specified combination of methods).

Both questionnaires collected information on reasons for termination of use--i.e., whether the use resulted in a pregnancy, whether the woman stopped using in order to become pregnant or whether the method was discontinued for another reason. In the standard questionnaire, this information was obtained as part of the same table which collected information on use within each recent birth interval. In the experimental questionnaire, interviewers were trained to determine the reason for termination for each contraceptive use segment[2] and to code the response in the next column (Column 1A) of the calendar alongside the last month of use for the relevant episode.

5.3   Results

Current Use

Estimates of current contraceptive use as derived from both the core and the experimental survey are shown in Table 5.1 for currently married women. The resulting values from the two surveys are in almost perfect agreement: the percentages of women using any method at the time of the survey equal 45.8 and 45.2 in the core and in the experimental survey respectively. Estimates of current use agree quite closely for each of the specific methods as well.[3] This agreement is not surprising since the only difference between the questions on current use is a reference to the partner in the experimental questionnaire. In general, estimates of current use of contraception seem to be robust to the specific wording of the question (see, for example, Anderson and Cleland, 1984).

There are, however, certain ambiguities with regard to simultaneous use of more than one method. After obtaining information on the current method, interviewers in the core questionnaire asked respondents whether they "regularly use any other method during the same month." It appears that a substantial proportion of women acknowledge such multiple use: for example, 15 percent of current users (excluding sterilized couples) acknowledged using more than one method during the same month; not surprisingly, 60 percent of these multiple users reported their current method as rhythm, and 13 percent as withdrawal.[4] Although the experimental questionnaire did not specifically ask for multiple use, interviewers were trained to probe for such use and the coding of methods in the calendar included three combinations: rhythm and condom, rhythm and withdrawal, and condom and withdrawal. Six percent of current users (excluding sterilized couples) acknowledged using one of these three combinations; the same three combinations totaled to 9 percent of current users in the core. Note that whereas the core survey obtained information on simultaneous method use only for current users, the experimental survey allowed for the above-mentioned combinations for the entire period covered by the calendar.

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[2] A contraceptive use segment is defined as a period of use followed by either a pregnancy or nonuse, but not by another method.

[3] None of these differences are statistically significant at a 5 percent level.

[4] This information was not used in the calculation of current use in Table 5.1.

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Table 5.1   Current use of contraception, by method, currently
            married women


                                     Percent Currently Using Method


                                        Core          Experimental


Any Method                              45.8             45.2

      Pill                               6.5              5.8
      IUD                                7.4              7.6
      Injection                          1.4              1.1
      Diaphragm, Foam, Jelly             0.9              1.1
      Condom                             0.7              0.7*
      Sterilization                      6.2              7.2
      Rhythm                            17.7             17.5ᵇ
      Withdrawal                         3.6              2.7
      Other                              1.5              1.4

No Method                               54.2             54.8

Total                                  100.0            100.0

Number of Women                         2899             1493


*   Includes reported combinations of rhythm and condom (0.2)
and condom and withdrawal (0.1).
ᵇ   Includes reported combination of rhythm and withdrawal
(1.9).
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Comparisons of Previous Use

The comparisons presented above and in the previous chapter suggest that the estimates of contraceptive knowledge, ever use, and current use are robust to the changes in the questionnaire introduced in the experimental survey. However, this does not appear to be the case with regard to the reporting of use for a recent period prior to survey. As the results presented below illustrate, there are substantial differences between the core and the experimental survey in the quality of reporting of previous use.

The first indication of differences between the surveys is the reported duration of use for the method used at the time of the survey. Although the wording of the specific question is similar[5] in the two surveys, the coding of the response is different. In the core survey, the response is coded in terms of the number of months and/or the number of years, including a special code for the interval since the last birth. In the experimental survey, all responses are coded in terms of number of months, with a special code for 96 months or longer. Subsequently, only in the experimental questionnaire, were interviewers instructed to enter the months of use of the current method into the calendar, with each month of consecutive use receiving the appropriate method code. Next, interviewers were instructed to determine the month and year in which the use began if it preceded the starting date of the calendar (January 1981).

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[5] In the core survey, the question reads: "For how **long** have you been using (CURRENT METHOD) continuously?" In the experimental survey, "long" is replaced by "many months."

The net result of these differences is much more heaping of reported durations of use in the core survey. In the experimental survey, there is very little tendency for respondents to over-report rounded durations such as 6, 12, and 24 months, whereas a high proportion of durations are reported as such in the core. The extent of heaping on selected durations for the segment of current use is shown in the left-hand side of Table 5.2. The fact that the heaping is especially high for 24, 36, and 48 months in the core suggests that respondents (or interviewers) simply coded an integral number of years. In fact, over one-quarter of responses to the question on duration of current use was reported as years only. The absence of heaping in the experimental survey is undoubtedly due in large part to the use of a calendar which may have altered interviewer behavior in several ways. For example, interviewers may have verified reported durations in terms of calendar months; and, interviewers could not have accepted reported durations if such durations led to an overlapping of use with pregnancy. On aggregate, the heaping appears to have produced slightly longer durations of reported use in the core survey: mean durations of current use of 39.4 and 38.6 months and median durations of current use of 23.4 and 21.5 months in the core and experimental surveys respectively. Table 5.2 indicates that a large degree of heaping occurred in the core survey within closed birth intervals as well, whereas very little heaping is present in the calendar.

Table 5.2 Index of heaping on particular durations of contraceptive use, for current use and use of last method in closed intervals, ever-married women

Duration (months)	Current Use		Use in Closed Interval*	
	Core	Experimental	Core	Experimental
6	1.4	1.1	2.4	1.4
12	4.1	1.4	7.9	1.0
24	11.7	0.6	13.3	0.8
36	9.1	1.7	10.9	1.6
48	10.1	0.9	5.3	0.0

Note: The index of heaping is equal to the number at the reported duration divided by the average number at the two consecutive durations on either side. For example, the index for six months equals:

$$\frac{\text{\# segments with duration of 6 months}}{(\text{\# segments with durations of 4, 5, 7, and 8 months}/4)}$$

* In order to make the comparison between the core and experimental surveys comparable, this calculation includes only those closed intervals that began subsequent to January 1981.

Although these results suggest better reporting of use in the experimental survey, it is not necessarily the case that the unheaped responses in the experimental questionnaire are more accurate than

the heaped ones in the core.[6] Hence, it is important to evaluate the relative completeness and accuracy of reports of previous contraceptive use by other criteria. Evaluation is necessarily restricted to comparisons of aggregate estimates of use derived from the survey data. Although the goal of such an evaluation is the determination of accuracy, there are no independent measures of contraceptive use which are demonstrably better than those derived from recent surveys. For example, service statistics are incomplete and would be inappropriate for measuring use in a country such as Peru where traditional contraceptive methods dominate.

The objective of aggregate comparison is two-fold: first, to compare estimates of use, as of successive dates, between the two DHS surveys; and second, to compare estimates of current use reported in an earlier survey with estimates of use reconstructed from the DHS data for the date of the earlier survey. Although such calculations of aggregate consistency do not conclusively reveal the sources of discrepancy, reports of current use (from the earlier survey) are usually more complete than the reconstructed estimates derived from reported dates of use in the later survey (Pebley et al., 1986).

Reconstruction of the distribution of contraceptive use as of dates prior to the survey is a straightforward calculation from the experimental data since the calendar allows the analyst to determine use status as of any month between interview and January 1981. However, the same calculation cannot be readily carried out from the standard survey because dates of use are not provided for all segments of use: i.e., only durations of use are reported for segments of use in closed intervals and for the episode of use preceding the current method in the open interval. Hence, a calendar was created from the data reported in the standard survey.

The actual steps involved in the creation of this simulated calendar are described in Appendix A. The goal of the simulation was to use the reported information from the core questionnaire to create a contraceptive and pregnancy history in the same format as the first two columns of the calendar in the experimental survey. Data on dates of pregnancy and birth, months of use for the current method, and reasons for termination of a contraceptive use segment could be directly entered into such a calendar from the information provided in the standard questionnaire.[7] For previous segments of use that were reported to have resulted in contraceptive failure, the dates of use could be determined from the reported duration and the date of the ensuing pregnancy. However, for the remaining segments of use, starting dates of use had to be imputed. Since information on duration of use was not collected for the next-to-last methods in closed intervals, these episodes of use were excluded from the majority of calculations presented here.[8] Experimentation with various imputation schemes has demonstrated that estimates of prevalence and, especially, estimates of failure and discontinuation are much more sensitive to reported durations of use than to reports of the specific timing of use within a narrow period.

Based on the resulting calendar simulated from the core questionnaire and the actual calendar in the experimental questionnaire, trends in contraceptive use for the period 1981-86 were estimated. Figure 5.1 shows the resulting percentages of ever-married women 15-44 using a contraceptive method as of

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[6] The fact that the extent of heaping is less for respondents with more education suggests that the less heaped responses are more accurate.

[7] In cases where the necessary information was missing, responses were imputed according to the procedures described in Appendix A.

[8] As described later and in Appendix A, information on the use of next-to-last methods was actually imputed into the simulated calendar; however, this exposure was coded in a different manner from other contraceptive exposure so that it could easily be excluded from subsequent calculations.

each of the selected dates.[9] The graph illustrates that although the surveys yield similar estimates of current use, they produce substantially different estimates of prevalence for the recent past. The estimates diverge, moving backward in time, but only up to about 18 months prior to survey. From this point back to January 1981, the estimates based on the experimental survey remain about five percentage points (or about 15 percent of use) higher than those based on the core. The pattern of discrepancy suggests that the core survey failed to capture all segments of use prior to current use.

Figure 5.1
Use of Any Contraceptive Method
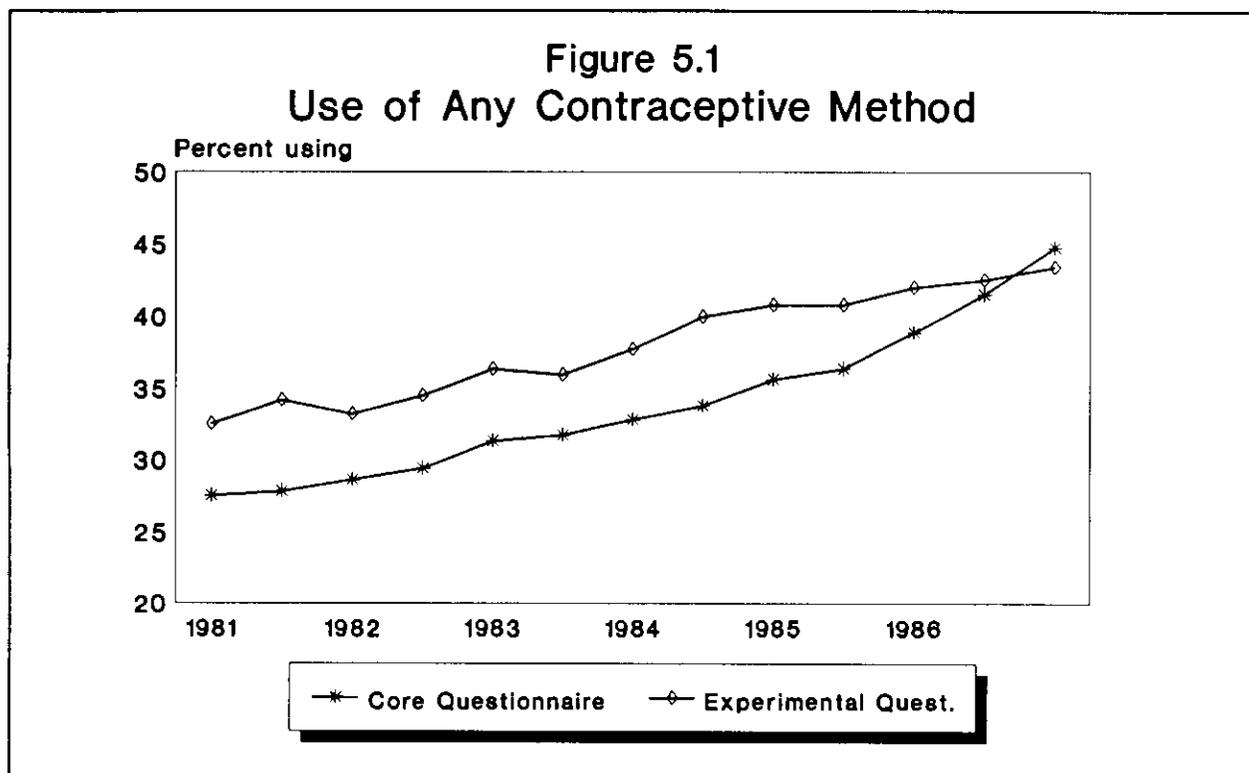
The relative shortcomings of the core as compared with the experimental survey are apparent from a comparison of the relevant estimates from Figure 5.1 with estimates of current use as reported in the 1981 Contraceptive Prevalence Survey in Peru. Estimates of use reconstructed as of the date of the 1981 CPS are shown in Table 5.3 and are compared with those reported in the CPS. The estimates confirm the superior contraceptive history collected in the experimental survey, but indicate that even this estimate (34.6 percent of ever-married women 15-44 using a method) is significantly below the value of

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[9] The percent of women using a contraceptive method was reconstructed for January and July of each calendar year between 1981 and 1986. The values for interview date (plotted as October 1986) differ from those presented for current use in Table 5.1 for three reasons: first, the numbers in Table 5.1 are for currently married rather than ever-married women; second, estimates in Figure 5.1 (which are derived from the simulated calendar for the core survey) are based on responses to the question on current method and to the question on other methods used regularly during the same month (see discussion in the text); and, third, responses to questions on whether the respondent is currently using a method in the experimental questionnaire are not entirely consistent with the codes entered in the interview month in the calendar. Note that some of the latter inconsistencies (all of which are due to reported use in one case and nonuse in the other) may be real: i.e., women may not be currently using but may have used a method at some earlier time in the month. These discrepancies highlight the ambiguity of the concept of "current use."

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38.1 percent reported in the CPS.[10] Unfortunately, there are no other independent estimates of contraceptive prevalence in Peru for the 1981-86 period.

Table 5.3 Reconstruction of percent of ever-married women 15-44 using contraception, by method, as of the date of the 1981 Contraceptive Prevalence Survey, Peru

Method	CPS	DHS Core	DHS Experimental
Any Method	38.1[a]	27.8[b]	34.6
Pill	4.8	4.1	4.9
IUD	3.9	3.1	3.8
Injection, Diaphragm, & Condom	3.8	2.5	2.7
Rhythm	14.3	11.0	13.9
Withdrawal	3.6	1.9	2.4
Sterilization	4.4	4.1	5.3
Other	3.3	1.1	1.4

Note: The National Contraceptive Prevalence Survey took place between August and December 1981.
[a] If we include those women who answer negatively to the question on current use of contraception, but affirmatively to a probe question on whether they used contraception in the past month, this figure would increase to 39.2 percent.
[b] This percent would increase to 28.5 if we included reports of second methods within closed intervals.

Analysis of other survey data on contraceptive use have indicated that episodes of use of ineffective methods are generally reported less completely than those of modern methods (e.g., Pebley et al., 1986; Laing, 1984). In Figure 5.2 we compare estimated trends in the prevalence of modern methods (pill and IUD) with those of rhythm, the most common method used in Peru. The graphs suggest that the underreporting in the core survey relative to the experimental survey occurred to a similar extent (in percentage terms) with regard to both types of methods. However, a comparison of both DHS surveys with prevalence reported as of the CPS date suggests that, in fact, the experimental survey obtained complete reporting of the most effective methods (pill and IUD) for a date more than five years prior to the survey. Reporting was less complete with regard to withdrawal and other methods. By contrast, estimates derived from the core are considerably below those from the CPS for all methods.

Overall, the above comparisons suggest that reports of prior contraceptive use are considerably more complete in the experimental survey than in the standard DHS survey. It is important to determine the ways in which the questionnaire design of the experimental survey improved the reporting of contraceptive use. Undoubtedly, one very important advantage of the calendar was that it allowed for

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[10] This test, at a 5 percent level of significance, is based on the assumption of simple random samples in the CPS and in the DHS. The DHS surveys also yield significantly lower estimates than the CPS for injection, diaphragm and condom; rhythm (for only the core survey); and other methods.

reports of multiple segments of use within an interval. Even though the overall level of contraceptive use is relatively modest in Peru (particularly in contrast to levels in other Latin American countries), a substantial proportion of women use more than one method within a birth interval. For example, in the experimental survey, approximately 20 percent of users report use of more than one method in the open interval and about 15 percent in closed intervals.

Figure 5.2
Use of Modern Methods and Rhythm

Percent using
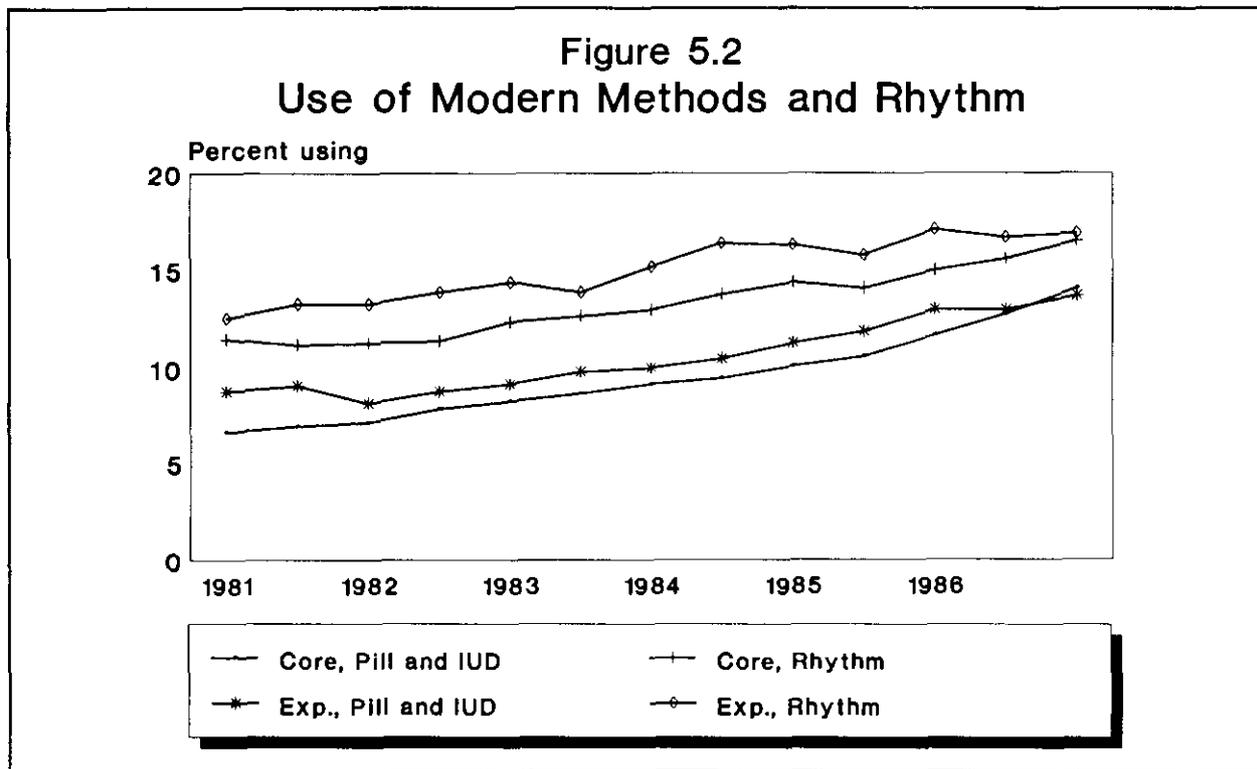
To what extent are these shortcomings of the core questionnaire a consequence of the fact that it obtained very incomplete information with regard to multiple use within an interval? This question was answered in two ways. First, responses in the standard survey on the penultimate method in each closed interval were considered—recall that no information was obtained with regard to the duration of use of these methods. The simulated calendar from the core questionnaire was modified to recode all intervals in which respondents reported use of a previous method: essentially, all remaining months of nonuse were altered to be months of use of the previous method. The net effect on estimates of prevalence for the period 1981-86 was small. This unexpected result is most likely due to a combination of errors in the core, which involve overestimates of the duration of use of the last method as well as possible misreports of the length of the birth interval.

Second, a trial calculation from the experimental survey was created, which eliminated all but the last reported segment of use within each birth interval (with the exception of allowing two segments of use for current users). In other words, a calendar was created from the experimental survey, which replicated the type of information collected (without a calendar) in the core. Estimates of prevalence for 1981 to 1986 from this altered calendar (Figure 5.3) indicate that reports of multiple use in the experimental survey account for about half of the difference between surveys shown in Figure 5.1. These two sets of discrepant results suggest that, although there is substantial switching of methods within birth intervals in Peru, modification of the core questionnaire to include reported durations for two methods per

interval would not be an effective way of improving estimates of use.[11] This analysis cannot be used to determine whether a more elaborate restructuring and enhancement of the core questionnaire would yield estimates as good as, or better than, the calendar design.

Figure 5.3
Use of Any Contraceptive Method
(Including Altered Experimental Questionnaire)

Percent using
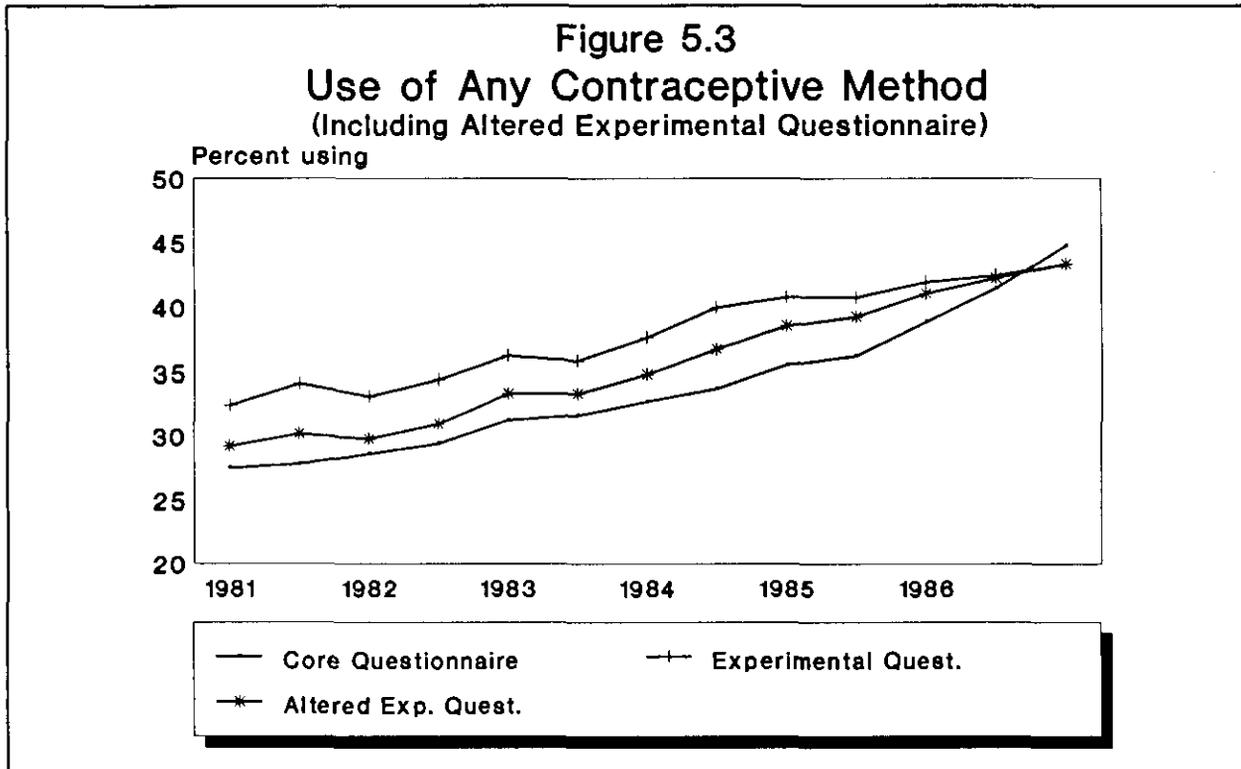
What explains the remaining differences between estimates of prevalence from the two surveys? Part of the difference is accounted for by slightly higher proportions of intervals with any use in the experimental survey and part is accounted for by slightly higher durations of use of the last method in closed birth intervals.[12] The net effect of these differences is that 28.9 percent of all months in the simulated calendar from the core survey are coded with use as compared with 32.7 percent of all months in the experimental calendar.[13]

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[11] The simulations indicate that this is the case with regard to closed intervals. An additional question on duration of use of the penultimate method in the open interval (for women not currently using a method) might well have a substantial effect on the resulting estimate of prevalence.

[12] For example, among intervals which began subsequent to January 1981, 52.9 percent and 51.8 percent of open intervals, and 30.7 percent and 29.9 percent of closed intervals, were reported with use in the experimental and core surveys respectively. The mean duration of use of the last method was 13.8 months and 12.2 months in the experimental and core surveys respectively.

[13] These estimates are based on ever-married women.

Estimates of Contraceptive Failure

Life tables of contraceptive failure and discontinuation were calculated from the reported calendar data in the experimental survey and from the simulated calendar file based on the reported tabular data in the standard survey. The life tables were based on all contraceptive exposure, for ever-married women, between January 1981 and interview date,[14] including those use segments which were in progress during January 1981.[15] The resulting single decrement probabilities of use-failure and of discontinuation are used to compare findings between the experimental and the standard surveys. The use-failure rates can be interpreted as the probability of becoming pregnant while using a method, by a specified duration of use, in the absence of any "competing risk" (i.e., abandoning the method to become pregnant or for some other reason). In most cases, we discuss the corresponding **first-year** rates, which are based on the first 12 months of contraceptive use for all contraceptive episodes in the 1981-86 period. It is important to note that "first" refers to a particular episode of use, rather than to the woman's first experience with the method: e.g., a woman who used the pill for a year, abandoned the method for some period of time, and resumed use of the pill subsequently, would contribute two episodes of use to the life table calculation for the pill. Table 5.4 shows the number of contraceptive use segments (i.e., episodes) on which these calculations are based. Because of sample size considerations, a number of methods, such as condom and injection, have been grouped into the "other" category; sterilization is excluded from all of the calculations.[16]

Because of the high sampling variability associated with the number of segments shown in Table 5.4, particularly for the experimental survey and for some of the methods (i.e., IUD and withdrawal), it is important to determine whether the observed differences between the two surveys are statistically significant. On the assumption of a simple random sampling design, Greenwood's formula was used to obtain approximate values for the standard errors of the life table survivorship probabilities (Elandt-Johnson and Johnson, 1980). The actual sampling errors are undoubtedly higher because of the two-stage stratified cluster design implemented in the Peru DHS surveys. Thus, although both 1 percent and 5 percent tests of significance are presented in the tables, only those differences which are significant at the 1 percent level are reported.

Table 5.4   Number of contraceptive use segments contributing to exposure during the first year of use

Method	Core	Experimental
Pill	374	272
IUD	238	136
Rhythm[1]	896	620
Withdrawal[2]	174	143
Other methods[3]	305	297

[1] Includes all cases where rhythm was used in combination with another method.
[2] Includes cases where withdrawal was used in combination with condom.
[3] Includes injections, condom, vaginal methods, as well as other methods not specified in the questionnaires.

[14] In fact, all data were censored three months prior to interview so that first-trimester pregnancies, which are notoriously underreported, would be excluded from the calculations.

[15] Women using a method in January 1981 entered the life table calculation at their duration of use as of that date. This calculation yields unbiased estimates of failure rates and results in a larger sample size than that based only on use segments which began subsequent to January 1981.

[16] There were zero failures subsequent to sterilization in the experimental survey and two in the standard survey.

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Table 5.5 and Figure 5.4 present first-year contraceptive use failure rates by method, based on data from the two surveys. As is the convention, these use-failure rates incorporate all unintentional pregnancies which occur during a period of use, i.e., those that result from both method failure and use failure. Since the experimental survey included a non-live birth history, it is natural to include these fetal deaths as failures where appropriate. However, this cannot be done from the standard survey which included only live births.[17] In order to produce a more rigorous comparison of the two surveys, two sets of failure rates from the experimental survey are presented in Table 5.5: those which include and those which exclude reported fetal deaths.[18]

Table 5.5 Percent of women who experience a contraceptive failure within one year of contraceptive use

| Method | Core | Experimental | |
		Excluding Non-Live Births	All Pregnancies
Pill	7.0	6.3	7.4
IUD	2.6	0.0	0.9
Rhythm[1]	26.1	21.4«	23.7
Withdrawal[2]	27.3	28.8	32.7
Other[3]	18.7	12.6«	15.0
All Methods[4]	19.2	15.9*	18.1

Note: Estimates based on the experimental questionnaire (excluding non-live births) are significantly different from the corresponding values based on the core questionnaire at a 1 percent (*) or 5 percent (*) level of significance.

[1] Includes all cases where rhythm was used in combination with another method.
[2] Includes cases where withdrawal was used in combination with condom.
[3] Includes injection, condom, vaginal methods, as well as other methods not specified in the questionnaires.
[4] Excludes sterilization.

Overall, the life table probabilities appear plausible: first-year failure rates are generally between 20 and 30 percent for withdrawal and rhythm, below 3 percent for the IUD, and about 6 to 7 percent for the pill. These values lie within the range of failure rates assembled from a large number of studies by Trussell and Kost (1987).[19] Further calculations indicate that the two surveys yield similar percentages of

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[17] There were, however, 14 women in the core survey who claimed to have stopped using the method in the open interval because of contraceptive failure. These may have been actual failures which terminated in fetal death. They are not included as failures in the rates presented here.

[18] Seventeen fetal deaths, which constitute 10 percent of all fetal deaths to ever-married women, were reported as contraceptive failures. In calculations which exclude fetal deaths, contraceptive exposure is censored at the time a woman begins the pregnancy which results in a fetal death.

[19] These studies were from English-speaking developed countries.

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births which were classified as contraceptive failures. Of all births to ever-married women during the period 1981-86, 12.8 percent in the standard survey and 13.5 percent in the experimental survey resulted from contraceptive failure.

Figure 5.4
First-Year Failure Rates

Percent with method failure
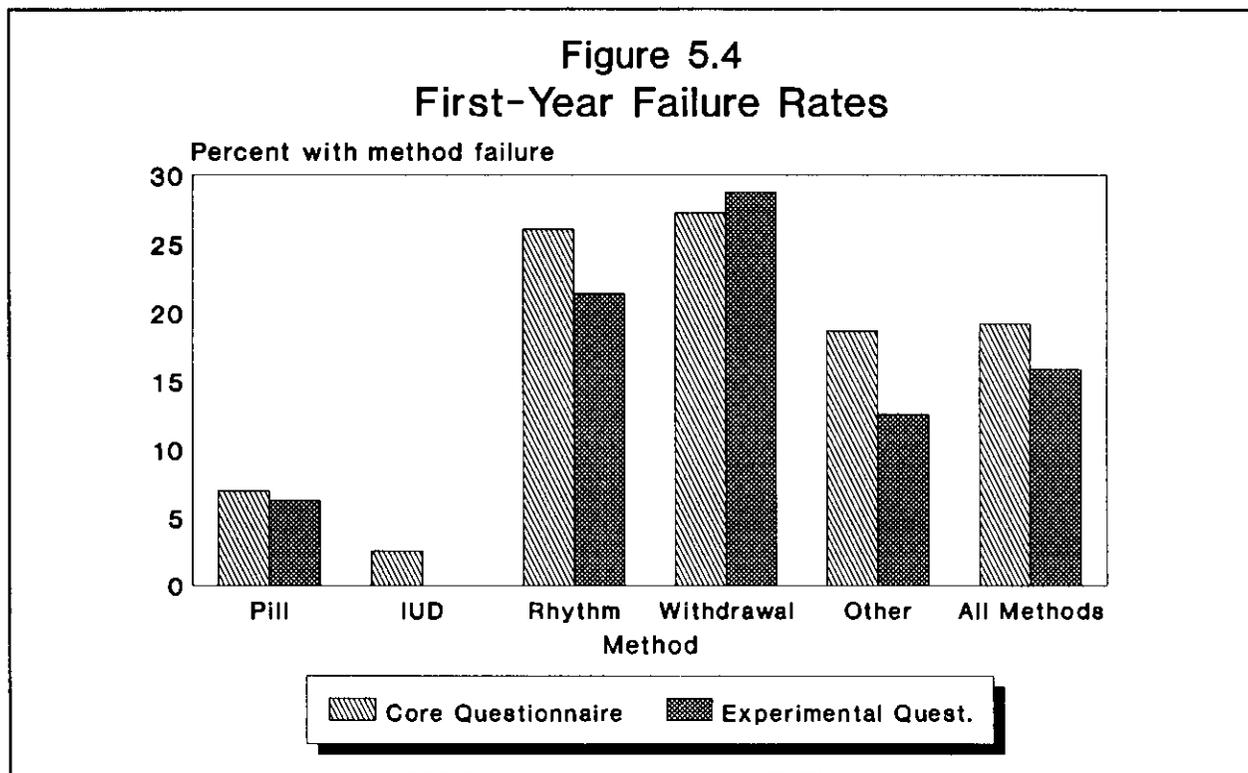
Based on calculations which exclude non-live births, the resulting life table probabilities indicate that, with the exception of withdrawal, estimates of failure from the core are higher than those from the experimental survey. This could easily arise from the design of the contraceptive history in the core questionnaire which results in selective omission of use segments which did not terminate in failure.[20] Of course, since there are no "true" values of contraceptive failure with which to validate the estimates presented here, the possibility continues to exist that estimates derived from the core are as good as, or better than, those based on the experimental survey. Note that only the rates for all methods combined are significantly different from one another at a 1 percent level. The rates presented in Table 5.5 also indicate that the inclusion of non-live births which resulted from contraceptive failure has a major effect on the resulting rates: method-specific rates are between 10 and 20 percent higher with the inclusion of these failures.

Second-year failure rates, not shown here, are slightly higher than first-year rates in the experimental survey, but lower than the corresponding first-year rates in the core. However, none of the rates is significantly different between the two surveys.

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[20] This arises from the fact that, for each recent closed birth interval, complete information is available only for the last segment of use; by definition, previous use segments in an interval could not have been terminated by a failure.

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One of the objectives of the evaluation of the contraceptive history data has been to determine whether the quality of information deteriorates for periods in the past. The estimates of contraceptive prevalence presented earlier suggest that this occurred to some extent with regard to the reporting of episodes of contraceptive use. Does this deterioration in the reporting of use (or a possible worsening of the quality of reporting of reason for discontinuation) become apparent in estimates of failure? Table 5.6 presents estimates of contraceptive failure for episodes of use beginning in the most recent three-year period, in comparison with the corresponding estimates for segments of use beginning in the previous three-year period, for three categories of contraceptive method: effective methods (pill, IUD, and injection), rhythm, and other methods.[21] Whereas no systematic or large differences between periods emerge from the core questionnaire, estimates from the experimental survey are higher for the more recent period, for all methods except rhythm; the difference by period is especially large for other methods. The higher values for 1984-86 suggest either an underreporting of use segments for the period 1981-83 in the calendar (selective of those which resulted in failure) or a rationalization of the reason for termination to one other than failure. It is not clear why similar patterns did not result from the core questionnaire. Although completeness of the fetal death history might be expected to deteriorate for years further in the past, the estimates presented in Table 5.6 for the experimental survey demonstrate that the inclusion of reported fetal deaths has about the same effect for both periods.

Table 5.6 Percent of women who experience a contraceptive failure within one year of use, by time period when use began

Method	Core		Experimental Excluding Non-Live Births		Experimental All Pregnancies	
	1981-83	1984-86	1981-83	1984-86	1981-83	1984-86
Effective[1]	7.6	5.5	3.5	7.1«	3.5	9.0«
Rhythm[2]	25.6	27.2	22.3	21.1	25.7	22.4
Other[3]	21.4	23.0	12.3	26.5*	14.4	31.4*
All methods[4]	18.8	19.1	14.8	17.4	17.0	19.7

Note: Estimates for 1984-86 are significantly different from the corresponding values for 1981-83 at a 1 percent (*) or 5 percent («) level of significance.

[1] Pill, IUD, and injection.
[2] Includes all cases where rhythm was used in combination with another method.
[3] Includes condom and vaginal methods, as well as other methods not specified in the questionnaires.
[4] Excludes sterilization.

Several other calculations, not presented here, confirm the accuracy of estimates from both the core and the experimental surveys. Estimates of contraceptive failure by age at the start of use (under 30 and over 30) show the expected pattern of failure from both the experimental and the standard surveys: one-year failure rates for women under 30 are about twice as high as those for the older women, the

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[21] This calculation required fewer method categories so as to increase the sample size for each life table calculation.

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consequence of declining fecundability with age (as well as of other factors such as selection and improved use). Estimates of first-year failure based only on exposure subsequent to postpartum amenorrhea[22] are higher than those presented in Table 5.5, for almost all methods. In general, the differences are slight--e.g., for all methods combined, the differences are between one and two percentage points. These small differences are undoubtedly a consequence of the fact that most Peruvian women adopt contraception only after the resumption of menstruation, a pattern which must occur (although is not always reported as such) for users of rhythm.

Although the estimates of failure presented above indicate some differences between surveys, the two sets of values are generally similar. These findings suggest that, for most policy-related objectives, the standard DHS survey may yield sufficiently precise estimates of contraceptive failure. However, estimates based on the standard survey are not straightforward to derive: they are based on a calendar simulated from data collected in the standard survey. The construction of this calendar was a complicated and time consuming endeavor which required considerable imputation of information not collected in the core, and correction of inconsistencies in the core which were not apparent until the relevant data were reconciled in a calendar format.[23] Although the creation of a calendar was necessary for the estimation of contraceptive prevalence for dates prior to the survey, such an elaborate procedure may not be necessary if the only objective is to determine failure rates.

Effort was made to derive the simplest, but technically correct, set of life table estimates of contraceptive failure from the core questionnaire. All intervals which began during 1981 or later and included reported segments of use were considered. Segments for which the method, duration of use, or reason for discontinuation were missing were simply excluded from the analysis. No efforts were made to check the consistency of the reported information. For purposes of comparison, a similar calculation, based on only segments of use which began subsequent to January 1981, was carried out on the simulated calendar from the core and on the actual calendar from the experimental survey.[24] The results are presented in Table 5.7.

Comparisons between the two sets of failure rates derived from the standard survey indicate that, in spite of the extensive imputation involved in generating the simulated calendar, the numbers from the unedited file are quite similar to those from the simulated calendar. Comparisons between rates derived from the unedited core file and those for the experimental survey support the conclusion that reports of use from the standard DHS survey yield reasonable estimates of contraceptive failure. Although use of a calendar increases the internal consistency of reports of the timing of use and reasons for discontinuation, as well as the overall amount of exposure attributed to contraceptive use, these improvements have a modest impact on the resulting failure rates.

Estimates of Discontinuation

One important advantage of the calendar design of the experimental questionnaire is that interviewers were able to collect information on multiple segments of contraceptive use within a birth interval. By contrast, the tabular format in the standard survey did not permit the recording of such complete information. Thus, it would be expected that estimates of contraceptive discontinuation would be higher from the experimental survey. The estimates presented in Table 5.8 indicate that this is the

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[22] These rates were calculated by defining duration zero as the end of amenorrhea for episodes of use which began during amenorrhea.

[23] These problems are described in detail in Appendix A.

[24] For each set of estimates, all exposure was terminated three months prior to interview so as to avoid the problem of low gestation pregnancies.

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case. Although the likelihood of discontinuation in order to become pregnant is similar for the two surveys, the proportions terminating for "other reasons" (shown graphically in Figure 5.5) are consistently higher in the experimental survey. The differences are especially large (and statistically significant) for the ineffective methods. For example, data from the experimental survey indicate that 20 percent of rhythm users abandon the method within the first year, in contrast to only 6 percent as estimated from the standard DHS survey.

Table 5.7 Percent of women who experience a contraceptive failure within one year of use, based on raw data file from the core questionnaire and comparisons with simulated (core) and actual (experimental) calendar

| | Core | | |
Method	Raw Data	Simulated Calendar	Experimental[1]
Pill	5.9	7.2	6.8
IUD	3.5	2.6	0.0
Rhythm[2]	21.8	26.6	22.0«
Withdrawal[3]	18.0	25.9	28.9
Other[4]	13.7	17.0	11.6«

Note: Estimates based on the experimental calendar are significantly different from the corresponding values based on the simulated core calendar at a 1 percent (*) or 5 percent («) level of significance.

Note: The values in this table are based only on use episodes which began subsequent to January 1981.
[1] Includes only live births.
[2] Includes all cases where rhythm was used in combination with another method.
[3] Includes cases where withdrawal was used in combination with condom.
[4] Includes injections, condom, vaginal methods, as well as other methods not specified in the questionnaires.

The results presented in Table 5.8 indicate extremely high rates of discontinuation for the pill: over 40 percent of women abandon the method for "other" reasons within the first year of use. Responses obtained in the standard survey, which included many more categories of discontinuation than the experimental survey, indicate that over two-thirds of these terminations were due to health reasons. Estimates derived from the experimental survey point to very high first-year discontinuation rates from withdrawal and "other" methods, as well as from the pill. By contrast, discontinuation rates from the IUD for "other reasons" are below 10 percent for the first year of use.

Estimates of discontinuation by sub-period, which are not shown here, show generally similar findings to the failure rates: for the standard survey, method-specific discontinuation rates for 1981-83 are not significantly different than those for 1984-86, whereas for the experimental survey, rates for the later period are generally significantly higher than for the former period. Once again, these data suggest some deterioration in the quality of reporting in the calendar as one proceeds further back in time.

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Figure 5.5
First-Year Discontinuation Rates*

Percent discontinuing

	Pill	IUD	Rhythm	Withdrawal	Other	All Methods

Method

Core Questionnaire   Experimental Quest.
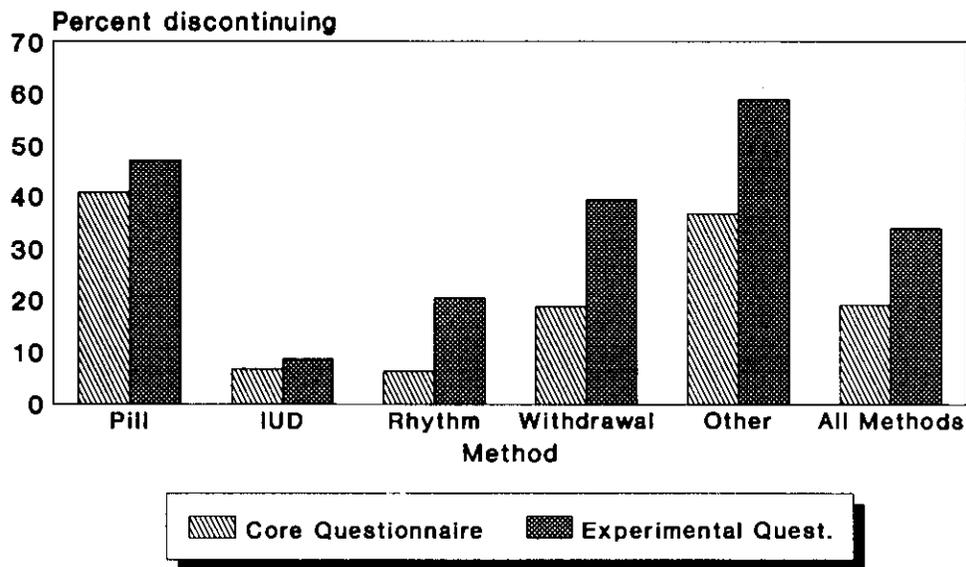
* Discontinuation for reason other than method failure or desire to become pregnant.

Completeness and Consistency of Information

There are certain advantages to the experimental calendar which are not evident from the analysis presented above. The fact that all dates of pregnancies and use were entered into the same column of the calendar eliminates the possibilities of many types of potential inconsistencies. These errors could and did occur in the core questionnaire. For example, nearly 20 percent of closed intervals with reported use had a reported duration of use of the last method which exceeded the length of the interval; about one-third of these exceeded the length of the interval by three months or more and over 10 percent exceeded the interval by at least one year (see Appendix A). Not infrequently, women reported using a previous method for these same intervals in which they reported a duration of use of the last method exceeding the length of the interval.

Other types of inconsistencies were apparent in the core survey and may have stemmed from the omission of a non-live birth history. For example, 14 segments of use in the open interval were classified as failures. Since there is no way of determining if this was due to misreporting by the respondent or to an actual abortion or stillbirth, such intervals had to be reclassified in our calculations.

Yet another advantage of the experimental survey is that interviewers were instructed not to leave any months of the first column of the calendar without a code. In fact, all questionnaires in the experimental survey were complete in this regard. By contrast, although the core DHS survey had a relatively high response rate for most questions, there are missing responses which are relevant for this analysis. For example, 2 percent of closed intervals with reported use have missing information either on the method used or on the duration of use.

Table 5.8 Percent of women who discontinue a method within one
year of use, in order to become pregnant and for other
reasons

	Reason for Discontinuation	
Method	To Become Pregnant	Other Reasons [1]
Pill		
Core	7.5	40.7
Experimental	3.8	46.9«
IUD		
Core	1.7	6.8
Experimental	3.1	8.7
Rhythm[2]		
Core	9.5	6.4
Experimental	6.3	20.3*
Withdrawal[3]		
Core	10.8	18.7
Experimental	9.9	39.3*
Other[4]		
Core	10.9	36.7
Experimental	10.2	58.8*
All methods[5]		
Core	8.4	19.1
Experimental	6.6	33.9*

Note: Estimates based on the experimental questionnaire are
significantly different from the corresponding values based on the
core questionnaire at a 1 percent (*) or 5 percent («) level of
significance.

[1] The specific reasons listed in the core survey which could be
categorized as other are: infrequent sex, partner disapproval,
health concerns, unavailability of the method, cost, inconvenience,
and fatalistic attitude of the respondent.
[2] Includes all cases where rhythm was used in combination with
another method.
[3] Includes cases where withdrawal was used in combination with condom.
[4] Includes injection, condom, vaginal methods, as well as other
methods not specified in the questionnaires.
[5] Excludes sterilization.

The use of the calendar in the experimental survey to code reasons for discontinuation of use (in
the column adjacent to that for use) appears to have been both an advantage and a disadvantage. The
experimental survey was characterized by a higher rate of missing discontinuation codes than was the
core survey: of all segments of use which terminated prior to survey, about 1 percent in the core and 6
percent in the experimental survey had missing information on the reason for discontinuation. Given the
difficulty of identifying each segment of use in the first column of the calendar, it is not surprising that

interviewers failed to obtain all of the necessary termination codes.[25] Nevertheless, the calendar enables the interviewer and the analyst to check for inconsistent information. For example, in the experimental survey there were 37 segments of use reported to terminate in failure but which were not followed by a pregnancy in the subsequent month. This occurred in spite of instructions to the interviewer to confirm that segments of use which resulted in failure were immediately followed by a pregnancy in the calendar. There is no way to determine how frequently these inconsistencies occurred in the core survey.

5.4   Conclusions

In summary, the analysis described above and in the previous chapter has demonstrated that, although reports of contraceptive knowledge, ever use, and current use are relatively robust to the variations in questionnaire design employed in the DHS surveys, estimates of past use are dependent on the survey instrument. Several different types of calculations have indicated that reporting of information on contraceptive histories in the experimental survey is superior to that in the core. For example, reported durations of use are not heaped, estimates of prevalence for dates prior to the survey consistently exceed those from the core, and estimates of prevalence for 1981 are considerably closer to those reported in the CPS than are estimates derived from the core. In fact, for certain modern methods, estimates derived from the experimental calendar are in agreement with those reported in the CPS. The fact that the calendar easily incorporates multiple segments of use within an interval, and allows the interviewer to reconcile dates of use with other events, particularly pregnancies, is in large part responsible for the more complete reporting of contraceptive use in this survey. The consequences of underreporting of use in the core survey are slight overestimates of contraceptive failure but substantial underestimates of contraceptive discontinuation as compared with the corresponding estimates from the experimental survey.

An additional drawback of the core survey is the fact that the combination of missing responses and inconsistent reporting of dates necessitated use of a lengthy and complicated algorithm for simulating a calendar of contraceptive use. If the ultimate objective of a fertility and family planning survey is to estimate contraceptive prevalence prior to survey, or to determine contraceptive discontinuation rates, there is little doubt as to the superiority of a calendar design for obtaining the information.

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[25] By contrast, in the core survey, questions on discontinuation were part of the tabular format that collected information on the last method used within each birth interval. An additional problem which occurred in the experimental survey was the failure on the part of interviewers to collect the starting date of use for about 5 percent of women who were using a method in the first month of the calendar (January 1981). Interviewers may simply have forgotten to return to the relevant part of the questionnaire after they completed column 1 of the calendar. The comparable information was not collected in the core survey.

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CHAPTER 6

NATURAL FERTILITY: BREASTFEEDING, AMENORRHEA, AND FECUNDABILITY

6.1   Introduction

The vast majority of fertility and family planning surveys which have collected information on the proximate determinants of fertility have restricted such information to current status data: e.g., women are asked whether or not they are still breastfeeding (or are amenorrheic) at the time of the survey. There are several limitations to the resulting data: in particular, the limited sample size for calculations, the inability to estimate trends from a single survey, and the restrictions on individual-level analyses. One of the objectives of the experimental questionnaire is to obtain more detailed data on breastfeeding and amenorrhea for the calendar period. The ultimate goal is to determine whether use of a calendar improves reporting of this information (e.g., by reducing the extent of heaping) and whether the potentially more refined estimates of exposure to the risk of conception, which result from the calendar, improve subsequent estimates of natural fertility.

The analysis below is divided into two sections. The first part is a comparison of reports of durations of breastfeeding and amenorrhea from the core questionnaire and from the calendar. The second part of the analysis concerns the estimation of levels of natural fertility from the two questionnaires. In particular, the more detailed information available in the calendar--specific months of use and nonuse of contraception--is examined to determine if it leads to different estimates of the probability of conception in the absence of contraceptive use, compared with the more standard information available in the core.

6.2   Breastfeeding

In Section 4 (Health and Breastfeeding) of the core and experimental questionnaires, interviewers determined, for each live birth since January 1981, whether or not the child was breastfed and for how long. In both surveys, these data were collected along with a series of questions pertaining to the health of each young child. Both questionnaires also determined whether the most recent child was still being breastfed. The main difference between the questionnaires is that interviewers administering the experimental questionnaire entered the reported durations of lactation in column 2 of the calendar.

These data allow for several different calculations of the average length of breastfeeding. First, it is possible to determine the average (e.g., mean and median) lengths of breastfeeding based on all children born after January 1981.[1] Life tables are used for these calculations so as to control for the right censoring problem associated with infants who are still being breastfed at interview. Second, it is possible to obtain current status estimates of the length of breastfeeding which are based only on responses to the question on whether the mother is still breastfeeding her child, and not on the reported durations. We obtain a current status estimate by examining the proportions of children born "x" months

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[1] The mean and median duration of breastfeeding is reported for all children, including those who were never breastfed. In the former case, the estimate is obtained by multiplying the mean age at weaning by the proportion of children who were ever breastfed in the corresponding population (Page et al., 1982). Note that the current status and prevalence-incidence techniques are also based on all children.

ago who are still being breastfed, for all children born in the 36 months prior to interview.[2] Third, mean duration of breastfeeding can be calculated from the prevalence-incidence method. This technique is commonly used in epidemiology to estimate the mean durations of various events (Mosley et al., 1982).[3]

Table 6.1 shows the resulting estimates of the average duration of lactation as derived from the two questionnaires. The life table estimates are shown separately by period of birth and by age and education of the mother.

Table 6.1 Mean and median duration of breastfeeding by period and characteristics of the mother

	Core		Experimental	
	Mean	Median	Mean	Median
Life Table Estimates				
Period				
1981-83	13.0	11.5	12.8	11.5
1984-86	14.9	13.2	12.7	12.1
Age of Mother				
Under 30	13.0	11.6	12.4	11.5
30 +	15.6	12.0	13.4	12.3
Education				
None	15.9	15.0	14.8	14.9
Primary	14.9	12.7	13.8	12.6
Secondary +	10.8	8.2	8.3	7.4
Total	14.1	11.7	12.7	11.7
Current Status Estimate	16.0	15.4	15.5	ND
Prevalence-Incidence Estimate	16.3	NA	15.3	NA

ND = Indeterminate
NA = Not Available

Several discrepancies are apparent from these estimates. In particular, current status and prevalence-incidence estimates, each of which is based on children born during the past three years, are higher than life-table calculations based on children born in the past six years. For example, life table

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[2] See Page et al. (1982) for a description of the current status technique for estimating the mean and median duration of breastfeeding.

[3] The mean duration of an event can be estimated by dividing its prevalence by its incidence. In this case, prevalence is defined as the number of children whose mothers are breastfeeding at the time of the survey. If the discrepancy caused by multiple births is ignored, the number of children being breastfed is approximately the same as the number of mothers breastfeeding. Incidence is defined as the average number of births per month. This figure is derived by averaging the number of births in the last 36 months to overcome problems of seasonality and possible reference period errors.

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estimates yield average durations of breastfeeding of between 12 and 14 months, whereas the other procedures indicate values of 15 or 16 months. These differences might arise from either a genuine increase in the duration of breastfeeding or from the different assumptions underlying the various methods of calculation. An examination of the life table estimates by period suggests a possible increase in the length of breastfeeding from the period 1981-83 to 1984-86.

How do estimates from the core compare with those from the experimental questionnaire? The data in Table 6.1 indicate that estimates of the **mean** length of lactation are generally higher from the core, whereas estimates of the **median** are higher from the experimental questionnaire. However, the discrepancies are not large: mean durations from life table calculations of 14 and 13 months from the core and experimental questionnaires, respectively, and median durations of 12 months from each questionnaire. For both questionnaires, current status and prevalence-incidence estimates are higher than the life table estimates.

One possible source of the higher mean values from the core questionnaire is the greater extent of heaping of responses. This is particularly true for the **longer** durations such as 18 and 24 months. Table 6.2 presents indices of the extent of heaping in each questionnaire on the preferred values of 6, 12, 18, and 24 months for the duration of lactation; these values are presented separately for children who are still being breastfed at survey date and for children who are no longer being breastfed. Not surprisingly, the heaping is most apparent for the latter, since these are the only children for which women actually report a duration of lactation. It appears as if the use of a calendar in the experimental questionnaire reduced the extent of heaping by allowing interviewers and respondents to reconcile the dates of breastfeeding with the timing of pregnancies and contraceptive use.

Table 6.2 Index of heaping on particular durations of breastfeeding, for children breastfed at interview and for completed segments of breastfeeding, for all children born since January 1981

Duration (Months)	Breastfed at Interview		Completed Segments	
	Core	Experimental	Core	Experimental
6	1.3	0.8	1.8	1.7
12	0.8	1.2	2.4	2.9
18	1.2	1.0	7.2	2.1
24	1.6	1.0	24.0	4.5

Note: The index is equal to the number at the reported duration divided by the average number at the two consecutive durations on either side. For example, the index for 6 months equals:

$$\frac{\text{\# segments with duration of 6 months}}{(\text{\# segments with durations of 4, 5, 7, and 8 months/4})}$$

6.3 Postpartum Amenorrhea

Information on the length of postpartum amenorrhea was collected in a fashion similar to the data on lactation. Once again, the only important difference between the two questionnaires is the fact that interviewers administering the experimental questionnaire entered the resulting durations (for each child born since January 1981) into the next column (Column 3) of the calendar.

Table 6.3 Mean and median durations of postpartum amenorrhea by period
and characteristics of the mother

	Core		Experimental	
	Mean	Median	Mean	Median
Life Table Estimates				
Period				
1981-83	7.8	6.3	8.6	7.2
1984-86	8.7	7.7	8.7	6.4
Age of Mother				
Under 30	7.8	6.3	8.2	6.1
30 +	8.9	8.1	8.9	7.6
Education				
None	10.2	10.4	9.5	10.7
Primary	9.2	8.8	9.5	8.8
Secondary +	5.7	3.6	5.7	3.7
Total	8.2	6.6	8.4	6.8
Current Status Estimate	8.7	4.9	7.0	4.8
Prevalence-Incidence Estimate	9.0	NA	7.1	NA

NA = Not Available

Table 6.3 presents the mean and median durations of amenorrhea by period and characteristics of the woman, based on life table calculations for the period 1981-86. Aggregate estimates for the current status and the prevalence-incidence measures are also given. Life table estimates are consistent between the two questionnaires: mean durations of eight months and median durations of about seven months. In contrast to the estimates for lactation, current status and prevalence-incidence estimates are not consistently higher than the life table estimates: for the core survey they are slightly higher and for the experimental survey they are more than one month lower. The life table estimates by period give no indication of a consistent time trend in the length of amenorrhea over the six-year period.

As in the case of breastfeeding, the core questionnaire results in a higher frequency of heaped responses with regard to durations of amenorrhea. As shown in Table 6.4, the differences in the degree of heaping are marked for durations 12 and 24 months, for completed segments of amenorrhea. Since the mean duration of amenorrhea is much shorter than that of breastfeeding, there are fewer cases concentrated at durations 12 and 24 months and, hence, the overall impact on the estimated mean is small.

6.4 Fecundability and Natural Fertility

The analysis presented above indicates generally consistent aggregate measures of durations of lactation and amenorrhea from the two questionnaires. Indices of heaping, however, suggest that the experimental questionnaire might have improved responses through the use of a calendar. An additional obvious advantage of the calendar is that the collection of specific dates of contraceptive use allows the analyst to isolate all months within a birth interval in which women exposed to the risk of conception are not protected by contraception or by lactational amenorrhea.

Table 6.4   Index of heaping on particular durations of postpartum amenorrhea,
           for women amenorrheic at interview and for completed segments of
           amenorrhea, for all children born since January 1981

	Amenorrheic at interview		Completed segments	
Duration (Months)	Core	Experimental	Core	Experimental
6	0.7	0.9	1.8	1.0
12	1.0	1.9	7.2	1.6
18	0.4	1.6	4.2	1.0
24	2.0	0.0	31.5	0.8

Note: The index of heaping is equal to the number at the reported duration
divided by the average number at the two consecutive durations on either
side. For example, the index for 6 months equals:

$$\frac{\text{\# segments with duration of 6 months}}{(\text{\# segments with durations of 4, 5, 7, and 8 months/4})}$$

Of particular interest in this analysis is the extent to which estimates of natural fertility or fecundability--e.g., the probabilities of conception in the absence of contraceptive use--are consistent between the two questionnaires.   Results from a previous chapter indicate that estimates of the probabilities of conception during contraceptive exposure (failure rates) are in fact reasonably similar for the two data sets.   Can these results be generalized to conception rates in the absence of contraceptive use?

Immediate problems arise in attempting to obtain comparable estimates of fecundability from the two questionnaires.   Whereas it is straightforward to identify all months of nonuse (since January 1981) from the calendar, it is not possible to do so from the core questionnaire.   As noted in the earlier analysis (Chapter 5) of contraceptive use information, the only timing information available from the core questionnaire with regard to contraceptive use in closed birth intervals is the duration of use (not the starting date of use).   For intervals that do not terminate in a pregnancy there is no way to determine actual months of use.   Hence, unless the imputation procedure described earlier is used, there is no mechanism for isolating specific months of nonuse.

One possible solution is to base estimates of fecundability only on intervals in which contraception was never used.   This procedure involves potential selection biases: e.g., the women most likely to have nonuse intervals may also be less fecund women.   This is apt to be the case if women adopt contraception on the basis of having achieved their desired family size.   An alternative hypothesis is that nonuse intervals contain many young fecund women and, more generally, women who became pregnant before they were able to adopt contraception.

There are several other important differences between the two questionnaires that relate to the estimation of fecundability.   First, only live births are recorded in the core questionnaire, whereas fetal deaths are also recorded in the experimental questionnaire.   Second, the experimental questionnaire contains a union history for the calendar period which can be used to obtain a more refined definition of exposure to the risk of conception.   The core questionnaire, by contrast, obtains only the date of the first union.

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Because of the different types of information available from the core and experimental surveys, comparisons of estimates of fecundability proceed at two levels. First, based only on the experimental questionnaire, an assessment is made of the extent to which the more detailed information available through the calendar affects the resulting estimates. This comparison is obtained by creating an alternative file from the experimental questionnaire which is "comparable" to data collected in the core survey; this file is labeled the "core equivalent." Comparability is achieved in several respects: first, only nonuse intervals are selected; second, only women who are married at the time of interview are considered;[4] and third, months of pregnancy, for pregnancies which result in fetal deaths, are recoded as months of nonuse.

From each of the two files--the original experimental questionnaire file and the "core equivalent"--calculations are made of the life table proportion of women who became pregnant at successive durations since their previous birth, based exclusively on months in which women were married and not using contraception. In both cases, these proportions refer only to pregnancies which terminate in a live birth and are based on birth intervals beginning subsequent to January 1981.[5] As noted above, the major distinction between the two files is the fact that the unadulterated experimental file contains all months of nonuse (within union) in the estimation of exposure, whereas the "core equivalent" file restricts exposure to intervals in which no contraception was used.[6]

The resulting estimates are surprisingly similar: according to the experimental file, 26.0 percent of women conceive within one year since their previous birth and 66.3 percent conceive within two years. The corresponding estimates from the "core equivalent" file are 29.1 percent and 66.5 percent, respectively. Hence, the enlarged exposure base which can be obtained from information in the calendar has little effect on the resulting estimates of fecundability. It is interesting to note that the first-year pregnancy rates in the absence of contraceptive use are approximately five to six times as high as the comparable failure rates for effective methods and about 50 percent higher than comparable failure rates for rhythm.

How do the estimates obtained from the "core equivalent" file compare with those obtained from the actual core questionnaire? Once again, there is general agreement. According to data in the core questionnaire (for nonuse intervals for married women), 29.1 percent conceive within one year of their previous birth (an estimate which is identical to that from the "core equivalent" file) and 64.2 percent within two years. This latter value is not significantly different from that of 66.5 percent obtained from the "core equivalent" file.

Note that these estimates are consistent with those obtained from the earlier WFS survey in Peru. For example, Goldman et al. (1983) estimated that the probability of becoming pregnant within a year of a first birth in a non-contracepting interval ranges between 32 and 41 percent, depending upon the duration of marriage. By two years since the first birth, between 64 and 72 percent of women conceived. These estimates, like those presented above, ignore the extent to which the nonuse exposure is comprised of periods of lactation and amenorrhea.

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[4] In the subsequent calculation, women are considered to be married for all months between the date of first marriage and interview.

[5] Unlike the analysis of contraceptive failure, "straddling intervals" (intervals which were in progress as of January 1981) could not be used in the analysis. This limitation arises from the fact that the experimental questionnaire does not obtain the duration of nonuse for segments of nonuse which are in progress as of the start of the calendar period. In contrast, the questionnaire does obtain the starting date of use for women using a method in January 1981.

[6] For all calculations in this chapter, exposure is restricted to second and higher order intervals.

Table 6.5   First-year pregnancy rates by type of nonuse exposure, for married women

| Type of Nonuse Exposure | Experimental | | Core |
	All Nonuse Exposure	Core Equivalent	
All	26.0	29.1	29.1
Amenorrhea	9.1	10.9	19.4*
Lactation	50.7	56.0	38.6*
Other Nonuse	65.0	68.5	44.3*

Note: Percent of women who conceive within one year of the previous birth; pregnancies which result in fetal deaths are excluded.

Note: Estimates from the complete experimental file include all months within union; estimates from the "core equivalent" and core files are restricted to women married at interview.

*Differences between the core and "core equivalent" estimates are statistically significant at the 5 percent level.

The first-year pregnancy rates from the core and experimental questionnaires are shown in Table 6.5 and in Figure 6.1, along with additional estimates which consider the specific nature of the non-contraceptive exposure. The objective of this exercise is to determine whether it is possible to obtain more precise estimates of the probabilities of conception during amenorrhea, during periods of lactation subsequent to the resumption of menstruation, and during periods of nonuse in which there is no additional protection from either lactation or amenorrhea. In these life table calculations, months of exposure are attributed first to amenorrhea (for as many months as the women reported that menstruation did not return), then to lactation if breastfeeding continued beyond the return of menses (for as many months as appropriate), and finally to other nonuse. As with the previous calculations, two sets of estimates are derived from the experimental questionnaire and one from the core; the "core equivalent" and core calculations are restricted to intervals in which contraception was never used and to women married at the time of interview. Recall that the calculations from the experimental file include all months of nonuse which took place within a union. All three sets of calculations exclude fetal deaths.

The consistency noted earlier among the aggregate first-year probabilities is no longer evident when different types of nonuse exposure are considered. In general, estimates from the two experimental questionnaire files are similar to one another, but they are substantially different from those obtained from the core questionnaire. For example, according to the "core equivalent" file, 10.9 percent of women conceive during the first year of amenorrhea; the corresponding value from the core survey is 19.4 percent, a difference which is statistically significant at the 5 percent level. The differences are in the reverse direction with regard to conception during lactation and during other months of nonuse. For example, 68.5 percent of women in the "core equivalent" file and 44.3 percent of women in the core file conceive during the first year since the last birth, for nonuse exposure in which there is no amenorrhea or lactation. Once again, these differences are statistically significant. Data from both questionnaires

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indicate that probabilities of conception after the resumption of menstruation are reduced (by about 10 to 20 percent) by breastfeeding.[7]

The discrepancies shown in Table 6.5 are consistent with the hypothesis that interviewers filling out the calendar were reluctant to code a month of pregnancy as amenorrheic. Since interviewers were specifically trained to determine if information on the timing of different events was internally consistent, particularly if these events were reported to have occurred at the same time (e.g., lactation and contraceptive use), interviewers may have been tempted to terminate the period of amenorrhea prior to the pregnancy.[8] This would obviously lead to an underreporting of the resulting pregnancy rate (and an overreporting of either the conception rate during lactation or during nonuse). The same phenomenon did not occur with respect to the period of lactation, but an overlap between lactation and pregnancy may have been more acceptable to interviewers than one between amenorrhea and pregnancy.

Figure 6.1
First-Year Pregnancy Rates,
By Type of Exposure
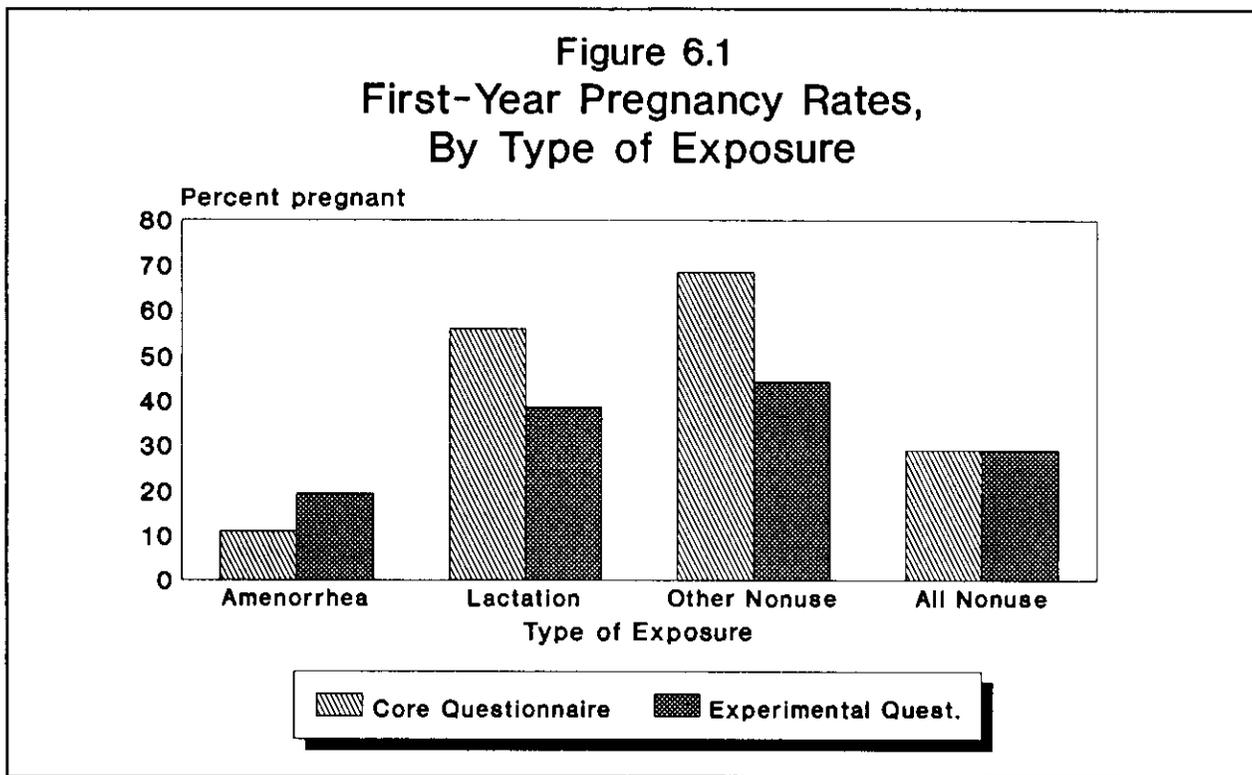
This hypothesis about interviewer error is merely speculation at this point. Is it possible to determine which set of estimates is more accurate? Can these data be used to obtain estimates of fecundability by specific categories of non-contraceptive exposure? Unfortunately, the answers to these

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[7] Second-year pregnancy rates are about three times higher than first-year rates based on exposure during amenorrhea. However, the rates for lactation and other nonuse are virtually identical to those for the first year of exposure. Differences between the core and experimental questionnaires are statistically significant.

[8] If such misreporting did occur, it would be expected that a shorter length of amenorrhea would be reported in the experimental questionnaire. The life table estimates in Table 6.4 indicate no overall difference in the average lengths of amenorrhea as determined from the two questionnaires, although the current status and prevalence-incidence estimates are lower from the experimental questionnaire.

questions are not known. What is clear is that neither the core nor the experimental questionnaire is well-suited for such estimation. The only way to determine whether conception occurred during amenorrhea or lactation from these data is by examining whether the first month of pregnancy (actually the month which is nine months before the date of birth) is one in which the woman reports herself as amenorrheic or lactating. This type of reconciliation of different information depends heavily upon accurate reporting of durations of amenorrhea and lactation, as well as upon an assumption that gestation lasts for nine months. Contraceptive failure can be more readily estimated from these surveys than fecundability because interviewers specifically ask contraceptive users whether their pregnancy occurred during a segment of use. Respondents are not asked the analogous information with regard to conception during amenorrhea and lactation. As a consequence, it appears that the aggregate conception rates during periods of nonuse are substantially more robust to reporting errors than are estimates which are based on the specific types of nonuse exposure. Hence, it is not clear whether use of a calendar improves the resulting estimates of fecundability. It does seem important, however, to include additional questions about the relative timing of pregnancy with regard to amenorrhea and lactation if the goal of the survey is to obtain reasonable estimates of conception rates under different types of postpartum exposure.

References

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CHAPTER 7

REPRODUCTIVE INTENTIONS AND FERTILITY PLANNING

7.1   Introduction

Several questions were included in each of the two questionnaires in order to learn more about women's fertility preferences as well as their future intentions. The collection of these data remains one of the more controversial areas in demography because of concerns related to the reliability of data subject to *post factum* rationalization, the difficulty of communicating concepts related to fertility preferences, and the extent to which it is possible to measure the specific nature (e.g., the intensity) of such preferences. Several experimental variations were included in the questionnaire in an attempt to improve the measurement of reproductive intentions, desired family size, unwanted fertility and the unmet need for contraception.

7.2   Reproductive Intentions

Whether women intend to have more children is one of the most important pieces of information collected in fertility surveys, since it bears both on the future level of fertility and the need for family planning services. The two questionnaires approached the subject in very different ways. The core questionnaire followed the conventional route of asking first about whether the woman did or did not want any more children (Q. 603) and then followed both positive and negative responses with questions about whether the attitude was definite or not (Q. 604-606).

In contrast, the experimental questionnaire focused on whether the woman wanted to get pregnant in the next 12 months (Q. 654). Women who replied in the negative were asked how much against the idea they were (Q. 655) and whether they wanted any more children at any time in the future (Q. 656).

The first issue is whether the two approaches yield essentially the same distribution of reproductive intentions--in particular, whether they produce similar estimates of the proportion desiring to terminate childbearing (Table 7.1). The second task is to try to determine which approach yields the more valid indication of preference as judged by the criteria of children ever born, of contraceptive practice, and intentions.

Because the possible responses in the two questionnaires differ from one another, it is necessary to group responses into comparable categories. If the percentage of women who definitely do not want any more children (including sterilized women) is considered, the estimate for the core questionnaire is 62.2 percent and for the experimental questionnaire 59.8 percent. For women who definitely want another child, the relevant estimates are 21.3 percent and 18.1 percent from the core and experimental questionnaires respectively. Hence, at the extremes, the two sets of questions indicate fairly close agreement.

Do the various degrees of uncertainty in the middle categories have any usefulness? Which set of questions seems to discriminate in terms of other criteria? In Table 7.2, the response categories are again ordered as in Table 7.1, along with measures of fertility and contraceptive practice. The objective is to determine whether these criteria are ordered more systematically in one than in the other set of questions.

Table 7.1 Distribution of reproductive intentions for women currently in union who are not pregnant or menopausal

	Percent Distribution
Core	
Would like another child definitely	21.3
Would like another child, not sure	2.2
Undecided, inclined to have another	0.8
Undecided	2.0
Undecided, inclined not to have another	0.7
Prefer not to have another, not sure	10.6
Wants no more definitely	54.9
Sterilized	7.3
Percent total	100
Number of women	2447
Experimental	
Would like to get pregnant in next 12 months	13.4
Does not mind if gets pregnant in next 12 months	4.7
Does not want pregnancy now but wants more children	15.7
Does not want pregnancy now, uncertain about future	6.3
Does not want pregnancy now, wants to stop	51.0
Sterilized	8.8
Percent total	100
Number of women	1222

Table 7.2 Reproductive intentions and mean number of children ever born, contraceptive use and intention to use

	Mean Children Ever Born	Using	Not Using		
			Intends To Use	Don't Know	Does Not Intend To Use
Core					
Would like another child definitely	1.90	.51	.17	.08	.24
Would like another child, not sure	2.51	.56	.18	.07	.18
Undecided, inclined to have another	2.48				
Undecided	3.96	.36	.15	.22	.27
Undecided, inclined not to have another	4.39				
Prefer not to have another, not sure	3.51	.54	.24	.07	.15
Wants no more definitely	5.04	.50	.22	.07	.21
Sterilized	5.51	1.00	.00	.00	.00
Experimental					
Would like to get pregnant in next 12 months	2.05	.43	.14	.06	.36
Does not mind if pregnant in next 12 months	3.36	.40	.28	.16	.17
Does not want pregnancy now but wants more children	2.15	.63	.31	.02	.04
Does not want pregnancy now, uncertain about future	3.03	.64	.19	.06	.10
Does not want pregnancy now, wants to stop	5.10	.48	.31	.05	.16
Sterilized	5.31	1.00	.00	.00	.00

Both sets of questions show a clear association with the number of children ever born. For example, in the core questionnaire, women who definitely do not want more children have the highest parity (5.0) and women who definitely want another child have the lowest (1.9). A similar pattern occurs in the experimental questionnaire with regard to fertility intentions in the near future. The estimates also indicate that parity discriminates among the various categories of undecided women in the core in a predictable fashion: those undecided but inclined to have another child have 2.5 children, those simply undecided have 4.0, and those undecided but inclined not to have another child have 4.4 children. The classification of reproductive intentions which results from the experimental questionnaire relates less consistently to parity.

The relationship between fertility intentions and current use of contraception, as measured from either questionnaire, is not clearcut. The same is true with regard to the association between reproductive intentions and intentions to use contraception in the future.

7.3   Ideal Number of Children

Questions about the ideal number of children that a woman would prefer have been a standard part of every fertility survey. Their objective is not to measure individual intentions but to try to capture the normative range of fertility in the population. One of the recurrent criticisms of these questions has been that they are sensitive to the number of children the woman already has and that for many women, particularly at higher parity, they simply reflect the rationalization of children they might not have wanted originally.

To evaluate this problem, two versions of the ideal family size question asked in the World Fertility Survey were incorporated in the Peru experimental and core questionnaires. In this particular instance, the experimental version of the question was actually included in the core questionnaire and the WFS version in the experimental questionnaire. This was done because the new version was considered beforehand to be the preferable set of questions for the entire DHS project. The findings from this study confirm this presumption.

The new question (Q. 614 in the core) employs two phrasings of the question, one for childless women and the other for women with children:

For women with no children: "If you could choose exactly the number of children to have in your whole life, how many would that be?"

For women with children: "If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?"

The conventional phrasing of this question--the one used in the WFS for all women--is exactly the same as the version above for women with no children.

Since respondents could answer in terms of a range as well as a single number, two tabulations are shown--one for the minimum and one for the maximum ideal number--and cross-tabulations of each with the number of living children. The expectation is that the WFS version of the question (in the experimental questionnaire) will show a stronger association with parity than the new question because the latter asks women to think back before they had any children.

The distribution of the ideal number of children (Table 7.3) shows that the WFS version of the question yields a higher ideal number, 2.7 for the minimum and 3.0 for the maximum, than the new version, which yields 2.4 and 2.8 respectively. In the minimum case, 35.4 percent consider more than two ideal in the new question compared with 44.9 percent in the WFS question (a statistically significant

difference). For the maximum ideal, the difference is between 43.5 percent and 51.8 percent, respectively.

Table 7.3   Distribution of minimum and maximum ideal number of children

Ideal Number of Children	Minimum Ideal Number		Maximum Ideal Number	
	Core	Experimental	Core	Experimental
0	11.0	8.8	1.7	1.7
1	6.4	5.1	5.9	4.7
2	44.1	38.2	45.8	38.8
3	17.7	21.3	21.6	24.5
4	11.3	14.3	13.9	16.4
5	2.6	3.2	3.4	4.1
6	2.4	3.5	3.0	4.0
7	0.3	0.6	0.3	0.6
8	0.4	0.5	0.5	0.6
9	0.1	0.3	0.1	0.3
10	0.1	0.5	0.1	0.5
11	0.1	0.0	0.1	0.1
12+	0.4	0.7	0.5	0.7
Other responses	2.8	1.8	2.8	1.8
Missing	0.2	1.1	0.2	1.1
Percent total	100	100	100	100
Mean Ideal	2.4	2.7	2.8	3.0
Number of women	4997	2534	4997	2534

As expected, the ideal number is more closely associated with the actual number for the WFS version of the question, which suggests a greater *post factum* rationalization of the existing size of the family (Table 7.4). For the minimum ideal, the correlation is .38 for the WFS question compared with .29 for the new question and .43 compared with .33 for the maximum ideal. There is little difference in the average ideal number at zero parity, where the same version of the question was asked, but the difference widens as parity increases.

7.4   Unwanted Births

Unwanted fertility is important to measure reliably because it provides an indication of the potential of fertility regulation for the reduction of fertility. Since its measurement depends on the woman's reporting of her attitude at the time of the conception, it is especially sensitive to nuances of phrasing. Past experience indicates that there is a particular danger of confusing a desire to space and a desire to limit fertility.

In the first version of the DHS model questionnaire, the questions on unintended fertility were separated into two sub-questions in order not to burden the respondent with having to keep three choices in mind at the same time--wanted then, wanted later, or never wanted. This two-question version was reproduced in the experimental questionnaire in Peru while a single-question version including all three alternatives was asked in the core questionnaire. At issue is the optimal approach to minimizing confusion between wanting to postpone the pregnancy for a period of time and wanting to avoid ever having any more children. A related, though not exactly the same, set of alternative questions had been

included in the Brazil questionnaire; the two sets of questions yielded very different estimates of the prevalence of unwanted fertility.

Table 7.4 Relationship between actual and ideal number of children

Number of Living Children	Mean Minimum Ideal Number		Mean Maximum Ideal Number	
	Core	Experimental	Core	Experimental
0	2.1	2.2	2.3	2.4
1	2.0	2.2	2.3	2.4
2	2.3	2.7	2.7	3.0
3	2.7	3.0	3.1	3.2
4	2.7	3.4	3.1	3.7
5+	3.1	3.7	3.6	4.1
Total	2.4	2.7	2.8	3.0
Correlation	.29	.38	.33	.43

In Peru, the experimental questionnaire contained two questions (Q. 411 and 412) asked about all births since January 1981, starting with the most recent: "Just before you became pregnant with (NAME) did you want to have (more) children or not?" Those who responded "Yes" were then asked: "Did you want a(nother) child at the time you became pregnant or would you have preferred to wait longer?"

The core questionnaire used a different approach, in which all three alternatives were delineated in a single question (Q. 354): "Just before you became pregnant (with NAME) did you want to have (more) children then, did you want to wait longer, or did you want no more children?" This question was also asked of all births since January 1981.

There were two prior questions (Q. 351 and Q. 353) in the core that determined, for each of these births, whether the woman had interrupted use of contraception deliberately in order to become pregnant or for some other reason. Women who responded "to become pregnant" were subsequently coded as wanting a child then. All others, including women who had not used any method during the interval, were asked Q. 354 about the wanted status of the child.

The basic comparison of the results is in Table 7.5. The differences resulting from the two procedures are considerable. While 47.6 percent of births in the past six years are classified as unwanted with the two-question approach in the experimental questionnaire, 30.8 percent are so classified by the core questionnaire format.

A cross-classification of the distribution of wanted status of the births with the number of children ever born further indicates the implausibility of the experimental question (Table 7.6). The results for women with only one child ever born suggest that a quarter would have preferred to remain childless, compared with 6.8 percent from the core questionnaire.

Evidence from other surveys supports our contention that the lower proportion unwanted is much more plausible. In the WFS surveys in Latin American countries, the proportion estimated as unwanted averaged around a third, with a similar estimate (of 37 percent) for Peru in 1972-77. These values are generally consistent with the estimate of 31 percent from the core but are substantially below the estimate

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of 48 percent from the experimental questionnaire. The WFS questionnaire included a question very similar to the DHS experimental version but preceded it with a question on whether women wanted another child in the future. Women who replied either "yes" or "undecided" were not asked the question about the wanted status of their last birth. In DHS, questions on future intentions come later in the interview, so there is more allowance for inconsistencies, e.g., not wanting the last but wanting another.

Table 7.5 Distribution of wanted status of births for 1981-1986

	Core	Experimental
Wanted then	40.7	34.4
Wanted later	27.0	17.2
Unwanted	30.8	47.6
No Answer	1.5	0.7
Percent total	100	100
Number of births	3747	1955

Table 7.6 Distribution of wanted status of births by number of children ever born

Number of Children Ever Born	Core					Experimental				
	Then	Wait	No More	Percent Total	N	Then	Wait	No More	Percent Total	N
1	61.5	31.7	6.8	100	439	55.7	18.8	25.4	100	244
2	55.1	33.8	11.1	100	648	45.8	15.4	38.8	100	356
3	49.7	31.4	18.8	100	617	37.4	20.4	42.1	100	363
4	38.4	28.6	33.0	100	531	27.3	20.8	51.9	100	264
5	35.7	25.2	39.1	100	325	25.9	20.4	53.7	100	216
6	26.7	25.4	47.9	100	307	27.1	12.0	60.9	100	133
7	22.9	22.0	55.0	100	209	20.4	11.1	68.5	100	108
8	26.3	20.5	53.2	100	190	31.9	12.5	55.5	100	72
9	26.1	19.4	54.5	100	134	12.3	13.7	74.0	100	73
10+	19.6	12.4	67.9	100	290	16.4	12.3	71.3	100	122
All	41.3	27.4	31.2	100	3690	34.5	17.2	48.3	100	1951

The cross-tabulations of the wanted status of the last birth and future fertility intentions (Table 7.7) indicate that both versions of the questionnaire show a similar degree of inconsistency with regard to not wanting the last birth but wanting another. The condensed table on the right side of Table 7.7 indicates that only 1.7 percent of the women responding to the core questionnaire and 3.0 percent in the experimental questionnaire were so classified. The main difference between the two approaches is that the experimental version seems to have led some women to confuse postponing the next birth with not wanting any more at all. Only 12.5 percent of women (108/867) in the experimental questionnaire compared with 25.8 percent (439/1699) in the core responded that they had wanted to have their last birth

later than when it occurred. The structure of the questioning in the experimental questionnaire resulted in 53.5 percent reporting not wanting their last birth compared with 35.5 percent so classified in the core. This is a major difference, and the evidence points directly toward the latter as the more accurate picture.

Table 7.7 Distribution of future fertility intentions by wanted status of last birth

| Future Fertility Intention | Status of Last Birth | | | | Status of Last Birth | | |
	Wanted Then	Wanted Later	Not Wanted		Wanted Then or Later	Not Wanted	Total
				Core			
Have Another	34.7	28.2	3.0	Have another or undecided	24.0	1.7	25.7
Undecided	4.9	5.2	1.8				
No more	54.8	64.0	86.1	No more, meno-pausal/sterile, or sterilized	40.5	33.8	74.3
Menopausal, sterile	1.5	0.7	2.0				
				Total	64.5	35.5	100
Contraceptively sterilized	4.1	1.8	7.1				
Percent total	100	100	100				
Number of women	657	439	603				
				Experimental			
Wants to get pregnant	20.3	9.2	3.9	Wants to get pregnant or does not mind	11.6	3.0	14.6
Does not mind	9.1	3.7	1.7				
Little against	21.7	14.8	10.6	Against, meno-pausal/sterile, or sterilized	34.8	50.5	85.3
Much against	43.0	65.7	75.6				
				Total	46.4	53.5	100
Menopausal, sterile	1.3	2.8	1.9				
Contraceptively sterile	4.4	3.7	6.2				
Percent total	100	100	100				
Number of women	295	108	464				

Note: Figures are based on all married women with a birth since January 1981.

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7.5 Unmet Need for Contraception

One of the summary indices devised for the DHS is the program-relevant measure of "unmet need" for family planning. "Unmet need" or potential demand for family planning is defined as the sum of non-pregnant women exposed to the risk of an unintended pregnancy and pregnant or amenorrheic women whose pregnancy was reported as unintended. The DHS questionnaire permits disaggregating unmet need into that for spacing and that for limiting births. The index involves several components that have been measured differently in the experimental and core questionnaires. Table 7.8 shows the differences in the derived tabulations. The ultimate product--the proportion classified in the unmet need category--equals 29.4 percent for the core and 24.1 percent for the experimental tabulations. Although this is a statistically significant difference, the difference does not seem great considering the number of component pieces subject both to sampling error and to measurement differences.

The percent of married women not using contraception is very similar in the two samples: 54.3 percent in the core and 54.8 percent in the experimental survey. The difference between the proportions of this subset that are pregnant or amenorrheic is less than two percentage points (not significant). The classification of the non-pregnant as fecund or infecund does produce a significant difference, in part due to the different measures of the last menstrual period that are part of the classification (the experimental questionnaire only collected information on whether the last period occurred in the past four weeks). The proportion of married women who are not pregnant, fecund, and want no more births is lower (8.3) in the experimental than in the core questionnaire (11.4). This discrepancy is a result of the different phrasings of questions about reproductive intentions discussed earlier.

The net result of all of these differences is a lower proportion of married women estimated from the experimental survey to be in need of family planning services. At two important junctures, the experimental questionnaire led to lower estimates of the potential demand: lower proportions fecund and lower proportions wanting no more births. Another, partly related, result of these differences is that the composition of demand, i.e., for spacing vs. limiting, is different in the two surveys, with a higher proportion wanting to limit fertility in the experimental survey.

Table 7.8 Unmet need for family planning

	Not Using 54.3 (54.8)	Using 45.7 (45.2)

↓

Not Using Contraception	54.3 (54.8)

↓   ↓

Pregnant, Amenorrheic 23.4 (21.8)	Not Pregnant, Not Amenorrheic 30.8 (32.9)

↓

Fecund 17.0 (14.3)	Infecund 13.8 (18.6)

↓   ↓   ↓   ↓

Intended 8.4 (7.6)	Mistimed 6.1 (4.7)	Unwanted 9.0 (8.4)	Wants Later 2.9 (2.7)	Wants No More 11.4 (8.3)	Wants Soon 2.8 (3.2)

↓   ↓   ↓   ↓

Unmet Need	29.4 (24.1)

To Space 8.9 (7.4)	To Limit 20.5 (16.7)

Pregnant/Amenorrheic 15.0 (13.1)	Sex Active 7.6 (8.8)	Not Sex Active 6.6 (2.4)
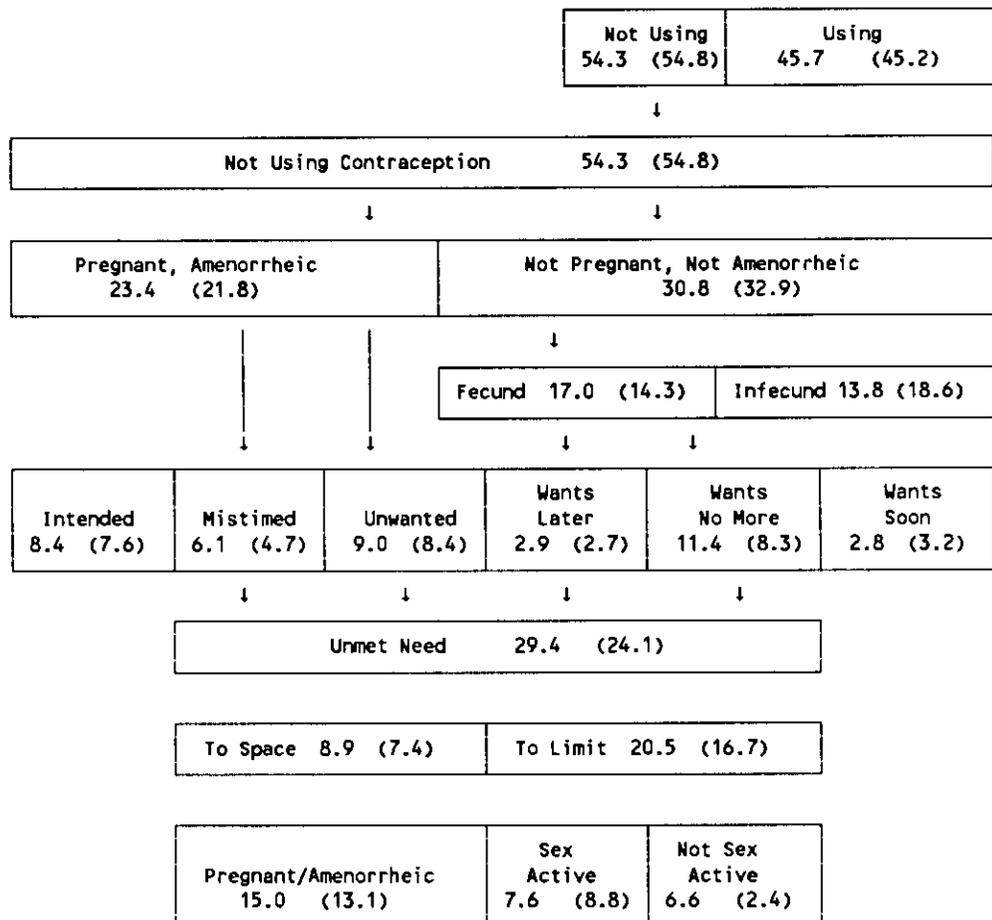
( ) Refers to estimates from the experimental survey

CHAPTER 8

CHILD HEALTH VARIABLES

8.1 Introduction

The emphasis of the DHS standard questionnaire on issues related to maternal and child health led to the inclusion of several experimental variations in this area. This chapter focuses on the analysis of the resulting data on child health variables: diarrhea, immunization, birthweight and reasons for not breastfeeding (or for terminating breastfeeding). In the case of the first two subjects, the analysis focuses on the consistency of information collected in the core and the experimental questionnaires, since somewhat different questions were included in each. With regard to the last two subjects, the relevant questions were included only in the experimental questionnaire. The objective here is to assess the utility of the resulting information.

8.2 Immunization

In the core questionnaire, women are asked whether each living child born after January 1981 ever received a vaccination (Q. 420). If the answer is affirmative, women are asked to show the child's health card. Data on the type and date of vaccination are copied directly from the health card onto the questionnaire by the interviewer (Q. 422). This exercise has proven to be burdensome for both interviewer and respondent and consumes a substantial amount of time.[1] Although some previous surveys have attempted to collect information on vaccinations (type and number of doses) without resort to health cards, the quality and usefulness of the data have remained questionable.

In order to learn more about the need for health cards in this type of survey, a different strategy from that used in the core was implemented in the experimental questionnaire: interviewers collected information on whether each young child had been immunized, irrespective of their survivorship status at the interview. For each child reported to have been immunized, interviewers subsequently determined the type of vaccination received (but not the number of doses or the date of immunization) without any resort to health cards.

Table 8.1 presents the results for each questionnaire, based on children under age five at the time of interview. The numbers indicate that the proportions of surviving children reported ever to have been immunized in the two surveys are virtually identical (91.6 percent in the experimental questionnaire and 91.7 percent in the core). The subsequent columns in Table 8.1 indicate the percentages of children who received specific immunizations, among those who had ever been immunized. The results show significantly higher proportions in the core questionnaire for DPT and polio, but significantly higher proportions in the experimental questionnaire for BCG and measles vaccinations.[2] The large discrepancy in the case of BCG may reflect the fact that this vaccine is given soon after birth, and in many cases is not recorded on the health card. It is important to keep in mind that, although estimates from the experimental questionnaire were substantially easier to obtain than those in the core (i.e., they did not

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[1] For example, in the Senegal DHS survey, the section where immunization questions are asked (Section 4. Health and Breastfeeding) consumed nearly 30 percent of the duration of the interview. By comparison, the section where the full birth history is collected (Section 2. Reproduction) represented 20 percent of the overall time.

[2] A 5 percent significance level is used throughout this chapter.

require locating health cards), the resulting data provide no information on the timing of immunization; such data would be impossible to obtain reliably without resort to a document.

Table 8.1 Percent of living children under age five who have received any immunization and, among these, the percent receiving specific vaccines

Age of Child	Any Immunization		BCG		DPT [1]		Polio [1]		Measles	
	Core	Exper [2]	Core	Exper [2]	Core	Exper [2]	Core	Exper [2]	Core	Exper [2]
Total	91.7	91.3	59.5	89.9	94.3	90.6	95.5	89.8	70.6	77.1
< 6 mo.	68.2	70.3	84.9	84.9	67.7	54.7	78.5	53.3	3.2	11.4
6-11 mo.	90.6	88.9	70.4	88.0	96.0	86.4	94.4	80.3	31.2	42.7
12-17 mo.	90.3	95.4	63.0	86.7	98.4	91.9	98.4	89.4	85.0	74.8
18-23 mo.	96.2	94.8	59.6	88.0	95.0	95.7	98.0	92.8	78.8	77.5
24-59 mo.	95.4	94.0	52.2	91.7	97.2	94.6	97.3	95.5	85.6	90.7

[1] At least one dose of vaccine.
[2] Children with missing responses are excluded from the calculation.

One source of bias which may affect estimates obtained from the core questionnaire is that the subset of children with health cards is likely to be selective with respect to certain social and economic characteristics. There are two possible selection processes which may operate here: the obtaining of a health card for children; and the showing of the health card to the interviewer. For example, according to the core DHS survey in Peru, women reported that about 88 percent of children under age five had a health card; nevertheless, for only 36 percent of children did the mother actually produce the card for the interviewer. It is not clear whether this latter figure is so low because the women no longer had the card in their possession, because they could not locate the card or were reluctant to spend the effort locating it, because they did not want to show it to the interviewer, or because they never actually obtained such a card. In many countries, the situation with regard to health cards is even worse than in Peru.[3] *A priori*, it would seem that estimates based only on children with located health cards would yield higher immunization rates for specific diseases than the average for the population. If this is the case, however, it must also be true that the estimates derived from the experimental survey are too high, since they are of a similar magnitude to estimates from the core.

8.3 Diarrhea

A major unsettled issue with regard to the collection of survey data on the incidence and prevalence of disease is the length of time suitable for the recall period. Public health professionals have established that underreporting of chronic and acute illnesses in general increases as the length of time between the occurrence of the disease and the interview increases; such underreporting appears to be due to memory decay rather than to misplacement of events in time (NCHS, 1965; Martorell, 1976).

Since diarrheal disease is one of the most important public health problems in the world, DHS questionnaires incorporated several questions intended to measure its frequency and treatment. The DHS

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[3] The proportion of children with health cards which were seen by the interviewer varies substantially among countries. For example, this proportion equals 86 percent in Colombia, 14 percent in the Dominican Republic, 34 percent in Liberia, 24 percent in Senegal and 82 percent in Sri Lanka.

standard questionnaire followed the World Health Organization recommendations of a period of 15 days (or two weeks) for the collection of data on diarrheal incidence from a morbidity survey (WHO, 1981). In addition, a question relating to the occurrence of diarrhea in the past 24-hour period was included, so as to minimize possible recall problems. While the question on the past 24 hours was also included in the experimental questionnaire, an open-ended question on the timing of the most recent diarrheal episode (reported in days, weeks, or months ago) was used instead of the 15-day question of the core.

Differences among the various questions are important not only for estimates of the incidence and prevalence of the disease but also for its treatment. In particular, some epidemiologists have speculated that the longer the reference period, the more women are apt to report incorrectly having administered a treatment. In the core questionnaire, interviewers ask the respondent whether she or others did anything to treat the diarrhea and, if so, what remedy was given (Q. 425-425A). If the response is different from a precoded treatment, it is written into the questionnaire by the interviewer; more than one response can be coded. By contrast, in the experimental questionnaire, interviewers list several types of treatment to the respondent and determine whether each one had been administered to the child (Q. 417).

Table 8.2 Percent of children under age five reported to have had
diarrhea in a given reference period

Age of Child	Past 24 hours		Past 2 weeks*	
	Core	Experimental	Core	Experimental
Total	16.4	20.7	32.1	33.4
< 6 mo.	21.2	29.1	34.9	39.2
6-11 mo.	26.7	26.7	50.2	45.2
12-17 mo.	25.5	32.8	47.2	54.6
18-23 mo.	24.1	29.2	43.9	43.5
24-59 mo.	11.3	14.6	24.6	24.8

*Includes past 24 hours.

Table 8.2 shows the percentages of children under five reported by the mother to have had diarrhea in a given reference period. For the 24-hour period (which is directly comparable for the two surveys), the experimental survey inexplicably yields a higher prevalence (20.7) than the core (16.4), a difference which is statistically significant.

In order to compare the prevalence of diarrhea estimated in the core and in the experimental survey for a reference period other than the previous 24 hours, we calculated (from the experimental survey) a prevalence rate of diarrhea for the past 15 days. This prevalence rate includes all children reported to have had their last diarrhea episode within the 15 days or two weeks before interview. Table 8.2 presents this rate and compares it to that reported in the core questionnaire. Again, the experimental rate is higher than that reported in the core (32.1 percent in the core, 33.4 percent in the experimental questionnaire), but the difference is not statistically significant.[4] The agreement between the two

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[4] If this prevalence rate had been calculated by including the last diarrhea episode within the 14 days (or 2 weeks) before interview, instead of 15 days, the estimate would have been 31.6 percent, which is also not significantly different from that in the core. This is an important distinction, since it is not uncommon in Latin America for respondents to report a two-week period as 15 days rather than as 14 days.

estimates of the prevalence of diarrhea in the most recent two-week period suggests that these estimates may be robust to errors in the specific timing of the episodes. However, since there is no additional information with which to assess the reported data in the DHS surveys, it is possible that estimates from both questionnaires are biased.

Estimates from the experimental questionnaire are higher than those from the core for most age groups of infancy and childhood. The data from both surveys indicate that the prevalence of diarrhea by age is relatively constant among infants under two years of age, but is substantially lower for children aged three to five years.

Table 8.3 indicates that responses in the experimental questionnaire to the question on the timing of the last episode of diarrhea are heavily concentrated: in particular, days 7 and 15, weeks 1 and 2, and months 1, 2, 6, 12 and 24 constitute the vast majority of answers. Although such heaping is not unexpected, it does suggest that the reported prevalence of diarrhea in the most recent two-week period may be unreliable.

Table 8.3 Distribution of time since most recent episode of diarrhea, among children under age five with reported episode, experimental questionnaire

Days	%	Weeks	%	Months	%
1-2	13.5	1	54.4	1	19.8
3	14.3	2	25.2	2	16.2
4-6	17.6	3	8.7	3-5	20.0
7	12.6	4	2.9	6	7.1
8-14	11.8	5+	8.8	7-11	5.0
15	23.5			12	10.0
16+	6.7			13-23	6.7
				24	6.4
				25-29	1.7
				30	1.0
				31+	6.1
Total	100		100		100
Number of cases	119		103		420

Note: Episodes in the most recent 24 hours are excluded.

Table 8.4 compares the type of treatment given to children with reported episodes of diarrhea in the most recent two weeks. Differences are statistically significant for Oral Rehydration Therapy (ORT), Home Remedy and "Other" Treatment. In most cases, the experimental questionnaire yields higher estimates than the core, which suggests that the listing of possible treatments helped the mother to recall the remedy. An alternative explanation is that the successive listing by the interviewer of several treatments encouraged the respondent to acknowledge that some action was taken by herself or others.

Further analysis (not shown) of the distribution of types of treatments by the time of the most recent episode (in the experimental survey) indicates that respondents are less likely to acknowledge treatment for recent episodes than for earlier ones; differences are statistically significant for some, but not all, of the treatments. The data in Table 8.4 indicate that the reported age patterns of treatment differ according to the specific remedy. Estimates from both surveys indicate that modern treatments were least likely to be administered to infants under six months of age.

Table 8.4   Percent of children under age five with diarrhea during the past two weeks
who received specified treatments

Age of Child	ORT Packets		Pharmacy Treatment		Home Remedy		Other Treatment		No Treatment	
	Core	Exp.	Core	Exp.	Core	Exp.	Core	Exp.	Core	Exp.
Total	3.6	9.7	60.2	60.6	45.4	51.2	5.3	9.7	11.5	13.0
< 6 months	1.0	4.8	41.2	35.5	43.1	56.5	4.9	12.9	24.5	22.6
6-11 months	2.2	6.6	64.0	63.9	46.0	45.9	2.9	6.6	13.0	18.0
12-17 months	4.4	9.5	66.2	65.3	48.9	53.7	6.6	8.4	6.6	10.5
18-23 months	4.8	13.4	57.7	56.7	41.4	59.7	4.8	10.5	13.5	10.5
24-59 months	4.2	10.8	62.4	65.9	45.5	47.5	5.9	9.9	8.9	10.8

8.4   Birthweight

Because of the importance of birthweight as a determinant of infant mortality, the experimental questionnaire included two questions intended to measure this variable. First, for each birth since January 1981, respondents were asked to supply the birthweight of the child (in grams, Q. 404A). In addition, respondents were asked for a subjective assessment of the infant's weight (very small, below average, average, above average, or very large; Q. 404B). The intent behind these questions is to determine whether useful information on birthweight can be obtained from such a retrospective questionnaire. The specific objectives of this analysis are: (1) to compare the responses for the two types of measurement to determine the extent to which subjective assessments reflect reported weights;[5] (2) to assess the quality of responses to both questions through such measures as heaping and the extent of variability in the responses, and the relationship of reported weights with biological and socio-economic correlates.

Table 8.5 presents the observed frequencies of birthweight for the "objective" and subjective questions. The exact weights are categorized according to the World Health Organization recommendations in such a way as to be roughly comparable to the subjective assessments.[6] A first point to notice is that the proportion of births without a reported weight in grams is nearly one third (31.4 percent); clearly, this question is a demanding one for the respondent. When a weight was given, reports are affected by heaping,[7] but, nevertheless, are generally plausible. By contrast, there are almost no missing responses for the subjective assessments. However, this distribution is substantially more concentrated in the middle ("average") than that for weights reported in grams.

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[5] There was considerable interest in determining whether the finding of a previous study could be confirmed here. An analysis of data in the Malaysian Family Life Survey concluded that subjective assessments of birthweight provided useful information in the absence of data on actual birthweights (DaVanzo et al., 1984). A drawback of this study was that respondents supplied information on either actual weights or subjective assessments, but not both.

[6] The boundaries of the categories were also selected so as not to represent weights where reporting was heavily heaped.

[7] Indeed, about 57 percent of the reported birthweights were 2000, 2500, 2800, 3000, 3500, 3800 or 4000 grams.

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Table 8.5    Distribution of sub-
             jective assessment
             and reported birth-
             weight (in grams), among
             children born since
             January 1981, experi-
             mental questionnaire
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Birthweight of Child (in grams)

500-2600	12.5
2601-3100	19.7
3101-3900	26.6
3901-4350	6.3
4351-6000	3.1
Don't Know	31.4
Missing	0.4
Total	100
Number of births	1955

Subjective Assessment

Very Small	11.1
Below Average	16.7
Average	52.7
Above Average	14.9
Very Large	3.7
Don't Know	0.3
Missing	0.6
Total	100
Number of births	1955

Table 8.6 shows the joint distribution of the two reports of birthweight. It is reassuring to note that the majority of cases are distributed on or close to the diagonal, an indication of reasonable agreement between the two measures. However, large discrepancies do occur: for example, 50 children were assessed as "above average" or "very large" but their reported birthweight (in grams) was below 3100 grams. Similarly, 15 children were reported to weigh at least 3,900 grams but were assessed by their mothers as "very small" or "below average". Among the large number of children reported to be "average", there is a substantial number (72) in the lowest category of actual weights.

A further analysis of children for whom exact weights were not reported is presented in Table 8.7. The responses indicate that half of the women answering "don't know" to the question on exact weight replied "average" for the subjective assessment. Of those who supplied subjective assessments, 66 percent responded "average" or larger. This compares with the corresponding figure of 75 percent (calculated from Table 8.6) for infants with reported weights in grams. To the extent that children without exact weights are less likely than the others to have been delivered in the formal hospital system, these subjective assessments may still be overestimates, since these same children are considerably more likely to have low birthweights.

Table 8.6 Number of births by reported birthweight (in grams) and subjective assessment, experimental questionnaire

Birthweight (grams)	Subjective Assessment							
	Very Small	Below Average	Average	Above Average	Very Large	Don't Know	Missing	Total
500-2600	87	72	72	10	2	1	--	244
2601-3100	33	84	230	33	5	--	--	385
3101-3900	13	36	349	108	15	--	--	521
3901-4350	2	7	55	41	17	1	--	123
4351-6000	4	2	17	19	19	--	--	61
Don't Know	78	126	307	80	15	3	5	614
Missing	--	1	2	--	--	--	4	7
Total	217	328	1032	291	73	5	9	1955

Table 8.7 Percent distribution of subjective assessment for women answering "DON'T KNOW" for exact birthweight, experimental questionnaire

Very small	12.7
Small	20.6
Average	50.0
Above average	13.0
Very large	2.4
Don't know	0.5
Missing	0.8
Total	100
Number of births	614

The data in Table 8.8 indicate that "don't know" responses occur much more frequently (53.1 percent) among children who died prior to interview than among surviving children (29.3 percent). Clearly, this finding would have important implications for analyses of infant mortality by birthweight. The data also indicate that the frequency of "do not know" responses is relatively constant by age of the child.[8] Thus, contrary to expectation, women whose children were born more than three years ago are just as apt to be ignorant about birthweight as are those with a child born in the past year. The data also indicate that there is no significant difference in the average birthweight according to the age of the child.

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[8] The differences by age group of the child in the percent responding "don't know" for the exact birthweight are not statistically significant.

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Table 8.8 Percent with DON'T KNOW responses for reported birthweight and mean birthweight (in grams), by survival status and by age of child, experimental questionnaire

	Number of Cases	% Answering "Don't know"	Mean Birthweight (grams)	Standard Deviation of Birthweight (grams)
Alive	1769	29.3	3242	693
Dead	179	53.1	2945	778
Age of Child				
< 6 months	158	27.1	3132	710
6-11 months	134	29.1	3284	694
12-17 months	174	25.3	3193	729
18-23 months	153	26.8	3355	702
24-59 months	897	30.5	3234	657
60+	253	30.8	3282	771
Total	1948*	31.5	3223	703

*Seven cases have missing information on birthweight.

Tests were conducted on the correlation of the objective and subjective measurements of the child. Several tests show a significant positive correlation between the two variables.[9] In addition, analyses of variance were carried out in order to examine the extent to which the subjective assessments account for the variability in the exact weights. The results indicate that the subjective measurement accounts for about 28 percent of the overall variation in the exact weight. Moreover, the average birthweights across the categories of the subjective measure are monotonically increasing and significantly different across categories. Thus, a preliminary examination of the responses to the two questions on birthweight suggests that the subjective measure is not a random response.

Table 8.9 Infant and child mortality rates (per 1,000 births) by reported birthweight and subjective assessment, experimental questionnaire

	Number	$_1q_0$	$_5q_0$
Reported Birthweight			
< 2500 grams	146	119.5	205.3
2500 grams or more	1188	43.7	64.6
Don't know	614	132.5	184.5
Missing	7	--	--
Subjective Assessment			
Very small or small	545	111.5	156.3
Average	1032	65.4	97.1
Above average	364	62.1	94.7
Don't know or missing	14	--	--

A remaining question is the extent to which both the subjective assessment and the reported weight behave as expected with regard to levels of mortality and known socio-economic correlates of birthweight. Table 8.9 presents infant and child mortality rates by broad categories for each variable. The results show the expected differentials: "very small" or "small" infants have much higher mortality than those "average" or above; similarly, infants with reported weights below 2500 grams have much

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[9] For example, the correlation ratio of the reported weight to the subjective assessment is equal to 0.54.

higher mortality than those with higher weights. The differentials, however, are greater for the reported weights than for the subjective assessments. A not surprising finding is that mortality among children without a reported weight is very high--as high as for those with weights below 2500 grams. These estimates support our earlier contention that these children are apt to have actual birthweights well below the average.

How well do reported weights relate to indicators of the general social and economic situation of the mother? Table 8.10 shows the distribution of the type of personnel attending the delivery of the child, by category of reported birthweight and subjective assessment. The first panel of data indicates that, not surprisingly, heavier infants were those most apt (almost 70 percent) to have had a doctor or trained nurse attend their delivery; fewer than half of infants below 2500 grams had such trained personnel. Children for whom no exact birthweight was reported were the ones least likely (below 10 percent) to have had a nurse or physician at delivery. Virtually all of these deliveries were attended by a midwife, a relative, or another person. The second panel reveals that, although the differentials show the expected relationship with subjective assessments of birthweight, the differentials are not nearly as great as in the first panel. For example, the percentages of births attended by a doctor or trained nurse are about 38 and 57 for the extreme categories of "very small or small" and "above average" respectively.

Table 8.10 Percent distribution of births by type of person who attended delivery, by category of reported birthweight in grams and by subjective assessment, experimental questionnaire

Reported Birthweight (in grams)

Type of Person	< 2500		2500 or more		Don't Know		Missing	
Doctor	32.9		41.3		4.9		--	
Trained nurse	15.8		28.4		4.7		--	
Midwife	28.8		20.5		44.1		28.6	
Relative, other	19.8		9.7		42.9		42.9	
No one	2.7		0.1		3.1		--	
Missing	--		--		0.3		28.5	
Total	100	(n=146)	100	(n=1188)	100	(n=614)	100	(n=7)

Subjective Assessment

Type of Person	Very Small or Small		Average		Above Average		Don't Know or Missing	
Doctor	24.4		29.8		34.9		7.1	
Trained nurse	13.2		23.1		21.7		--	
Midwife	35.6		25.0		27.2		50.0	
Relative, other	24.6		21.2		14.6		28.6	
No one	2.2		0.8		1.4		14.3	
Missing	--		0.1		0.2		--	
Total	100	(n=545)	100	(n=1032)	100	(n=364)	100	(n=14)

Multivariate models, which are not presented here, were used to examine the relationship between each of the birthweight variables and several correlates: type of prenatal care, attendant at delivery, mother's education, mother's place of residence, mother's age, gender of child, and birth order. Only gender, mother's age and education, and attention at delivery were significant in a linear model for which the outcome variable was the reported birthweight in grams. This simple model accounted for about 5 percent of the overall variation in the birthweight. The same model was fit to the subjective assessments of birthweight. Only three of the seven variables were significant[10] and the model accounted for less than 3 percent of the variation in the subjective assessments.

In summary, the tabulations presented here suggest that reports of both subjective assessments and numerical weights are of reasonable quality--despite the large number of "average" responses for the former variable and "missing" responses for the latter. However, a more detailed assessment of the birthweight information (Moreno and Goldman, 1989), indicates that a large proportion of missing responses on numerical weights can lead to substantial underestimates of the incidence of low birthweight, misleading findings on the significant correlates of low birthweight, and overestimates of excess mortality risk associated with low birthweight babies.

Despite the potential for bias, retrospective surveys are an important source of birthweight information. The results of this analysis emphasize the importance of obtaining accurate weight and size information for each infant. Although subjective assessments are only moderately correlated with numerical weights, they allow the analyst to determine the extent to which infants with missing information are select (with regard to a variety of demographic and socioeconomic characteristics) and to obtain a rough idea of the degree to which bias may affect estimates derived from reported numerical weights (Moreno and Goldman, 1989).

8.5 Reasons for the Absence and Termination of Breastfeeding

Together with information on birthweight, data on reasons for the absence of or termination of breastfeeding should, in theory, permit a much better understanding of differentials in infant mortality and morbidity than have most analyses based on CPS and WFS-type data sets. Although one can never completely disentangle the interrelationships between breastfeeding and infant health from single-round survey data, the inclusion of several simple questions may substantially enhance further analysis. Hence, the experimental survey incorporated two questions which would allow the analyst to identify infants who were not breastfed or who stopped breastfeeding because they were too sick or had died. Below, we examine the pattern of responses to these questions and the extent to which they appear consistent with other information supplied by the mother (e.g., the survival status of the child).

In Section 4 (Health and Breastfeeding) of the experimental questionnaire, interviewers determined, for each live birth since January 1981, whether or not the child was breastfed and for how long. Women who never breastfed and women who had breastfed their child but were no longer breastfeeding were asked why they did not breastfeed or why they stopped.

Among births since January 1981, about 91 percent had been breastfed. The proportion of children whose mother did not know whether a particular child was ever breastfed is only 0.1 percent.

For the 165 births (8.5 percent) never breastfed,[11] Table 8.11 presents the distribution of reasons, classified by survival status of the child at interview. The majority of these (56 percent) were not

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[10] Type of prenatal care, attendant at delivery, mother's residence, and birth order were not significant.

[11] A total of 166 births were never breastfed, but one birth has no information on the reason the child was never breastfed.

breastfed because the mothers were ill, weak, or were not producing milk at the time. About 28 percent of children were not breastfed because they were too ill or weak to be fed at the breast or died before breastfeeding could begin. Other reasons (not explicitly stated) were given by the remaining 16 percent of the cases.

Table 8.11 Survival status of child by reason child not breastfed and distribution of reasons, experimental questionnaire

Reason Not Breastfed	Percent Alive/Dead		Number of Births	Percent with Given Reason
	Alive	Dead		
Mother ill/weak, no milk	96.7	3.3	92	55.8
Child ill/weak	60.0	40.0	5	3.0
Child died	--	100.0	42	25.5
Other reasons	96.2	3.8	26	15.7
Total	70.9	29.1	166*	100

* One case has missing information on the reason child was not breastfed.

Table 8.12 examines the consistency of this information with data on reported deaths of infants and children. These estimates refer to all children (born in 1981 or later) who were never breastfed and who died prior to interview. For children reported not to have been breastfed because they died, 86 percent of the deaths occurred within the first month of life. Another 5 deaths (12 percent) occurred at ages one or two months. Only one case is clearly inconsistent because the child died at an age greater than 12 months. Overall, the consistency of responses is remarkably high.

Table 8.12 Distribution of age at death (in months) by reason child not breastfed, for dead children who were never breastfed, experimental questionnaire

Reason Not Breastfed	Age at Death			Number of Births
	< 1 Mon.	1-11 Mos.	12-59 Mos.	
Mother ill/weak, no milk	1	1	1	3
Child ill/weak	1	1	0	2
Child died	36	5	1	42
Other reasons	0	1	0	1
Total	38	8	2	48

Table 8.13 presents the survival status of children by each specified reason for the termination of breastfeeding, as well as the distribution of reasons for terminating breastfeeding. These estimates are based on children who were ever breastfed but who were no longer being breastfed at interview. To the extent that this information can be evaluated, the responses look reasonably consistent. For example, only for dead children did the mother report that she terminated breastfeeding because the child died. The next highest proportion of dead children occurs for terminations due to the child being ill or weak.

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Women who breastfed for as long as they wanted had the lowest proportion of dead children. Note that almost 4 percent of cases (50 births) have no reason supplied by the respondent.

Table 8.13 Survival status of child by reason for stopping breastfeeding and distribution of reasons, experimental questionnaire

Reason Stopped Breastfeeding	Percent Alive/Dead		Number of Births	Percent with Given Reason
	Alive	Dead		
As long as wanted	96.6	3.4	826	61.6
Mother ill/weak, had no milk	91.9	8.1	222	16.5
Child ill/weak	84.0	16.0	25	1.9
Child died	--	100.0	69	5.1
Work	96.4	3.6	28	2.1
Became pregnant	93.2	6.8	88	6.6
Other reasons	100.0	--	34	2.5
Not declared	92.0	8.0	50	3.7
Total	92.7	7.3	1342	100.0

Table 8.14 presents additional information for examining the consistency of responses on reasons for terminating breastfeeding, for children who died. For each type of reason, the responses are categorized according to whether the age at death minus the length of breastfeeding is plausible (i.e., greater than or equal to zero months) or inconsistent (less than zero). Clearly, a negative value implies that the child was breastfed longer than he or she lived. The overall proportion of consistent answers is nearly 82 percent. The majority of inconsistencies come from the women who report that the child died. There is an obvious need for the interviewer to reconcile several types of information for children who died: the reported age at death of the child, the duration of breastfeeding, and the given reason for terminating breastfeeding.

Table 8.14 Consistency of responses according to reported length of breastfeeding and age at death, by reason for terminating breastfeeding, experimental questionnaire

Reason for Termination	Percent with consistent/inconsistent values for Age at Death Minus Length of Breastfeeding		Number of Births
	Inconsistent (<0)	Consistent (>0)	
As long as wanted	6	22	28
Mother ill/weak, had no milk	1	17	18
Child ill/weak	0	4	4
Child died	16	53	69
Work	0	1	1
Mother became pregnant	0	6	6
Total number of infants	23	103	126

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In summary, this preliminary analysis has shown that the responses to questions on reasons for not breastfeeding or for terminating breastfeeding are generally consistent with the reported mortality data for infants and children. However, the usefulness of these data in improving our understanding of the impact of breastfeeding on infant survivorship has yet to be determined.

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CHAPTER 9

LAST MENSTRUAL PERIOD AND COITAL FREQUENCY

9.1 Introduction

Several additional experimental variations were included in the DHS questionnaires in order to improve estimates of women's exposure to the risk of pregnancy. This information is also important for a more complete understanding of the determinants of natural fertility and, more generally, for estimating fertility. Below, we describe the resulting information on the timing of the last menstrual period, the distribution of women by current pregnancy status, and coital frequency.

9.2 Pregnancy Status and Last Menstrual Period

The core and experimental questionnaires differ with regard to the questions used to determine pregnancy status at the time of interview. In particular, information about current pregnancy status and the time of the most recent menstrual period is obtained in different orders in the two questionnaires.

In the experimental questionnaire, interviewers first ask the respondent whether she had her menstrual period during the last four weeks (Q. 229). Only women who respond "yes" are asked for the number of days ago that their last menstrual period began (Q. 229A). The remaining women are asked whether they are pregnant (Q. 230), and, if so, the duration of pregnancy (Q. 231). By contrast, in the core questionnaire, women are first asked whether they are pregnant, and the duration when appropriate (Q. 225 and 226), and later are asked about the time of their most recent menstrual period (Q. 230). Responses to the latter question, obtained from all non-pregnant women, are coded in terms of days ago, weeks ago, or months ago.[1]

Last Menstrual Period

One criterion of the comparative quality of the two questions on the timing of the last menstrual period is the smoothness of the distribution of responses for women who replied in days. The expectation that the experimental version would yield a better distribution because of its more precise time reference (i.e., the most recent four weeks) is not supported by the data. The results in Table 9.1 indicate little difference between the two questionnaires. Both sets of estimates show heaping that suggests a calculation of days from a memory of weeks ago or of a preference for multiples of five: days 7, 10, 15, 20, and 28 have more frequent responses than expected, whereas days 27 and 29 have the fewest responses. In addition, both distributions have virtually the same median: 12.4 days ago in the experimental questionnaire and 12.5 days ago in the core.

This comparison is only for women who responded in days. If we include women who responded 1, 2, 3, or 4 weeks, or one month ago in the core questionnaire, we find, not surprisingly, that responses are much more concentrated on multiples of 7 and on 30 days ago (one month). The median is consequently increased to 13.0 days ago.

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[1] In addition, there are codes for women who respond that they are no longer menstruating or that they never menstruated, or that their last period was prior to their most recent pregnancy.

Table 9.1 Distribution of days since last menstrual period

Days Ago	Percent			Cumulative Percent		
	Experimental	Core	Core*	Experimental	Core	Core*
1 or less	4.2	5.1	4.8	4.2	5.1	4.8
2	4.1	4.4	4.2	8.3	9.5	9.0
3	4.9	5.1	4.9	13.2	14.6	13.9
4	3.7	3.8	3.7	16.9	18.4	17.6
5	4.0	3.9	3.7	20.9	22.3	21.3
6	3.2	3.4	3.3	24.1	25.7	24.6
7	5.7	4.6	5.3	29.8	30.3	29.9
8	4.3	4.9	4.6	34.1	35.2	34.5
9	3.2	2.7	2.5	37.3	37.9	37.0
10	4.7	4.8	4.6	42.0	42.7	41.6
11	3.4	2.5	2.4	45.4	45.2	44.0
12	3.3	3.5	3.4	48.7	48.7	47.4
13	2.9	2.5	2.4	51.6	51.2	49.8
14	2.8	3.8	4.8	54.4	55.0	54.6
15	6.7	5.4	5.1	61.1	60.4	59.7
16	2.2	3.5	3.3	63.3	63.9	63.0
17	3.0	2.4	2.2	66.3	66.3	65.2
18	2.6	3.2	3.0	68.9	69.5	68.2
19	2.0	2.2	2.1	70.9	71.7	70.3
20	4.3	4.1	3.9	75.2	75.8	74.2
21	3.4	2.7	3.7	78.6	78.5	77.9
22	1.9	2.5	2.4	80.5	81.0	80.3
23	2.0	2.2	2.1	82.5	83.2	82.4
24	1.9	2.1	2.0	84.4	85.3	84.4
25	2.7	3.2	3.1	87.1	88.5	87.5
26	2.2	2.5	2.4	89.3	91.0	89.9
27	1.8	1.6	1.5	91.1	92.6	91.4
28	3.6	3.1	3.3	94.7	95.7	94.7
29	0.8	1.6	1.6	95.5	97.3	96.3
30	2.2	1.7	3.0	97.7	99.0	99.3
31	1.8	0.6	0.5	99.5	99.6	99.8
NA	0.2	0.2	0.2	99.7	99.8	100.0
Median	12.4	12.5	13.0			

NA - Not Applicable.
*Includes responses of weeks ago (added to 7, 14, 21, and 28 days), and one month ago (added to 30 days).

Of most importance, the two approaches do not differ significantly in the proportion of women classified as having their menstrual period within the past month (defined as 31 days or less). The core questionnaire yields 75.4 percent and the experimental questionnaire 73.6 percent for this estimate.

Pregnancy Status

Does the procedure of asking the question on menstruation prior to the question on pregnancy yield a higher or lower proportion reporting that they are currently pregnant? Again, the differences are slight and non-significant, with the core showing 6.5 percent of all women reporting themselves as pregnant and 0.4 percent uncertain and the experimental questionnaire 6.9 and 0.6 percent, respectively.

Although both questionnaires used the same wording of the questions--"Are you pregnant now?" and, if so, "In which month of pregnancy are you?"--the interviewers with the experimental questionnaire

were instructed to record the resulting months of pregnancy in the calendar. Since other dated information was also being recorded in the calendar, we might expect less heaping of gestation time from the experimental questionnaire format.[2]

The distribution of the duration of current pregnancy (Table 9.2) is in fact somewhat smoother for the experimental data, showing only one peak at month 5 compared with two peaks at months 6 and 8 and a big drop-off at month 9 for the core. However, the numbers at each gestation are quite small, especially those from the smaller experimental sample.[3] In summary, there is little basis on which to choose between the alternative sequencings of questions on current pregnancy and menstruation.

9.3   Coital Frequency

Coital frequency is one proximate determinant that is often referred to in analyses of fertility determinants, but is rarely measured. The main interest in this variable is that, with assumptions about the distribution of sexual activity over the month,

Table 9.2 Distribution of duration of pregnancy for currently pregnant women		
Month of Pregnancy	Experimental	Core
1	1.1	3.7
2	10.2	10.2
3	13.6	11.8
4	11.9	11.8
5	17.0	12.1
6	10.8	15.8
7	11.9	11.8
8	11.9	16.1
9	11.4	5.6
Don't Know/Missing	--	1.2
Percent Total	100	100
Number of Women	176	323

one can infer the likelihood that sexual intercourse will correspond to the fertile period of the ovulatory cycle and lead to pregnancy. Bongaarts has recently been supporting the use of reports of coital frequency as a measure of fecundability, since he maintains that the latter is more difficult to measure (Bongaarts, 1985). In reviewing the WFS and CPS experience, Cleland and colleagues have argued that the inclusion of questions on coital frequency is a high priority for future fertility surveys (Cleland et al., 1984). However, neither Bongaarts nor Cleland has examined the problems associated with obtaining accurate reports of coital frequency. One of the objectives of this chapter is to assess the robustness of measures of coital frequency that are derived from responses to simple questions.

The core questionnaire contains the most common variant of these questions (Q. 522 and 523) in which respondents are asked about the number of times that they had intercourse in the most recent four weeks (Westoff, 1974; Trussell and Westoff, 1980; Rosero et al., 1985). Previous experience with these questions indicates that the responses are characterized by substantial heaping on multiples of four: it appears that respondents report a weekly frequency (possibly for the past week but perhaps for a "typical" or an "expected" week) and multiply this number by four.

An alternative approach suggested by Becker (1985) is incorporated into the experimental questionnaire (Q. 515): respondents are asked for the most recent time that they had intercourse. In theory, this question should avoid the problems of women supplying expected and heaped responses and

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[2] At this point in the interview, only gestation information for live births had been entered into the calendar. However, it is quite possible that the calendar was modified later in the interview, e.g., after information on contraceptive use was obtained.

[3] A minor advantage of the experimental questionnaire is that there is no missing information on gestational length. Interviewers could not accept responses as unknown, since they had to enter the information in the calendar.

be less distorted by recall errors. Techniques for analyzing the resulting data are analogous to the measurement of fertility from the length of the open interval (i.e., date of the last birth). An estimate of the probability that intercourse occurs during the fertile period can be readily obtained from this information by calculating the proportion of respondents who report having had intercourse within a length of time equal to the duration of the fertile period (e.g., the past two days). Respondents in the experimental questionnaire are also asked whether they had intercourse in the past 24 hours.

In order to compare the percentage of women who had sexual intercourse in the past four weeks in the two surveys, we included all women from the experimental survey who reported having had sex in the past 24 hours, within 30 days, 4 weeks, or one month before the interview.[4] The results indicate that this percentage is significantly higher in the experimental survey (72.1 percent) than in the core (60.5 percent). This is not surprising, since the distributions of the reported last time since the most recent sexual intercourse are heavily concentrated in days 7 and 15, weeks 1 and 2, and months 1 and 2. Also, 22 percent of women who ever had sex reported they had sexual intercourse in the past 24 hours. Hence, it is difficult to assess whether these percentages reflect similar levels of sexual activity within the four-week period.[5]

In Table 9.3 we present the distribution of number of times women reported having had intercourse in the past four weeks from the core questionnaire. The results indicate, as expected, that the responses are characterized by substantial heaping on multiples of four: it appears that respondents report a weekly frequency and multiply this number by four. For the most recent four weeks, the average frequency of sexual intercourse is 5.5.

Are these estimates consistent with the levels of sexual activity implied by responses in the experimental questionnaire? In order to answer this question, we derived the distribution of days since the most recent sexual intercourse[6] for all women who reported sexual relations in the past four weeks (Table 9.4). The average number of days since last intercourse (6.4) is very close to one week. A crude estimate of the mean number of times the woman had sex in the past four weeks can be obtained by multiplying the probability of having had sex in the past 24 hours (as an estimate of the probability of having sex in any day) by 28 days (or 4 weeks); this procedure yields a value of 6.3 times, not far from the mean derived from the core. A second estimate could be derived by estimating that the rate of occurrence of intercourse per week is equal to 1.1 (7/6.4), or an average of 4.4 times every four weeks.[7] This number is somewhat below the core estimate of 5.5. Given this range of variability in the estimates from the experimental questionnaire, it is difficult to determine whether the open-ended question on time since most recent intercourse produces estimates of coital frequency that are less affected by misreporting than those derived from the standard questions in the core.

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[4] The percentages of women who have never had sex were 30.3 and 28.3 percent for the core and experimental surveys, respectively.

[5] For example, if we had excluded those responding one month to the open-ended question in the experimental questionnaire, the percentage who had sex in the past four weeks would be reduced from 72 to 68 percent.

[6] For those women reporting in weeks, days were obtained by multiplying by 7; for those answering in months, days were derived by multiplying by 30.

[7] This result is derived from renewal theory. Using the concept of backward recurrence times (the durations since last intercourse), one can estimate the mean number of renewals (average coital frequency) under certain simplifying assumptions (Cox, 1970).

Table 9.3	Among women who had sexual relations in the past four weeks, the percent distribution of number of times intercourse was reported in this period, core questionnaire

Number of times	Frequency
1-3	38.9
4	20.5
5-7	9.2
8	14.9
9-11	3.1
12	8.1
13-15	1.3
16	1.6
17+	2.1
Missing	0.3
Total	100
Mean	5.5
Standard deviation	4.5

Table 9.4	Among women who had sexual relations in the past four weeks, the percent distribution of days since last intercourse, experimental questionnaire

Number of days	Frequency
Last 24 hours	31.1
1	0.2
2	9.2
3	9.8
4	5.6
5	4.2
6	1.7
7	13.3
8	3.1
9-13	3.6
14	4.0
15	4.3
16-29	3.7
30	6.3
Total	100
Mean	6.4*
Standard deviation	8.2

Note: Figures include all women who reported that the last time they had intercourse was: in the last 24 hours, within 30 days, within four weeks, or within one month prior to interview.

*Includes all women who reported "in the past 24 hours," who were coded as 0 days.

A final result worth noting is the extent to which the presence of other persons at the interview (at the time the sexual activity questions were asked) affected reports of coital frequency.[8] From the core questionnaire, an analysis of variance of the number of times the respondent had sexual intercourse in the past four weeks shows significant differences across the subgroups. In particular, when the husband is present, the reported mean is about 20 percent higher than when the woman is alone. Conversely, the mean is about 10 percent lower when "other women" are present than when the respondent is alone. These results suggest that, for sensitive topics such as coital frequency, responses may also be affected by the circumstances surrounding the interview. It is, of course, possible that these differences selectively reflect the presence or absence of sexual partners.

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[8] The presence of others was coded as follows: alone, children under 10 years, husband, other male, and other female.

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CHAPTER 10

PLACE OF RESIDENCE

10.1 Introduction

Another innovative feature of the calendar is the collection of a residence history in tandem with the histories of other demographic events. While the collection of complete and partial contraceptive, pregnancy, and birth histories is now commonplace in demographic research, the collection of detailed residential histories is relatively rare. There have been numerous migration surveys in developing countries, but most of these have been limited in population coverage, geographic representation, sample size, or the temporal detail with which the data were collected (Bilsborrow et al., 1984). Typically, demographic surveys (e.g., WFS) and censuses inquire only about length of residence in the present location, place of residence one or five years ago, and childhood place of residence. Such data collection efforts are often not integrated with other demographic and health information.

In this chapter, the utility of the calendar for the collection and analysis of residence and migration information is evaluated. Some of the special concerns in the measurement of migration and population distribution are described. Then, the procedures for collecting and processing migration and residence data in the core and experimental surveys are considered. A quantitative assessment of the quality and utility of the calendar is provided, with an explicit comparison between estimates derived from the calendar and the more conventional estimates derived from information in the core questionnaire. The use of the residence history is illustrated. Finally, an evaluation of the calendar as a data collection mechanism is presented.

10.2 Peru Questionnaire

The Peru Demographic and Health Survey collects both conventional measures of residence (core survey) and a monthly residence history through the calendar (experimental survey). The conventional measures include Q. 104, "How long have you been living continuously in _____?"; and Q. 105, "Just before you moved here did you live in the countryside, in a town, or in a city?". These two questions, along with an urbanization classification of present residence, allow one to measure length of present residence and the type of move (e.g., rural to urban) that gave rise to it.

By contrast, the calendar determines place of residence information from the individual on a monthly basis for up to 72 months prior to the interview date. The respondent is asked about length of current residence (akin to Q. 104 in the core), the month of residence change is coded by the interviewer in the calendar, and the urbanization level (determined from respondent as countryside, town, or city) is coded for the period of residence.[1] The interviewer works backward towards January 1981 to fill in the entire calendar.[2]

In many respects, the residence history closely parallels the other demographic histories taken in the calendar, but there are a few measurement features that deserve special mention. In contrast to the more biologically linked events in the fertility area, geographic mobility may be more difficult to define

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[1] The respondent is also asked how many places she lived since January 1981, the beginning of the six-year period. This can serve as a check on the total number of places recorded through the calendar.

[2] In addition, both the core and experimental questionnaires determine the "childhood" place of residence of the respondent.

and record. In the study of geographic mobility the researcher must develop concepts to manage both space and time.

First, a standard definition should be adopted. It is conventional to divide all geographic mobility into either migration or local mobility. United Nations' practice treats migration as "a change in place of abode, or place of 'usual' residence" (United Nations, 1970). The notion of usual place of residence itself can be difficult to determine for some respondents. Long visits, job search sojourns, and return migration all serve to muddle the event.

Second, the imposition of a geographic threshold is necessary to separate local mobility from migration. This threshold should distinguish longer distance moves that involve change of labor markets and social settings.[3] Since it was desirable in the DHS to focus on migration (ignoring local mobility) a migration-defining boundary or a threshold was necessary. Change of "community" serves this need. Thus, women are asked how many communities they have lived in and when they changed community, not merely changed residence within the community. What is important is, that when collecting the residence history, the interviewer refers explicitly to the word community ("comunidad" in Spanish); it is the woman's perception of community and community change that is recorded in the calendar.

Third, geographic concepts are involved in the classification of territory for place of residence. Here, both the core and experimental questionnaires employ the trichotomy of countryside, town, and city. For present and for previous places of residence, it is the respondent's perception of the level of urbanization that is recorded. For current place of residence this can be compared with an assignment based upon the geographic code from the survey sampling design. Not only does the choice of geographic scheme affect the recording of migration events, but it also influences the allocation of other demographic events to places, for instance in the calculation of urban and rural fertility rates.

Fourth, timing issues are present. While for fertility data, monthly intervals are generally recognized as adequate, there is no "natural" interval for the events of residential mobility and migration. Extremely short durations of "usual place of residence" might go unrecorded, and long intervals of residence may exceed the six-year window of the calendar. Still, monthly recording results in much more finely detailed data than most migration surveys contain. The calendar makes it possible to retrieve period measures of the incidence of migratory behavior in the observed population (women 15-49 years of age in September-December 1986) for the preceding six-year interval. Moreover, it permits analysis of the distribution of intervals, or "spells" of residence in a place,[4] utilizing the type of analysis performed on other demographic events, including analysis of the interrelationship of mobility with other types of demographic events.

10.3   Overview of the Events with the Calendar

The calendar provides up to 72 months of a residence history. Every move that is followed by a duration of at least one month is recorded, as is the urbanization level of the origin and destination.[5] This

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[3] For more detailed discussions of definitions see United Nations (1970), Clark (1986), and Bilsborrow et al. (1984). Radloff (1983) presents empirical information about the consequences of territorial threshold for "detecting" migration for a developing country case. White and Mueser (1988) demonstrate the consequences of boundary choice for distinguishing the relationship between personal characteristics and mobility.

[4] A spell is the interval comprising the length of stay in the place of residence, preceding and succeeding a move.

[5] For moves in adjacent months, the urbanization level for the intervening place of residence cannot be recorded.

information generates a series of spells, an event history, which begins with a left censored interval (a residence spell that commences prior to the observation window), continues with closed intervals (none to several) and ends with an open interval.[6] The following is some basic information on the number and types of events generated by the calendar.

Usable migration calendars were obtained for all women. Table 10.1 presents the distribution by number of migration events recorded in the calendar. Note that 2156 women (85.1 percent) experience no change of residence during the period between January 1981 and interview date.[7] The 378 women who experience at least one change of residence generate 617 migrations, the majority moving once or twice during the six-year period. Eight women (0.3 percent) experience five or more moves. This distribution indicates the kind of information that can be gained by looking at the intervals and frequency of movement, more detail than would be available from the conventional questions. It is these 617 spells that will be the subject of much of the analysis below. Table 10.2 presents the origin-destination distribution of these spells.

Table 10.1 Percent distribution of women by the number of changes of residence since January 1981, experimental questionnaire

Number of moves	Percent	Frequency
None*	85.1	2156
One	8.5	216
Two	4.6	116
Three	1.2	30
Four or more	0.6	16
Total	100	2534

*According to data from the core survey, 85.9 percent of women did not move within the six years prior to interview. This value is similar to the estimate of 85.1 percent above.

From the calendar we can retrieve two conventional period measures of migratory behavior. The one-year migration rate (number of women who changed community at least once in the year prior to the interview, approximately 1986, divided by the total number of sample respondents) is 2.9 percent. The corresponding five-year migration rate is 6.7 percent. These are equivalent to what would be calculated from a standard census or survey approach under the same treatment of geographic categories.

10.4 Quality and Utility of the Residence History

Since the experimental questionnaire leaves the distinction between countryside, town, and city up to the respondents, it is of interest to assess the fit between such subjective reports and more objective

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[6] It is possible that no migration takes place in the calendar period, and the spell is then open-ended on both the left and the right.

[7] By comparison, about 55 percent of women in the survey experience no birth during the same period.

criteria, such as community size.[8] Table 10.3 presents the distributions of location in the calendar (for the month of interview) and size of community.

Table 10.2   Distribution of origin-destination spells, among women with at least one change of place of residence since January 1981, experimental questionnaire

Origin	Destination			
	Country	Town	City	Total
Country	17	26	56	99
Town	22	12	110	144
City	62	80	229	371
Unknown	--	--	--	3*
Total				617

*One woman changed her place of residence in January 1981, so that we do not know her place of origin. The other two women had missing information on either the place of origin or the place of destination.

Among all women living in communities with fewer than 2,000 inhabitants, three-quarters report their residence as being in the countryside, but over one-fifth classify the community as a town. Nearly all women in communities 20,000 and over in size report that they live in the city. However, for the intermediate size class, 2,000 to 19,999 inhabitants, one-third of women consider their residence to be a town and two-thirds a city. These proportions do not change significantly when a city is defined as a locality of 50,000 inhabitants or more. Hence, these results call for a cautious interpretation of the urbanization level, since the accuracy of the reports cannot be assessed.

Table 10.4 presents the distributions of duration in current residence for all women in both the experimental and core surveys. The similarity between the distributions is remarkable, despite the fact that in the latter survey the length of stay in the current place of residence is coded only in completed years. The largest difference between the two sets of estimates is the higher proportion of women in the experimental survey who report having moved to their current residence in the past year.

Among those who moved in the past six years[9], the median length of stay is between 27 and 29 months in the experimental and core surveys, respectively. Figure 10.1 shows the cumulative distributions of length of stay in the current place of residence among those that moved. In the case of the experimental questionnaire, there are no indications that the reporting of the date of the most recent change of residence is seriously affected by heaping.

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[8] On the basis of the community code number (geo-code) in the questionnaire, the specific community could be identified. The actual size of the community was determined from sampling frame information. The sample frame used for the DHS surveys was essentially that for the earlier National Survey of Nutrition and Health (1984).

[9] This refers to those who moved since January 1981 in the experimental questionnaire.

Table 10.3 Percent distribution of reported current place of residence according to actual community size, all women, experimental questionnaire

| Community Size | Current Residence | | | | |
	Countryside	Town	City	Missing or Moving	Total
< 2,000	76.5	22.0	1.5	0.0	100
2,000 - 19,999	4.5	31.4	64.1	0.0	100
20,000 +	1.1	2.1	96.7	0.1	100
< 2,000	76.5	22.0	1.5	0.0	100
2,000 - 49,999	2.8	23.0	74.2	0.0	100
50,000 +	1.1	0.2	98.6	0.1	100
Number of Cases	659	290	1583	2	2534

Table 10.4 Percent distribution of length of stay by reported current place of residence (experimental questionnaire) and for all women

| Current Residence | Months in Current Residence | | | | | | Total |
	0-11	12-23	24-35	36-47	48-59	60+	
Experimental Questionnaire:							
Countryside	3.5	1.5	2.0	2.0	0.9	90.1	100
Town	9.7	1.4	1.7	3.8	2.8	80.6	100
City	4.4	2.7	2.8	2.3	2.9	84.9	100
Total	5.1	2.3	2.4	2.5	2.2	85.5	100
Core Questionnaire:							
Total	1.3	2.3	2.5	2.1	1.9	89.9	100

In order to gain insight into the consistency and plausibility of the reports on the frequency of moves, as well as of the quality of these data, calculation was made of a period-measure of mobility controlled for age before the survey. Just as fertility, mortality, and nuptiality exhibit age regularities, so too does migration. In fact, the age schedule of migration in a nationally representative population can be described quite successfully with model schedules (Rogers and Castro, 1981). While the Peru survey population is not a full age-sex sample, some of this information can be retrieved from the calendar.

Table 10.5 presents age-specific and total mobility rates for 0-2 (approximately 1984-86), 3-5 (approximately 1981-83), and 0-5 completed years prior to interview, and Figure 10.2 illustrates the age-specific rates. The age-specific pattern of mobility is quite plausible, indicating that the highest rates are among women under 25 years, with a systematic decline in the rates after this age. However, unless the rates of migration have increased in the recent past in Peru, the lower values for the earlier period suggest

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that respondents failed to report all moves. Note that the differences are concentrated in the age range of 15 to 29. These data indicate that the quality of reports of change of residence may deteriorate for successive years prior to survey.

Figure 10.1
Cumulative Distribution of Length
of Stay in Current Place of Residence
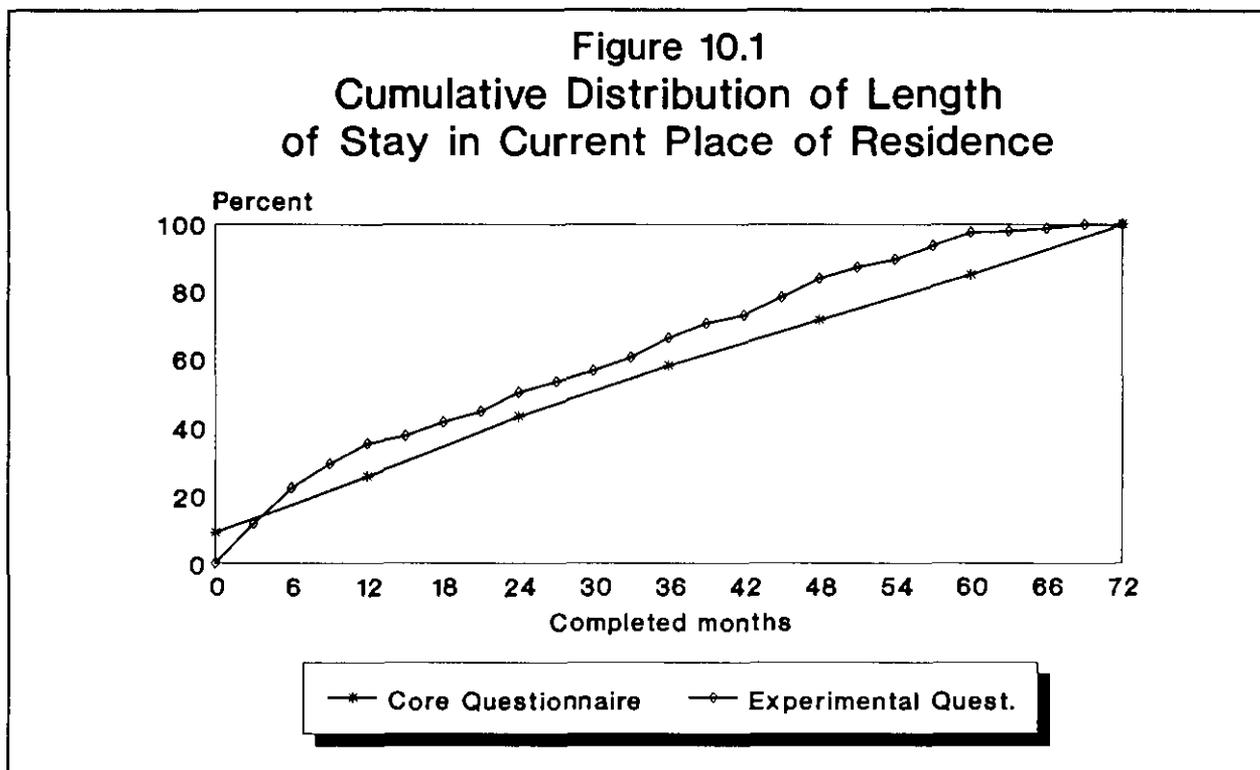
Table 10.5 Age-specific and total mobility rates (per 1,000 women) for the six years preceding the interview, experimental questionnaire

Years Prior to Interview	Age at Time of Move								Total Mobility Rates
	< 14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
0-2	54.9	76.4	74.3	51.5	29.1	15.0	18.4	13.4	1.67
3-5	53.6	47.2	52.5	31.5	20.9	17.3	13.4	16.4	1.26
0-5	54.2	62.5	64.9	42.0	25.1	16.1	16.1	14.8	1.47

The aggregate measure of mobility indicates that women change residence (i.e., community) about 1.5 times between the ages of 10 and 50. However, one must be cautious in the interpretation of these numbers, since they are period estimates, rather than cohort rates.

Figure 10.2
Age-specific Mobility Rates,
Experimental Questionnaire

Moves per thousand women

Yrs. prior to survey

—— 0-2   —+— 3-5   —*— 0-5
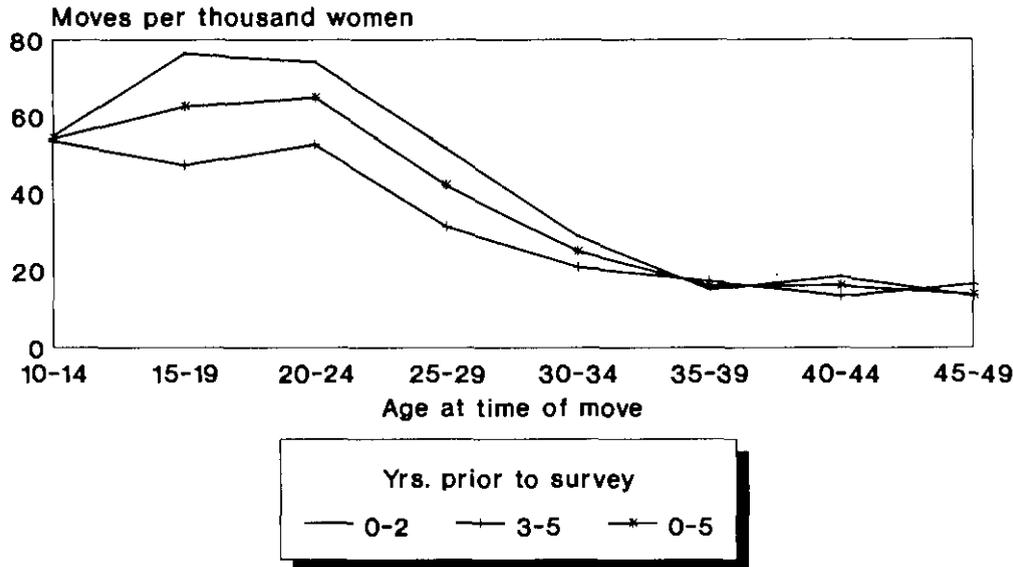
The results in this section show that, since the number of women who changed place of residence since January 1981 is small, calculations based on these data are affected by considerable instability. In Peru, as in the case of other Latin American countries, residential mobility among women is characterized by few changes throughout the lifetime, and these are mainly concentrated within the early stages of adulthood. Indeed, this issue raises the question of whether retrospective fertility surveys are an adequate instrument for collecting information on residential mobility for a subgroup of the population. On the other hand, such data may still provide valuable information about the relationship between women's decisions to move and their fertility behavior.

10.5   Substantive Illustrations

In this section the results of three different analyses of the data collected in the residence history of the experimental questionnaire are presented. The intention is to show the analytical potential of these data, including their interrelationship with other information collected in the calendar.

Life Table Mobility Rates

The first issue concerns the pace at which women change places of residence, after one controls for length of stay in the place of origin. Since the length of stay is naturally censored by the date of the interview (right-censored) and the starting date of the residence history (left-censored), the most appropriate statistical technique for dealing with these data is the life table. In theory, all spells of residence in the calendar period would contribute exposure to the life table calculation; left-censored spells would contribute exposure beginning with the duration of residence for the place in which the respondent lived in January 1981. However, there is no information from the experimental questionnaire on this duration; i.e., complete information is available only for those moves which occurred in 1981 or

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later. This unfortunate limitation of the questionnaire necessitates our confining the analysis of mobility to non-left censored interval--i.e., spells of residence which start during the calendar period.[10]

Figure 10.3 shows the proportion of women who have not yet changed place of residence, by duration of stay in the place of origin, among those who moved at least once since January 1981. Small numbers of cases limit our comparisons among the three places to the first 18 months of exposure. As may be seen, the highest mobility rates correspond to women who reported living in a town some time after January 1981. These life table calculations give rise to first year mobility rates of 0.28, 0.35 and 0.19, from countryside, town and city, respectively.[11] All three graphs reveal a shape which is consistent with a declining probability of migration with duration (after an initial period), although the number of events per interval is small. Such a pattern could arise if, as residents gain more experience in a place (or become more "settled" or attached), their chances of leaving decline.

Figure 10.3
Proportion of Women Who Have
Not Yet Changed Place of Residence,
Experimental Questionnaire
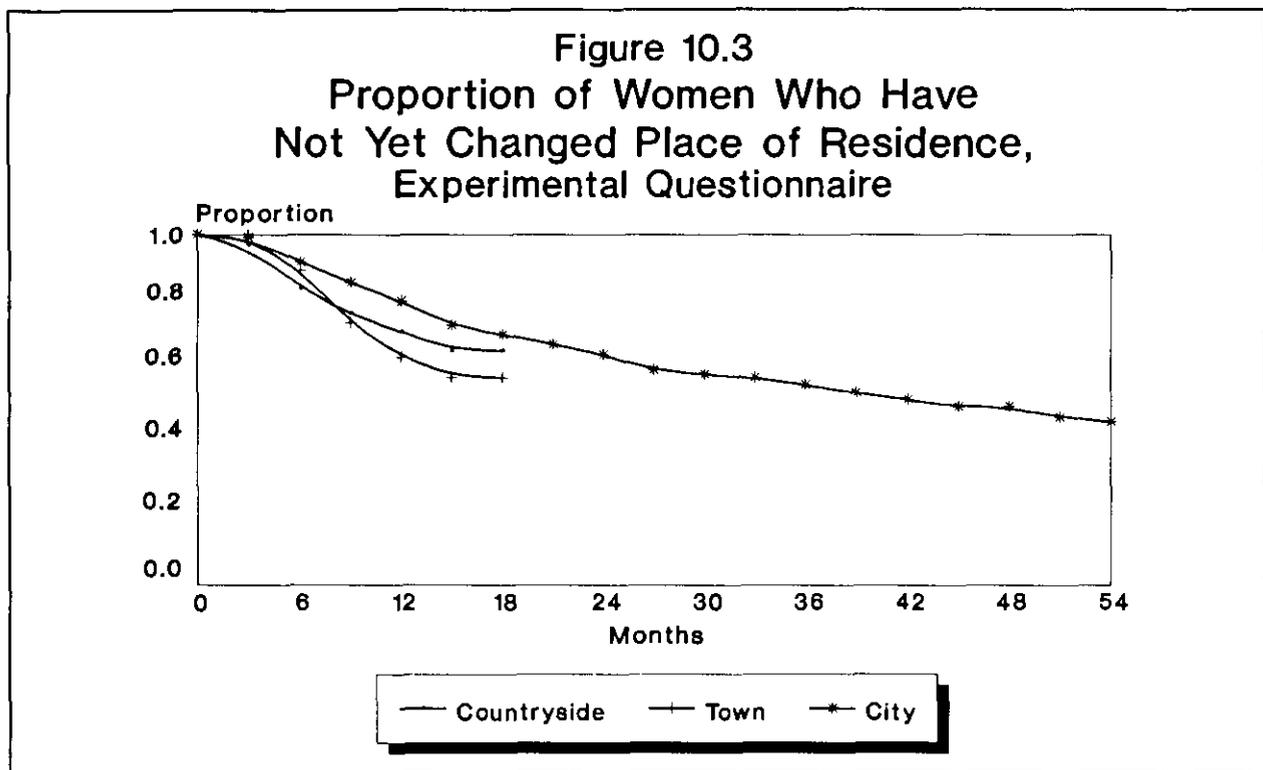
As mentioned earlier, among several of the factors which explain mobility differentials within a population, age has always been regarded as one of the most relevant. Figure 10.4 presents first year mobility rates by age at the time of the move. As expected, women under 30 are more likely to move than women 30 or older. The largest differentials appear among those that have lived in the countryside, although small sample sizes again result in large sampling errors.

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[10] The same limitation occurs with regard to the employment history. For women who were employed during January 1981, no information was available on their length of employment.

[11] The sampling errors for the first year mobility rates are: Countryside, 0.0477; Town, 0.0482; City, 0.0209. These sampling errors are based on the assumption of simple random samples.

Figure 10.4
First-Year Mobility Rates by Age,
Experimental Questionnaire
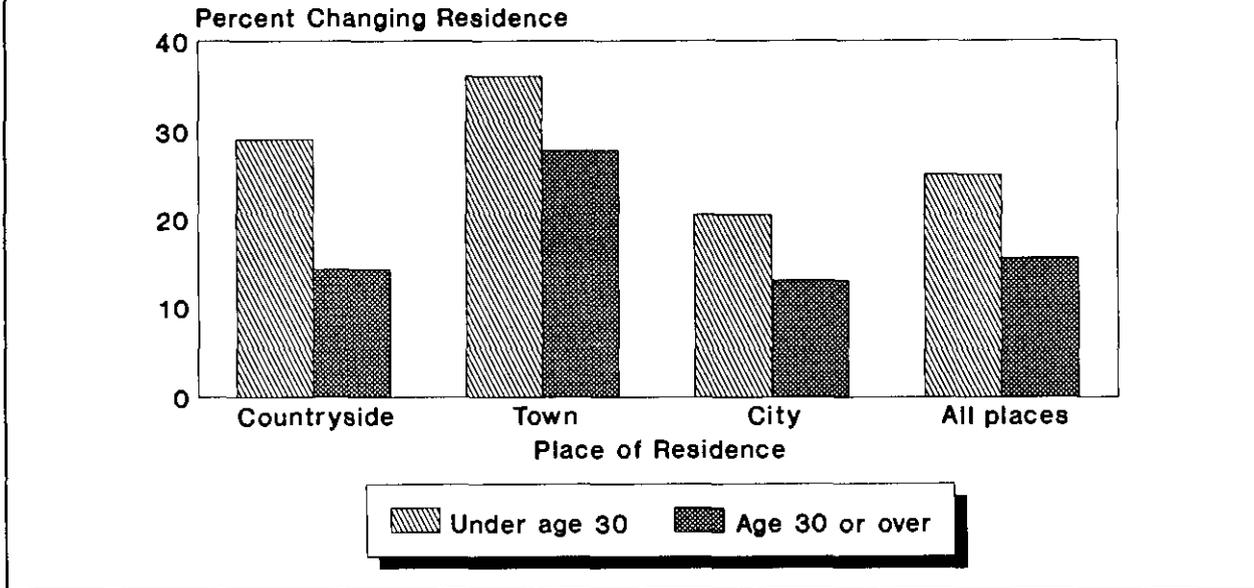
Gross Migration Flows

A second type of analysis that provides useful insight into the dynamics of residential mobility is the calculation of gross migration flows between places of residence. These are derived from a cross-tabulation of the population of all women by current residence and previous residence at a specific time before interview date. This cross-tabulation is also known as an origin-destination, or mobility, matrix, and is commonly used in migration studies. The entries in such a matrix are easily obtained from information in the calendar.

Table 10.6 presents gross migration flows among places of residence for both one and five years prior to interview. These estimates are based on all women in the experimental survey. The estimates support our earlier contention that the intensity of residential mobility in Peru within the five years prior to interview is low.

For both periods of reference, more than 90 percent of all movers remain at the same (self-classified) level of urbanization, while, among those who change, moves up the urban hierarchy tend to predominate. For example, of those who were living in the countryside five years prior to the interview date, movers favor city destinations over towns by a ratio of about 2 to 1. The row-margins of these matrices show the present geographic distribution of respondents with 26 percent in the countryside, 11 percent in towns, and the remaining 62 percent of women in city locations. The column-margins present the distribution of respondents one and five years before interview, respectively. Finally, the last row of this table presents the distribution of childhood origins. The comparisons among the various distributions point to the steady increase in urbanization in Peru. These data show the net lifetime movement of women from the countryside to the city.

Table 10.6 Distribution of women by current and previous place of residence, one and five years prior to the interview date, experimental questionnaire

| Current Residence | Residence One Year Before Interview | | | | |
	Countryside	Town	City	Missing or Moving	Total
Countryside	639	3	15	2	659
Town	4	269	16	1	290
City	10	13	1553	7	1583
Missing or Moving	--	--	--	2	2
Total	653	285	1584	12	2534

| Current Residence | Residence Five Years Before Interview | | | | |
	Countryside	Town	City	Missing or Moving	Total
Countryside	617	8	31	3	659
Town	13	247	26	4	290
City	23	56	1498	6	1583
Missing or Moving	--	--	--	2	2
Total	653	311	1555	15	2534
Childhood Residence	838	542	1142	12	2534

Note: In the experimental questionnaire, interviewers entered a code "0" in the month when a change of residence took place. For these months, women were classified according to their place of origin.

Annual Birth Rates by Type of Residence

One of the most interesting questions raised in the analysis of fertility is whether estimates by current characteristics of the women reflect the actual fertility differentials for this population during any earlier period. In particular, place of residence at a birth of a child has been regarded as a variable which, given the mobility of a population, may not be accurately measured by the place of residence of the woman at interview.

The experimental questionnaire provides a unique opportunity to make this particular comparison: the difference between fertility rates calculated according to place of residence at the time of birth and fertility rates classified by place of residence at the time of interview. Information in the calendar is used to calculate period birth rates for the 72 months of exposure in the calendar. Births in the

numerator are classified according to either the mother's residence in the month of birth or during the month of interview, depending on the specific calculation. The denominator, in both instances, is the number of months of exposure in a place of residence within a given period prior to interview. In Table 10.7 these annual birth rates are reported for all women, with separate estimates for women who changed residence at least once since January 1981 ("movers") and for those who did not ("non-movers").

Table 10.7 Annual birth rate by residence of the mother at the time of the birth of a child and current residence, experimental questionnaire

| | All Women | | |
	Movers[1]	Non-movers[2]	Total
Residence at Time of Birth			
Countryside	17.3	19.6	19.4
Town	9.8	15.2	13.9
City	10.7	10.2	10.3
Current Residence			
Countryside	17.0	19.6	19.4
Town	10.0	15.2	14.0
City	10.7	10.2	10.3
Total	11.5	13.3	13.0
	(n=378)	(n=2156)	(n=2534)

Note: The annual birth rate is based on births per 100 woman-years of exposure.

[1] Women who changed residence at least once since January 1981.
[2] Women who did not change residence since January 1981.

Previous tabulations indicated that no more than 15 percent of all women in the experimental survey changed residence since January 1981. Therefore, we would not expect substantial discrepancies between the two sets of estimates. Indeed, for each category of place of residence, the birth rates are indistinguishable. However, there are small differences in fertility for the "movers," according to the measure of residence. Note also that this group of women has lower fertility than the remaining women, a differential which may be the result of the younger age distribution of movers.

10.6 Conclusions

The experimental version of the questionnaire makes it possible to obtain monthly information on residence for approximately six years prior to the survey date. For this period, the date (month) of each change of community and the level of urbanization for the place of residence are known. The core

questionnaire, by contrast, inquired only about the length of residence in the current community and the place of childhood residence.

The calendar has several advantages. It enables the researcher to assemble monthly data on residence, a rarity in most demographic surveys. Such data readily permit the calculation of mobility rates for a variety of reference periods. In addition, the calendar allows the researcher to examine the interrelationship of demographic variables, such as residence, migration, fertility and employment experience. Also, the very fact of asking about a woman's demographic history in this way may improve the accuracy of recall of other events. Finally, the collection of an event history allows the researcher to apply more sophisticated statistical techniques to the analysis of the data, most notably life table and other duration methods such as hazard models.

There are some disadvantages to the calendar. If events are infrequent, then a relatively short calendar will obtain little useful data. Also, a larger fraction of spells will straddle the starting date of the calendar. In order to include these intervals in the analysis, additional information must be obtained from outside the calendar. The relative rarity of events can also raise problems for the critical evaluation of hypotheses about the interrelationship of demographic events.

In summary, the estimates derived from the calendar appear to yield accurate, useful information about rates of mobility and level of urbanization. An obvious improvement to the current questionnaire would be an additional question on the starting date of residence, with respect to the respondent's location at the beginning of the calendar. These data would provide a much more complete description of mobility during the calendar period, since women who never move within this time frame would be included in the analysis, and mobility estimates could be obtained for longer durations of residence.

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CHAPTER 11

WOMEN'S EMPLOYMENT

11.1 Introduction

This chapter considers some aspects of the employment data collected in the Peru Demographic Health Surveys. One of the main objectives of the analysis of the experimental questionnaire is to determine the usefulness of calendar data on women's employment (and place of residence) for analyses of recent fertility behavior. The goal of this chapter is a more modest one: to determine the robustness of estimates of current employment by a comparison of responses in the core and the experimental questionnaires; and, to examine the extent to which current status information on female employment is a reasonable proxy for recent behavior.

11.2 The Peru Questionnaire

The core and experimental questionnaires differ substantially with regard to information on female employment. The core questionnaire gathers data on a woman's current work, whether she has ever worked, and the disposition of her earnings (Q. 714, 716 and 717). No information is collected on the dates of employment, although we can determine if a woman worked before marriage, after marriage, or both (for ever-married women). However, there is a series of questions (Q. 718A-723) devoted to a woman's employment during the most recent seven days. Women are asked about the nature of the payment (if any) for their current employment, as well as about the type of position and the numbers of hours worked.

In the experimental questionnaire, respondents are asked a similar series of questions about current employment--i.e., work during the most recent seven days. In addition, however, information is collected on all periods of employment for the calendar period: January 1981 to interview (Q. 713). Employment is defined here as work for cash or for payment in kind; jobs are divided into self-employment, work on a family farm or business, and work for non-relatives. Interviewers are instructed to code the responses into the final column of the calendar.

11.3 Current Labor Force Participation

The focus of this section is female employment in the week preceding the survey. As noted above, the seven-day reference period is common to both experimental and core questionnaires. Furthermore, each survey allows us to investigate the implications of the definition of work for levels of labor force participation. Does it make a difference to probe for periods of vacation or leave when asking about recent work? Do questions phrased in terms of work for payment in money or kind overlook employment that takes the form of helping in a family business or farm? Are "cachuelo"[1] arrangements reported as payments for work?

The core and experimental surveys are different in three important respects. First, the initial question in the core survey (Q. 718A) asks simply, "Did you work" in the survey week, drawing no distinction between work for cash/kind and other types of work. In the experimental questionnaire the

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[1] There is no exact translation for "cachuelo". The word is used in Peru to denote extra compensation paid to an employee for the performance of tasks which are not part of the employee's regular work. The tasks and the compensation are small.

initial question is specifically concerned with work for payment in cash or kind. Secondly, the order of questions on unpaid work and "cachuelo" is reversed in the experimental survey. Finally, as described below, there is an anomaly in the series of questions addressed to never-married women in the core survey.

Levels of Participation

One obstacle to comparing core and experimental questions arises from the skip patterns imposed in the core questionnaire. For reasons that are unclear, ever-married and never-married women answer a different set of questions in the core survey concerning work in the week prior to the survey date. In the core questionnaire a never-married woman who says that she has never worked regularly for money ("no" to question 716) is guided to the question on "cachuelo" payments (718C) in the week preceding the survey. Had she responded "yes" to 716, however, she would then have been asked about whether she had any work in the survey week (718A) and about whether she was on a short-term leave from work (718B). All ever-married women are directed to 718A, whatever their earlier work histories. The skip pattern for never-married women appears to be in error.

There are 761 cases in which questions 718A and 718B are skipped over, and so the error occurs often enough to cloud the questionnaire comparison. No simple solution to the problem exists. It might might be assumed that a woman who has never worked regularly for money would have replied "no" to a question on work in the survey week. However, examination of the responses of ever-married women suggests caution. Of those ever-married women who had never worked regularly for money, whether before or after marriage ("no" on 712 and 714), 23 percent claimed to have worked in the survey week ("yes" on 718A). From this it appears that the distinction between working regularly for money, and working in general, is important.

It has been assumed that all never-married women who never worked regularly for money responded "no" to the core questions 718A and 718B about work in the week before survey. If the results for married women can be taken as a guide, then in perhaps 1 of 4 cases the assumption may be in error.

Table 11.1 summarizes the labor force participation estimates derived from the core questionnaire. The table shows the importance of probing for types of work other than work for cash or kind. An estimate of the extent of female labor force participation, ignoring such employment, would be only 44 percent, as opposed to the figure of 62 percent generated with the extra probes. For reasons just discussed, the levels of non-participation may be overstated in the core, due to the assumptions made for never-married women.

Because of the skip patterns imposed in the series of questions 718A-D, the responses do not provide a complete picture of participation in family work or in "cachuelo" arrangements. It is possible to work for cash, help in a family business, and receive "cachuelo" payments all within a given week; these are not mutually exclusive activities. But as the questions are constructed, an answer of "yes" to one type of work directs the interviewer to the next bank of questions, leaving unasked any remaining queries on types of work. The design sacrifices information without simplifying the questionnaire.

Labor force participation estimates drawn from the experimental questionnaire are given in Table 11.1. The differences in participation estimates produced by the two questionnaires appear small, on the whole. Despite the fact that the initial question in the experimental survey (707A) is concerned with work for cash or kind alone, the percentage responding "yes" is within a few points of the core questionnaire responses. The order in which questions on family work and "cachuelo" are asked is reversed in the experimental survey. Yet the percentages responding "yes" to the two items are roughly the same. Thus, the fact that one of these questions is skipped when the answer to the other is "yes" makes little difference here. It appears that participation in both unpaid family work and "cachuelo" arrangements is unusual, at least within a single week.

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Table 11.1  Percent distribution of employment in the seven days prior to survey
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CORE		EXPERIMENTAL	
No work of any kind in last 7 days	38.0	No work of any kind in last 7 days	39.4
Worked	44.2	Worked for cash or payment in kind	42.9
Did not work, but had a job	2.9	Did not work, but had a job	4.0
Did not work, but received "cachuelo"	3.9	Did not work, but helped in family business or farm*	11.5
Did not work or receive "cachuelo", but helped in family business or farm	11.0	Did not work or help family but received "cachuelo"*	2.2
Total	100	Total	100
	(n=4989)		(n=2533)

*These two questions are in reverse order from those in the core questionnaire.

Types of Payment

The experimental questions show that, among women who did work of any type in the week before the survey, 72.5 percent received payment in cash, 2.5 percent in kind, 2.7 percent in cash and kind, and 21.9 percent received no pay. As could be expected, the vast majority of those saying that they had worked for cash or kind ("yes" on question 707A) then reported payment in terms of cash or kind (88 percent responding cash, and another 4 percent claiming a mix of cash and kind on question 708). Yet, in the remaining 82 cases in this group (8 percent of the group total), a respondent who said that she had worked for cash or kind reported no payment. These responses may be errors or may reflect a misunderstanding of the survey question.

The distinct group in terms of payment is the group helping in a family farm or business: only 18 percent of these women report payment in cash, while 75 percent report no payment for their work.

The responses in the core questionnaire are roughly equivalent. Among women who did work of any type, 69.5 percent did so for payment in cash, 2.9 percent for payment in kind, 2.3 percent for a combination of cash and kind, and 25.3 percent for no pay. As with the experimental questionnaire, the group helping in a family business or farm is distinct from the others: only 13.8 percent participated in return for a cash payment, and 77.6 percent helped without payment.

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11.4 Employment Histories

Few demographic surveys collect employment histories for women. The usual approach, exemplified by the Peru core questionnaire, is to gather current status information on employment and to supplement that data with questions on work within broad life-cycle periods (e.g., before and after marriage). If employment exhibits little life-cycle variation, these current-status measures of work are potentially useful; otherwise they are of little value in explaining marriage or fertility in the years preceding the survey date. The availability of a six-year history of employment in the experimental questionnaire permits an assessment of the frequency of change in employment status.

In what follows, the data collected in the experimental calendar are described, with a few comparisons to summary measures gathered in the core questionnaire. Several qualifications should be noted at the outset. First, the employment data available in the calendar refer to one type of work: work for a payment in cash or kind. As the analysis above shows, this approach may remove important categories of work from consideration. Among women who do work, by the criterion of payment, types of work are divided according to the type of employer: self-employed, work for family or relatives, and work for others. Movement across these types of jobs and from employment to non-employment can be detected. It is not possible to determine tenure with a specific employer or to identify those changes in occupation that do not imply a corresponding change in the type of employer.

The calendar data permit a calculation of the proportion of months since January 1981 spent in various employment statuses. The calculation reveals a proportion not working of .608; in self-employment .168; working for family, .059; and working for others, .166. The proportion of months spent working for payment in cash or kind, .392, is a few percentage points lower than estimates produced by the current-status question for the survey week (see Table 11.1).

The key issue in female employment is stability. The question may be considered from several different perspectives. First, what proportion of women change their employment status, over the years ending with the survey, from what it was in January 1981? A calculation shows the following:

Initial Status in January 1981	Proportion Changing
Not Working	.447
Self-Employed	.307
Working for Family	.436
Working for Others	.451

Self-employed women exhibit the least tendency to change employment status, while in the remaining three categories more than 4 in 10 women change status during the period of observation.

Table 11.2 considers the probabilities of transition in more detail. The table gives monthly transition probabilities p_{jk}, where j indexes employment status in month t, and k employment status in month t+1. As expected, the probabilities along the diagonal--indicating no change--are the largest. But there are also sizable transition probabilities for moves into employment (from no work) and out of employment. On the whole, the rates of transition between types of employment are smaller. Most of the employment mobility, then, can be viewed as movement into and out of the labor force.

How effective is current employment status in summarizing recent employment history? How far wrong could one go, having only the current status information? The numbers presented above suggest considerable instability in employment and, indeed, the upper panel of Table 11.3 shows that current status is a rather poor "predictor" of recent employment experience. Women currently working (for cash or kind payment) spent one-third of the preceding six years not working. Women who are not currently

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working spent about one-fifth (.189) of the preceding months working. This suggests that an answer of "not working" to a current status question is more informative about the recent past than is an answer of "working". The reason for the asymmetry appears to lie in the different lengths of periods of employment and unemployment.

Table 11.2 Monthly employment transition probabilities derived from the calendar, experimental questionnaire

Status in month t	Status in month t+1			
	Not Working*	Self-Employed	Working for Family	Working for Others
Not Working	.9867	.0047	.0028	.0058
Self-Employed	.0104	.9879	.0004	.0012
Working for Family	.0224	.0016	.9747	.0015
Working for Others	.0158	.0018	.0007	.9817

Note: Each row sums to 1.0.

*"Working" is defined as work for cash or kind in the employment history.

Table 11.3 Current employment status by summary of employment history, experimental questionnaire

	Proportions of months since January 1981			
	Not Working	Self-Employed	Working for Family	Working for Others
Current Status[1]				
Working	.337	.295	.064	.304
Not Working	.811	.073	.055	.062
Current Status[2]				
Self-Employed	.308	.631	.008	.054
Employer	.310	.208	.121	.362
Employed by Government	.265	.040	.001	.694
Employed by Firm	.371	.010	.006	.613
Blue-collar worker	.308	.016	.018	.659
Employed in the Home	.497	.042	.036	.425
Family Worker	.659	.033	.279	.030

Note: Each row sums to 1.0.

[1] Current status of "working" means working for payment in cash or in kind in the 7 days preceding the survey.
[2] Figures cover those doing work of any type in the 7 days preceding the survey (i.e., with answers of "yes" to questions 707A, 707B, 707C, or 707D).

Table 11.3 presents recent employment experiences of currently working women, by a variety of categories of current work. Women who are currently family workers spent nearly two-thirds of the preceding six years not working; by contrast, women who are currently employed in government jobs typically spent just over one-quarter of the period not working. These differentials suggest the presence of life-cycle patterns in employment histories that need further investigation.

11.5 Conclusions

The analysis of employment information contained in the core and experimental questionnaires has revealed several important findings with regard to current labor force participation and recent work histories. First, tabulations show that the percentage of women classified as "currently working" varies significantly with the definition of work. Answers to the question "Have you worked in the last seven days?" yield participation estimates in the 40 percent range; that figure climbs to over 60 percent when one considers women who hold jobs but have not worked in the survey week, unpaid participation in a family enterprise or farm, and "cachuelo" arrangements. Reports of female labor force participation are frequently unreliable. By documenting the sensitivity of participation estimates to the definition of work, the Peru surveys provide us with valuable substantive information. Although a coding error in the core questionnaire prevents any precise comparisons, the core and experimental questionnaires yield roughly equivalent participation distributions.

Second, the employment calendar contained in the experimental questionnaire shows that a woman's employment status at the time of the survey is not a reliable guide to her work history in the preceding six years. Moves into and out of employment are frequent; transitions between types of employment, while less frequent, are also empirically important. Hence, current-status measures of employment cannot be used to "explain" marriage or parity progression prior to the survey. These findings demonstrate the value of collecting employment history data.

CHAPTER 12

CONCLUSIONS

Since there were so many distinct experimental variations incorporated into the experimental and standard questionnaires, it is difficult to summarize the results of the comparisons presented in this report. Overall, this analysis has demonstrated the feasibility of both a truncated birth and child death history and a six-year monthly calendar for the collection of detailed pregnancy and contraceptive records, breastfeeding and amenorrhea information, and marriage, employment and residence histories. The calendar appears to have improved the resulting data in two ways: (1) more complete and accurate reports of contraceptive use (and, to a lesser extent, postpartum factors), which significantly improved the resulting estimates of contraceptive discontinuation (as compared with estimates derived from the standard questionnaire); and (2) the collection of several types of information--marriage, employment, and residence histories--which were not obtained in the standard questionnaire and have rarely been collected in such detail in other fertility and family planning surveys. The analyses presented here indicate that the latter types of data are reported reasonably well and the resulting information substantially enhances our knowledge of these subject areas. It would be difficult and cumbersome to collect such episode-based information without the use of a calendar.

The aspects of the results that are most important at this stage are twofold: the implications of the findings for the second round of DHS surveys; and, the extent to which certain aspects of the analysis warrant replication. The publication of this report coincides with the near-completion of Phase I of the Demographic and Health Surveys Project and with the planning of the second round of surveys, DHS-II. A decision has been reached to incorporate the calendar into the new DHS-II core questionnaire to be used in countries with significant levels of contraceptive practice. At the same time, analysis of another experimental survey in the Dominican Republic, modeled after the Peru experiment, is proceeding.

12.1 Experimental Survey in the Dominican Republic

During the period in which the two DHS surveys were being carried out in Peru, a replication of the project was being conducted in the Dominican Republic. Virtually the same questionnaires used in Peru were used in the Dominican Republic, but with larger samples. Approximately 12,000 women were interviewed in the Dominican Republic: 3,885 with the experimental version of the questionnaire and 7,648 with the standard questionnaire.

This opportunity to replicate the experimental survey is important for two reasons. First, although culturally and linguistically similar to Peru, the Dominican Republic is at a later stage of the demographic transition. It has lower levels of infant mortality and fertility and a higher rate of contraceptive prevalence, with greater reliance on effective methods. Thus, we have the opportunity to determine whether the findings for Peru are supported in a different setting. Secondly, although many of our conclusions from the Peru study are sufficiently strong to warrant changing the structure of the core questionnaire, there are several anomalies that might be elucidated by replication in another country. For example, results presented in this report indicate that the number of births for the most recent five-year or six-year period may have been underreported. As a consequence, recent declines in fertility may have been overestimated. As noted earlier, this may have occurred in part because of intentional displacement error on the part of interviewers so as to reduce their workload. In both questionnaires, certain types of information were asked only for births occurring in the most recent five or six years. One important advantage of replication in the Dominican Republic is that the availability of two other recent fertility surveys (the World Fertility Survey in 1980 and the National Contraceptive Prevalence Survey in 1983-84) will enable us to validate the trends from the DHS data.

One aspect of the survey design in the Dominican Republic that was not included in Peru was a reinterview survey for both the standard and the experimental questionnaires. About 10 to 12 weeks following the initial interviews, a subsample of women was reinterviewed, half with the experimental and half with the standard questionnaire. Each respondent received the same questionnaire in the reinterview as in the original interview, although different interviewers were assigned to this phase of the project. A total of 424 reinterviews were completed. In the interests of economy, these interviews were conducted in several sections of Santo Domingo and in adjacent rural areas and were limited to women with at least one birth in the preceding five years.

The reason for the reinterview study was that even if the data satisfy the variety of internal consistency checks and aggregate comparisons described in this report, individual response errors may be frequent and have potentially serious implications for analyses based on individual records. The objective in this part of the study is to compare the reliability of different components of the questionnaires--i.e., the extent to which application of the same survey conditions on two occasions results in different responses.

12.2 New Standard Questionnaire

An important result of the experimental survey in Peru has been the development of a new standard questionnaire incorporating the monthly calendar. This questionnaire is intended primarily for use in countries with moderate or high levels of contraceptive prevalence, although there may be some experimental use of it in countries with low levels of contraceptive practice. The new questionnaire is a blend of the experimental version used in Peru (and in the Dominican Republic) and of the standard questionnaire. It includes the calendar, with several modifications,[1] but retains the full, rather than the truncated, birth history.[2] The number of background questions has been reduced and the questions on reproductive intentions were taken from the DHS-I core questionnaire. (These questions resulted in far better responses than those in the experimental questionnaire.) The questions on child health have been expanded, especially with regard to breastfeeding behavior. The greater emphasis on child health information results in part from findings from the Peru study, but also is a consequence of the need to obtain more information on such subjects as immunization, diarrhea, and infant feeding practices.

Since the new questionnaire reflects a number of non-trivial changes, the plan is to conduct a major pretest of it before proceeding with its standard use. The pretest is designed not only to evaluate the mechanics and communicability of the instrument but also the training of interviewers, a new interviewer manual, and the data processing implications of the resulting calendar-type information.

If anything is learned from the experience of conducting and analyzing demographic and health surveys, it is that questionnaires are never final. Quite aside from the addition of new subject matter, the ways of improving questions so as to elicit greater reliability and validity seems to be an endless process. But this is as it should be, since the questionnaire embodies the fundamental theory of the subject matter and this should be continually improving.

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[1] In particular, the number of coded responses for the reason for discontinuation of contraceptive use and for the nature of women's employment has been increased. Moreover, additional questions have been added to obtain starting dates for periods of residence and employment which are in progress during the first month of the calendar.

[2] The decision to retain the full birth history was not because of any shortcomings of the truncated birth history *per se* but rather for the reason that the full birth history provides a much richer data set for trend and birth interval analyses.

APPENDIX A

Creation of a Calendar From The Standard Questionnaire

APPENDIX A

CREATION OF A CALENDAR FROM THE STANDARD QUESTIONNAIRE

A.1 Introduction

This appendix describes the procedures for using information from the standard questionnaire in Peru to construct a data set similar to that of the first four columns of the calendar in the experimental survey. The main objective in simulating such a calendar was to obtain all dates of pregnancy, birth, and contraceptive use for the period January 1981 through the month of interview, as well as reasons for discontinuation, from information provided in the core questionnaire. These data were required for the estimates of contraceptive prevalence, continuation, and failure presented in the Chapter 5. As a by-product of this exercise, the quality of some of the reported data in the core questionnaire was assessed and compared with the quality of information collected in the calendar of the experimental questionnaire.

The work is presented in three sections. First, there is a description of the sections of the core and experimental questionnaires which deal with contraceptive use information. Second, there is a detailed account of the procedure for converting information on contraceptive use from the core questionnaire into the format obtained from the experimental calendar; in addition, there is an assessment of the consistency and plausibility of the contraceptive histories reported in the core questionnaire, as well as possible biases which result from our imputation procedures. The third section examines the consistency of the corresponding information in the experimental survey and compares the quality of reporting in the two surveys.

A.2 Questionnaire Design for the Core and Experimental Surveys

Contraceptive Use

In the core questionnaire of the DHS survey, information on contraceptive use is obtained in Section 3 (see Appendix B). The core questionnaire is designed first to eliminate women who never used contraception from this part of the questionnaire, and then to consider current use as well as additional use in the open interval (i.e., since the most recent birth or marriage). Sterilized women are considered separately from women who have ever used another method; the latter group is divided into women who are pregnant at interview and those who are not. Non-pregnant women who have ever used contraception are asked the following questions:

For not pregnant and non-sterilized women:

Q. 316.   Are you currently doing something or using any method to avoid getting pregnant?

Q. 317.   Which method are you using?

For sterilized women:

Q. 315.   In what month and year did you (he) have the operation...?

Current users are subsequently asked the following questions:

For not pregnant and non-sterilized current users:

Q. 323.   For how long have you been using (CURRENT METHOD) continuously? [Response in months and years.]

Q. 326B.   Do you regularly use any other method during the same month?

Q. 327.   Which method?

Q. 329.   [For women (including sterilized) who used another method in the open interval] Which method did you use before (CURRENT METHOD)?

Q. 330.   For how long had you been using method before you stopped using it? [Response in months and years.]

Q. 330A.   In what month and year did you begin to use method?

Q. 331.   What was the main reason you stopped using it then?

Women not using a method at the time of interview are asked the following questions with regard to the interval since their most recent birth (or marriage):

For not pregnant and non-sterilized women not currently using:

Q. 334.   Which was the last method you used?

Q. 335.   For how long had you been using the method before you stopped using it?

Q. 335A.   In what month and year did you begin to use the method?

Q. 337.   What was the main reason you stopped using the method?

Once the experience in the open interval has been recorded, interviewers obtain information on previous use from the contraceptive use history (Questions 348-350). Here, for the interval preceding each live birth since January 1981 and/or the current pregnancy, the questionnaire allows for the coding of up to two methods within an interval and for the duration of use of the last method in the interval. Also, information is recorded on the reason for stopping use of the last method and whether the woman was using at the time she became pregnant (for the pregnancy which closed the interval (Questions 351-353)). Finally, information is collected on the planning status of each pregnancy in the contraceptive history table (Q. 354).

The initial flow of the experimental questionnaire is similar to that of the core: ever-users are identified, sterilized couples are considered separately from other users, and pregnant women are removed from questions related to current use (See Appendix C). Information for current users is collected in questions 313 to 316A, which instruct interviewers to code the relevant months since 1981 in the calendar. After obtaining this information, interviewers are instructed to probe for all periods of use, including method and duration of use back to January 1981 and to code months of use, according to method, in Column 1 of the calendar (Q. 318). Interviewers are further instructed to aid the respondent's recall by asking questions about the timing of use with respect to the pregnancies and births which have already been coded in this column of the calendar, and to probe for temporary (one month or longer) periods of nonuse.

As part of the calendar, interviewers collect several other pieces of information which are vital for the calculation of contraceptive failure. First, they determine (Q. 320) the starting date of use for any method used at the beginning of the reference period (January 1981). Second, at the end of each period of contraceptive use, information on the reason for stopping use of a method is recorded in column 1A. Interviewers were trained to probe the respondent to determine whether termination was due to failure of the method when a pregnancy appears within one or two months of the end of use. Because the experimental questionnaire includes a non-live birth history, interviewers also obtained responses as to whether contraception was used at the time a woman became pregnant for pregnancies which did not result in a live birth.

Breastfeeding, Amenorrhea and Postpartum Abstinence

The nature of the postpartum information collected in the core and in the experimental survey is basically the same: in Section 4 (Health and Breastfeeding) of both questionnaires, interviewers determine, for each live birth since January 1981, whether or not the child was breastfed and for how long; the number of months following a birth during which the respondent did not have a period; and the months following a birth in which the respondent did not have sexual relations. Separate codes for the most recent birth indicate whether the woman is still breastfeeding, amenorrheic, or abstaining. (See Questions 406-413 in the core and 405-410 in the experimental questionnaires.)

However, the experimental survey improves on this information in several ways: the reasons for not breastfeeding and for terminating breastfeeding are ascertained for each of these births; the reported months of breastfeeding, amenorrhea, and abstinence are entered into the calendar (in Columns 2, 3, and 4 respectively); information on these proximate determinants is also obtained for births in the period 1978-1980 and the relevant months which occurred after January 1981 are entered into the calendar in order to obtain a full accounting of exposure for the reference period; and the interviewers are instructed to probe the respondent to make sure that the reported periods of pregnancy, contraceptive use, breastfeeding, amenorrhea, and abstinence are consistent with one another. The objective of these probes is to reduce the extent of heaping and, more generally, of misreporting of this type of information. For example, the interviewers were instructed to verify responses whenever periods of contraceptive use (or subsequent pregnancies) overlap periods of lactation or amenorrhea or abstinence.

A.3   Creation of a Calendar from Interval-Type Information on Contraceptive Use and Other Postpartum Variables

The main objective of creating a "contraceptive history" for each month since January 1981 for the core questionnaire is to reproduce columns 1 (months of pregnancy, births and use) and 1A (reasons for termination of use) of the experimental questionnaire. There are, however, certain aspects which can never be reproduced: (1) there is no information on non-live births from the core questionnaire; (2) with the exception of the open interval, at most one segment of use is reported within each birth interval in the core; (3) with the possible exception of current use, there is no reporting of simultaneous use of different methods in the core (codes 13-15 in the calendar allow interviewers to record multiple methods in the experimental questionnaire); and (4) there is no information collected in the core which is comparable to information on the date contraceptive use began for the method in use during January 1981 in the experimental survey.

The creation of the calendar file from the core questionnaire was performed in two stages: imputation of missing dates, and conversion of contraceptive use and postpartum data from a tabular format to a calendar.

Imputation of Missing Dates

Since the DHS core data file included cases with missing information on a woman's date of birth, dates of birth of her children, and date of sterilization, it was necessary to impute these dates before the construction of a calendar. In addition, since dates of first marriage and age at first intercourse are used as part of the imputation scheme, it was also necessary to impute these values when they were not provided by the respondent.

The imputation of the above mentioned dates was carried out with the standard DHS program written specifically for that purpose. A detailed description of the algorithm involved is reported in the *DHS Data Processing Manual*.[1]

Conversion of Contraceptive Use Data from a Tabular Format to a Calendar

The following is the procedure used to convert reported information into a calendar and to check the data for internal consistency. The overall strategy was to match the sequence of instructions followed by the interviewer in the experimental questionnaire. All calculations were restricted to ever-married women.

First, all live births reported to have occurred since January 1981,[2] as well as eight preceding months of pregnancy for each birth, were entered in column 1 of the "calendar." For women who reported themselves to be pregnant at interview, the corresponding months of pregnancy were also coded in column 1.[3]

Next, contraceptive use data for the open interval was examined. Sterilized and non-sterilized women were considered separately. For sterilized women, the months of sterilization were coded in the calendar, between the reported date of sterilization from question 315 (or January 1981 if the sterilization occurred earlier) and the interview. The next step was to insert into the calendar the timing information of the method used prior to sterilization (if any) within the open interval. This same procedure was applied to methods used prior to segments of current use for non-sterilized women and to the last method used in the open interval for women not currently using contraception.

Two pieces of information were reported for the method used prior to the current method in the open interval: duration of use (years and/or months)[4] and the date when use started. If an exact starting date was available, and if the woman had ever had a live birth, consistency of the starting date of use was checked against the date of birth of the most recent child. If use preceded the birth, the new starting date was changed to the month after the last birth. In addition, the reported duration of use was checked for consistency with the date when use started and the date of sterilization of the woman (or date when the current segment of use began). If the reported duration of use exceeded the interval (i.e. time between the

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[1] Institute for Resource Development. 1988. *DHS Data Processing Manual*. Basic Documentation No. 11. Columbia, Maryland: Institute for Resource Development/Westinghouse. (Demographic and Health Surveys)

[2] All but one of the children born in a multiple birth were excluded, since the calendar allows for the coding of only one event in any month.

[3] For the women whose duration of pregnancy was missing, a number of months between 1 and 8 was selected randomly.

[4] Durations of use which were given in years only were considered as integral numbers of years (e.g., women who reported two years of use were considered to have used for exactly two years, rather than for 2.5 years).

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starting date of use and the beginning of use of the current method) the length of this segment of use was reduced to equal the length of the interval. However, if the starting date was not reported in exact months and/or years, it was imputed.[5]

A problem arose in the determination of the reason for discontinuation of the **previous** method in the open interval. The questionnaire allowed for the response "method failure," which was given by some respondents. Since the core survey includes only a live birth history, it is not possible to assess whether this refers to a real failure of the method (which must have led to a non-live birth), or whether it refers to the respondent's perception about the performance of the method. These segments were coded as **"Failure in the open interval"** (with a code number of 6). This code allows us to distinguish these segments from reported failures which resulted in a live birth (code number 1) in subsequent analyses.[6]

A similar situation arose when the reason for stopping the use of the previous method was reported as **"don't know"** or was **missing**. Since these segments did not result in a birth, our convention was to classify them as **"Not a failure"** (code number 7).[7]

For non-sterilized women who had used in the open interval, but who were neither currently using a method nor pregnant, the process for determining the method used and the reason for discontinuation is the same as that described above.

Several additional matters with regard to current use are worth noting. The first is the consistency between the starting date of use of the current method and the starting date of the open interval (the date of the last live birth, or the date of first intercourse if there was no previous birth). For segments in which the starting date of current use preceded the start of the interval, the starting date was changed to the month after the interval began. Second, for the few cases without a reported duration of current use, durations were imputed.[8] For women who reported the duration of the current segment as "since the last birth," the starting date was set as the month after the last birth. The third issue concerns the method currently used. Since women were allowed to report the use of two methods for the current segment of use (questions 317 and 327), coding rules from the experimental survey were adopted, but **always giving preference to the more modern method** (i.e., pill, IUD, injection and vaginal methods). For example, if the woman reported current use of the pill and of rhythm, her experience was entered in

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[5] The imputation of the starting date of use for the method used prior to the current method proceeded as follows. If only the starting month (but not year) of use was missing, it was imputed (according to a uniform distribution) among all possible months in the reported calendar year, taking into account the reported duration of use of the method. Months of use already assigned to the current method were eliminated as possibilities. If the year in which use of the previous method began was missing, the starting date was imputed among all possible months starting with the first month in the interval--again, excluding months assigned to the current method and taking into account the reported duration of the previous method. If all months in the interval had already been attributed to the current method or the respondent failed to report the duration of use of the previous method, no information on the previous method was added to the calendar.

[6] Among 249 segments of use corresponding to the last method used in the open interval, 3 were terminated because the woman reported she became pregnant; also, 11 out of 231 segments of use prior to the current in the open interval were coded as ending because of a method failure.

[7] Two segments of use of the last method were coded as "not a failure"; another two intervals were similarly coded among users of a method prior to the current method.

[8] There were six cases without a reported duration of current use: pill (2), IUD (2), condom (2). In these instances, we imputed a duration of use on the basis of the length of the open interval and the average duration of use of all current methods reported by respondents in the core survey.

column 1 with a code for pill. However, if she reported using the condom and rhythm, the segment was entered with a code of 13 (rhythm and condom), as was the instruction for the experimental survey.

The third stage in constructing columns 1 and 1A of the simulated calendar concerns the analysis of use within closed intervals. Recall that the core questionnaire collects duration information for only **the last segment** of use in a closed interval. Although women are also asked about whether they used a method prior to the last, no information is available about the duration of its use. Nevertheless, it was decided to incorporate reports of the previous method into the simulated calendar so as to make the core as comparable as possible to the experimental survey. The actual mechanism for including this information is described below.

Within closed birth intervals there are two types of use segments for the last method: those which terminate in a failure (woman became pregnant while using) and those which terminate for some other reason. Information on timing is available for segments that terminate in failure because the length of use is known, and it is known that the period of use terminated at the time of pregnancy. Thus, the month of termination of use is defined as the month prior to the start of pregnancy, and the starting date of use is determined accordingly. In most cases, this was straightforward. However, if the resulting starting date of use was located before or on the same month as the event opening the interval, the starting date was redefined as the month after this event and the reported duration of use was modified accordingly

For intervals which did not terminate with a contraceptive failure, determination of date of use was more complicated. Specifically, a starting date of use had to be imputed. It was first necessary to determine whether the segment of use exceeded the interval between a birth and the first month of pregnancy of the subsequent birth. If the reported use exceeded the interval, all months within the interval were attributed to contraceptive use. However, if the segment of use was shorter than the length of the interval, the starting date of use was randomly imputed. The imputation was based on the premise that all starting dates between the first month in the interval[9] and the last "possible" month (i.e., the difference between the onset of the pregnancy and the reported duration of use) were equally likely.

The procedure described above was applied to segments of use for which the duration of use was not missing. If the duration of use was unknown but the woman became pregnant while using the method, a starting date was randomly imputed (according to a uniform distribution) between the first month of the birth interval and the month prior to the beginning of the next pregnancy; the ending date was clearly the month prior to the subsequent pregnancy. When the duration of use was not known and the segment of use did not end in failure, the starting date was arbitrarily set as two months after the beginning of the interval; in addition, the end of the use segment was imputed randomly (between the starting date and the first month of pregnancy).[10]

Several other decisions had to be made with regard to missing information. If a woman failed to report the specific method used in an interval, the interval was reclassified as a non-contracepting

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[9] Although the majority of intervals begin with a birth, this is clearly not the case for the interval prior to the first birth. Most first intervals were initiated by a date of first marriage or union; first intervals in which the date of first union occurred after the first birth were defined to begin at the age at first intercourse.

[10] Among the segments of use with a reported method (1,207), 15 intervals of use had no reported duration but only 5 of them had to be reclassified as non-contracepting intervals since no additional information was available for imputing them. Fewer than 2 percent of intervals in which the woman reported having used contraception had to be reclassified as intervals with no use.

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interval.[11] If both method and duration of use were reported, but reason for discontinuation was missing, this was also imputed (whenever possible) on the basis of questions on the planning status of the child.[12] In some cases, the imputation assigned a "don't know" response or "not a failure" as the reason for discontinuation.

Information on the previous method used (if any) within closed intervals was considered next. Since there was no information on duration of use, it was necessary to make arbitrary decisions. The imputation rule was to attribute all remaining months of nonuse to the previous method wherever applicable: i.e., if any months of nonuse remained between the start of the interval (birth or marriage) and the date when the last segment of use began, all of these months were attributed to use of the previous method. Since this decision is likely to overstate use, contraceptive prevalence and failure rates were estimated with and without the information on previous use in closed intervals.[13] The final step in the calculation of the first column of the calendar was to assign all remaining months (months without a pregnancy, birth, or method) to "no method use."

Conversion of Breastfeeding and Amenorrhea Data from a Tabular Format to a Calendar

Columns 2 and 3 of the calendar were constructed with the information on breastfeeding and postpartum amenorrhea in the core questionnaire. These data are necessary for the estimation of fecundability and the analysis of failure rates, net of the effects of breastfeeding or amenorrhea.

The overall procedure for entering the relevant information from the core questionnaire into the calendar is relatively straightforward. For each child ever breastfed, the reported durations were entered into calendar in an analogous fashion with the experimental questionnaire; if the response was "until the death of the child", the age at death in months was converted into a duration of breastfeeding. The program performs only two types of alterations to the reported data: (1) if the child was reported as having been breastfed but the duration was missing, the child was reclassified as never breastfed; (2) if the reported duration of breastfeeding exceeded the duration of the closed birth interval (or the date of interview), the information coded into the calendar was adjusted to fit exactly into the interval between live births.[14]

Next, the information on amenorrhea was entered into column 3 of the calendar. If the woman responded that her period did not return until after the subsequent birth, the entire interval was coded as

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[11] Among 3,934 closed intervals accounted for in the contraceptive history, nearly 31 percent (1,217) were reported with at least one segment of use and, among these, 22 percent (268) used a previous method before the last. Ten segments had no method reported and were reclassified as non-contracepting intervals.

[12] The imputation basically consists in using information from the question on the planning status of the child (Q.354) to determine whether or not the method failed. Nine segments had no information on whether the method was used at the time of pregnancy, and seven had no information on the reason for abandoning the use of the method.

[13] In order to permit this comparison, the codes assigned to the previous method were different from those for other segments of use. In all cases, the reason for discontinuing the use of these methods was imputed as "Not a failure" (code 7).

[14] The maternity history collected information on 3,623 live births since January 1981. Information on whether the child was ever breastfed was missing for 44 cases. Among 3,347 children who were reported ever breastfed, 38 had a missing duration and 4 had durations that exceeded the length of the birth interval.

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"0" (period did not return). Checks for missing information or for durations of amenorrhea which exceeded the birth interval were carried out in a similar fashion to those for breastfeeding.[15]

Inconsistencies Found in the Contraceptive History Collected from the Core Questionnaire

As a by-product of the construction of columns 1 and 1A of the simulated calendar, a variety of inconsistencies were detected in the reporting of contraceptive use in the core questionnaire.

The most common problem was reports of the duration of the last method in the closed interval which exceeded the length of the interval. Nearly 20 percent of intervals with use (247/1202) had such a segment of use. Roughly half of these (126) corresponded to segments where the method was reported to have been used at the time of failure. Table A1 presents the distribution of months by which the reported duration exceeded the interval. Note that many of these inconsistencies are small. Nearly 70 percent of the durations exceeded the interval by less than three completed months. Moreover, the 35 cases in the category 0 months are not necessarily errors, since the woman may have started use of the method just after the birth of a child (i.e., in the same calendar month). However, since the calendar does not allow for the coding of more than two events in a single month, the reported duration had to be adjusted accordingly. The 11 percent of segments which exceeded the interval by more than 12 months present the most serious problem and may have arisen, in part, from coding errors: e.g., interviewers may have coded years of use instead of months.

It is important to note that the remaining segments of use, which are shorter than the length of the interval, are not necessarily free of recall and/or rounding errors.[16] The extent to which a bias has been introduced in the distribution of duration of use (by correcting only those segments exceeding the maximum possible interval) is unknown.

A second inconsistency occurs with regard to very short birth intervals for which women reported using a contraceptive method within the pregnancy interval.[17] These very short segments of use could not have been reported in the experimental questionnaire since dates of pregnancies and use were entered into the same column of the calendar.

Inconsistencies or Errors Found in the Experimental Calendar

One objective of constructing a calendar from the core questionnaire was to determine the comparative advantages of the two basic types of data collection

Table A.1 Distribution of number of months by which the reported duration of use exceeds the length of the interval, core questionnaire.

Months	Percent
0	14.2
1-5	63.2
6-11	8.9
12-23	3.6
24-59	1.2
60+	8.9
Total	100

Note: The interval is the length of time between a birth (or first union) and the first month of the subsequent pregnancy.

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[15] Among the 3,623 live births recorded in the calendar, only 82 cases had no reported duration of amenorrhea.

[16] For example, of 268 closed intervals where a previous method was reported, only 40 percent of them correspond to intervals where at least one month was left between the start of the interval and the date when use of the last method started. For the remainder, there was no way to incorporate use of a previous method into the calendar.

[17] There were 32 cases of closed birth intervals with duration of 9 months or less, 12 percent of which had use reported within the interval.

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strategies for contraceptive use information. Hence, it is important to assess the extent to which errors were detected in the experimental calendar. Attention is focused on the first four columns of the calendar.

In column 1 (contraceptive use, pregnancies and births) two minor problems were found. The first concerns reporting of current use. There are two ways to determine current use in the experimental questionnaire: (1) responses to question 313: "Are you or your partner currently doing something or using any method to avoid getting pregnant?" and question 314: "Which method are you using?"; and (2) the method code which appears in the month of interview in column 1 of the calendar. Unfortunately, the two sets of numbers are not entirely consistent. All of the inconsistencies are due to women who claim nonuse in one case and use in the other. More specifically, there were 810 consistent nonusers, 8 nonusers from questions 313 and 314 who have a method in the calendar, and 2 nonusers in the calendar who claim to be a user in question 313. The calendar has not been changed to be consistent with the reporting on question 313. Some of these discrepancies might be attributable to segments of use ending or starting in the month of interview.

The second minor inconsistency concerns the reported duration of current use. From a cross-tabulation of the number of months of use for the current method (Q. 315) by the duration of use for the same segment coded in the calendar, there is considerable agreement between these two variables. Out of 585 segments of current use, only 2 had no code in the calendar, but were reported as having greater than zero duration in question 315. This is the case for women who started using a method in the month of interview and, hence, have used for less than one completed month. Another nine cases had no method reported for the current use question but the calendar showed a segment of use of a specific method. Finally, two cases were reported with an unknown duration of use for the current method but had a segment coded in the calendar.

When analyzing column 1A (reasons for discontinuation of use), two types of errors were found: (1) women responded that they became pregnant while using a method but a pregnancy did not appear in the next month of column 1; and (2) the reason for discontinuation for a given segment of use was omitted.[18] The following imputation was used to correct these data.

When the woman reported that she became pregnant while using a method, but a pregnancy did not appear in the next month of column 1, four possible situations were identified.

In the first, a pregnancy occurred one month later than expected.[19] In this case, the code for nonuse was changed to the code of the previous method and the termination code of "1" was moved to the subsequent month.[20]

In the second, a segment of use was eventually (in two or more months) followed by a live birth. In this case, the information on the questions on planning status of the birth (Q. 411: "Just before you became pregnant with (...) did you want to have (more) children or not?") was used. If the answer was negative, "1" was changed to "3" (other reason) in column 1A; if affirmative, question 412 was looked at

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[18] For the first type of error, there are a total of 37 segments of use, 31 of which are eventually followed by a pregnancy (17 in the month after next) and 6 which are censored by the interview. These 37 cases pertain to 23 women. For the second type of error, there are a total of 55 cases, pertaining to 49 women.

[19] Eg. Column 1 :   8 8 8 8 0 P
         Column 1A: 1

[20] Eg. Column 1 :   8 8 8 8 8 P
         Column 1A: 1

("Did you want a(nother) child at the time you became pregnant or would you have preferred to wait longer?"). If the birth was wanted AT THAT MOMENT, "1" was changed to "2" (wanted to become pregnant); if the woman wanted to WAIT LONGER, "1" was changed to "3".

In the third, the segment of use is eventually (in two or more months) followed by a current pregnancy. Here, the question on planning status of the current pregnancy (Q. 658: "At the time did you want to get pregnant?") was used as follows: If the woman WANTED TO GET PREGNANT, "1" was changed to "2"; if she DID NOT WANT TO GET PREGNANT or was NOT SURE, "1" was changed to "3".

In the fourth, the segment of use was never followed by a live birth or a current pregnancy (i.e., the interval was censored or followed by a non-live birth). In these instances, "1" was changed to "7". Code "7" designates a termination which was not a method failure but which may have been due to either a desire to become pregnant (code "2") or to another reason (code "3").

When the reason for discontinuation was missing, the same four situations described above were used to impute an appropriate code.

The information on breastfeeding also had errors; the main problems were:

(1) Women reported that they never breastfed the child (Q. 405) and also gave a reason for never breastfeeding (Q. 406); yet, some duration of breastfeeding appeared in the calendar. There are 10 cases with this error, 5 of which have only one month of breastfeeding in the calendar. No changes were made to the calendar to make these data consistent.

(2) The code for breastfeeding for a specific child was displaced several months after the birth of the child. (All of these women reported breastfeeding their child.) There are 14 cases of this error, 10 of which are displaced by only one month (2 are displaced by 4 months and 2 by about a year). In these instances, the actual months of breastfeeding were changed to be consistent with the date of birth; reported duration was not changed.

(3) The women reported breastfeeding a child, but there was no information in the calendar on duration. There are 16 cases with this error.[21] No imputation of duration was attempted in these instances, since it is possible that duration was less than one month.

(4) Two cases had mistaken codes for breastfeeding, i.e, a combination of zeroes and blanks instead of ones.

In summary, 42 cases out of 1736 had some type of error or inconsistency in the reporting of breastfeeding.

The following two types of problems occurred with respect to amenorrhea:

(1) There were 42 births without any code ("0") for amenorrhea. Again, these are not necessarily errors because duration could have been reported for less than a month.

(2) For several births, the code was displaced one or two months after the occurrence of the birth. There were 15 cases in which the displacement was one month; two more cases had a displacement greater than one month. As with the breastfeeding information, the months of amenorrhea were changed to be consistent with the date of birth; reported duration was not changed.

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[21] Almost half of these cases also have no information for amenorrhea or abstinence in the calendar.

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In summary, although the experimental calendar contains some inconsistencies or errors in the reporting of the timing and duration of contraceptive use, breastfeeding and amenorrhea, the overall frequency of these errors is low.

A.4   Conclusions

The conversion of contraceptive use information from the core questionnaire into a calendar format provides evidence of the quality of the reporting of these data. Overall, inconsistencies affected approximately 2 percent of all open intervals, and nearly 7 percent of closed intervals. This combination of missing responses and inconsistent reporting of dates necessitated use of a lengthy and complicated algorithm in order to simulate the contraceptive use history, collected in the experimental survey. An evaluation of the latter shows only minor inconsistencies (under 1 percent of all intervals) in the reporting of these data. Hence, inconsistencies are less frequent in the experimental questionnaire than in the core survey. This is because the calendar eliminated the possibility of many types of errors that occurred in the core survey.

The effect of these inconsistencies and errors on the resulting estimates varies according to the nature of the particular estimate. For example, it was shown in Chapter 5 that, even without a complicated algorithm for resolving inconsistencies in the core questionnaire, estimates of contraceptive failure are generally in agreement between the two surveys.

APPENDIX B

Peru Core Questionnaire

PERU CORE QUESTIONNAIRE

QUESTIONNAIRE A

IDENTIFICATION	
PLACE NAME _____	
QUESTIONNAIRE NUMBER...............................	☐☐☐☐
CLUSTER NUMBER....................................	☐☐☐☐
HOUSEHOLD NUMBER..................................	☐☐☐
LINE NUMBER OF WOMAN..............................	☐☐☐

INTERVIEWER VISITS	1	2	3	FINAL VISIT	
DATE	_____	_____	_____	MO YR	☐☐ ☐☐
INTERVIEWER'S NAME	_____	_____	_____		☐☐☐
RESULT*	_____	_____	_____		☐☐
NEXT VISIT DATE: TIME:				No. of VISITS	☐☐

```
          * RESULT CODES:  1 COMPLETED
                           2 NOT AT HOME
                           3 DEFERRED
                           4 REFUSED
                           5 PARTLY COMPLETED
                           6 OTHER
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COUNTRY SPECIFIC INFORMATION ON: LANGUAGE OF QUESTIONNAIRE, LANGUAGE OF INTERVIEW, NATIVE LANGUAGE OF RESPONDENT AND WHETHER TRANSLATOR USED.

	FIELD EDITED BY	OFFICE EDITED BY	PUNCHED BY	PUNCHED BY
NAME	_____	_____	_____	☐☐☐
DATE	_____	_____	_____	

1

SECTION 1. RESPONDENT'S BACKGROUND

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
101	RECORD NUMBER OF PEOPLE LISTED IN THE HOUSEHOLD SCHEDULE	NUMBER OF PEOPLE..☐☐☐	
101A	RECORD NUMBER OF CHILDREN AGED 6 AND UNDER LISTED IN THE HOUSEHOLD SCHEDULE.	NUMBER OF CHILDREN 6 AND UNDER.......☐☐☐	
102	RECORD THE TIME	HOUR.............☐☐☐ MINUTES..........☐☐☐	
103	First I would like to ask some questions about yourself and your household. For most of the time until you were 12 years old, did you live in the countryside, in a town, or in a city?	COUNTRYSIDE..............1 TOWN.....................2 CITY.....................3	
104	How long have you been living continuously in _____ (NAME OF VILLAGE, TOWN, CITY)?	ALWAYS..................98-- VISITOR.................97-- YEARS.............☐☐☐	►106 ►106
105	Just before you moved here, did you live in the countryside, in a town, or in a city?	COUNTRYSIDE..............1 TOWN.....................2 CITY.....................3	
106	In what month and year were you born?	MONTH.............☐☐☐ YEAR..............☐☐☐	
107	How old were you at your last birthday? COMPARE AND CORRECT 106 AND/OR 107 IF INCONSISTENT. IF THE RESPONDENT DOES NOT KNOW HER DATE OF BIRTH OR AGE, PROBE AND HELP HER TO ESTIMATE HER AGE, THEN NOTE IT IN THE SECOND BOX.	AGE IN COMPLETED YEARS.............☐☐☐ AGE IN COMPLETED YEARS (ESTIMATED).☐☐☐	
108	Have you ever attended school?	YES......................1 NO.......................2--	►112
109	What was the highest year of school you completed?	TRANSITION.........☐0☐ PRIMARY............☐1☐ SECONDARY..........☐2☐ HIGHER.............☐3☐	►113
112	Can you read a letter or newspaper easily, with difficulty or not at all?	EASILY...................1 WITH DIFFICULTY..........2 NOT AT ALL...............3--	►114
113	How many days of the week do you read a newspaper?	DAYS.................☐☐ LESS THAN ONCE.........96 NEVER..................97	

2

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
114	How many days of the week do you watch television?	DAYS.................[ ] LESS THAN ONCE.........96 NEVER..................97	
114A	Do you listen to the radio every day?	YES......................1 NO.......................2	

115	What is the major source of drinking water for members of your household?	PUBLIC SOURCE WITHIN
		  THE DWELLING...........1
		PUBLIC SOURCE OUTSIDE THE
		  DWELLING BUT WITHIN
		  THE BUILDING...........2
		TROUGH...................3
		WELL.....................4
		RIVER, RIVULET...........5
		SPRING...................6
		TANKER TRUCK, WATER
		  CARRIER................7
		OTHER _____8
		     (SPECIFY)	

115A	What is the usual source of water for bathing and hand washing for members of your household?	PUBLIC SOURCE WITHIN
		  THE DWELLING...........1
		PUBLIC SOURCE OUTSIDE THE
		  DWELLING BUT WITHIN
		  THE BUILDING...........2
		TROUGH...................3
		WELL.....................4
		RIVER, RIVULET...........5
		SPRING...................6
		TANKER TRUCK, WATER
		  CARRIER................7
		OTHER _____8
		     (SPECIFY)
			▶116

115B	How long does it take, round trip, to obtain water?	MINUTES...........[ ][ ] 90+ MINUTES.............90	
116	What kind of toilet facility does your dwelling have? FOR THE APPROPRIATE FACILITY: Is it for exclusive use of your home or for common use?	EXCL COM FLUSH.........1 1 2 BUCKET........2 1 2 WATER CLOSET..3 1 2 PIT...........4 1 2 LATRINE.......5 1 2 OTHER____8 1 2 (SPECIFY) NONE..........0	
116A	Do you have, right now, a cake of soap on the premises?	YES......................1 NO.......................2 DK.......................8	
117	Does your house have: Electricity? A radio? A television? A refrigerator?	YES NO ELECTRICITY........1 2 RADIO..............1 2 TELEVISION.........1 2 REFRIGERATOR.......1 2	
118	Does any member of your household own: A bicycle? A motorcycle? A car? A tractor? (RURAL ONLY) A home? Land?	YES NO BICYCLE............1 2 MOTORCYCLE.........1 2 CAR................1 2 TRACTOR............1 2 OWN HOME...........1 2 LAND...............1 2	

119	MAIN MATERIAL OF THE FLOOR	PARQUET, OR
		  POLISHED WOOD...........1
		VINYL OR ASPHALT STRIPS.2
		CERAMIC TILES...........3
		WOOD PLANKS.............4
		CEMENT..................5
		EARTH/SAND..............6
		OTHER _____.7
		     (SPECIFY)	

119A	MAIN MATERIAL OF THE WALLS	CONCRETE................1 BRICK...................2 ADOBE...................3 STRAW...................4 OTHER _____.5 (SPECIFY)	

SECTION 2. REPRODUCTION

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
202	Now I would like to ask about all the births you have had during your life. I am referring only to children that you gave birth to and not to children adopted or raised by you. Have you ever given birth?	YES........................1 NO.........................2--	→207
203	Do you have any son or daughter you have given birth to who is now living with you?	YES........................1 NO.........................2--	→205
204	How many sons live with you? And how many daughters live with you? IF NONE ENTER ZEROS.	SONS AT HOME......⬚ DAUGHTERS AT HOME.⬚	
205	Do you have any son or daughter you have given birth to who is not living with you?	YES........................1 NO.........................2--	→207
206	How many sons do not live with you? And how many daughters do not live with you? IF NONE ENTER ZEROS.	SONS ELSEWHERE.....⬚ DAUGHTERS ELSEWHERE⬚	
207	Have you ever given birth to a boy or a girl who was born alive but later died? PROBE: Any other boy or girl who was born alive but only survived a few hours or days?	YES........................1 NO.........................2--	→209
208	How many boys have died? And how many girls have died? IF NONE ENTER ZEROS.	BOYS DEAD.........⬚ GIRLS DEAD........⬚	
209	SUM ANSWERS TO 204, 206 AND 208 AND ENTER TOTAL.	TOTAL............⬚	
210	Just to make sure that I have this right, you have had in TOTAL ____ live births during your life. Is that correct? YES ⬚ NO ⬚ (PROBE AND CORRECT 204, 206, 208 OR 209.		
211	CHECK: ONE OR MORE BIRTHS NO BIRTHS ⬚ (SKIP TO 225) Now I would like a list of all your births, whether still alive or not, starting with the first one you had. (RECORD NAMES OF ALL THE BIRTHS IN 215 AND ASK 216-221 AS APPROPRIATE.		

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215 What name was given to your (first, next) baby? RECORD TWINS ON SEPARATE LINES AND MARK WITH BRACKET	216 Is (NAME) a boy or a girl?	217 Is (NAME) still alive?	218 In what month and year was (NAME) born? PROBE: What is his/her birthday OR: In what season?	219 IF DEAD: How old was (NAME) when he/she died? RECORD DAYS IF LESS THAN ONE MONTH, MONTHS IF LESS THAN TWO YEARS, OR YEARS IF TWO YEARS OR MORE.	220 IF ALIVE: How old is (NAME) in completed years?	221 IF ALIVE: Is (NAME) living with you?
1._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐ MONTHS 2☐☐ YEARS 3☐☐	☐☐ AGE	YES.......1 NO........2
2._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐ MONTHS 2☐☐ YEARS 3☐☐	☐☐ AGE	YES.......1 NO........2
3._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐ MONTHS 2☐☐ YEARS 3☐☐	☐☐ AGE	YES.......1 NO........2
4._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐ MONTHS 2☐☐ YEARS 3☐☐	☐☐ AGE	YES.......1 NO........2
5._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐ MONTHS 2☐☐ YEARS 3☐☐	☐☐ AGE	YES.......1 NO........2
6._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐ MONTHS 2☐☐ YEARS 3☐☐	☐☐ AGE	YES.......1 NO........2
7._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐ MONTHS 2☐☐ YEARS 3☐☐	☐☐ AGE	YES.......1 NO........2
8._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐ MONTHS 2☐☐ YEARS 3☐☐	☐☐ AGE	YES.......1 NO........2
9._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐ MONTHS 2☐☐ YEARS 3☐☐	☐☐ AGE	YES.......1 NO........2
10._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐ MONTHS 2☐☐ YEARS 3☐☐	☐☐ AGE	YES.......1 NO........2
11._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐ MONTHS 2☐☐ YEARS 3☐☐	☐☐ AGE	YES.......1 NO........2
12._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐ MONTHS 2☐☐ YEARS 3☐☐	☐☐ AGE	YES.......1 NO........2

222   COMPARE 209 WITH NUMBER OF BIRTHS IN HISTORY ABOVE AND CHECK:

NUMBERS ARE THE SAME   [ ]   NUMBERS ARE DIFFERENT   [ ]

↓

PROBE AND RECONCILE
(THEN SKIP TO 225)

215 What name was given to your (first, next) baby? RECORD TWINS ON SEPARATE LINES AND MARK WITH BRACKET	216 Is (NAME) a boy or a girl?	217 Is (NAME) still alive?	218 In what month and year was (NAME) born? PROBE: What is his/her birthday OR: In what season?	219 IF DEAD: How old was (NAME) when he/she died? RECORD DAYS IF LESS THAN ONE MONTH, MONTHS IF LESS THAN TWO YEARS, OR YEARS IF TWO YEARS OR MORE.	220 IF ALIVE: How old is (NAME) in completed years?	221 IF ALIVE: Is (NAME) living with you?
13._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐☐ MONTHS 2☐☐☐ YEARS 3☐☐☐	☐☐☐ AGE	YES.......1 NO........2
14._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐☐ MONTHS 2☐☐☐ YEARS 3☐☐☐	☐☐☐ AGE	YES.......1 NO........2
15._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐☐ MONTHS 2☐☐☐ YEARS 3☐☐☐	☐☐☐ AGE	YES.......1 NO........2
16._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐☐ MONTHS 2☐☐☐ YEARS 3☐☐☐	☐☐☐ AGE	YES.......1 NO........2
17._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐☐ MONTHS 2☐☐☐ YEARS 3☐☐☐	☐☐☐ AGE	YES.......1 NO........2
18._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐☐ MONTHS 2☐☐☐ YEARS 3☐☐☐	☐☐☐ AGE	YES.......1 NO........2
19._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐☐ MONTHS 2☐☐☐ YEARS 3☐☐☐	☐☐☐ AGE	YES.......1 NO........2
20._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐☐ MONTHS 2☐☐☐ YEARS 3☐☐☐	☐☐☐ AGE	YES.......1 NO........2
21._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐☐ MONTHS 2☐☐☐ YEARS 3☐☐☐	☐☐☐ AGE	YES.......1 NO........2
22._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐☐ MONTHS 2☐☐☐ YEARS 3☐☐☐	☐☐☐ AGE	YES.......1 NO........2
23._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐☐ MONTHS 2☐☐☐ YEARS 3☐☐☐	☐☐☐ AGE	YES.......1 NO........2
24._____	BOY........1 GIRL.......2	YES.......1 NO........2	MONTH ☐☐☐ YEAR ☐☐☐	DAYS 1☐☐☐ MONTHS 2☐☐☐ YEARS 3☐☐☐	☐☐☐ AGE	YES.......1 NO........2

222 COMPARE 209 WITH NUMBER OF BIRTHS IN HISTORY ABOVE AND CHECK:

NUMBERS ARE THE SAME [ ]   NUMBERS ARE DIFFERENT [ ]

6

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PROBE AND RECONCILE
(THEN SKIP TO 225)

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
225	Are you pregnant now?	YES..........................1 NO..........................2-- UNSURE....................8--	→230 →230
226	In which month of pregnancy are you?	MONTH...............☐☐ DK....................98	
226A	7 MONTHS OR MORE ☐☐ LESS THAN 7 MONTHS ☐☐ (SKIP TO 228)		
227	Since you have been pregnant, have you been given any injection to prevent the baby from getting tetanus, that is, convulsions after birth?	YES........................1 NO.........................2 DK.........................8	
228	Did you see anyone for a check on this pregnancy?	YES........................1 NO.........................2--	→232
229	Whom did you see? PROBE FOR TYPE OF PERSON AND RECORD MOST QUALIFIED.	DOCTOR...................1 NURSE....................2 "SANITARIO".............3 HEALTH WORKER...........4 MIDWIFE..................5 FAITH HEALER............6 OTHER_____7 (SPECIFY)	→232
230	When did you have your last menstrual period?	DAYS AGO........1 ☐☐ WEEKS AGO.......2 ☐☐ MONTHS AGO......3 ☐☐ NO LONGER MENSTRUATING.........995 BEFORE LAST PREGNANCY.996 NEVER MENSTRUATED.....997	
232	PRESENCE OF OTHERS AT THIS POINT	YES NO CHILDREN UNDER 10..1 2 HUSBAND............1 2 OTHER MALES........1 2 OTHER FEMALES......1 2	

SECTION 3. CONTRACEPTION

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
302	Now I would like to talk about a different topic. There are various ways or methods that a couple can use to delay or avoid a pregnancy. Which of these ways or methods have you heard about? TURN TO NEXT PAGE, CIRCLE CODE 1 IN 303 FOR EACH METHOD MENTIONED SPONTANEOUSLY. FOR EACH METHOD NOT MENTIONED READ THE NAME AND DESCRIPTION, ASK 303 AND CIRCLE CODE 2 IF METHOD IS RECOGNIZED. THAN ASK 304-307 FOR EACH METHOD AS APPROPRIATE.		

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	303 Have you ever heard of this method?	304 Have you ever used or are you using (METHOD)?	305 Where would you go to obtain (METHOD)? (CODES BELOW)	307 What do you think is the main problem with using (METHOD)? (CODES BELOW)
*PILL 'Women can take a pill every day'	YES, SPONT..1 YES, PROBED.2 NO........3	YES....1 NO.....2	☐☐	☐☐
IUD 'Women can have a loop or coil placed inside them by a doctor or nurse'	YES, SPONT..1 YES, PROBED.2 NO........3	YES....1 NO.....2	☐☐	☐☐
INJECTIONS 'Women can have an injection by a doctor or nurse which stops them from becoming pregnant for several months'	YES, SPONT..1 YES, PROBED.2 NO........3	YES....1 NO.....2	☐☐	☐☐
DIAPHRAGM, FOAM, JELLY 'Women can place a sponge or suposi-tory or diaphragm or jelly or cream inside them before intercourse'	YES, SPONT..1 YES, PROBED.2 NO........3	YES....1 NO.....2	☐☐	☐☐
CONDOM 'Men can use a rubber sheath during sexual intercourse'	YES, SPONT..1 YES, PROBED.2 NO........3	YES....1 NO.....2	☐☐	☐☐
FEMALE STERILIZATION 'Women can have an operation to avoid having any more children'	YES, SPONT..1 YES, PROBED.2 NO........3	YES....1 NO.....2	☐☐	☐☐
MALE STERILIZATION 'Men can have an operation to avoid having any more children'	YES, SPONT..1 YES, PROBED.2 NO........3	YES....1 NO.....2	☐☐	☐☐
PERIODIC ABSTINENCE 'Couples can avoid having sexual intercourse on par-ticular days of the month when the woman is more likely to become pregnant'	YES, SPONT..1 YES, PROBED.2 NO........3	YES....1 NO.....2	Where would you go to obtain advice about per-iodic abstinence? ☐☐	☐☐
WITHDRAWAL 'Men can be careful and pull out before climax'	YES, SPONT..1 YES, PROBED.2 NO........3	YES....1 NO.....2		☐☐
ANY OTHER METHODS 'Have you heard of any other ways or methods including traditional ones that women or men can use to avoid pregnancy?' SPECIFY(_____)	YES, SPONT..1 YES, PROBED.2 NO........3	YES....1 NO.....2	CODES FOR 305 HOSPITAL HEALTH CENTER UNDER MIN-ISTRY OF HEALTH.01 OTHER HOSPITAL OR HEALTH INSTITU-TION OF PUBLIC SECTOR..........02 PRIVATE CLINIC...03 DOCTOR'S OFFICE..04 PHARMACY..........05 HEALTH WORKER....06 O.P.V............07 OTHER............08 DK..............98	CODES FOR 307 NONE.............00 FEAR, FORGETFUL-NESS............01 PARTNER DIS-APPROVES........02 HEALTH CONCERNS..03 ACCESS/AVAIL-ABILITY.........04 TOO EXPENSIVE....05 INEFFECTIVE......06 INTERFERES WITH SEX............07 IRREVERSIBLE.....08 OTHER............09 DK..............98

308 NOT A SINGLE "YES" IN 304 [ ]
(NEVER USED)

(SKIP TO 338)

AT LEAST ONE "YES" IN 304 [ ]
(EVER USED)

8

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
309	CHECK 303: HEARD OF RHYTHM ☐ — HAS NOT HEARD OF RHYTHM ☐ (SKIP TO 313)		

310	When during her monthly cycle do you think a woman has the greatest chance of becoming pregnant?
	
	PROBE: What are the days during which a woman has to be careful to avoid becoming pregnant?
		DURING HER PERIOD.......1
		RIGHT AFTER HER PERIOD..2
		IN THE MIDDLE OF THE
		  TIME BETWEEN ONE
		  PERIOD AND ANOTHER.....3
		JUST BEFORE HER PERIOD
		  BEGINS................4
		AT ANY TIME.............5
		OTHER_____.6
		     (SPECIFY)
		DK......................8	

311	CHECK 304: EVER USED ☐ — NEVER USED PERIODIC PERIODIC ABSTINENCE ☐ ABSTINENCE (SKIP TO 313)		

312	The last time that you were using periodic abstinence, how did you determine on which days you had to avoid sexual relations?	BASED ON CALENDAR.......1
		BASED ON BODY
		  TEMPERATURE...........2
		BASED ON CERVICAL MUCUS
		  (BILLINGS) METHOD.....3
		BASED ON BODY TEMPERATURE
		  AND MUCUS.............4
		BASED ON CALENDAR AND
		  TEMPERATURE...........5
		BASED ON CALENDAR AND
		  MUCUS METHOD..........6
		OTHER_____.7
		     (SPECIFY)	

312A	Where or from whom did you learn for the first time about (TYPE MENTIONED IN 312)?	HOSPITAL OR HEALTH CEN-
		  TER UNDER MINISTRY OF
		  HEALTH................01
		OTHER HOSPITAL OR HEALTH
		  INSTITUTION OF THE
		  PUBLIC SECTOR........02
		PRIVATE CLINIC.........03
		DOCTOR'S OFFICE........04
		PRIVATE INSTITUTION,
		RELIGIOUS ORGANIZATION.05
		HEALTH WORKER, MIDWIFE.06
		FRIENDS, NEIGHBORS,
		  RELATIVES............07
		NEWSPAPERS, MAGAZINES,
		  BOOKS................08
		OTHER_____.09
		     (SPECIFY)
		DO NOT REMEMBER........98
			►313

312B	Did they ever teach you how to use (TYPE MENTIONED IN 312)?	YES.....................1 NO......................2--	►313

312C	Where did they teach you to use (TYPE MENTIONED IN 312)?	HOSPITAL OR HEALTH CEN-
		  TER OF MINISTRY OF
		  HEALTH................1
		OTHER HOSPITAL OR HEALTH
		  INSTITUTION OF THE
		  PUBLIC SECTOR.........2
		PRIVATE CLINICS.........3
		DOCTOR'S OFFICE.........4
		PRIVATE INSTITUTION,
		RELIGIOUS ORGANIZATION..5
		HEALTH WORKER, MIDWIFE..6
		OTHER_____.7
		     (SPECIFY)
		DK......................9	

312D	In what year did they teach you how to use (TYPE MENTIONED IN 312)?	YEAR............☐☐☐ DK......................98	
313	How many children, if any, did you have when you first did something or used a method to avoid getting pregnant? IF NONE RECORD 00	NUMBER OF CHILDREN.......☐☐☐	

314	CHECK 225 AND 304:
	SHE/HE STERILIZED ☐ NOT STERILIZED ☐
	         PREGNANT ☐ NOT PREGNANT ☐
	      (SKIP TO 319) (SKIP TO 316)		

315	In what month and year did you (he) have the operation in order not to have any more children?	MONTH............☐☐ YEAR.............☐☐	
315A	How much did the operation cost?	SOLES.......☐☐☐☐☐ FREE.................9997 DK...................9998	►320A
316	Are you currently doing something or using any method to avoid getting pregnant?	YES.....................1 NO......................2--	►319

317	Which method are you using?	PILL...................01
		IUD....................02
		INJECTIONS.............03
		VAGINAL METHODS........04
		CONDOM.................05
		CALENDAR...............08
		TEMPERATURE............09
		CERVICAL MUCUS.........10
		TEMPERATURE AND
		  CERVICAL MUCUS.......11
		WITHDRAWAL.............12
		OTHER_____
		     (SPECIFY)
			►320
			►323
			►323

317A	How much did you pay for: (METHOD IN 317) ___ Box (cycle) of pills? ___ Insertion of (IUD type)? ___ Contraceptive injection (3 mo.)? ___ Box of (VAGINAL METHOD)? ___ Package of condom (single)?	SOLES.......☐☐☐☐☐ FREE.................9997 DK...................9998	
318	CHECK 317: USING PILL ☐ — OTHERS ☐ OR CONDOM (SKIP TO 320)		
318A	SHOW THE CHART AND ASK: Would you tell me which you are using? RECORD THE APPROPRIATE NUMBER FROM THE CHART	☐☐☐ OTHER:_____ (SPECIFY)	►320

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
319	Have you obtained a method or advice about how to avoid pregnancy from a health center or a doctor, in the past twelve months?	YES.......................1 NO........................2--	→322
320 320A	Where did you obtain (advice for) (METHOD) the last time? USERS OF STERILIZATION: Where did the operation take place?	HOSPITAL, HEALTH CENTER OF THE MINISTRY OF HEALTH.................1 OTHER HOSPITAL OR HEALTH INSTITUTION OF PUBLIC SECTOR.................2 PRIVATE CLINIC..........3 DOCTOR'S OFFICE.........4 PHARMACY................5 HEALTH WORKER...........6 O.P.V..................7 OTHER_____...8 (SPECIFY) DK......................9	►322
321	Was there anything you particularly disliked about the services you received there? IF YES: What didn't you like?	NO......................1 WAIT TOO LONG...........2 DISCOURTEOUS............3 EXPENSIVE...............4 DIDN'T GET METHOD OR INFORMATION WANTED....5 OTHER_____.6 (SPECIFY)	
322	CHECK 225, 315, 316: NOT PREGNANT ☐☐ PREGNANT ☐☐ 338 (SKIP TO 338) CURRENT SHE/HE NOT USER STERILIZED USING ☐☐ ☐☐ ☐☐ (SKIP TO 324) (SKIP TO 332)		
323	For how long have you been using (CURRENT METHOD) continuously?	MONTHS............☐☐ YEARS.............☐☐ SINCE LAST BIRTH.......97	
324	Have you experienced any problems from using (CURRENT METHOD)?	YES.......................1 NO........................2--	►326A
325	What is the main problem you experienced or are having now?	FEAR, FORGETFULNESS....01 PARTNER OPPOSITION.....02 HEALTH PROBLEMS........03 ACCESS/AVAILABILITY....04 TOO EXPENSIVE..........05 INEFFECTIVE............06 INTERFERES WITH SEX....07 OTHER_____.08 (SPECIFY) DK.....................98	
326A	SHE/HE STERILIZED OTHER ☐☐ ☐☐ (SKIP TO 328)		
326B	Do you regularly use any other method than (CURRENT METHOD) during the same month?	YES.......................1 NO........................2--	→328

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NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO

327	Which method is that?	PILL...................01
		IUD....................02
		INJECTIONS.............03
		VAGINAL METHODS........04
		CONDOM.................05
		CALENDAR...............08
		TEMPERATURE............09
		CERVICAL MUCUS.........10
		TEMPERATURE AND
		  CERVICAL MUCUS........11
		WITHDRAWAL.............12
		OTHER_____
		    (SPECIFY)	

328	CHECK 209, MARK APPROPRIATE BOX AND ASK: HAD CHILDREN ☐ Since your last birth, have you used any method before (CURRENT METHOD) to avoid getting pregnant? NO CHILDREN ☐ Have you used any method before (CURRENT METHOD) to avoid getting pregnant?	YES....................1 NO.....................2--	→342

329	Which method did you use before (CURRENT METHOD)?	PILL...................01
		IUD....................02
		INJECTIONS.............03
		VAGINAL METHODS........04
		CONDOM.................05
		CALENDAR...............08
		TEMPERATURE............09
		CERVICAL MUCUS.........10
		TEMPERATURE AND
		  CERVICAL MUCUS........11
		WITHDRAWAL.............12
		OTHER_____
		    (SPECIFY)	

330	For how long had you been using (METHOD IN 329) before you stopped using it (last time)?	MONTHS............☐☐ YEARS.............☐☐	
330A	In what month and year did you begin to use (METHOD IN 329)?	MONTH.............☐☐ YEAR..............☐☐	
331	What was the main reason you stopped using (METHOD BEFORE CURRENT) then?	METHOD FAILED..........02 INFREQUENT SEX.........03 PARTNER DISAPPROVED....04 HEALTH CONCERNS........05 METHOD NOT AVAILABLE...06 TOO EXPENSIVE..........07 INTERFERES WITH SEX....08 CHANGE OF METHOD.......09 OTHER_____10 (SPECIFY) DK.....................98	→342
332	CHECK 209: ANY BIRTHS? YES ☐ NO ☐ (SKIP TO 334)		
333	Since your last birth have you done anything or used any method to avoid getting pregnant?	YES....................1 NO.....................2--	→338

334	Which was the last method you used?	PILL...................01
		IUD....................02
		INJECTIONS.............03
		VAGINAL METHODS........04
		CONDOM.................05
		CALENDAR...............08
		TEMPERATURE............09
		CERVICAL MUCUS.........10
		TEMPERATURE AND
		  CERVICAL MUCUS........11
		WITHDRAWAL.............12
		OTHER_____
		    (SPECIFY)	

335	For how long had you been using (LAST METHOD) before you stopped using it (last time)?	MONTHS............☐☐ YEARS.............☐☐	
335A	In what month and year did you begin to use (LAST METHOD)?	MONTH.............☐☐ YEAR..............☐☐	

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NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
337	What was the main reason you stopped using (LAST METHOD)?	TO BECOME PREGNANT.....01 METHOD FAILED..........02 INFREQUENT SEX.........03 PARTNER DISAPPROVED....04 HEALTH CONCERNS........05 METHOD NOT AVAILABLE...06 TOO EXPENSIVE..........07 INTERFERES WITH SEX....08 CHANGE OF METHOD.......09 OTHER_____10 (SPECIFY) DK.....................98	
338	Do you intend to use a method to avoid pregnancy at any time in the future?	YES....................1 NO.....................2-- DK.....................8--	→342 →342
339	Which method would you prefer to use?	PILL...................01 IUD....................02 INJECTIONS.............03 VAGINAL METHODS........04 CONDOM.................05 FEMALE STERILIZATION...06 MALE STERILIZATION.....07 CALENDAR...............08 TEMPERATURE............09 CERVICAL MUCUS.........10 TEMPERATURE AND CERVICAL MUCUS.......11 WITHDRAWAL.............12 OTHER_____ (SPECIFY) UNSURE.................98	
341	Do you intend to use (PREFERRED METHOD) in the next 12 months?	YES....................1 NO.....................2 DK.....................8	
342	Some women do not want to become pregnant and do not use any method. Why do you think that they do not use any contraceptive method? CIRCLE ALL REASONS MENTIONED PROBE: Any other reason?	LACK OF KNOWLEDGE......1 PARTNER DISAPPROVES.....1 TOO EXPENSIVE..........1 HEALTH CONCERNS........1 METHOD NOT AVAILABLE....1 RELIGION...............1 OPPOSITION TO FAMILY PLANNING..............1 FATALISTIC.............1 OTHER PEOPLE OPPOSED....1 INTERFERES WITH SEX.....1 OTHER_____1 (SPECIFY) DK.....................1	
342A	Have you ever heard of women who breastfeed as a way to avoid pregnancy?	YES....................1 NO.....................2--	→343

342B	CHECK 209:
	AT LEAST NO
	ONE BIRTH BIRTHS
	  ☐ ☐
	  ↓ (SKIP TO 343)		

342C	Have you ever used this method in order not to become pregnant?	YES....................1 NO.....................2--	→343

342D	CHECK 308:
	EVER USED NEVER
	METHOD USED
	  ☐ ☐
	  ↓ (SKIP TO 343)		

342E	During this period, did you use another contraceptive method at the same time?	YES....................1 NO.....................2--	→345
343	Have you ever heard a message about family planning on the radio or television?	YES....................1 NO.....................2--	→345
344	Did you hear it once or more than once?	ONCE...................1 MORE THAN ONCE.........2	
345	Do you think it is acceptable for family planning information to be provided on radio or television?	YES....................1 NO.....................2 DK.....................8	

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347 CHECK 218, 225					

HAD BIRTH SINCE JAN. 1981
OR PREGNANT

NO BIRTH SINCE JAN. 1981
AND NOT PREGNANT
(SKIP TO SECTION 5)

Now I would like to get some more information about (your pregnancy and) the children you had in the last 5 years.

CHECK WHETHER PREGNANT AND RECORD NAMES OF BIRTHS SINCE JAN 1981.
THEN ENTER EVER USE OF CONTRACEPTION.

	CURRENTLY PREGNANT	LAST BIRTH	NEXT TO LAST BIRTH	SECOND FROM LAST BIRTH	THIRD FROM LAST BIRTH
	YES ☐ NO ☐→	NAME_____	NAME_____	NAME_____	NAME_____

CHECK 308: EVER USED A METHOD ☐ (ASK 348-354 FOR EACH COLUMN)
NEVER USED A METHOD ☐ (ASK 354 FOR EACH COLUMN)

	CURRENTLY PREGNANT	LAST BIRTH	NEXT TO LAST BIRTH	SECOND FROM LAST BIRTH	THIRD FROM LAST BIRTH
348 Before you became pregnant (with NAME) (but after your preceding birth) (IF ANY) had you done anything or used any method to avoid getting pregnant, even for a short time?	YES............1 NO.............2 (SKIP TO 354)	YES............1 NO.............2 (SKIP TO 354)	YES............1 NO.............2 (SKIP TO 354)	YES............1 NO.............2 (SKIP TO 354)	YES............1 NO.............2 (SKIP TO 354)

349 Which was the last method you used then?	LAST
	PILL............01
	IUD.............02
	INJECTIONS......03
	VAGINAL METHOD..04
	CONDOM..........05
	FEM. STER.......06
	MALE STER.......07
	CALENDAR........08
	TEMPERATURE.....09
	CERVICAL MUCUS..10
	TEMPERATURE AND
	  CERVICAL MUCUS.11
	WITHDRAWAL......12
	OTHER ☐☐
	  (SPECIFY)
		LAST
		PILL............01
		IUD.............02
		INJECTIONS......03
		VAGINAL METHOD..04
		CONDOM..........05
		FEM. STER.......06
		MALE STER.......07
		CALENDAR........08
		TEMPERATURE.....09
		CERVICAL MUCUS..10
		TEMPERATURE AND
		  CERVICAL MUCUS.11
		WITHDRAWAL......12
		OTHER ☐☐
		  (SPECIFY)
			LAST
			PILL............01
			IUD.............02
			INJECTIONS......03
			VAGINAL METHOD..04
			CONDOM..........05
			FEM. STER.......06
			MALE STER.......07
			CALENDAR........08
			TEMPERATURE.....09
			CERVICAL MUCUS..10
			TEMPERATURE AND
			  CERVICAL MUCUS.11
			WITHDRAWAL......12
			OTHER ☐☐
			  (SPECIFY)
				LAST
				PILL............01
				IUD.............02
				INJECTIONS......03
				VAGINAL METHOD..04
				CONDOM..........05
				FEM. STER.......06
				MALE STER.......07
				CALENDAR........08
				TEMPERATURE.....09
				CERVICAL MUCUS..10
				TEMPERATURE AND
				  CERVICAL MUCUS.11
				WITHDRAWAL......12
				OTHER ☐☐
				  (SPECIFY)
					LAST
					PILL............01
					IUD.............02
					INJECTIONS......03
					VAGINAL METHOD..04
					CONDOM..........05
					FEM. STER.......06
					MALE STER.......07
					CALENDAR........08
					TEMPERATURE.....09
					CERVICAL MUCUS..10
					TEMPERATURE AND
					  CERVICAL MUCUS.11
					WITHDRAWAL......12
					OTHER ☐☐
					  (SPECIFY)

350 For how long had you been using (LAST METHOD) before you stopped using it (last time)?	MONTHS...☐☐ YEARS....☐☐	MONTHS...☐☐ YEARS....☐☐	MONTHS...☐☐ YEARS....☐☐	MONTHS...☐☐ YEARS....☐☐	MONTHS...☐☐ YEARS....☐☐
351 Were you using (LAST METHOD) at the time you became pregnant?	YES............1 (SKIP TO 353A) NO.............2	YES............1 (SKIP TO 353A) NO.............2	YES............1 (SKIP TO 353A) NO.............2	YES............1 (SKIP TO 353A) NO.............2	YES............1 (SKIP TO 353A) NO.............2

353 What was the main reason you stopped using (LAST METHOD)?	BECOME PREGNANT.01
	(GO TO NEXT COL)
	
	INFREQUENT SEX..03
	PARTNER
	  DISAPPROVED....04
	HEALTH CONCERNS.05
	METHOD NOT
	  AVAILABLE.....06
	COST............07
	FATALISTIC......08
	INCONVENIENT....09
	OTHER_____10
	  (SPECIFY)
	DK.............98
		BECOME PREGNANT.01
		(GO TO NEXT COL)
		
		INFREQUENT SEX..03
		PARTNER
		  DISAPPROVED....04
		HEALTH CONCERNS.05
		METHOD NOT
		  AVAILABLE.....06
		COST............07
		FATALISTIC......08
		INCONVENIENT....09
		OTHER_____10
		  (SPECIFY)
		DK.............98
			BECOME PREGNANT.01
			(GO TO NEXT COL)
			
			INFREQUENT SEX..03
			PARTNER
			  DISAPPROVED....04
			HEALTH CONCERNS.05
			METHOD NOT
			  AVAILABLE.....06
			COST............07
			FATALISTIC......08
			INCONVENIENT....09
			OTHER_____10
			  (SPECIFY)
			DK.............98
				BECOME PREGNANT.01
				(GO TO NEXT COL)
				
				INFREQUENT SEX..03
				PARTNER
				  DISAPPROVED....04
				HEALTH CONCERNS.05
				METHOD NOT
				  AVAILABLE.....06
				COST............07
				FATALISTIC......08
				INCONVENIENT....09
				OTHER_____10
				  (SPECIFY)
				DK.............98
					BECOME PREGNANT.01
					(GO TO NEXT COL)
					
					INFREQUENT SEX..03
					PARTNER
					  DISAPPROVED....04
					HEALTH CONCERNS.05
					METHOD NOT
					  AVAILABLE.....06
					COST............07
					FATALISTIC......08
					INCONVENIENT....09
					OTHER_____10
					  (SPECIFY)
					DK.............98

353A You told me that the last method you used was (METHOD). Did you use another method between (NAME) and (PRECEDING BIRTHS)? IF NONE ENTER '00.'	PRECEDING ☐☐ METHOD	PRECEDING ☐☐ METHOD	PRECEDING ☐☐ METHOD	PRECEDING ☐☐ METHOD	PRECEDING ☐☐ METHOD
353B	"1" IN 353 OTHER ☐ (NEXT COL) ↓	"1" IN 353 OTHER ☐ (NEXT COL) ↓	"1" IN 353 OTHER ☐ (NEXT COL) ↓	"1" IN 353 OTHER ☐ (NEXT COL) ↓	"1" IN 353 OTHER ☐ (SKIP TO 402) ↓
354 Just before you became pregnant (with NAME) did you want to have (more) children then, did you want to wait longer, or did you want no more children?	THEN...........1 WAIT...........2 NO MORE........3 (GO TO NEXT COL.)	THEN...........1 WAIT...........2 NO MORE........3 (GO TO NEXT COL.)	THEN...........1 WAIT...........2 NO MORE........3 (GO TO NEXT COL.)	THEN...........1 WAIT...........2 NO MORE........3 (GO TO NEXT COL.)	THEN...........1 WAIT...........2 NO MORE........3 (SKIP TO 402)

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NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
402	CHECK 217 AND 218: ONE OR MORE ☐ NO LIVE BIRTHS ☐ LIVE BIRTHS SINCE JAN.1981 SINCE JAN. 1981 (SKIP TO SECTION 5) ENTER NAME AND SURVIVAL STATUS OF EACH BIRTH SINCE JAN. 1981 IN TABLE. BEGIN WITH LAST BIRTH.		

		LAST BIRTH NAME _____ ALIVE [ ] DEAD [ ]	NEXT-TO-LAST BIRTH NAME _____ ALIVE [ ] DEAD [ ]	SECOND FROM LAST BIRTH NAME _____ ALIVE [ ] DEAD [ ]	THIRD FROM LAST BIRTH NAME_____ ALIVE [ ] DEAD [ ]
403	When you were pregnant with (NAME) were you given any injection to prevent the baby from getting tetanus, that is, convulsions after birth?	YES............1 NO.............2 DK.............8	YES............1 NO.............2 DK.............8	YES............1 NO.............2 DK.............8	YES............1 NO.............2 DK.............8
404	When you were pregnant, did you see anyone for a check on this pregnancy? IF YES: Whom did you see? PROBE FOR TYPE OF PERSON AND RECORD MOST QUALIFIED	DOCTOR............1 TRAINED NURSE.....2 UNTRAINED NURSE/ MIDWIFE...........3 OTHER.............4 NO CHECK..........5	DOCTOR............1 TRAINED NURSE.....2 UNTRAINED NURSE/ MIDWIFE...........3 OTHER.............4 NO CHECK..........5	DOCTOR............1 TRAINED NURSE.....2 UNTRAINED NURSE/ MIDWIFE...........3 OTHER.............4 NO CHECK..........5	DOCTOR............1 TRAINED NURSE.....2 UNTRAINED NURSE/ MIDWIFE...........3 OTHER.............4 NO CHECK..........5
405	Who assisted with the delivery of (NAME)? PROBE FOR TYPE OF PERSON AND RECORD MOST QUALIFIED	DOCTOR............1 TRAINED NURSE.....2 UNTRAINED NURSE/ MIDWIFE...........3 RELATIVE..........4 OTHER.............5 NO ONE............6	DOCTOR............1 TRAINED NURSE.....2 UNTRAINED NURSE/ MIDWIFE...........3 RELATIVE..........4 OTHER.............5 NO ONE............6	DOCTOR............1 TRAINED NURSE.....2 UNTRAINED NURSE/ MIDWIFE...........3 RELATIVE..........4 OTHER.............5 NO ONE............6	DOCTOR............1 TRAINED NURSE.....2 UNTRAINED NURSE/ MIDWIFE...........3 RELATIVE..........4 OTHER.............5 NO ONE............6
406	Did you ever feed (NAME) at the breast?	YES............1 NO.............2─┐ (SKIP TO 410)◄─┘	YES............1 NO.............2─┐ (SKIP TO 410)◄─┘	YES............1 NO.............2─┐ (SKIP TO 410)◄─┘	YES............1 NO.............2─┐ (SKIP TO 410)◄─┘
407	IF ALIVE, ASK: Are you still breastfeeding (NAME)?	YES............1 (SKIP TO 410) NO.............2 CHILD DIED......3			
408	How many months did you breastfeed (NAME)?	MONTHS ☐☐ TILL DEATH.....97	MONTHS ☐☐ TILL DEATH 97	MONTHS ☐☐ TILL DEATH 97	MONTHS ☐☐ TILL DEATH 97
410	How many months after the birth of (NAME) did your period return?	NOT RETURNED...98 ☐☐ MONTHS	NOT RETURNED...98 ☐☐ MONTHS (SKIP TO 412)	NOT RETURNED..98 ☐☐ MONTHS (SKIP TO 412)	NOT RETURNED..98 ☐☐ MONTHS (SKIP TO 412)
410A	CHECK 225: NOT PREGNANT PREGNANT ☐ ☐ (SKIP TO 412)				
411	Have you resumed sexual relations since the birth of (NAME)?	YES............1 NO.............2─┐ (GO TO NEXT COL)◄─┘			
412	How many months after the birth of (NAME) did you resume sexual relations?	☐☐ MONTHS (GO TO NEXT COL)	☐☐ MONTHS (GO TO NEXT COL)	☐☐ MONTHS (GO TO NEXT COL)	☐☐ MONTHS (GO TO 413)

413 CHECK 407 FOR LAST BIRTH:

LAST CHILD STILL ☐ ALL OTHER ☐
BREASTFED   (SKIP TO 419).

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NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
414	How many times did you breastfeed yesterday during the daylight hours?	NUMBER OF TIMES...[ ][ ][ ] AS OFTEN AS CHILD WANTED..................97	
415	How many times did you breastfeed last night, between sundown and sunrise?	NUMBER OF TIMES...[ ][ ][ ] AS MANY TIMES AS CHILD WANTED..........97	
416	At any time yesterday or last night, was (NAME OF LAST CHILD) given any of the following? READ OUT CODING CATEGORIES	YES NO PLAIN WATER........1 2 JUICE..............1 2 POWDERED MILK......1 2 COWS OR GOATS MILK.1 2 ANY OTHER LIQUID _____...1 2 (SPECIFY) ANY SOLID OR MUSHY FOOD...............1 2	
417	CHECK 416: NO OTHER FOODS OR LIQUIDS GIVEN...[ ] (SKIP TO 419) WAS GIVEN OTHER FOODS OR LIQUIDS..[ ]		
418	Were any of these given in a bottle with a nipple?	YES......................1 NO.......................2	

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419 SEE 402: ENTER NAME AND SURVIVAL STATUS OF EACH BIRTH SINCE JAN.1981 BELOW. BEGIN WITH THE LAST BIRTH.
     THE HEADING IN THE TABLE SHOULD BE EXACTLY THE SAME AS PREVIOUS TABLE. ASK QUESTIONS ONLY FOR LIVING
     CHILDREN.

	LAST BIRTH	NEXT-TO-LAST BIRTH	SECOND FROM LAST BIRTH	THIRD FROM LAST BIRTH
	NAME _____	NAME _____	NAME _____	NAME _____
	ALIVE [ ] DEAD [ ]→	ALIVE [ ] DEAD [ ]→	ALIVE [ ] DEAD [ ]→	ALIVE [ ] DEAD [ ]→
420 Has (NAME) ever had a vaccination to prevent him/her from getting diseases?	YES................1 NO.................2⁻⎤ DK.................8⎤⎬ (SKIP TO 422A)◄ ----	YES...........1 NO............2⁻⎤ DK............8⎤⎬ (SKIP TO 422A)◄--	YES...........1 NO............2⁻⎤ DK............8⎤⎬ (SKIP TO 422A)◄-	YES...........1 NO............2⁻⎤ DK............8⎤⎬ (SKIP TO 422A)◄-
421 Do you have a health card for (NAME)? IF YES: May I see it please?	YES, SEEN...........1 YES, NOT SEEN........2⎤ (SKIP TO 422A)◄ ---- NO CARD.............3⎦	YES, SEEN.......1 YES, NOT SEEN...2⎤ (SKIP TO 422A)◄-- NO CARD.........3⎦	YES, SEEN.......1 YES, NOT SEEN...2⎤ (SKIP TO 422A)◄- NO CARD.........3⎦	YES, SEEN.......1 YES, NOT SEEN...2⎤ (SKIP TO 422A)◄- NO CARD.........3⎦
422 RECORD DATES OF IMMUNIZATIONS FROM HEALTH CARD	DA MO YR NO BCG DPT1 POLIO1 DPT2 POLIO2 DPT3 POLIO3 MEASLES	DA MO YR NO	DA MO YR NO	DA MO YR NO
422A Has (NAME) had diarrhea in the last 24 hours?	YES.................1 (SKIP TO 424) NO..................2	YES...........1 (SKIP TO 424) NO............2	YES...........1 (SKIP TO 424) NO............2	YES...........1 (SKIP TO 429) NO............2
423 Has (NAME) had diarrhea in the last 15 days?	YES.................1⁻ NO..................2⁻ (GO TO NEXT COLUMN) ◄ -- DK..................8	YES...........1⁻ NO............2⁻ (GO TO NEXT COLUMN) ◄ -- DK............8	YES...........1⁻ NO............2⁻ (GO TO NEXT COLUMN) ◄ -- DK............8	YES...........1⁻ NO............2⁻ (GO TO 429) ◄ -- DK............8

424 Did you bring (NAME) to a doctor, hospital or clinic, to treat the diarrhea?
IF THE ANSWER IS "YES," ASK:
Where did you bring him/her?
	DOCTOR.............1
	HOSPITAL/CLINIC....2
	OTHER..............3
	DID NOT BRING
	  HIM/HER.........4
		DOCTOR.........1
		HOSPITAL/CLINIC..2
		OTHER..........3
		DID NOT BRING
		  HIM/HER......4
			DOCTOR.........1
			HOSPITAL/CLINIC..2
			OTHER..........3
			DID NOT BRING
			  HIM/HER......4
				DOCTOR.........1
				HOSPITAL/CLINIC..2
				OTHER..........3
				DID NOT BRING
				  HIM/HER......4

425 Did you or others do anything to to treat the diarrhea?
IF THE ANSWER IS "YES," ASK:
What was done?
	PHARMACY REMEDY......1
	HOMEMADE REMEDY......1
	"BOLSITA" (ORT)......1⎤
	OTHER..............1⎥
	    (SPECIFY)
	NOTHING............1⎦
	(SKIP TO 426)◄ - --
		PHARMACY REMEDY..1
		HOMEMADE REMEDY..1
		"BOLSITA" (ORT)..1⎤
		OTHER..........1⎥
		  (SPECIFY)
		NOTHING........1⎦
		(SKIP TO 426)◄ -
			PHARMACY REMEDY.1
			HOMEMADE REMEDY.1
			"BOLSITA" (ORT).1⎤
			OTHER..........1⎥
			  (SPECIFY)
			NOTHING........1⎦
			(SKIP TO 426)◄ -
				PHARMACY REMEDY.1
				HOMEMADE REMEDY.1
				"BOLSITA" (ORT).1⎤
				OTHER..........1⎥
				  (SPECIFY)
				NOTHING........1⎦
				(SKIP TO 426)◄ -

425A What remedy did you give him/her? PROBE: Did you give him/her any-thing else?	TEXT_____ _____ _____ [ ][ ][ ]	TEXT_____ _____ _____ [ ][ ][ ]	TEXT_____ _____ _____ [ ][ ][ ]	TEXT_____ _____ _____ [ ][ ][ ]
426 Did you continue to give him/her food while he/she had diarrhea?	YES.................1 NO..................2	YES...........1 NO............2 (GO TO NEXT COLUMN)	YES...........1 NO............2 (GO TO NEXT COLUMN)	YES...........1 NO............2 (GO TO NEXT COLUMN)

427 (ONLY FOR LAST BIRTH)
    CHECK 407:
    STILL
    BREAST-
    FEEDING   OTHER
           (GO TO NEXT
             COLUMN)

428 Did you continue to breastfeed while he/she had diarrhea?	YES.................1⎤ NO..................2⎦ (GO TO NEXT COLUMN)◄ ---

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO

429	CHECK 425:
	  MENTIONED
	    "BOLSITA" OTHER
	  (SKIP TO 431)		

430	Have you heard about the "bolsita salvadora" (ORT) for children who have diarrhea?	YES.................1 NO..................2--	→502
431	Have you heard about any problems associated with using the "bolsita salvadora"? IF YES: Which?	TEXT_____ _____ [ ][ ][ ]	

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NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
502	Have you ever been married or lived with a man?	YES.......................1 NO........................2--	►519A
503	Are you now living with a man, married, widowed, divorced or separated?	LIVING TOGETHER.........1 MARRIED.................2 WIDOWED.................3 DIVORCED...............4 SEPARATED..............5	
508	Have you been married or lived with a man only once or more than once?	ONCE.....................1 MORE THAN ONCE..........2	
509	In what month and year did you start living with your (first) husband or partner?	MONTH.............□□ DK MONTH..............98 YEAR..............□□ DK YEAR...............98	
510	How old were you when you started living with him?	AGE..............□□	
511	Are your father and mother still alive?	YES NO WOMAN'S FATHER.....1 2 WOMAN'S MOTHER.....1 2	
512	Are your (first) husband's/partner's father and mother still alive?	YES NO DK FIRST HUSBAND'S FATHER..........1 2 8 FIRST HUSBAND'S MOTHER..........1 2 8	
513	CHECK 511 AND 512: ALL ALIVE □□ OTHER □□ (SKIP TO 516)		
514	Was (MENTION PARENTS NOT ALIVE NOW) alive at the time you began living together with your (first) husband or partner?	YES NO WOMAN'S FATHER.....1 2 WOMAN'S MOTHER.....1 2 FIRST HUSBAND'S FATHER............1 2 FIRST HUSBAND'S MOTHER............1 2	
515	CHECK 514: SOME PARENT ALIVE NO PARENT ALIVE AT MARRIAGE □□ AT MARRIAGE □□ (SKIP TO 519)		
516	At the time you began living together, did you and your (first) husband (or partner) live with any of these parents for at least six months?	YES.......................1 NO........................2--	►518

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
517	For about how many years did you live together with a parent at that time?	YEARS...............☐☐ UP TO THE PRESENT......97--	→519
518	Are you now living with any parents?	YES.......................1 NO........................2	
519	In how many different localities have you lived since you were first married (started living together)?	NUMBER OF LOCALITIES........☐☐☐--	→521
519A	Now we need some details about your sexual activity in order to get a better understanding of contraception and fertility. CHECK 211, 225 AND 308: EVER OR CURRENTLY PREGNANT ☐ (SKIP TO 521) NEVER PREGNANT ☐ NEVER USED METHOD ☐ USED METHOD ☐ (SKIP TO 521)		
520	Have you ever had sexual intercourse?	YES.......................1 NO........................2--	→528
521	How old were you when you first had sexual intercourse?	AGE...............☐☐	
522	Have you had sexual intercourse in the last four weeks?	YES.......................1 NO........................2--	→528
523	How many times?	TIMES............☐☐	
525	CHECK 225, 314, 316: PREGNANT ☐ (SKIP TO 528) NOT PREGNANT ☐ USING ☐ (SKIP TO 528) NOT USING ☐ NOT YET MENSTRUATING OR NEVER MENSTRUATED ☐ (SKIP TO 528) OTHER ☐		
526	If you became pregnant in the next few weeks, would you be happy, would you not care or would you be unhappy?	HAPPY.....................1-- INDIFFERENT..............2 UNHAPPY..................3 DK........................8	→528

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NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
527	What is the main reason that you are not using a method to avoid pregnancy?	INFREQUENT SEX.........01 POSTPARTUM/BREAST- FEEDING...............02 MENOPAUSE/SUBFECUND....03 LACK OF KNOWLEDGE/ SOURCE................04 DIFFICULT ACCESS TO METHODS...............05 RELIGION...............06 PARTNER'S OPPOSITION...07 FEAR OF SIDE EFFECTS...08 FATALISTIC.............09 OPPOSED TO FAMILY PLANNING..............10 COST...................11 OTHER_____12 (SPECIFY) DK.....................98	
528	PRESENCE OF OTHERS AT THIS POINT	YES NO CHILDREN UNDER 10..1 2 HUSBAND OR PARTNER.1 2 OTHER MALES........1 2 OTHER FEMALES......1 2	

602	CHECK 304 AND 503: HUSBAND WOMAN STERILIZED STERILIZED OTHER (SKIP TO 610) (SKIP TO 608) CURRENTLY MARRIED OR LIVING TOGETHER OTHER (SKIP TO 614)		
603	I now have some questions about the future. CHECK 225. NOT PREGNANT ☐☐ Would you like to have a (another) child or would you prefer not to have any (any more) children? PREGNANT ☐☐: After the child you are expecting, would you like to have another child or would you prefer not to have any more children?	HAVE ANOTHER............1-- NO MORE.................2 MENOPAUSE/STERILE.......3-- UNDECIDED OR DK.........8--	→606 →614 →605
604	Would you say that you definitely do not want to have (more) children, or are you not sure?	DEFINITELY NO MORE......1-- NOT SURE................2--	→614 →614
605	Are you more inclined towards having a (another) child or towards not having a (another) child?	HAVE ANOTHER............1-- NOT HAVE ANOTHER........2-- UNDECIDED...............8--	→607 →614 →614
606	Would you say that you definitely want a (another) child, or are you not sure?	DEFINITELY MORE.........1 NOT SURE................2	
607	How long would you like to wait before you have a (another) child?	TIME TO WAIT: MONTHS..........1 ☐☐-- YEARS...........2 ☐☐-- DK.................998	→614 →614
607A	CHECK 204, 206 AND 225: SURVIVING NO SURVIVING CHILDREN AND CHILD OR NOT PREGNANT PREGNANT ☐☐ (SKIP TO 614)		
607B	When you become pregnant again, how old would you like your youngest child to be?	AGE OF YOUNGEST: YEARS..............☐☐ DK....................98	→614
608	Was your last child born by a caesarean operation?	YES.....................1 NO......................2 NO CHILDREN.............3	→610
609	Was the operation for not having more children performed at the same time as the caesarean?	YES.....................1 NO......................2	
610	Do you (your partner) regret having had the operation for not having more children?	YES.....................1 NO......................2--	→614
611	Why do you regret it?	WOULD LIKE CHILD........1 LOSS OF SEXUALITY.......2 HEALTH PROBLEMS.........3 OTHER_____4 (SPECIFY)	
614	CHECK 211: NO CHILDREN ☐☐: If you could choose exactly the number of children to have in your whole life, how many would that be? HAS CHILDREN ☐☐: If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be? RECORD SINGLE NUMBER, RANGE OR OTHER ANSWER	NUMBER...........☐☐☐ RANGE: BETWEEN_____ AND____ OTHER ANSWER_____ (SPECIFY)	

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NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
702	SEE 502 AND CHECK: EVER MARRIED ☐ ALL OTHERS ☐ OR LIVED WITH (SKIP TO 716) A MAN ASK QUESTIONS ABOUT CURRENT OR MOST RECENT HUSBAND/PARTNER.		
703	Now I have some questions about your most recent husband/partner. Did your husband/partner ever attend school?	YES......................1 NO.......................2--	→706
704	What was the highest year of school he completed?	TRANSITION.........☐ PRIMARY............☐ SECONDARY..........☐ HIGHER.............☐ DK.....................98	→707
706	Can (could) he read a letter or newspaper easily, with difficulty or not at all?	EASILY....................1 WITH DIFFICULTY..........2 NOT AT ALL...............3	
707	What kind of work does (did) your husband/partner mainly do? PROBE: What kinds of tasks does (did) he mainly do in his work?	_____ ☐☐ _____ _____ NOT WORKING (ED)........0--	→712
708	CHECK: DOES (DID) NOT ☐ WORKS ☐ WORK IN (WORKED) IN AGRICULTURE AGRICULTURE (SKIP TO 710)		
709	Does (did) he earn a regular weekly wage or monthly salary?	YES......................1 NO.......................2 DK.......................8	→712
710	Does (did) your husband/partner work mainly on his or family land, or on someone else's land?	HIS/FAMILY LAND.........1-- SOMEONE ELSE'S LAND.....2	→712
711	Does (did) he work mainly for money or does (did) he work for a share of the crops?	MONEY....................1 A SHARE OF THE CROPS....2 BOTH.....................3 OTHER....................4	
712	Before you married your (first) husband, did you yourself ever work regularly to earn money, other than on a farm or in a business run by your family?	YES......................1 NO.......................2--	→714

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NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
713	When you were earning money then, did you turn most of it over to your family or did you keep most of it yourself?	SELF.....................1 FAMILY...................2	
714	Since you were first married, have you ever worked regularly to earn money.	YES.....................1 NO......................2	►718A
716	Have you ever worked regularly to earn money?	YES.....................1 NO......................2--	►718
717	During the time when you have earned money, have you turned most of it over to your family or have you kept most of it yourself?	SELF....................1 FAMILY..................2	
718A	Now we will speak about your current work. In the past 7 days, have you worked?	YES.....................1-- NO......................2	►719
718B	In the past 7 days, even though you did not work, did you have work? PROBE: Did you not work because you were on vacation, maternity or sick leave, or for another reason?	YES.....................1-- NO......................2	►719
718C	Did you receive any "cacheulo" in the past 7 days?	YES.....................1-- NO......................2	►719
718D	In the past 7 days, did you help or work in a business of a family member? IN RURAL AREAS: In the past 7 days, did you help or work in a farm or ranch of your own or of a family member?	YES.....................1 NO......................2--	►724
719	For the work that you do, are you paid in cash, in kind, in cash and kind, or are you not paid?	MONEY...................1 KIND....................2 BOTH....................3 NO PAY..................4	
720	What is your occupation or profession? PROBE: What tasks do you mainly do in your work?	_____ [___] _____	
721	In your job, are you? READ ALTERNATIVES	SELF-EMPLOYED?..........1 EMPLOYER?...............2 EMPLOYED BY GOVERNMENT?.3-- EMPLOYED BY PRIVATE FIRM?..................4 BLUE-COLLAR WORKER?.....5 EMPLOYED IN THE HOME?...6-- FAMILY WORKER?..........7	►723 ►723
722	What is the main business of the institution or business in which you work?	_____ [ ]	
723	For how many hours a week do you generally work?	HOURS............[ ][ ]-- 90+ HOURS...............90	►725
724	You did not work during the past week, but did you work during the last 12 months?	YES.....................1 NO......................2	
725	RECORD THE TIME	HOUR..............[ ][ ] MINUTES...........[ ][ ]	

INTERVIEWER'S OBSERVATIONS
(To be filled in after completing interview)

Person interviewed: _____

_____

_____

Specific questions: _____

_____

_____

Other aspects: _____

_____

Name of interviewer: _____ Date: _____

SUPERVISOR'S OBSERVATIONS

_____

_____

_____

_____

Supervisor: _____ Date: _____

EDITOR'S/PUNCHER'S OBSERVATIONS

_____

_____

_____

_____

Editor: _____ Date: _____

Puncher: _____ Date: _____

2085S

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APPENDIX C

Peru Experimental Questionnaire

IDENTIFICATION

PLACE NAME _____

QUESTIONNAIRE NUMBER................................. ☐☐☐☐

CLUSTER NUMBER....................................... ☐☐☐☐

HOUSEHOLD NUMBER..................................... ☐☐☐

LINE NUMBER OF WOMAN................................. ☐☐☐

INTERVIEWER VISITS

	1	2	3	FINAL VISIT
DATE	_____	_____	_____	MO ☐☐ YR ☐☐
INTERVIEWER'S NAME	_____	_____	_____	☐☐☐
RESULT*	_____	_____	_____	☐☐

NEXT VISIT   DATE:
             TIME: _____

No. of VISITS ☐☐

* RESULT CODES: 1 COMPLETED
                 2 NOT AT HOME
                 3 DEFERRED
                 4 REFUSED
                 5 PARTLY COMPLETED
                 6 OTHER

COUNTRY SPECIFIC INFORMATION ON: LANGUAGE OF QUESTIONNAIRE, LANGUAGE OF INTERVIEW, NATIVE LANGUAGE OF RESPONDENT AND WHETHER TRANSLATOR USED.

	FIELD EDITED BY	OFFICE EDITED BY	PUNCHED BY	PUNCHED BY
NAME	_____	_____	_____	☐☐☐
DATE	_____	_____	_____	

SECTION 1. RESPONDENT'S BACKGROUND

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
101	RECORD NUMBER OF PEOPLE LISTED IN THE HOUSEHOLD SCHEDULE	NUMBER OF PEOPLE..☐☐☐	
101A	RECORD NUMBER OF CHILDREN AGED 6 AND UNDER LISTED IN THE HOUSEHOLD SCHEDULE.	NUMBER OF CHILDREN 6 AND UNDER.......☐☐☐	
102	RECORD THE TIME	HOUR..............☐☐☐☐ MINUTES...........☐☐☐☐	
103	First I would like to ask some questions about yourself and your household. For most of the time until you were 12 years old, did you live in the countryside, in a town, or in a city?	COUNTRYSIDE.............1 TOWN.....................2 CITY....................3	
106	In what month and year were you born?	MONTH.............☐☐☐☐ YEAR..............☐☐☐☐	
107	How old were you at your last birthday? COMPARE AND CORRECT 106 AND/OR 107 IF INCONSISTENT.	AGE IN COMPLETED YEARS.............☐☐☐	
108	Have you ever attended school?	YES......................1 NO.......................2--	→112
109	What was the highest year of school you completed?	TRANSITION.........☐0☐☐ PRIMARY............☐1☐☐ SECONDARY..........☐2☐☐ HIGHER.............☐3☐☐ DK..................8	→113
112	Can you read a letter or newspaper easily, with difficulty or not at all?	EASILY...................1 WITH DIFFICULTY..........2 NOT AT ALL...............3--	→114
113	How many days of the week do you read a newspaper?	DAYS..............☐☐☐	
114	How many days of the week do you watch television?	DAYS..............☐☐☐	
114A	Do you listen to the radio every day?	YES......................1 NO.......................2	

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NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
115	What is the major source of drinking water for members of your household?	PUBLIC SOURCE WITHIN THE DWELLING...........1 PUBLIC SOURCE OUTSIDE THE DWELLING BUT WITHIN THE BUILDING..........2 TROUGH....................3 WELL.....................4 RIVER, RIVULET..........5 SPRING...................6 TANKER TRUCK, WATER CARRIER...............7 OTHER _____8 (SPECIFY)	
115A	What is the usual source of water for bathing and hand washing for members of your household?	PUBLIC SOURCE WITHIN THE DWELLING...........1 PUBLIC SOURCE OUTSIDE THE DWELLING BUT WITHIN THE BUILDING..........2 TROUGH....................3 WELL.....................4 RIVER, RIVULET..........5 SPRING...................6 TANKER TRUCK, WATER CARRIER...............7 OTHER _____8 (SPECIFY)	►116
115B	How long does it take, round trip, to obtain water?	MINUTES...........[ ][ ] 90+ MINUTES........90	
116	What kind of toilet facility does your dwelling have? FOR THE APPROPRIATE FACILITY: Is it for exclusive use of your home or for common use?	EXCL COM FLUSH.......1 1 2 BUCKET........2 1 2 WATER CLOSET..3 1 2 PIT...........4 1 2 LATRINE.......5 1 2 OTHER_____8 1 2 (SPECIFY) NONE.........0	
116A	CHECK 101A		

116A CHECK 101A

    CHILDREN   NO CHILDREN
   6 AND UNDER   6 AND UNDER

    [ ]   [ ]

    ↓   (SKIP TO 116C)

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
116B	What kind of toilet facility do children under age 6 normally use? FOR THE APPROPRIATE FACILITY: Is it for exclusive use of your home or common use?	EXCL. COM. FLUSH...........1 1 2 BASIN...........2 1 2 BUCKET..........3 1 2 WATER CLOSET....4 1 2 PIT.............5 1 2 LATRINE.........6 1 2 OTHER.._____..8 1 2 SPECIFY NONE............0 DIAPERS.........7	
116C	Do you have, right now, a cake of soap on the premises?	YES......................1 NO.......................2 DK.......................8	
117	Does your house have: Electricity? A radio? A television? A refrigerator?	YES NO ELECTRICITY........1 2 RADIO..............1 2 TELEVISION.........1 2 REFRIGERATOR.......1 2	
118	Does any member of your household own: A bicycle? A motorcycle? A car? A tractor? (RURAL ONLY)	YES NO BICYCLE............1 2 MOTORCYCLE.........1 2 CAR................1 2 TRACTOR............1 2	
119	MAIN MATERIAL OF THE FLOOR	PARQUET, OR POLISHED WOOD...........1 VINYL OR ASPHALT STRIPS.2 CERAMIC TILES...........3 WOOD PLANKS.............4 CEMENT..................5 EARTH/SAND..............6 OTHER _____.7 (SPECIFY)	
119A	MAIN MATERIAL OF THE WALLS	CONCRETE................1 BRICK...................2 ADOBE...................3 STRAW...................4 OTHER _____.5 (SPECIFY)	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
202	Now I would like to ask about all the births you have had during your life. I am referring only to children that you gave birth to and not to children adopted or raised by you. Have you ever given birth?	YES.......................1 NO.......................2--	->207
203	Do you have any son or daughter you have given birth to who is now living with you?	YES.......................1 NO.......................2--	->205
204	How many sons live with you? And how many daughters live with you? IF NONE ENTER ZEROS.	SONS AT HOME...... [ ][ ] DAUGHTERS AT HOME. [ ][ ]	
205	Do you have any son or daughter you have given birth to who is not living with you?	YES.......................1 NO.......................2--	->207
206	How many sons do not live with you? And how many daughters do not live with you? IF NONE ENTER ZEROS.	SONS ELSEWHERE...... [ ][ ] DAUGHTERS ELSEWHERE [ ][ ]	
207	Have you ever given birth to a boy or a girl who was born alive but later died? PROBE: Any other boy or girl who was born alive but only survived a few hours or days?	YES.......................1 NO.......................2--	->209
208	How many boys have died? And how many girls have died? IF NONE ENTER ZEROS.	BOYS DEAD......... [ ][ ] GIRLS DEAD........ [ ][ ]	
209	SUM ANSWERS TO 204, 206 AND 208 AND ENTER TOTAL.	TOTAL............. [ ][ ]	
210	Just to make sure that I have this right, you have had in TOTAL ___ live births during your life. Is that correct? YES [ ] NO [ ] (PROBE AND CORRECT 204, 206, 208 OR 209.		
211	CHECK: ONE OR MORE BIRTHS NO BIRTHS [ ] [ ] (SKIP TO 229) Now I would like a list of all your recent births, whether still alive or not, starting with the last one you had.		

BEGIN WITH THE LAST LIVE BIRTH AND ASK THE APPROPRIATE QUESTIONS

		LAST BIRTH	NEXT-TO-LAST BIRTH	SECOND-FROM-LAST BIRTH	THIRD-FROM-LAST BIRTH
212	In what month and year was your (last, next-to-last etc.) child born?	MONTH ☐☐ YEAR ☐☐	MONTH ☐☐ YEAR ☐☐	MONTH ☐☐ YEAR ☐☐	MONTH ☐☐ YEAR ☐☐
213	What name was given to this child?	_____ NAME	_____ NAME	_____ NAME	_____ NAME
214	Is (NAME) a boy or a girl?	BOY..............1 GIRL.............2	BOY..............1 GIRL.............2	BOY..............1 GIRL.............2	BOY.............1 GIRL...........2
215	Is (NAME) alive?	YES, ALIVE.......1 (SKIP TO 217) NO, DEAD.........2	YES, ALIVE.......1 (SKIP TO 217) NO, DEAD.........2	YES, ALIVE.......1 (SKIP TO 217) NO, DEAD.........2	YES, ALIVE......1 (SKIP TO 217) NO, DEAD........2
216	How old was (NAME) when he/she died? RECORD DAYS IF LESS THAN ONE MONTH, MONTHS IF LESS THAN TWO YEARS, OR YEARS IF TWO YEARS OR MORE.	DAYS....1 ☐☐ MONTHS..2 ☐☐ YEARS...3 ☐☐	DAYS....1 ☐☐ MONTHS..2 ☐☐ YEARS...3 ☐☐	DAYS....1 ☐☐ MONTHS..2 ☐☐ YEARS...3 ☐☐	DAYS....1 ☐☐ MONTHS..2 ☐☐ YEARS...3 ☐☐
217	CHECK YEAR OF BIRTH	1981 AND ☐ LATER (SKIP TO 212, NEXT COLUMN) BEFORE 1981 ☐ (SKIP TO 227)	1981 AND ☐ LATER (SKIP TO 212, NEXT COLUMN) BEFORE 1981 ☐ (SKIP TO 227)	1981 AND ☐ LATER (SKIP TO 212, NEXT COLUMN) BEFORE 1981 ☐ (SKIP TO 227)	1981 AND ☐ LATER (SKIP TO 227) BEFORE 1981 ☐ (SKIP TO 227)

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
227	ENTER "B" FOR EACH BIRTH IN CALENDAR (COLUMN 1) IN MONTH OF BIRTH (IF SINCE JANUARY 1981) AND A "P" IN EACH OF THE 8 PRECEDING MONTHS.		
228	In what month and year was your first child born? PROBE: How old were you when your first child was born? IF FIRST BIRTH RECORDED IN 221, USE THIS AS CHECK	MONTH.. YEAR...	
229	Did you have your menstrual period in the last four weeks?	YES....................1 NO.....................2———	– 230
229A	How many days ago did your last menstrual period start?	DAYS.........	– 233
230	Are you pregnant now?	YES....................1 NO.....................2---- UNSURE...............8----	– 233 – 233
231	In which month of pregnancy are you? ENTER "P" IN CALENDAR (COLUMN 1) IN MONTH OF INTERVIEW AND IN EACH PRECEDING MONTH PREGNANT	MONTHS DK.............................98	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
233	We now need to know about any (other) pregnancies you have had (NOT INCLUDING CURRENT PREGNANCY) which you have not told me about yet, that is, those pregnancies which may have miscarried, been aborted, or ended in stillbirth. CHECK 209: NUMBER OF BIRTHS 0 ☐ 1 ☐ 2+ ☐ ↓ (SKIP TO 235) (SKIP TO 237A)		
234	Have you <u>ever</u> had such a pregnancy, even for <u>a</u> short period of time?	YES.................... 1-- NO.................... 2--	-240 -247
235	Since the birth of your child, have you <u>ever</u> had such a pregnancy, even for a <u>short</u> period of time?	YES.....................1 NO.....................2	
236	Before the birth of your child, have you <u>ever</u> had such a pregnancy, even for a <u>short</u> period of time?	YES.....................1 NO.....................2	
237	"NO" IN "YES" IN 235 AND 236 235 OR 236 ☐ ☐ (SKIP TO 247) (SKIP TO 240)		
237A	Since your last birth, did you have such a pregnancy, even for a short period of time?	YES.....................1 NO.....................2	
237B	Between your last two births, did you have such a pregnancy, even for a short period of time? (PROBE: And before?)	YES.....................1 NO.....................2	
237C	"NO" IN "YES" IN 237A AND 237B 237A OR 237B ☐ ☐ (SKIP TO 247) (SKIP TO 240)		

		LAST PREGNANCY	NEXT-TO-LAST PREGNANCY	SECOND FROM LAST PREGNANCY
240	In what month and year did the last (next-to-last,...) pregnancy end?	MONTH ☐ YEAR ☐ IF BEFORE 1981, SKIP TO 247	MONTH ☐ YEAR ☐ IF BEFORE 1981, SKIP TO 247	MONTH ☐ YEAR ☐ IF BEFORE 1981, SKIP TO 247
241	How many months pregnant were you when the pregnancy ended?	MONTHS ☐ IF LESS THAN 7, SKIP TO 243	MONTHS ☐ IF LESS THAN 7, SKIP TO 243	MONTHS ☐ IF LESS THAN 7, SKIP TO 243
242	At the time the pregnancy ended, did the baby cry or show any sign of life?	YES..............1 (SKIP TO 244) NO...............2	YES..............1 (SKIP TO 244) NO...............2	YES..............1 (SKIP TO 244) NO...............2
243		ENTER "P" IN CALENDAR (COLUMN 1) IN MONTH PREGNANCY ENDED AND IN EACH PRECEDING MONTH PREGNANT. SKIP TO NEXT PREGNANCY.		
244		ENTER "B" IN CALENDAR (COLUMN 1) IN MONTH PREGNANCY ENDED AND "P" IN EACH PRECEDING MONTH PREGNANT.		
245	Was this baby a boy or a girl?	BOY..............1 GIRL.............2	BOY..............1 GIRL.............2	BOY..............1 GIRL.............2
246	How old was the baby when he/she died? RECORD DAYS IF LESS THAN ONE MONTH, MONTHS IF LESS THAN TWO YEARS, OR YEARS IF TWO YEARS OR MORE.	DAYS 1 MONTHS 2 ☐ YEARS 3	DAYS 1 MONTHS 2 ☐ YEARS 3	DAYS 1 MONTHS 2 ☐ YEARS 3

247	CHECK 242 AND 212 AND RECORD TOTAL NUMBER OF BIRTHS SINCE JANUARY 1981.	NUMBER.........☐

248	PRESENCE OF OTHERS AT THIS POINT		YES	NO
		CHILDREN UNDER 10...1		2
		HUSBAND.............1		2
		OTHER MALES.........1		2
		OTHER FEMALES.......1		2

302 Now I would like to talk about a different topic. There are various ways or methods that a couple can use to delay or avoid pregnancy. Which ways or methods do you know or have you heard about? CIRCLE CODE 1 IN 303 FOR EACH METHOD SPONTANEOUSLY MENTIONED. THEN READ THE NAME AND DESCRIPTION OF THE METHODS NOT MENTIONED AND CIRCLE 2 IN 303 IF THE METHOD IS RECOGNIZED. THEN ASK 304-305 AS APPROPRIATE.

	303 Have you heard of this method?	304 Have you or your partner ever used or are you using (METHOD)?	304a If a woman did not want to become pregnant, would you advise her or her partner to use this method? If no, why not? RECORD CODE FROM BELOW	305 What is the nearest place or person from which you or your partner can obtain (METHOD)? RECORD CODE FROM BELOW
RHYTHM 'Couples can avoid having sexual intercourse on particular days of the month when the woman is more likely to become pregnant'	YES, SPONT...1→ YES, PROBED...2→ NO..........3↓	YES....1 NO.....2	☐☐	What is the nearest place or person from which you can obtain advice about rhythm? ☐☐
WITHDRAWAL 'Men can be careful and pull out before climax'	YES, SPONT...1→ YES, PROBED..2→ NO..........3↓	YES....1 NO....2	☐☐	||||||
CONDOM 'Men can use a rubber sheath during sexual intercourse'	YES, SPONT...1→ YES, PROBED..2→ NO..........3↓	YES....1 NO....2	☐☐	☐☐
MALE STERILIZATION 'Men can have an operation to avoid having any more children'	YES, SPONT...1→ YES, PROBED..2→ NO..........3↓	YES....1 NO....2	If a couple did not want any more children, would you advise them to use this method? ☐☐	What is the nearest place in which men can obtain an operation so as not to have more children? ☐☐
FEMALE STERILIZATION 'Women can have an operation to avoid having any more children'	YES, SPONT...1→ YES, PROBED..2→ NO..........3↓	YES....1 NO....2	If a couple did not want any more children, would you advise them to use this method? ☐☐	What is the nearest place in which women can obtain an operation so as not to have more children? ☐☐
INJECTIONS 'Women can have an injection by a doctor or nurse which stops them from becoming pregnant for several months'	YES, SPONT...1→ YES, PROBED..2→ NO..........3↓	YES....1 NO.....2	☐☐	☐☐
DIAPHRAGM, FOAM, JELLY 'Women can place a sponge or suppository or diaphragm or jelly or cream inside them before intercourse'	YES, SPONT...1→ YES, PROBED..2→ NO..........3↓	YES....1 NO....2	☐☐	☐☐
IUD 'Women can have a loop or coil placed inside them by a doctor or nurse'	YES, SPONT...1→ YES, PROBED..2→ NO..........3↓	YES....1 NO.....2	☐☐	☐☐
PILL 'Women can take a pill every day'	YES, SPONT...1→ YES, PROBED..2→ NO..........3↓	YES....1 NO.....2	☐☐	☐☐
ANY OTHER METHODS? 'Have you heard of any other methods including traditional ones that women or men can use to avoid pregnancy?' SPECIFY (.........)	YES, SPONT...1→ YES, PROBED..2→ NO..........3↓	YES....1 NO....2		

CODES FOR QUESTION 304A
YES......................01
NO, NOT EASILY AVAILABLE..02
NO, TOO EXPENSIVE........03
NO, HEALTH CONCERNS......04
NO, INEFFECTIVE..........05
NO, INTERFERES WITH SEX...06
NO, AGAINST CONTRACEPTION.07
NO, IRREVERSIBLE.........08
NO, OTHER REASON.........09
DK.......................98

CODES FOR QUESTION 305
HOSPITAL, HEALTH CENTER.......01
  OF MINISTRY OF HEALTH
OTHER HOSPITAL OR HEALTH......02
  INSTITUTION OF PUBLIC SECTOR
PRIVATE CLINIC................03
DOCTOR'S OFFICE...............04
PHARMACY......................05
HEALTH WORKER.................06
O.P.V.........................07
OTHER......................... 08
DK............................98

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO

306	CHECK 303:
	
	HEARD OF RHYTHM HAS NOT HEARD
	                     OF RHYTHM
	
	      ☐ ☐
	      ↓ (SKIP TO 307)		

306A	When during her monthly cycle do you think a woman has the greatest chance of becoming pregnant? PROBE: What are the days during which a woman has to be careful to avoid becoming pregnant?	DURING HER PERIOD..................1 RIGHT AFTER HER PERIOD HAS ENDED....2 IN THE MIDDLE OF THE TIME...........3 BETWEEN ONE PERIOD AND ANOTHER JUST BEFORE HER PERIOD BEGINS.......4 AT ANY TIME.........................5 IMMEDIATELY BEFORE AND AFTER........6 OTHER _____ ....7 (SPECIFY) DK..................................8	
307	NOT A SINGLE "YES" AT LEAST ONE IN 304 "YES" IN 304 (NEVER USED) ☐ (EVER USED) ☐ ↓ (SKIP TO 309)		
308	Have you or your partner ever used anything or tried in any way to delay or avoid getting pregnant?	YES...............1-- NO................2	-308B
308A	ENTER "0" IN CALENDAR (COLUMN 1) IN EACH BLANK MONTH. THEN SKIP TO 329.		

308B	What have you used or done?
	CORRECT 303, 304, 304A AND 305
		PILL....................01
		IUD.....................02
		INJECTIONS..............03
		VAGINAL METHODS.........04
		CONDOM..................05
		FEMALE STERILIZATION....06
		MALE STERILIZATION......07
		RHYTHM:CALENDAR.........08
		RHYTHM:BODY TEMPERATURE.09
		RHYTHM:CERVICAL MUCUS
		   (BILLINGS)............10
		RHYTHM:TEMPERATURE AND
		   MUCUS.................11
		WITHDRAWAL..............12
		RHYTHM AND CONDOM.......13
		RHYTHM AND WITHDRAWAL...14
		CONDOM AND WITHDRAWAL...15
		OTHER_____ ...16
		      (SPECIFY)	

309	CHECK 304: NEVER USED RHYTHM EVER USED RYHTHM ☐ ☐ ↓ (SKIP TO 310)		

309A	When you were using rhythm, how did you determine on which days you had to abstain?	BASED ON CALENDAR.......1
		BASED ON BODY
		  TEMPERATURE.............2
		BASED ON CERVICAL MUCUS
		  (BILLINGS) METHOD......3
		BASED ON BODY TEMPERATURE
		  AND MUCUS..............4
		BASED ON CALENDAR AND
		   TEMPERATURE...........5
		BASED ON CALENDAR AND
		   MUCUS.................6
		OTHER_____ ...7
		      (SPECIFY)	

310	How many children, if any, did you have when you first did something or used a method to avoid getting pregnant?	NUMBER OF CHILDREN....... ☐☐	

311	CHECK 304 AND 230
	HE/SHE NOT
	STERILIZED ☐ STERILIZED ☐
	(SKIP TO 316)
	
	            PREGNANT ☐ NOT
	                     PREGNANT ☐
	    (SKIP TO 318) ↓		

313	Are you or your partner currently doing something or using any method to avoid getting pregnant?	YES................ 1 NO.................2----	-318

170

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	TO

314	Which method are you using?	PILL.................... 01
		IUD..................... 02
		INJECTIONS.............. 03
		VAGINAL METHODS......... 04
		CONDOM.................. 05
		RHYTHM:CALENDAR......... 08
		RHYTHM:BODY TEMPERATURE. 09
		RHYTHM:CERVICAL MUCUS
		  (BILLINGS)............. 10
		RHYTHM:TEMPERATURE AND
		  MUCUS................. 11
		WITHDRAWAL.............. 12
		RHYTHM AND CONDOM....... 13
		RHYTHM AND WITHDRAWAL... 14
		CONDOM AND WITHDRAWAL... 15
		OTHER_____... 16
		    (SPECIFY)
			—314B
			
			—314B

314A	Where did you obtain that method or receive advice about it the last time?	HOSPITAL, HEALTH CENTER.......01
		  OF MINISTRY OF HEALTH
		OTHER HOSPITAL OR HEALTH......02
		  INSTITUTION OF PUBLIC SECTOR
		PRIVATE CLINIC................03
		DOCTOR'S OFFICE...............04
		PHARMACY......................05
		HEALTH WORKER.................06
		O.P.V........................07
		OTHER_____08
		    (SPECIFY)
		DK...........................98
			—315

314B	Where or from whom did you receive advice for using this method, the last time?	HOSPITAL, HEALTH CENTER.......01
		  OF MINISTRY OF HEALTH
		OTHER HOSPITAL OR HEALTH......02
		  INSTITUTION OF PUBLIC SECTOR
		PRIVATE CLINIC................03
		DOCTOR'S OFFICE...............04
		PHARMACY......................05
		HEALTH WORKER.................06
		O.P.V........................07
		OTHER_____08
		    (SPECIFY)
		DK...........................98	

315	For how many months have you been using (current method) continuously? ENTER METHOD CODE IN CALENDAR (COLUMN 1) IN MONTH OF INTERVIEW AND FOR EACH PRECEDING MONTH OF CONSECUTIVE USE.	MONTHS [ ][ ] 96 MONTHS OR MORE.............96	

315A	THIS USE BEGAN:
	  SINCE 1981 BEFORE 1981
	    [ ] [ ]
	(SKIP TO 318) ↓
	          RECORD THE DATE
	          IN WHICH USE BEGAN
		MONTH [ ][ ]
		
		YEAR [ ][ ]
			402

316	In what month and year did you (he) have the operation? ENTER METHOD CODE IN CALENDAR (COLUMN 1) IN MONTH OF INTERVIEW AND IN EACH MONTH BACK TO DATE OF OPERATION OR JAN. 1981, IF OPERATION OCCURRED BEFORE 1981.	MONTH [ ][ ] YEAR [ ][ ]	
316A	OPERATION OPERATION SINCE 1981 BEFORE 1981 [ ] [ ] ↓ (SKIP TO 402)		

318	I would like to ask some questions about all the periods in the last few years during which you or your partner used a method, starting with the most recent (excluding current) period of use. USE CALENDAR TO PROBE FOR ALL PERIODS OF USE AND NON-USE, STARTING WITH THE MOST RECENT, BACK TO JAN. 1981. USE THE NAMES OF THE BIRTHS AND THE PERIODS OF PREGNANCY AS REFERENCE POINTS. ENTER CODE FOR METHOD (INCLUDING "O" FOR NO USE) IN EACH BLANK MONTH IN COLUMN 1.
	
	ILLUSTRATIVE QUESTIONS:
	
	When was the last time (next to last,..) you used a method? What method(s) did you use?
	
	When did you start to use this method (i.e., how long after a reported birth or pregnancy) and for how many months did you use it continuously?
	
	PROBE: Were there any months during this period of use when you were temporarily not using a method?
		318A AT THE END OF EACH PERIOD OF CONTRACEPTIVE USE CONSIDER THE FOLLOWING SITUATIONS:
		
		-- IF A PREGNANCY APPEARS WITHIN ONE OR TWO MONTHS OF THE END OF USE, ASK:
		
		At the time you became pregnant with (NAME), were you or your partner using (METHOD)?
		
		-- IF "YES" ENTER "1" IN COL. 1A NEXT TO THE LAST MONTH OF USE
		
		-- IF "NO" AND ALSO FOR PERIODS OF USE WHICH ARE NOT FOLLOWED BY A PREGNANCY, ASK:
		
		Why did you stop using (METHOD)?
		
		   IN ORDER TO GET PREGNANT...2
		   OTHER REASON..............3
		
		ENTER THE CODE IN COL. 1A NEXT TO THE LAST MONTH OF USE.	

319	CHECK CALENDAR: METHOD USED IN JAN. 1981 NO METHOD USED IN JAN. 1981 (SKIP TO 328)		
320	RECORD STARTING DATE OF PERIOD OF USE FOR METHOD USED DURING JAN. 1981	MONTH.. YEAR...	
328	CHECK 311 AND 313: CURRENTLY USING A METHOD? YES NO (SKIP TO 402)		
329	Do you intend to use a method to avoid pregnancy in the next 12 months?	YES.........................1-- NO..........................2 DK..........................8	-330
329A	Do you intend to use a method to avoid pregnancy at some time in the future, say within two, three or more years?	YES.........................1 NO..........................2-- DK..........................8--	-332 -332
330	Which method would you prefer to use?	PILL.......................01 IUD........................02 INJECTIONS.................03 VAGINAL METHODS............04 CONDOM.....................05 FEMALE STERILIZATION.......06 MALE STERILIZATION........07 CALENDAR...................08 TEMPERATURE................09 CERVICAL MUCUS.............10 TEMPERATURE AND MUCUS......11 WITHDRAWAL.................12 RHYTHM AND CONDOM..........13 RHYTHM AND WITHDRAWAL......14 CONDOM AND WITHDRAWAL......15 OTHER_____.....16 SPECIFY DK, DEPENDS................98	-402
332	What are the main reasons you do not intend to use a method?	WANTS CHILDREN.................01 LACK OF KNOWLEDGE..............02 PARTNER OPPOSED...............03 COST TOO MUCH.................04 HEALTH CONCERNS...............05 HARD TO GET METHODS...........06 RELIGION......................07 OPPOSED TO FAMILY PLANNING.....08 FATALISTIC....................09 OTHER PEOPLE OPPOSED..........10 INFECUND/SUBFECUND............11 INCONVENIENT..................12 NOT MARRIED...................13 DK............................98	

172

402	CHECK 221:			

ONE OR MORE LIVE BIRTHS SINCE JAN. 1981 ☐

NO LIVE BIRTH SINCE JAN. 1981 ☐ (SKIP TO 418)

FILL IN THE NAME AND SURVIVAL STATUS, AT THE TOP OF THE TABLE, OF EACH LIVE BIRTH SINCE JANUARY 1981. BEGIN WITH THE MOST RECENT ONE.

	LAST BIRTH	NEXT-TO-LAST BIRTH	SECOND FROM LAST BIRTH	THIRD FROM LAST BIRTH
	NAME ____ ALIVE ☐ DEAD ☐	NAME ____ ALIVE ☐ DEAD ☐	NAME ____ ALIVE ☐ DEAD ☐	NAME ____ ALIVE ☐ DEAD ☐
403 When you were pregnant, did you see anyone for a check on this pregnancy? IF YES: Whom did you see? PROBE FOR TYPE OF PERSON AND RECORD MOST QUALIFIED	DOCTOR..........1 TRAINED NURSE...2 UNTRAINED NURSE/ MIDWIFE.........3 OTHER...........4 NO CHECK........5	DOCTOR..........1 TRAINED NURSE...2 UNTRAINED NURSE/ MIDWIFE.........3 OTHER...........4 NO CHECK........5	DOCTOR..........1 TRAINED NURSE...2 UNTRAINED NURSE/ MIDWIFE.........3 OTHER...........4 NO CHECK........5	DOCTOR..........1 TRAINED NURSE...2 UNTRAINED NURSE/ MIDWIFE.........3 OTHER...........4 NO CHECK........5
404 Who assisted with the delivery of (NAME)? PROBE FOR TYPE OF PERSON AND RECORD MOST QUALIFIED	DOCTOR..........1 TRAINED NURSE....2 MIDWIFE.........3 RELATIVE........4 OTHER...........5 NO ONE..........6	DOCTOR..........1 TRAINED NURSE....2 MIDWIFE.........3 RELATIVE........4 OTHER...........5 NO ONE..........6	DOCTOR..........1 TRAINED NURSE....2 MIDWIFE.........3 RELATIVE........4 OTHER...........5 NO ONE..........6	DOCTOR..........1 NURSE OR MIDWIFE.2 MIDWIFE.........3 RELATIVE........4 OTHER...........5 NO ONE..........6
404A How much did (NAME) weigh at birth?	GRAMS ☐☐☐☐ DK.......9998	GRAMS ☐☐☐☐ DK.......9998	GRAMS ☐☐☐☐ DK.......9998	GRAMS ☐☐☐☐ DK.......9998
404B When (NAME) was born was he/she ? READ ALTERNATIVES	VERY SMALL........1 BELOW AVERAGE.....2 AVERAGE...........3 ABOVE AVERAGE.....4 VERY LARGE........5 DK................8	VERY SMALL........1 BELOW AVERAGE.....2 AVERAGE...........3 ABOVE AVERAGE.....4 VERY LARGE........5 DK................8	VERY SMALL........1 BELOW AVERAGE.....2 AVERAGE...........3 ABOVE AVERAGE.....4 VERY LARGE........5 DK................8	VERY SMALL........1 BELOW AVERAGE.....2 AVERAGE...........3 ABOVE AVERAGE.....4 VERY LARGE........5 DK................8
404C Has (NAME) ever had any vaccinations, such as for polio, measles, or some other disease?	YES...1 NO....2┐ DK....8┘→ (SKIP TO 405)	YES..1 NO...2┐ DK...8┘→ (SKIP TO 405)	YES..1 NO...2┐ DK...8┘→ (SKIP TO 405)	YES..1 NO...2┐ DK...3┘→ (SKIP TO 405)
404D Can you tell me whether he/she was vaccinated against: Tuberculosis? Diptheria/Pertussis/ Tetanus? Polio? Measles?	YES NO DK 1 2 8 1 2 8 1 2 8 1 2 8	YES NO DK 1 2 8 1 2 8 1 2 8 1 2 8	YES NO DK 1 2 8 1 2 8 1 2 8 1 2 8	YES NO DK 1 2 8 1 2 8 1 2 8 1 2 8
405 Did you ever feed (NAME) at the breast?,	YES..1(SKIP TO 407) NO...2	YES.1(SKIP TO 407A) NO..2	YES.1(SKIP TO 407A) NO..2	YES.1(SKIP TO 407A) NO..2
406 Why did you not breastfeed (NAME)?	MOTHER ILL/WEAK...1 NO MILK...........2 CHILD ILL/WEAK....3 CHILD DIED........4 WORK..............5 OTHER.............6 (ALL SKIP TO 409)	MOTHER ILL/WEAK...1 NO MILK...........2 CHILD ILL/WEAK....3 CHILD DIED........4 WORK..............5 OTHER.............6 (ALL SKIP TO 409)	MOTHER ILL/WEAK...1 NO MILK...........2 CHILD ILL/WEAK....3 CHILD DIED........4 WORK..............5 OTHER.............6 (ALL SKIP TO 409)	MOTHER ILL/WEAK...1 NO MILK...........2 CHILD ILL/WEAK....3 CHILD DIED........4 WORK..............5 OTHER.............6 (ALL SKIP TO 409)
407 IF STILL ALIVE: Are you still breastfeeding (NAME)? IF "NO" AND FOR PRECEDING BIRTHS, ASK: 407A How many months did you breastfeed (NAME)?	STILL BREAST- ☐ FEEDING ENTER "1" IN CALENDAR (COLUMN 2) IN THE MONTH AFTER BIRTH AND IN EACH FOLLOWING MONTH OF BREASTFEEDING. IF STILL BREASTFEEDING SKIP TO 409			
408 Were you able to breastfeed (NAME) for as long as you wanted to? IF "NO," why not?	AS LONG AS WANTED..1 MOTHER ILL/WEAK....2 NO MILK............3 CHILD ILL/WEAK.....4 CHILD DIED........5 WORK..............6 BECAME PREGNANT....7 OTHER.............8	AS LONG AS WANTED.1 MOTHER ILL/WEAK...2 NO MILK...........3 CHILD ILL/WEAK....4 CHILD DIED........5 WORK..............6 BECAME PREGNANT...7 OTHER.............8	AS LONG AS WANTED.1 MOTHER ILL/WEAK...2 NO MILK...........3 CHILD ILL/WEAK....4 CHILD DIED........5 WORK..............6 BECAME PREGNANT...7 OTHER.............8	AS LONG AS WANTED.1 MOTHER ILL/WEAK...2 NO MILK...........3 CHILD ILL/WEAK....4 CHILD DIED........5 WORK..............6 BECAME PREGNANT...7 OTHER.............8

	LAST BIRTH	NEXT-TO-LAST BIRTH	SECOND FROM LAST BIRTH	THIRD FROM LAST BIRTH
	NAME _____ ALIVE ☐ DEAD ☐	NAME _____ ALIVE ☐ DEAD ☐	NAME _____ ALIVE ☐ DEAD ☐	NAME _____ ALIVE ☐ DEAD ☐
409 For how many months after the birth of (NAME) did you not have a period?	NOT RETURNED ☐	NOT RETURNED ☐	NOT RETURNED ☐	NOT RETURNED ☐
	ENTER "0" IN CALENDAR (COLUMN 3) IN THE MONTH AFTER BIRTH AND IN EACH FOLLOWING MONTH WITHOUT A PERIOD.			
410 (FOR LAST BIRTH: Have you resumed sexual relations?) IF "YES" AND FOR OTHER BIRTHS, ASK: For how many months after the birth of (NAME) did you not have sexual relations?	NOT RESUMED SEX ☐			
	ENTER "0" IN CALENDAR (COLUMN 4) IN THE MONTH AFTER BIRTH AND IN EACH FOLLOWING MONTH WITHOUT SEXUAL RELATIONS.			
411 Just before you became pregnant with (NAME) did you want to have (more) children or not?	YES.............1 NO..............2 ↓ (SKIP TO 414)	YES.............1 NO..............2 ↓ (SKIP TO 414)	YES.............1 NO..............2 ↓ (SKIP TO 414)	YES.............1 NO..............2 ↓ (SKIP TO 414)
412 Did you want a(nother) child at the time you became pregnant or would you have preferred to wait longer?	AT THAT MOMENT...1 WAIT LONGER......2	AT THAT MOMENT...1 WAIT LONGER......2	AT THAT MOMENT...1 WAIT LONGER......2	AT THAT MOMENT...1 WAIT LONGER......2
414 CHECK TOP OF TABLE	ALIVE ☐ DEAD ☐ ↓ (SKIP TO 403 NEXT COLUMN)	ALIVE ☐ DEAD ☐ ↓ (SKIP TO 403 NEXT COLUMN)	ALIVE ☐ DEAD ☐ ↓ (SKIP TO 403 NEXT COLUMN)	ALIVE ☐ DEAD ☐ ↓ (SKIP TO 418)
415 Has (NAME) had diarrhea in the last 24 hours?	YES..1(SKIP TO 416) NO...2 DK...8	YES..1(SKIP TO 416) NO...2 DK...8	YES..1(SKIP TO 416) NO...2 DK...8	YES..1(SKIP TO 416) NO...2 DK...8
415A When was the last time (NAME) had diarrhea?	DAYS AGO...1 ☐ WEEKS AGO..2 ☐ MONTHS AGO.3 ☐ NEVER....997⌐ DK.......998⌐↓ (SKIP TO 403, NEXT COL.)	DAYS AGO...1 ☐ WEEKS AGO..2 ☐ MONTHS AGO.3 ☐ NEVER....997⌐ DK.......998⌐↓ (SKIP TO 403, NEXT COL.)	DAYS AGO...1 ☐ WEEKS AGO..2 ☐ MONTHS AGO.3 ☐ NEVER....997⌐ DK.......998⌐↓ (SKIP TO 403, NEXT COL.)	DAYS AGO...1 ☐ WEEKS AGO..2 ☐ MONTHS AGO.3 ☐ NEVER....997⌐ DK.......998⌐↓ (SKIP TO 418)
416 Did you or anyone else do something to treat the diarrhea the last time?	YES.............1 NO..............2⌐ (SKIP TO 403 ← NEXT COLUMN) DK.............8⌐	YES.............1 NO..............2⌐ (SKIP TO 403 ← NEXT COLUMN) DK.............8⌐	YES.............1 NO..............2⌐ (SKIP TO 403 ← NEXT COLUMN) DK.............8⌐	YES.............1 NO..............2⌐ (SKIP TO 418) ← DK.............8⌐
417 Did (NAME) ever have any of the following treatments for diarrhea? READ ALTERNATIVES: "Bolsita" (ORT)......... Other pharmacy remedy... Home remedy............. Other _____ .... SPECIFY	YES NO DK 1 2 8 1 2 8 1 2 8 1 2 8 (SKIP TO 403, NEXT COL.)	YES NO DK 1 2 8 1 2 8 1 2 8 1 2 8 (SKIP TO 403, NEXT COL.)	YES NO DK 1 2 8 1 2 8 1 2 8 1 2 8 (SKIP TO 403, NEXT COL.)	YES NO DK 1 2 8 1 2 8 1 2 8 1 2 8 (SKIP TO 418)

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
418	CHECK 212 FOR THE YEAR OF THE LAST BIRTH PRIOR TO 1981: BIRTH BETWEEN 1978 AND 1980 ☐ OTHER ☐ (SKIP TO 502)		
419	Did you ever feed (NAME OF PRIOR BIRTH) at the breast?	YES..............1 NO..............2--	-421
420	How many months did you breastfeed (NAME OF PRIOR BIRTH)?	MONTHS ☐☐ TILL DEATH...........97	
421	For how many months after the birth of (NAME OF PRIOR BIRTH) did you not have a period?	MONTHS ☐☐ NOT RETURNED.........97	
422	For how many months after the birth of (NAME OF PRIOR BIRTH) did you not have sexual relations?	MONTHS ☐☐ NOT RESUMED..........97	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
502	Have you <u>ever</u> been married or been in a union?	YES.....................1 NO.......................2--	-510
503	Are you <u>now</u> married, in a union, widowed, divorced or separated?	IN UNION...............1 MARRIED................2 WIDOWED................3 DIVORCED...............4 SEPARATED..............5	
503A	In what month and year did you start living with your current (most recent) husband or partner?	MONTH..........⬚⬚ DK MONTH............98 YEAR...........⬚⬚ DK YEAR.............98	
503B	How old were you when you started living with him?	AGE............⬚⬚	
504	Have you been married or in a union once, or more than once?	ONCE....................1-- MORE THAN ONCE.........2	-507
505	How many times have you been married or in a union?	TIMES..........⬚⬚	
506	In what month and year did you start living with your first husband or partner?	MONTH..........⬚⬚ DK MONTH............98 YEAR...........⬚⬚ DK YEAR.............98	
506A	How old were you when you started living with him?	AGE............⬚⬚	
507	ENTER A "1" IN CALENDAR (COLUMN 5) FOR EACH MONTH MARRIED OR IN UNION SINCE JANUARY 1981 FOR WOMEN NOT CURRENTLY IN UNION OR WITH MORE THAN ONE UNION: PROBE FOR DATE COUPLE STOPPED LIVING TOGETHER OR DATE WIDOWED, AND FOR STARTING DATE OF SUBSEQUENT UNION (IF ANY) (SKIP TO 511)		

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
510	Now we need some details about your sexual activity in order to get a better understanding of contraception and fertility. CHECK 211, 230, AND 234: EVER PREGNANT NEVER PREGNANT □ (CHECK 304) □ (SKIP TO 511) NEVER USED USED METHOD METHOD □ □ ↓ (SKIP TO 512)		
510A	Have you ever had sexual intercourse?	YES................1--- NO.................2---	-513 -518
511	CHECK 304: HE/SHE HAS USED NEVER USED STERILIZED OTHER METHOD METHOD □ □ □ (SKIP TO 513) ↓ (SKIP TO 513)		
512	Did you use a method to avoid pregnancy the last time you had sexual inter-course?	YES................1 NO.................2	
513	Have you had sexual intercourse in the last 24 hours?	YES................1--- NO.................2	-517
515	When was the last time you had sexual intercourse? IF 8 OR MORE YEARS, NOTE "96" IN MONTHS	DAYS AGO........1 ▢ OR WEEKS AGO....2 OR MONTHS AGO...3 BEFORE LAST BIRTH...998	
517	How old were you when you first had sexual intercourse?	AGE ▢	
518	PRESENCE OF OTHERS AT THIS POINT	YES NO CHILDREN UNDER 10...1 2 HUSBAND.............1 2 OTHER MALES.........1 2 OTHER FEMALES.......1 2	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
652	CHECK 503: MARRIED OR IN UNION ☐ OTHER ☐ ↓ (SKIP TO 662)		
653	CHECK 230 AND 311: HE/SHE PREGNANT STERILIZED OTHER ☐ ☐ ☐ (SKIP TO 658) (SKIP TO 662) ↓		
654	I want to ask about your feelings about having children. Would you like to get pregnant in the next 12 months?	YES, GET PREGNANT............1-- DOES NOT MIND................2-- MENOPAUSE, STERILE...........3-- NO...........................4 OTHER........................5--	-662 -662 -662 -656
655	Are you very much against getting pregnant in the next 12 months, or only a little against?	VERY MUCH AGAINST............1 A LITTLE AGAINST.............2 OTHER........................3	
656	Do you want to have (any more) (any) children at any time in the future, or do you want to stop having children?	YES, WANTS MORE CHILDREN.....1 UNCERTAIN....................2-- HAS NOT DECIDED..............3-- NO, WANTS TO STOP............4--	 -662 -662 -662
657	How long would you like to wait before you have (another)(a) child?	MONTHS......1 ☐☐ YEARS.......2 ☐☐ DK..............998	 -662 -662
657A	CHECK 204 AND 206: NO SURVIVING SURVIVING CHILDREN CHILDREN ☐ ☐ ↓ (SKIP TO 662)		
657B	When you become pregnant again, how old would you like your youngest child to be?	YEARS......... ☐☐ DK.................98	⌐662
658	I want you to think back to the time before you got pregnant with the child you are now carrying. At that time did you want to get pregnant?	WANTED TO GET PREGNANT..........1 DID NOT WANT TO GET PREG........2 IS NOT SURE IF WANTED TO OR NOT.3	-660 -660
659	Did you want to stop having children (never have any children) or to have a child at some other time?	DID NOT WANT (MORE) CHILDREN....1 WANTED ANOTHER SOMETIME LATER..................2 UNCERTAIN IF WANTED MORE........3 OTHER...........................4	-662
660	After this baby is born, will you want to have another child, or will you want to stop having children?	WILL WANT ANOTHER...............1 UNCERTAIN.......................2 WILL WANT TO STOP...............3 HAS NOT DECIDED IF WANTS MORE...4 OTHER...........................5	 -662 -662 -662 -662
661	After this baby is born, how long would you like to wait before you have another child?	MONTHS........ ☐☐ -- YEARS......... ☐☐ -- DK.................98	 -662 -662
661A	When you become pregnant again, how old would you like the child that you are now expecting to be?	YEARS .... ☐☐ DK...................98	
662	If you could choose exactly the number of children to have in your whole life, how many would that be? RECORD SINGLE NUMBER, RANGE OR OTHER ANSWER	NUMBER............. ☐☐ RANGE: BETWEEN_____ AND_____ OTHER ANSWER_____ (SPECIFY)	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	TO
701	In how many different communities have you lived since January 1981?	NUMBER ☐☐	
701A	LIVED IN ONE PLACE ☐ LIVED IN MORE THAN ONE PLACE ☐ ↓ ENTER (IN COL. 6 OF CALENDAR) THE APPROPRIATE CODE FOR CURRENT PLACE OF RESIDENCE ("1" COUNTRYSIDE, "2" TOWN, "3" CITY). BEGIN IN THE MONTH OF INTERVIEW AND CONTINUE WITH ALL PRECEDING MONTHS THROUGH JANUARY 1981. (SKIP TO 702)		
701B	In what month and year did you begin to live in (NAME OF COMMUNITY OF INTER-VIEW)? ENTER (IN COL. 6 OF CALENDAR) "0" IN THE MONTH AND YEAR OF THE MOVE, AND IN THE SUBSEQUENT MONTHS ENTER THE APPROPRIATE CODE FOR PLACE OF RESIDENCE ("1" COUNTRYSIDE, "2" TOWN, "3" CITY). CONTINUE PROBING FOR THE PREVIOUS PLACE OF RESIDENCE AND RECORD MOVES AND PLACE OF RESIDENCE ACCORDINGLY. ILLUSTRATIVE QUESTIONS: Where did you live before....? In what month and year did you arrive there? Is that place in the countryside, a town, or a city?		
702	CHECK 502: EVER MARRIED ☐ ↓ ALL OTHERS ☐ OR IN UNION (SKIP TO 707A)		
703	Now I have some questions about your (most recent) husband/partner. Did your husband/partner ever attend school?	YES..................1 NO...................2--	-706
704	What was the highest year of school he completed?	TRANSITION..........0 PRIMARY.............1 SECONDARY..........2 HIGHER.............3 DK.................98	☐ 706A
706	Can (could) he read a letter or newspaper easily, with difficulty or not at all?	EASILY..............1 WITH DIFFICULTY......2 NOT AT ALL..........3	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP TO
706A	Which of the following (if any) did he own when you first started living together? READ ALTERNATIVES		YES	NO	DK | RADIO 1 2 8 TELEVISION 1 2 8 REFRIGERATOR 1 2 8 BICYCLE 1 2 8 MOTORCYCLE 1 2 8 CAR 1 2 8 HOME 1 2 8 (OTHER) LAND 1 2 8	
706B	Which of the following (if any) did you own when you first started living together? READ ALTERNATIVES		YES	NO	DK | RADIO 1 2 8 TELEVISION 1 2 8 REFRIGERATOR 1 2 8 BICYCLE 1 2 8 MOTORCYCLE 1 2 8 CAR 1 2 8 HOME 1 2 8 (OTHER) LAND 1 2 8	
707A	Now I would like to ask you some questions about your work. In the past 7 days, did you work at something for which you were paid in cash or in kind?	YES.....1-- NO.....2	-708
707B	In the past 7 days, even though you did not work, did you have work? PROBE: Did you not work because you were on vacation, maternity or sick leave, or for another reason?	YES.....1-- NO.....2	-708
707C	In the past 7 days, did you help or work in a business of a family member?	YES.....1-- NO.....2	-708
707D	Did you receive any "cachuelo" in the past 7 days?	YES.....1 NO.....2--	-709
708	For the work that you do, are you paid in cash, in kind, in cash and kind, or are you not paid?	MONEY.....1 KIND......2 BOTH......3 NO PAY....4	
708A	What is your occupation or profession? PROBE: What tasks do you mainly do in your work?	[ ]	
708B	In your job, are you? READ ALTERNATIVES	SELF EMPLOYED............1 EMPLOYER.................2 EMPLOYED BY GOV'T........3- EMPLOYED BY PRIVATE FIRM.4 BLUE-COLLAR WORKER.......5 EMPLOYED IN THE HOME.....6- FAMILY WORKER............7	-711 -711
708C	What is the main business of the institution or business in which you work?	[ ]-	-711
709	Since January, 1981, have you ever worked for cash (or for payment in kind)?	YES.....1 NO.....2--	-715
710	Was your most recent work self-employment, work on a farm or business run by your family/relatives, or work for someone outside your family?	SELF EMPLOYED.......1 WORK WITH FAMILY/ RELATIVES.......2 WORK FOR OTHERS.....3	
711	How many hours do (did) you normally work in an average week?	HOURS... [ ] 90 OR MORE...........90	
713	I would like to ask some questions about all the periods during which you worked for cash (or for payment in kind) since January 1981. USE CALENDAR TO PROBE FOR ALL PERIODS OF WORK, STARTING WITH CURRENT OR MOST RECENT WORK, BACK TO JAN. 1981. ENTER CODE FOR TYPE OF WORK IN COLUMN 7. ILLUSTRATIVE QUESTIONS: When did this job begin and when did it end? Were you self-employed? Was the work done with your family/relatives, or for others not related to you?		
715	RECORD THE TIME	HOURS..... [ ] MINUTES... [ ]	

INSTRUCTIONS: BEGIN COLLECTING INFORMATION
FOR MONTH OF INTERVIEW. ONLY ONE CODE
SHOULD APPEAR IN ANY BOX. FOR COLUMNS 1 AND 6
ALL MONTHS SHOULD BE FILLED IN.

INFORMATION TO BE CODED IN EACH COLUMN

Col. 1: Births, "Other" Pregnancies,
Contraceptive Use

    0   NO METHOD
    1   PILL
    2   IUD
    3   INJECTIONS
    4   VAGINAL METHODS
    5   CONDOM
    6   FEMALE STERILIZATION
    7   MALE STERILIZATION
    8   RHYTHM: CALENDAR
    9   RHYTHM: BODY TEMPERATURE
    10 RHYTHM: CERVICAL MUCUS
    11 RHYTHM: TEMPERATURE AND MUCUS
    12 WITHDRAWAL
    13 RHYTHM AND CONDOM
    14 RHYTHM AND WITHDRAWAL
    15 CONDOM AND WITHDRAWAL
    16 OTHER

Col. 1A: Discontinuation of Contraceptive Use
    1 BECAME PREGNANT WHILE USING
    2 WANTED TO BECOME PREGNANT
    3 OTHER REASON

Col. 2: Breastfeeding
    1 BREASTFEEDING

Col. 3: Post-partum Amenorrhea
    0 PERIOD DID NOT RETURN

Col. 4: Post-partum Abstinence
    0 NO SEXUAL RELATIONS

COL. 5. Marriage/Union
    1 IN UNION (MARRIAGE OR LIVING TOGETHER)

Col. 6. Moves and Places of Residence
    0 CHANGE OF RESIDENCE
    1 COUNTRYSIDE
    2 TOWN
    3 CITY

Col. 7. Type of Employment
    1 SELF-EMPLOYED
    2 WORK FOR FAMILY MEMBER
    3 WORK FOR OTHERS

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