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Age and Date Reporting

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The World Fertility Survey (WFS) is an international research programme whose purpose is to assess the current state of human fertility throughout the world. This is being done principally through promoting and supporting nationally representative, internationally comparable, and scientifically designed and conducted sample surveys of fertility behaviour in as many countries as possible.

The WFS is being undertaken, with the collaboration of the United Nations, by the International Statistical Institute in co-operation with the International Union for the Scientific Study of Population. Financial support is provided principally by the United Nations Fund for Population Activities and the United States Agency for International Development. Substantial support is also provided by the UK Overseas Development Administration.

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L'EMF est entreprise, en collaboration avec les Nations Unies, par l'Institut International de Statistique, qui coopère avec l'Union internationale pour l'étude scientifique de la population. Le financement de ce programme est essentiellement assuré par le Fonds des Nations Unies pour les activités en matière de population et par l'Agence des Etats-Unis pour le développement international. Une contribution importante est aussi faite par le Département pour le développement des pays d'outre-mer du Royaume-Uni.

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El proyecto está a cargo del Instituto Internacional de Estadística, contando con la colaboración de las Naciones Unidas y en cooperación con la Unión Internacional para el Estudio Científico de la Población. Es financiado principalmente por el Fondo de las Naciones Unidas para Actividades de Población y por la Agencia para el Desarrollo Internacional de los Estados Unidos. La Oficina Británica para el Desarrollo de Países Extranjeros proporciona también un gran apoyo financiero.

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Preface

On the second day of November every year, I am pleasantly surprised by my secretary with the greeting 'Many happy returns of the day', and every time I say with embarrassment 'Thank you'. This happens because my passport and other records show 2 November as the date of my birth, but at the same time I am aware that all my life my birthday has been celebrated on some day between mid-March and mid-April of every year—star Revathi in the month of Meenam, to be precise.

V. C. CHIDAMBARAM
Born in Kerala, India

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1 Introduction

If there is one common element in demographic work—whether it be data collection or analysis—it is the universally accepted role of 'age' as an important demographic variable. In fact, if one looks at a list of demographic variables in the context of any social science research, it invariably starts off with age. The three basic components of population growth—fertility, mortality and migration—are deemed to have an implicit age pattern. The famous stable population theory based on Lotka's work is essentially an age model. The one single variable included without exception in *every* demographic data collection exercise is 'age', and it is thus the most widely studied and examined demographic variable. However, in spite of its key importance and in spite of generations of research, age continues to be a variable on which it is difficult, if not impossible, to get good quality data in most populations of the developing world. As a result, demographers from all over the world have developed an array of techniques including models and simulation experiments for adjusting the observed defective data and for finally estimating the 'correct' age distribution. At the same time there has also been a good deal of effort to improve data collection methods and instruments with a view to reducing errors. All demographic manuals and textbooks deal with this issue in varying intensity and detail. The most recent publication in this field known to us is the report 'Age Misreporting and Age Selective Underenumeration: Sources, Patterns and Consequences of Demographic Analysis' prepared by D.C. Ewbank on behalf of the Panel on Data Collection, Committee on Population and Demography of the US National Academy of Sciences (Ewbank 1981). In his preface to this publication Professor Ansley Coale recognizes age misreporting and selective underenumeration as one of demography's most frustrating problems, and it is worth quoting his very apt summary of the current situation:

> Age misreporting is troublesome, and surprising to some non-demographers. However, other survey and census variables—for example, income—often have even larger errors. More is known about age misreporting than about the errors in most other variables used in survey research—in part because the problem has been studied, albeit not as extensively as many users of demographic data would want, and in part because age has several favourable features that most other variables lack: (1) it increases linearly with time, and hence strong modelling possibilities exist; (2) much is known about age, through certificates and rituals, for example; (3) it correlates to some extent with visible body features; (4) age is not as socially sensitive a variable as some others (for example, abortion, crime, contraception, wealth, income, attitudes) and is thus less sensitive to limitations of data collection processes; (5) a person's age is often better known to other household members than are other variables, and hence it can be reported more easily by proxies; and (6) age is an objective measure, in contrast to attitudes, for example. Thus, although the substantial extent and effects of age misreporting are by no means completely understood, our knowledge about age misreporting as response error is comparatively quite good, and studies of age misreporting may serve as prototypes for the study of other types of response error.

The experience gained and the evidence available so far clearly tells us that in most societies in the developing world, unlike those in the western or so-called developed world, people do not seem to have the need to know their correct age, however important age may be for demographers. Births are not very often registered or required to be. In such situations where people are ignorant of their current age, efforts to make them estimate it as precisely as possible tend to bring in different types of errors during the estimation process, which is carried out at different levels—by the interviewee, interviewer, editor, analyst and, in the modern day, the computer. One possible way of approaching this problem is for demographers in the Third World to assess carefully, in the context of local conditions, the demographic techniques needed against those currently used, with a view to developing methods of analysis which are not solely age-dependent. Most of the methods currently used in demographic analysis seem to have originated from experience in the West, where children are conditioned from a very early age to remember their date of birth, which later becomes an essential requisite in all spheres of life, such as education, employment, marriage, retirement, etc. Another example of the dominance of the western way of thinking is contained in the recommendation by the United Nations that age should preferably be recorded in completed years (age at last birthday), expressed in the following:

> Age is the estimated or calculated interval of time between the day, month and year of birth and the day, month and year of occurrence of the event, expressed in the largest completed unit of solar time, such as years for adults and children, and months, weeks and days, hours or minutes of life, as appropriate, for infants under one year of age. (United Nations 1973)

The conversation reported in appendix C is sufficient to illustrate the invalidity of the assumption that the concept of completed years is one universally followed by humanity. In societies where people traditionally do not count age in completed years this could bring in another type of error which can have an impact on demographic estimates and findings (Chidambaram and Pullum 1981). However, in the absence of any age-free methods of demographic measurement, estimation and analysis, there is and will be no alternative but to continue efforts to collect better age data from the developing world.

The World Fertility Survey programme has, following past tradition, put in a lot of effort to improve the quality of age data collected through the national fertility surveys. Detailed evaluation of the data by the national survey staff together with other analytical studies indicates that the additional efforts have indeed contributed to an improvement in the quality of age data in many, if not all,

of the surveys (Chidambaram *et al* 1980, Kabir 1980 and Retherford and Mirza 1982).[1]

It is therefore important to document the methods and instruments used at the various stages of the surveys—both in the field and in the office—which produced the age data in the form available to the researchers, viz the Standard Recode tapes in the case of WFS. This is the main object of this paper, which considers data from 39 national fertility surveys carried out within the WFS programme.[2]

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[1] In this context see also the reports on the evaluation of the quality of data, which are mostly published in WFS *Scientific Reports* Series.

[2] Of the 42 participating countries which completed the fieldwork, three are excluded for the following reasons:
Iran—clean data tape not yet available in the WFS archive in London.
Portugal—complete date reporting as in most developed countries and hence not relevant in the present context.
Turkey—the only country which refused to place the data tape in the WFS archive.

2 Age Data Covered in this Report

Age is only one example of the different types of time interval variables on which information is collected in fertility surveys. For all such interval variables what is ideally required is information on the actual dates of start and end of interval. From the analytical point of view based on currently used demographic and statistical techniques, it is adequate if such dates indicate the month and year of occurrence of the events marking the beginning and the end of the interval. In situations where such information on month and year is not easily and correctly obtainable, the interviewers are directed to resort to what is commonly known as 'probing'. The aim is to collect ancillary and indirect information which can be used to estimate either the date of occurrence of an event or the length of the interval in question. Here the interviewers are encouraged to use aids such as event charts, local historical calendars, age charts, etc, which could help the respondent remember the dates or estimate the interval as closely as possible. Moreover, even though there is not really a scientific justification, the date ultimately used at the tabulation/analysis stage in every survey is, without exception, in the western calendar format. This is so whatever the type of calendar used by the respondents in the country; the local calendar is utilised only at the time of data collection and all the data are later converted into the western system. Appendix A lists the types of calendar systems used at the data collection stage in the surveys in the 40 participating countries. The WFS has followed this general approach and has placed heavy emphasis on obtaining the highest quality data possible. The intensive training of the field staff, the basic documents, the field and office editing procedures, and finally the laborious process of machine editing amply illustrate WFS philosophy in this matter.

Fairly standardized instruments have been developed for data collection; they have been used by all the participating countries with country specific adaptation but at the same time without distorting the inherent common concepts and definitions. The comparability of questionnaires is discussed in great detail in an excellent report by Singh (Singh 1984). We are interested in four major demographic event variables from the event histories: (1) age of woman; (2) duration since first marriage or union; (3) length of birth intervals; and (4) age at death for children not alive at the time of the survey. This report deals with the first three. It should be noted that although the surveys have collected data on many other interval variables such as duration of breastfeeding, current pregnancy, use of contraception, exposure to risk of conception, etc, they are not discussed in this report.

1 Age of woman. The main emphasis is on recording the month and year of birth of each respondent woman. When this information is not available, the strategy is to probe for ancillary and additional information which would help in estimating the month and year of birth. The straightforward question recommended is 'How old are you?'. This approach was adopted by the following countries—Morocco, Jordan, Syria, Bangladesh, Nepal, Pakistan, Sri Lanka, Indonesia, Malaysia, Thailand, Panama, Guyana, Jamaica and Trinidad and Tobago. All others, excepting Senegal, put the question on age to all respondents irrespective of whether date of birth was reported or not; four of them (Cameroon, Ivory Coast, Tunisia and Costa Rica) included the question on age in a different section appearing later in the interview. In Senegal the information on age has been converted into calendar year of birth by the interviewer. In all cases the interviewers generally tended to resolve the discrepancies, if any, between the two types of information. Aids like event charts, historical calendars and dating charts were used by many of the countries—Benin, Ghana, Ivory Coast, Kenya, Nigeria, Mauritania, Morocco, Senegal, Sudan (North), Haiti, Indonesia, Republic of Korea, Egypt, Syria, Turkey and Yemen Arab Republic. Finally, when absolutely no information was forthcoming after all efforts, the interviewers were required to record their best possible estimate of the woman's age. In *all* cases age is defined in completed years, and the dates are invariably converted into the western calendar system whatever the system or method used by the respondents.

2 Duration of marriage. Here the term 'marriage' is used in a very broad sense and the object is to measure the total duration since the beginning of the woman's 'active' reproductive life. The information ideally needed is again the month and year of her first marriage or first union depending on the custom prevailing in the country. Again it is presumed that in most of the developing countries women may not remember the actual dates in spite of the personal importance of the event. Invariably the interviewers are asked to use probes such as 'How old were you when you got married?', or 'How long after or before a known local event was your marriage?', etc. References are also made to age of husband, age difference between herself and her husband, age of first child and length of interval between marriage and first birth, or related information which might be used to estimate this and thus the date of first marriage. In the case of women with more than one marriage, a marriage history is constructed giving the dates/age of entry and dissolution for each marriage or union. In societies where common-law marriages and other types of union are prevalent the data collection instruments were modified accordingly. Appendix A also summarizes the situation for the 40 countries.

3 Birth intervals. These data are collected through what is known as the birth history, perhaps the most important

part of a fertility survey questionnaire. The object of the birth history is to identify all the births a woman has had and to locate them correctly in the time span of her reproductive life. Again the interviewer is mainly looking for dates (month and year) of occurrence of all those births. In societies where women generally cannot remember their own date of birth or reckon their age accurately, it is all the more likely that they will not be able to report the dates of birth of children borne by them. The main question asked is, 'In what month and year did your — birth occur?', and if there is no response this is followed by the question, 'How many years ago was your — birth?' or 'How old is he/she?'. As usual, the interviewers are trained to obtain the best possible estimate through proper probing and to ask for information such as season in which the birth occurred, age difference between two children, how long ago the birth was, how old the child is now, etc. (See appendix A for summary.) Dominican Republic, Mexico, Paraguay, Philippines and Venezuela asked both age and date for all living children, while Egypt, Indonesia and Tunisia enquired about length of each birth interval. The type of probes used were not the same for all countries and were determined by local conditions and practices. Local calendars and event charts were resorted to in certain countries.

The main difficulty experienced by the interviewer is in making the respondent recall such past events, particularly if the child has since died or is now living away. The longer the interval between the event and the date of interview, the more difficult it becomes to obtain accurate information. In spite of all these problems, we should recognize the remarkable fact that it has been possible to obtain information on about 765 000 birth dates from the 39 surveys reported here, covering births that have taken place over the past 40 years. Having said this, we must also caution that such a high response rate does not automatically imply high quality. On the other hand, questions raised about the accuracy of the data on dates have been considered in the very detailed evaluation exercise carried out for each survey.

4 Age of children at death. The birth history provides the raw material for the study of both quantum and tempo of fertility at micro and macro levels, and at the same time WFS experience has demonstrated the usefulness of birth history data for the study of infant and child mortality. The information needed is the date of death for those children reported in the birth history not alive at the time of the interview. When month and year of death were not directly recalled by the women, the usual proxies such as age at death, how long the child lived, duration since death, etc were used. For details see the report by Singh (1984) referred to earlier.

3 Editing of Age Data in WFS

WFS has spent a large amount of time and resources on improving the data quality. The efforts made at the data collection stage have been briefly touched upon. However, it is fully recognized that in view of the very nature of the problem and the prevailing ignorance of age among populations surveyed, the data thus collected may still be subject to errors and inconsistencies, hence each survey had to go through at least three stages of data editing: field editing, office editing and finally machine editing. The major thrust of these editing exercises has been to detect errors and inconsistencies and then to correct them whenever possible without, of course, inventing or imputing *new* information or *new* data. At the end, what is believed to be a 'clean' data file is produced where all detected inconsistencies have been removed and observed missing information has been filled in one way or another. The information on the clean file is then recoded to create variables in a standard format and the resulting file under the label 'Standard Recode tape' used for analysis. For details see the 'Data Processing Guidelines' (WFS 1980).

Full details regarding the editing operations carried out in the field and in the office are not available, but such information is certainly available for machine editing. In the context of age data covered in this report, this machine editing is carried out through a specially prepared program called DEIR (Date Edit, Imputation and Recode). A full description of this program is given in the manual by James Otto (WFS 1980). The DEIR program was designed by WFS staff in order to edit, impute and recode the information on dates of occurrence of events reported in the marriage and birth histories. As is evident from the earlier description of the data collection methods, the information about dates of events can be available in a variety of forms with varying degrees of accuracy. There may also be redundant information, and at the extreme no information at all. The date editing operation normally begins after all range, skip, filter and some consistency errors have been corrected; details are given in the 'Data Processing Guidelines'. The procedures for date editing are governed by the following general principles, as stated in the manual:

- An event is represented by the minimum and maximum possible dates for its occurrence as calculated from the available data. For example, an event reported as occurring in 1955 is assigned the range January to December 1955. These lower and upper limits define the logical range for the date of the event. When both month and year of an event are given, the lower and upper limits of the logical range are naturally the same.
- The logical range is adjusted wherever possible by using other available information. The adjustments are made so that the lower limits are increased and the upper limits decreased, causing the range to be reduced. There is an error if the lower limit ever becomes greater than the upper limit.
- If no errors have been detected after all adjustments have been made, then the final logical ranges will be consistent.

An example of the edit procedures is taken from the *DEIR Manual* and given in appendix B.

Once the final logical range is decided for all the events, the following procedure is used to construct the birth and marriage histories. Here there are three possibilities for each final logical range:

1 The range is negative (lower limit higher than upper limit). This is an error and a 'not stated' code is assigned to that date.
2 The range is zero (lower limit the same as upper limit), which indicates an exact date for the event in terms of month and year.
3 The range is positive (lower limit lower than upper limit). In this case a date is imputed randomly within the final logical range or the date is fixed at the mid point of the range.

All dates in the Standard Recode tapes are expressed in three-digit century month codes based on the western calendar. System flow-charts for the date editing and recording phases are given in figures 1 and 2.

The above procedure of date editing using the DEIR program was applied to the raw data received from most of the surveys. The exceptions are Colombia, Costa Rica, Dominican Republic, Mexico and Venezuela, where the date editing was carried out in a similar way but using an *ad hoc* program different from DEIR. Comparable information on the extent of the imputation done by the *ad hoc* program is not available to us. Also, we do not have the unedited data tapes for any of those five surveys at WFS, London. In the case of Dominican Republic limited statistics on date imputation are given in the *First Country Report*, while for the other four countries the tapes available in WFS contain information *after* imputation by the *ad hoc* program; figures presented in this report are therefore not strictly comparable with those for the rest of the countries.

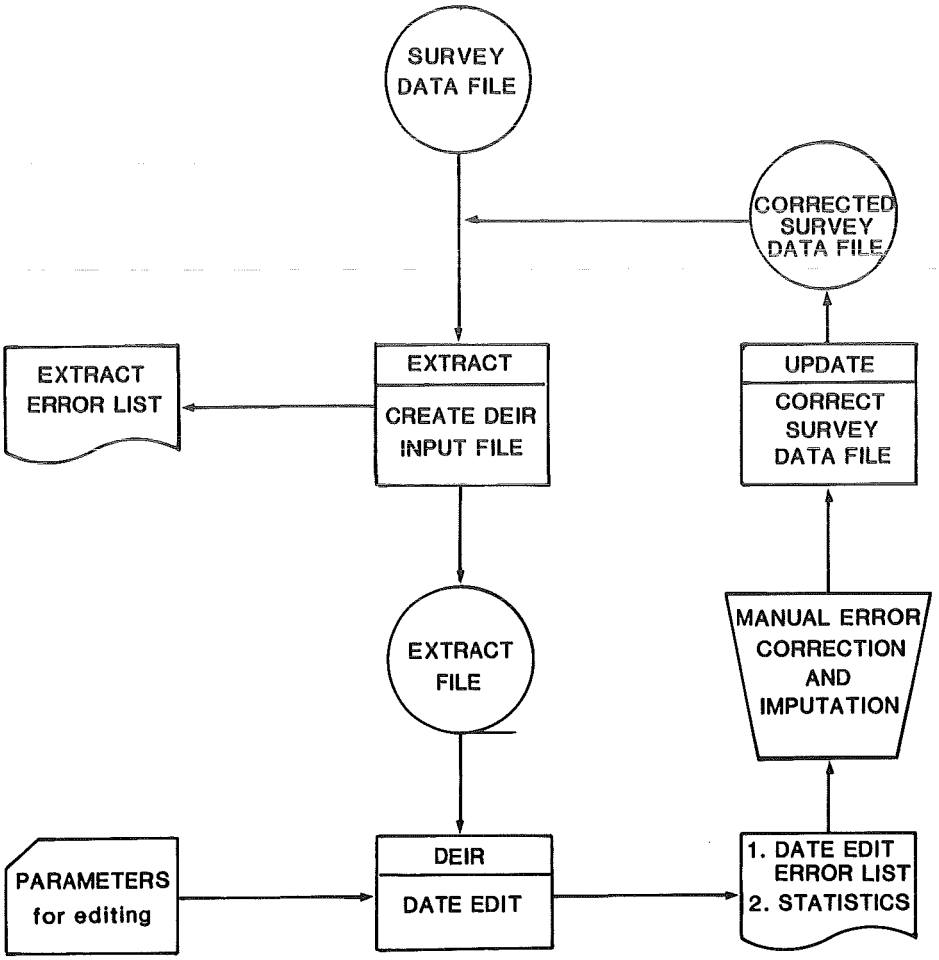

Figure 1 System flow-chart for the date edit phase

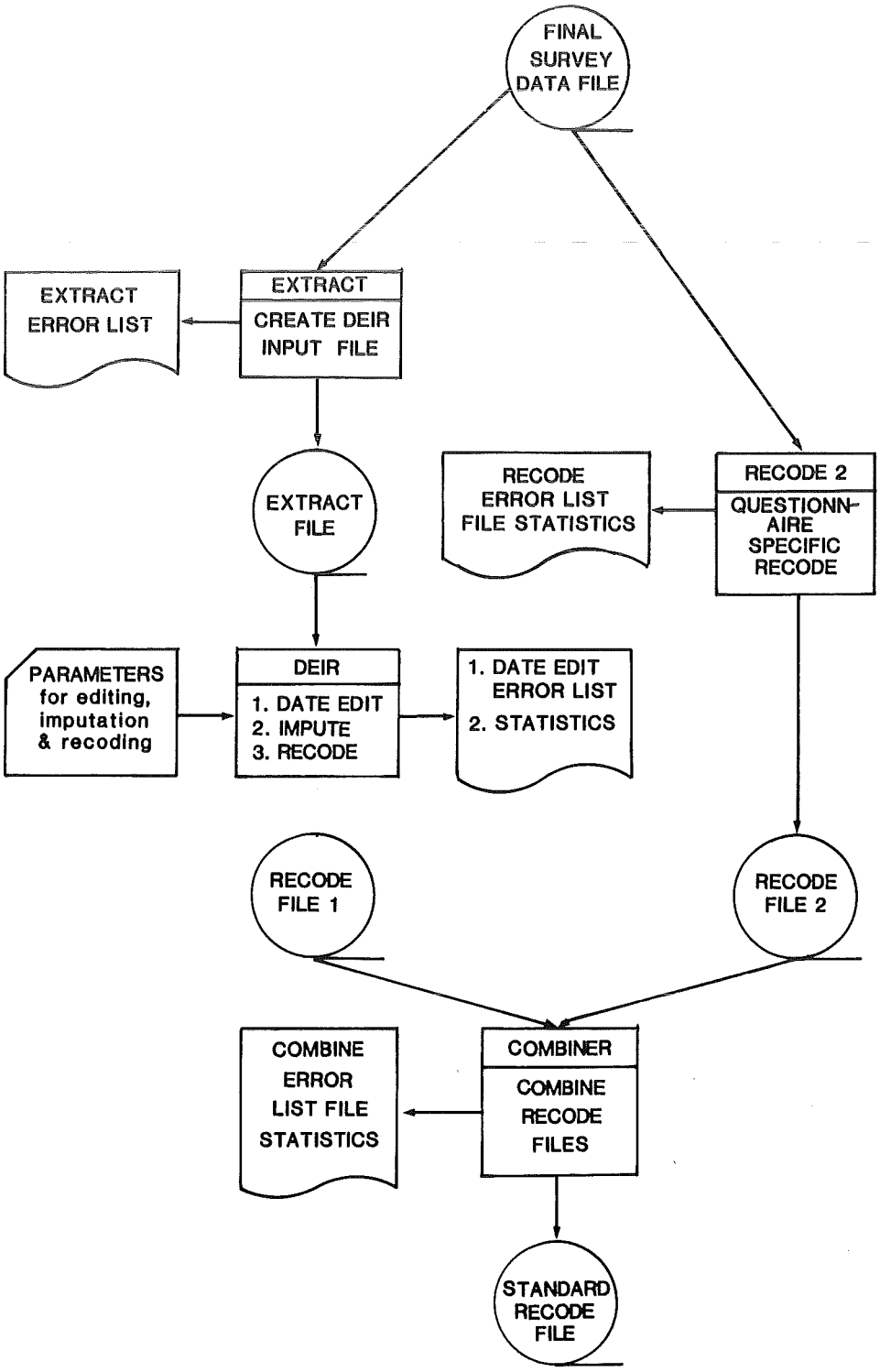

Figure 2 System flow-chart for the recoding phase

4 Pattern of Age Reporting

From the above discussion it is evident that the Standard Recode tapes of a WFS individual survey used by the analysts in and outside the countries will always give information on dates in three-digited century month codes for almost all of the events.[3] *This should not be taken to mean that precise dates were reported by the respondents in all the surveys.* Naturally it is important to know how the original information was given in these surveys and to have an idea of the magnitude of the editing/imputation carried out before arriving at what look like clean data. We present a set of 18 tables to throw some light on this situation. The tables deal with the reporting of the dates of occurrence of various events in the life of those respondents who were successfully interviewed in the individual surveys. The events are:

1 Own birth
2 First marriage/union
3 Dissolution of marriages/unions
4 First birth
5 Last birth
6 All births

Tables 1, 5, 9, 10, 14 and 18 provide information at national level for 39 countries, indicating the percentage of events for which date of occurrence was reported in terms of (a) month and year of occurrence; (b) calendar year of occurrence; and (c) other forms such as years ago, age, interval, etc. They are accompanied by a set of 12 tables which provide similar information for 13 countries, according to three background characteristics of the respondents limited to only four of the six events above, dissolution of marriages and all live births being excluded. The background characteristics considered and their grouping are as follows:

1 Current residence—Major urban, Other urban and Rural
2 Years of schooling—0, 1–3, 4–6 and 7 or more years of schooling
3 Current age—In conventional five-year age groups, 15–19, 20–24, 25–29, 30–34, 35–39, 40–44 and 45–49

The groupings used for the characteristics, particularly for the first two, are in conformity with those recommended for the WFS series of Cross-National Summaries. The country-specific details of these classifications and their comparability or lack of comparability are discussed in other documents (Allsopp 1982).

Before discussing the data presented by these tables, we would like to draw attention to four crucial issues which should be borne in mind while considering the implications of the results:

1 The main object of this paper is not to assess the usefulness of the DEIR program nor to look for its improvement. DEIR has already been used in its present form, and hence we are only trying to present information which will make the analysts aware of the situation with respect to date reporting in a country when using the final and seemingly clean data in the form of Standard Recode tapes. Here it may be noted that WFS has launched a thorough programme of assessment of all its activities and as part of this a very detailed and critical assessment of the entire data editing policy has now been carried out by Pullum and others. A report on this is in press (Pullum *et al* 1984).

2 The term 'imputation' used in the DEIR program requires clarification. Statisticians normally use it in the context of estimating a value for a missing observation. The imputation procedure used in DEIR is somewhat similar to conventional imputation, the major point of deviation being that the information is rarely missing altogether. Out of a total of about 1.125 million events reported by about 200 000 respondents from 40 countries, absolutely no information whatsoever on the time of occurrence was reported for only a tiny fraction (0.1 per cent). For all the rest of the events, information reported ranged from exact month and year to some kind of approximation of a related time interval. Since the analytical techniques used invariably required the information in the form of month and year, and in the western calendar only, the DEIR program was used to meet this need. As can be seen later, the imputation carried out under the DEIR routine is mostly limited to the month in a logical range decided on the basis of all available information and is much less frequently applied to a calendar year. This is somewhat different from the usual procedures of imputation discussed in statistical context.

3 We have records only of editing and imputation carried out during the machine editing stage for the 39 countries covered in this report. However, similar operations of estimation or imputation would also have been carried out manually both in the field and in the office prior to the machine editing. This is true for all surveys. For instance, it is quite legitimate for an interviewer to ask many probes and then, based on the responses, finally arrive at a best estimate of the year of occurrence and even the month and record them in the questionnaire. It is one way of imputation. A very revealing analysis of over 300 tape recordings of interviews in the Bangladesh Fertility Survey shows that this happened in Bangladesh at least (Thompson *et al* 1982). Therefore the information on dates of events available before the application of DEIR routine could also

[3] These codes are 001 for January 1900, 002 for February 1900, etc.

have been imputed at some time between the interview and the DEIR run. The respondent herself could have resorted to some kind of imputation to arrive at the date, *or* the interviewer could have imputed using various information given by the respondent, *or* the imputation could have been done by the editor—in the field or in the office—any time after the interview. We do not have any statistics on the incidence of such imputations and hence cannot assess their impact on the date information.

Therefore the tables presented here are not based on what one may call real 'raw' data, but on partially edited data sets, which have been exposed to the editing and imputation that usually occur in any survey as the data move from the field to the machine.

4 While the national data are presented for 39 countries, the tables by background characteristics cover only 13. The choice of countries is partly intentional and partly decided by constraints such as availability of required information, publication status of the First Country Report and accessibility to unimputed raw data files. The differences in date reporting by background characteristics are not relevant to Latin American countries, Korea and the Philippines, where the extent of DEIR imputation is rather insignificant. We have therefore covered four countries in Africa, seven in Asia and two in the Americas. They represent a spectrum in which the quality of date reporting varies from good to poor. More experience from African surveys might be of interest, but we would not expect any significant difference in the pattern of relationship by the addition of data from more countries.

In some countries—Sudan, Nepal and Sri Lanka—the national data are not fully consistent with the subnational data that follow. This is because the tables by background characteristics are run on the most recent available version of the Standard Recode tapes and *not* on the raw unimputed data tape which is the source of data for national tables. Hence the national tables 1, 5, 9, 10, 14 and 18 reflect more accurately the level of imputation carried out by the DEIR program while the figures in the remaining tables are to be used in the context of examining the direction and to a lesser extent the magnitude of differentials in the pattern of date reporting by the characteristics.

Finally, we indicated earlier three possible sources of full dating for each event—respondent, interviewer and the editor. The tables by characteristics of the respondent, such as level of education, type of place of residence, age, etc, are likely to bring out the differentials in date reporting by the first source, viz the respondent. The other two sources are affected by a different set of factors like training and motivation of survey staff, type of calendars used, use of age-event charts or historical calendars, nature and design of questionnaire, etc. We do not go into those details in this report.

4.1 DATE OF BIRTH OF RESPONDENT

Tables 1–4 present the relevant data. In general, month and year of birth are mostly available for women in Latin America and in the Caribbean. Over 90 per cent of the women have either reported their exact dates of birth or have provided information which the interviewer could use as a basis for deciding the month and year of birth, so there has been little or no DEIR imputation carried out in those surveys. Dominican Republic is the only exception. Here there is some evidence to indicate that the training programme for the Latin American surveys could possibly have placed greater emphasis on the need for getting actual dates, thus forcing the interviewers and perhaps the editors to resort to imputation of one kind or another which would eventually end up with date information for every event. Admittedly we have very little or no direct information on the actual extent of such field or office imputation, if any. Even if it exists, there is ample evidence to show that in Latin America and the Caribbean most of the women are able to remember their dates of birth in the western calendar and the age data in the Standard Recode tapes for those countries are not very much different from what came from the field.

In the other regions the situation differs. Korea and the Philippines are two countries where practically all the respondents could give the month and year of their birth. Then come Tunisia, Thailand, Lesotho, Fiji and Sri Lanka, where over two-thirds of the women could provide this information. In the remaining countries substantially lower proportions of women reported month and year of birth. It was most uncommon in the Yemen Arab Republic, where only three out of every 1000 respondents could provide the information. Then at the bottom of the league come Bangladesh (1.4 per cent), Mauritania (3.9 per cent), Pakistan (6.8 per cent) and Benin (9.2 per cent). Interestingly, all the remaining respondents in Yemen, 96 per cent in Mauritania and 90 per cent in Benin provided information leading to the calendar year of their birth. In Senegal the information obtained at the individual interview was verified against that from the household interview and all reported ages were converted into year of birth using the age-event chart; here only the calendar year was coded, leaving the month blank. It is likely that the calendar year of birth was similarly imputed in Benin, Mauritania and Yemen. Thus, for the majority of women surveyed in at least 30 countries, the DEIR was generally only used to impute the month of their birth. In the other eight countries—Kenya, Morocco, Jordan, Indonesia, Egypt, Nepal, Pakistan and Bangladesh—anything between 30 and 98 per cent of the respondents were only able to provide information on their current age, and the corresponding month and year in the western calendar have been imputed by DEIR.[4]

Now we turn to tables 2–4, which present the information by respondents' characteristics. In countries where reporting of dates is frequent there would naturally be no noticeable differentials, eg Trinidad and Tobago. Very significant differentials are seen in those Asian and African countries where exact date reporting is less frequent. The relationships are as expected, urban residents, the more educated and younger women reporting information leading to date of their own births better than rural dwellers, the less educated and older women. In Kenya, for example, almost two-thirds of the women with seven or more years' schooling reported month and year of their own births

[4] The First Country Report on the Turkish Fertility Survey states that out of 4431 respondents, 43 per cent reported month and year of birth, 26 per cent the calendar year and the remaining 21 per cent gave age information.

Table 1 Per cent distribution of respondents by method of reporting date of own birth

Country	Number of respondents	Per cent reporting		
		Month and year	Calendar year	Age
Africa				
Benin	4038	9.2	90.0	0.8
Cameroon	8218	28.3	68.3	3.4
Ghana	6125	52.1	27.2	20.7
Ivory Coast	5764	20.3	56.5	23.2
Kenya	8100	33.6	34.4	32.0
Lesotho	3603	72.5	27.5	0.0
Nigeria	9723	15.8	25.6	58.6
Senegal	3985	38.2	61.8	—
Egypt	8806	26.2	6.4	67.4
Mauritania	3500	3.9	95.6	0.5
Morocco	5800	22.2	33.6	44.1
Sudan (North)	3115	21.5	78.5	—
Tunisia	4123	88.2	11.8	—
Asia and Pacific				
Jordan	3610	29.7	16.1	54.2
Syria	4487	57.3	42.7	—
Yemen AR	2605	0.3	99.7	—
Bangladesh	6513	1.4	0.7	97.9
Nepal	5940	13.4	0.0	86.6
Pakistan	4996	6.8	0.0	93.2
Sri Lanka	6810	67.0	15.3	17.7
Fiji	4928	67.6	28.7	3.7
Indonesia	9155	22.3	11.2	66.5
Korea, Rep. of	5430	100.0	0.0	—
Malaysia	6321	57.0	43.0	—
Philippines	9268	97.3	2.5	0.2
Thailand	3820	85.0	14.1	0.9
Americas				
Colombia	5378	100.0[a]	0.0	—
Ecuador	6897	99.9	0.1	
Paraguay	4622	99.9	0.1	—
Peru	5640	94.7	5.3	—
Venezuela	4361	100.0[a]	0.0	—
Costa Rica	3935	100.0[a]	0.0	—
Dominican Rep.	3115	85.9[b]	14.1	—
Mexico	7310	100.0[a]	0.0	—
Panama	3701	99.4	0.6	—
Guyana	4642	98.0	0.3	1.7
Haiti	3350	91.7	8.3	—
Jamaica	3096	94.6	0.0	5.4
Trinidad & Tobago	4359	98.3	0.0	1.7

[a] After imputation by an *ad hoc* program; extent of imputation unknown since raw data file is not available in London.
[b] Figures are those reported in the First Country Report.

Table 2 Per cent distribution of respondents by method of reporting date of own birth, according to place of residence

Country	Major urban			Other urban			Rural		
	Month and year	Calendar year	Years ago or age at interview	Month and year	Calendar year	Years ago or age at interview	Month and year	Calendar year	Years ago or age at interview
Africa									
Kenya	62.5	25.4	11.9	42.9	28.4	28.7	28.8	36.0	35.2
Lesotho	78.7[a]	21.3[a]	—	—	—	—	71.7	28.0	0.3
Senegal	57.8	42.2	—	54.1	45.9	—	28.6	71.4	—
Sudan (North)	30.2	69.8	—	25.0	75.0	—	17.4	82.6	—
Asia and Pacific									
Syria	69.8	30.2	—	61.2	38.8	—	50.4	49.6	—
Bangladesh	8.7	1.7	89.6	2.5	1.6	95.9	0.7	0.4	98.9
Nepal	14.3[a]	0.0	85.7[a]	—	—	—	12.3	0.0	87.7
Pakistan	14.5	0.0	85.5	8.5	0.0	91.5	4.6	0.0	95.4
Sri Lanka	85.8	7.2	7.0	74.6	13.5	11.9	66.7	13.7	19.6
Fiji	75.4	20.9	3.8	70.6	24.4	5.0	64.7	32.3	3.0
Malaysia	69.2	30.8	—	62.7	37.3	—	54.3	45.7	—
Americas									
Haiti	95.7[a]	4.3[a]	—	—	—	—	89.2	10.8	—
Trinidad & Tobago	99.7	—	0.3	97.8	—	2.2	97.6	—	2.4

[a] Includes all urban areas.

Table 3 Per cent distribution of respondents by method of reporting date of own birth, according to woman's number of years of schooling

Country	0 years' schooling			1–3 years' schooling			4–6 years' schooling			7+ years' schooling		
	Month and year	Calendar year	Years ago or age at interview	Month and year	Calendar year	Years ago or age at interview	Month and year	Calendar year	Years ago or age at interview	Month and year	Calendar year	Years ago or age at interview
Africa												
Kenya	10.8	31.9	57.3	21.0	45.7	33.4	43.6	41.1	15.3	64.5	30.1	5.4
Lesotho	49.8	47.7	2.5	62.4	37.3	0.2	70.7	29.3	0.0	87.8	12.2	0.0
Senegal	30.6	69.4	—	48.9	51.1	—	78.4	21.6	—	95.0	5.0	—
Sudan (North)	15.7	84.3	—	26.1	73.9	—	40.4	59.6	—	60.2	39.8	—
Asia and Pacific												
Syria	48.5	51.5	—	52.4	47.6	—	73.0	27.0	—	84.6	15.4	—
Bangladesh	0.3	0.2	99.5	1.2	1.0	97.8	2.2	0.8	97.0	13.3	4.8	81.9
Nepal	11.4	0.0	88.6	34.2	0.0	65.8	43.2	1.1	55.7	28.4	0.0	71.6
Pakistan	4.6	0.0	95.4	6.7	0.0	93.3	8.6	0.0	91.4	42.3	0.0	57.7
Sri Lanka	40.4	22.8	36.8	55.8	17.7	26.5	72.3	13.5	14.2	93.2	3.8	3.0
Fiji	23.9	67.1	9.1	35.8	54.0	10.2	67.9	28.9	3.2	92.4	7.1	0.6
Malaysia	31.0	69.0	—	53.5	46.5	—	76.3	23.7	—	92.8	7.2	—
Americas												
Haiti	88.0	12.0	—	95.0	5.0	—	97.8	2.2	—	100.0	—	—
Trinidad & Tobago	93.0	—	7.0	92.3	—	7.7	95.5	—	4.5	99.8	—	0.2

Table 4 Per cent distribution of respondents by method of reporting date of own birth, according to woman's current age

Country	15–19			20–24			25–29			30–34			35–39			40–44			45–49		
	Month and year	Cal. year	Years ago or age at interview	Month and year	Cal. year	Years ago or age at interview	Month and year	Cal. year	Years ago or age at interview	Month and year	Cal. year	Years ago or age at interview	Month and year	Cal. year	Years ago or age at interview	Month and year	Cal. year	Years ago or age at interview	Month and year	Cal. year	Years ago or age at interview
Africa																					
Kenya	55.3	29.7	15.0	44.3	34.1	21.6	29.1	38.5	32.3	20.8	40.0	39.1	10.8	36.1	53.0	12.4	36.3	51.3	6.3	33.7	60.0
Lesotho	76.0	23.5	0.6	79.5	20.3	0.1	76.4	23.5	0.1	74.6	25.2	0.2	69.2	30.6	0.2	59.8	39.8	0.4	60.6	39.1	0.3
Senegal	59.6	40.4	—	43.3	56.7	—	37.2	62.8	—	27.5	72.5	—	25.6	74.4	—	21.6	78.4	—	20.9	79.1	—
Sudan (North)	33.9	66.1	—	26.3	73.7	—	23.7	76.3	—	18.3	81.7	—	13.7	86.3	—	10.1	89.9	—	14.2	85.8	—
Asia and Pacific																					
Syria	64.3	35.7	—	65.7	34.3	—	65.1	34.9	—	64.4	35.6	—	55.2	44.8	—	44.7	55.3	—	32.5	67.5	—
Bangladesh	0.5	0.4	99.1	1.1	0.8	98.1	1.8	0.2	98.0	1.7	0.5	97.8	0.8	0.4	98.8	0.1	0.6	99.3	0.2	0.5	99.3
Nepal	17.5	0.2	82.3	15.3	0.0	84.7	14.2	0.1	85.7	12.5	0.0	87.5	7.3	0.0	92.7	9.3	0.0	90.7	6.1	0.0	93.9
Pakistan	9.6	0.0	90.4	8.9	0.0	91.1	9.2	0.0	90.8	4.0	0.0	96.0	3.8	0.0	96.2	2.8	0.0	97.2	2.3	0.0	97.7
Sri Lanka	67.2	17.4	15.4	70.8	16.4	12.7	72.5	13.4	14.1	73.4	13.2	13.5	67.4	13.7	18.9	68.2	9.8	22.1	59.9	12.4	27.7
Fiji	90.8	8.8	0.4	84.0	14.8	1.2	77.3	20.1	2.6	68.2	28.3	3.5	57.1	39.2	3.7	48.2	43.5	8.3	42.3	50.2	7.5
Malaysia	96.9	3.1	—	97.0	3.0	—	90.6	9.4	—	77.3	22.7	—	32.6	67.4	—	15.3	84.7	—	12.7	87.3	—
Americas																					
Haiti	94.6	5.4	—	93.0	7.0	—	90.4	9.6	—	92.7	7.3	—	88.3	11.7	—	90.4	9.6	—	83.4	16.6	—
Trinidad & Tobago	100.0	—	0.0	99.2	—	0.8	99.3	—	0.7	98.5	—	1.5	97.1	—	2.9	98.9	—	1.1	96.5	—	3.5

Table 5 Per cent distribution of ever-married women by method of reporting date of first marriage/union

Country	Number of respondents	Per cent reporting		
		Month and year	Calendar year	Age
Africa				
Benin	3577	4.9	86.0	9.1[a]
Cameroon	7073	21.0	58.8	20.1[a]
Ghana	4943	40.3	35.5	24.2
Ivory Coast	4990	12.2	79.8	8.0
Kenya	6241	68.9	14.8	16.3
Lesotho	3603	88.2	5.4	6.4
Nigeria	8147	19.1	45.1	35.8
Senegal	3472	69.4	30.6	—
Egypt	8806	36.8	6.3	56.9
Mauritania	3500	7.4	74.1	18.5
Morocco	4105	35.2	24.0	40.8
Sudan (North)	3115	41.1	34.2	24.7
Tunisia	4123	53.3	42.7	4.0
Asia and Pacific				
Jordan	3610	58.4	12.2	29.4[b]
Syria	4487	79.0	14.9	6.1
Yemen AR	2605	7.6	69.3	23.2
Bangladesh	6513	11.4	2.2	86.4[b]
Nepal	5940	27.3	0.1	72.6[b]
Pakistan	4996	73.2	26.8	—
Sri Lanka	6810	70.0	30.0	—
Fiji	4928	85.3	14.7	—
Indonesia	9115	45.7	13.0	41.3
Korea, Rep. of	5430	100.0	0.0	—
Malaysia	6321	61.8	38.2	—
Philippines	9268	95.8	3.4	0.8
Thailand	3819	75.3	24.7	—
Americas				
Colombia	3302	100.0[c]	0.0	—
Ecuador	4479	66.8	12.2	21.0
Paraguay	2997	98.0	2.0	—
Peru	5640	81.2	18.8	—
Venezuela	4361	100.0[c]	0.0	—
Costa Rica	3037	100.0[c]	0.0	—
Dominican Rep.	2256	73.3[d]	26.7	—
Mexico	6255	100.0[d]	0.0	—
Panama	3203	94.5	5.5	—
Guyana	3616	78.7	6.2	15.1
Haiti	2252	92.7	7.3	—
Jamaica	2766	53.0	0.0	47.0
Trinidad & Tobago	3471	100.0	0.0	—

[a] Includes 4.8% in Benin, 0.9% in Cameroon and 2.8% in Nigeria for whom no information was reported.
[b] 8.2% of women in Jordan, 19.6% in Bangladesh and all the 72.6% in Nepal who gave 'years ago' response are included here.
[c] After imputation by an *ad hoc* program; extent of imputation unknown since raw data file is not available in London.
[d] Figures are those reported in the First Country Report.

Table 6 Per cent distribution of ever-married women by method of reporting date of first marriage/union, according to place of residence

Country	Major urban			Other urban			Rural		
	Month and year	Calendar year	Years ago or age at marriage	Month and year	Calendar year	Years ago or age at marriage	Month and year	Calendar year	Years ago or age at marriage
Africa									
Kenya	86.9	5.5	7.6	70.9	11.0	18.1	66.7	15.9	17.4
Lesotho	91.6[a]	3.5[a]	4.9[a]	—	—	—	87.7	5.7	6.6
Senegal	66.8	33.2	—	61.4	38.6	—	71.8	28.2	—
Sudan (North)	51.8	34.4	13.8	43.6	37.2	19.2	36.8	32.8	30.4
Asia and Pacific									
Syria	90.1	9.5	0.4	82.4	14.5	3.1	73.0	16.9	10.1
Bangladesh	27.5	6.1	66.5	18.3	3.9	77.8	8.7	1.6	89.7
Nepal	65.6[a]	0.0	34.4[a]	—	—	—	26.4	0.0	73.6
Pakistan	82.2	17.8	—	66.7	33.3	—	74.3	25.7	—
Sri Lanka	88.5	11.5	—	81.0	19.0	—	71.1	28.9	—
Fiji	88.3	11.7	—	83.8	16.2	—	85.0	15.0	—
Malaysia	83.1	16.9	—	73.7	26.3	—	54.2	45.8	—
Americas									
Haiti	89.1	10.9	—	96.1	3.9	—	93.9	6.1	—
Trinidad & Tobago	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—

[a] Includes all urban areas.

Table 7 Per cent distribution of ever-married women by method of reporting date of first marriage/union, according to woman's number of years of schooling

Country	0 years' schooling			1–3 years' schooling			4–6 years' schooling			7+ years' schooling		
	Month and year	Calendar year	Years ago or age at interview	Month and year	Calendar year	Years ago or age at interview	Month and year	Calendar year	Years ago or age at interview	Month and year	Calendar year	Years ago or age at interview
Africa												
Kenya	50.9	20.8	28.3	75.2	15.9	8.9	88.9	8.3	2.8	95.1	3.7	1.2
Lesotho	55.4	16.4	28.1	77.7	9.0	13.3	91.0	5.0	4.0	97.1	3.7	1.2
Senegal	69.1	30.9	—	64.5	35.5	—	75.1	24.9	—	76.6	23.4	—
Sudan (North)	31.4	37.6	31.0	69.3	20.1	10.6	71.9	18.7	9.5	94.4	4.1	1.5
Asia and Pacific												
Syria	71.8	19.5	8.7	88.7	10.1	1.2	92.5	6.7	0.8	96.5	2.9	0.6
Bangladesh	5.8	1.4	92.8	12.4	1.6	85.9	21.0	3.6	72.4	58.0	5.4	36.6
Nepal	42.7	0.0	57.2	45.7	0.0	54.3	76.9	0.0	24.1	87.9	0.0	12.1
Pakistan	72.6	27.4	—	73.7	26.3	—	76.9	23.1	—	91.4	8.6	—
Sri Lanka	47.2	52.6	—	62.7	37.2	—	77.3	22.7	—	94.4	5.6	—
Fiji	66.3	33.7	—	76.5	23.5	—	85.7	14.3	—	94.9	5.1	—
Malaysia	37.6	62.4	—	61.8	38.2	—	75.0	25.0	—	95.8	4.2	—
Americas												
Haiti	92.1	7.9	—	94.7	5.3	—	92.8	7.2	—	92.7	7.3	—
Trinidad & Tobago	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—

V. C. CHIDAMBARAM

1935–1984

V. C. Chidambaram, co-author of this report, died on 3 July 1984 when the report was in press.

V. C. Chidambaram — Chid to all who knew him — joined the WFS in December 1973 and thus worked with the project for almost all its timespan. Coming as he did from a developing country, and with his varied work background — qualifications from the University of Kerala and the International Institute for Population Studies (IIPS), Bombay, were followed by assignments with the Government of Kerala, the IIPS, the University of Southampton, UK, and the UN Economic Commission for Europe — he was well fitted to make an outstanding contribution to the WFS, the largest social survey research project ever undertaken, which formally terminated just at the time of his death. Initially employed on work associated with the conduct of country surveys themselves, then in charge of planning and execution of further analysis activities, and finally as Deputy Project Director concerned among other things with ensuring the successful completion of the twelve-year life of WFS, he brought enthusiasm and drive to the task of furthering the aims of the WFS programme, emphasizing as he always did the primacy of the interests of the developing countries whose purposes the project had been established to serve.

Chid took great pride in the achievements of the WFS. He is remembered by his colleagues with deep respect and great affection, as one who contributed more than most to these achievements. This report, and a second Comparative Study (no 36) also published posthumously, serve as reminders of the magnitude and value of his contribution.

Table 8 Per cent distribution of ever-married women by method of reporting date of first marriage/union, according to woman's current age

Country	15–19			20–24			25–29			30–34			35–39			40–44			45–49		
	Month and year	Cal. year	Years ago or age at marriage	Month and year	Cal. year	Years ago or age at marriage	Month and year	Cal. year	Years ago or age at marriage	Month and year	Cal. year	Years ago or age at marriage	Month and year	Cal. year	Years ago or age at marriage	Month and year	Cal. year	Years ago or age at marriage	Month and year	Cal. year	Years ago or age at marriage
Africa																					
Kenya	87.8	5.1	7.1	83.7	7.7	8.6	75.1	11.7	13.2	69.5	14.9	15.6	55.0	20.8	24.2	52.3	23.1	24.6	42.4	26.9	30.6
Lesotho	96.7	1.7	1.6	94.6	2.4	3.1	89.9	5.6	4.5	87.1	5.6	7.3	89.6	5.4	5.1	76.4	10.4	13.2	74.0	10.9	15.2
Senegal	88.2	11.8	—	78.6	21.4	—	72.6	27.4	—	63.0	37.0	—	57.5	42.5	—	55.9	44.1	—	55.6	44.4	—
Sudan (North)	80.9	13.9	5.2	57.6	27.1	15.3	44.4	32.1	23.4	35.7	35.6	28.6	25.0	39.4	35.6	17.6	45.3	37.1	19.1	38.2	42.6
Asia and Pacific																					
Syria	87.8	6.6	5.7	85.8	9.1	5.1	82.1	12.0	5.9	80.1	13.9	6.0	76.2	17.5	6.3	73.0	21.6	5.4	64.8	26.5	8.7
Bangladesh	24.6	3.1	72.3	8.7	2.0	89.3	4.9	0.9	94.2	2.4	1.0	96.6	4.2	1.3	94.5	5.0	2.3	92.7	3.2	1.1	95.7
Nepal	62.9	0.0	37.1	45.5	0.1	54.4	42.4	0.1	57.7	42.5	0.0	57.5	41.3	0.0	58.7	35.0	0.0	65.0	36.2	0.1	63.7
Pakistan	86.7	13.3	—	81.5	18.5	—	76.2	23.8	—	69.7	30.3	—	65.6	34.4	—	66.7	33.3	—	64.4	35.6	—
Sri Lanka	86.1	13.9	—	82.0	18.0	—	77.7	22.3	—	77.2	22.7	—	70.4	29.6	—	69.8	30.2	—	60.9	39.1	—
Fiji	97.8	2.2	—	95.8	4.2	—	92.3	7.7	—	86.8	13.2	—	80.8	19.2	—	71.6	28.4	—	63.9	36.1	—
Malaysia	90.7	9.3	—	83.6	16.4	—	76.1	23.9	—	65.3	14.7	—	54.2	45.8	—	47.0	51.0	—	31.9	68.1	—
Americas																					
Haiti	94.3	5.7	—	95.3	4.7	—	93.2	6.8	—	94.7	5.3	—	90.3	9.7	—	89.6	10.4	—	89.2	10.8	—
Trinidad & Tobago	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—

Table 9 Per cent distribution of marriage/union dissolutions by method of reporting date of dissolution

Country	Number of dissolutions	Per cent reporting		
		Month and year	Calendar year	Age
Africa				
Benin	795	5.3	84.7	10.0
Cameroon	2008	14.8	80.8	4.4
Ghana	1666	38.3	37.0	24.7
Ivory Coast	1555	11.8	82.3	5.9
Kenya	1100	58.6	16.3	25.1
Lesotho	556	82.9	11.2	5.9
Nigeria	1472	12.4	29.9	57.7[c]
Senegal	1301	0.0	100.0	0.0
Egypt	1645	24.4	5.9	69.7
Mauritania	2013	6.1	66.6	27.3
Morocco	1169	24.3	25.0	50.7
Sudan (North)	590	33.1	30.7	36.2
Tunisia	361	31.3	31.6	37.1
Asia and Pacific				
Jordan	283	44.2	23.0	32.8
Syria	330	63.3	29.7	7.0
Yemen AR	599	3.7	51.1	45.2
Bangladesh	1643	13.3	4.6	82.1
Nepal	439	98.0	1.1	0.9
Pakistan	519	80.4	19.6	—
Sri Lanka	929	58.3	41.7	—
Fiji	696	73.8	26.2	—
Indonesia	4848	20.3	20.9	58.8
Korea, Rep. of	603	100.0	0.0	—
Malaysia	1672	26.3	73.7	—
Philippines	859	85.7	9.1	5.2
Thailand	811	51.8	48.2	—
Americas				
Colombia	989	100.0[a]	0.0	—
Ecuador	1104	50.0	50.0	
Paraguay	917	94.8	5.2	—
Peru	1390	80.7	19.3	—
Venezuela	1025	100.0[a]	0.0	—
Costa Rica	558	100.0[a]	0.0	—
Dominican Rep.	1387[b]	76.9	23.1	—
Mexico	999	100.0[a]	0.0	—
Panama	1548	90.0	10.0	—
Guyana	3029	81.2	8.0	10.8
Haiti	3075	95.4	4.6	—
Jamaica	4477	70.0	2.5	27.5
Trinidad & Tobago	3821	85.6	0.3	14.1

[a] After imputation by an *ad hoc* program; extent of imputation unknown since raw data file is not available in London.
[b] Dissolution of first marriage/union only.
[c] Includes 10.2% with no information.

as compared with only one in every ten women with no schooling. Similar strong relationships are evident for other countries. Even in a country like Trinidad and Tobago with almost complete date reporting, the existence of differentials in the same direction is worth noting, however small the magnitude of the differences. The most convincing is clearly education, and with increasing education more women tend to remember their dates of birth and report them in the western calendar or in a form in which they can be converted into the western calendar. Another message emerges, however, when we examine the data from the three countries Bangladesh, Nepal and Pakistan. Even though the positive impact of education is evident, only 13 per cent of the *highly educated* women in Bangladesh reported month and year, 28 per cent in Nepal and 42 per cent in Pakistan. As compared to this, as many as 40 per cent of the *illiterate* women in Sri Lanka, 49 per cent in Syria and 50 per cent in Lesotho reported month and year. Part of the difference can probably be accounted for by better survey methods and possibly by a higher incidence of imputations by the interviewers and editors in the latter group of countries. Nevertheless, it would seem that in countries like Bangladesh and Nepal one cannot expect the large majority of women to report dates which can be converted into the western calendar system even when universal education has been attained. Thus increased education and exposure to urban settings need not by themselves increase age- or date-consciousness among the women in some societies. This finding further strengthens the argument for a better understanding of the way in which people reckon ages and birthdays in these societies and for developing appropriate data collection instruments without necessarily imposing the western calendar. There is also very striking evidence of the impact of age on the reporting of dates. For instance, in Malaysia 97 per cent of the younger women aged 15–19 years could report the month and year in which they were born whereas only 13 per cent among those aged 45–49 could do so. Thus imputation has been greater among older women.

4.2 DATES OF FIRST MARRIAGE/UNION AND DISSOLUTIONS

We look at the reporting of dates of first marriage and dissolutions in tables 5–9. In general, the regional pattern is not very different from that for the respondent's date of birth. It would appear that information leading to month and year of first marriage was available for a large majority of women in Latin America and the Caribbean. Excluding the countries for which raw data tapes were not available in London—Colombia, Venezuela, Costa Rica and Mexico—the two countries where all the women reported month and year are Korea and Trinidad and Tobago. In the Philippines, Paraguay, Panama and Haiti over 90 per cent did so. Benin, Mauritania and Yemen are the three countries where not even one-tenth of the women could provide information leading to month and year of their first marriage/union. Again, if we are considering the amount of imputation carried out by the DEIR program, for Egypt, Morocco, Bangladesh, Nepal, Indonesia and Jamaica month and year have been imputed for more than 40 per cent of the respondents using information in the form of 'years ago' or 'age at marriage'.

In most of the countries in Africa and Asia it appears that women are better able to remember the date of their first marriage/union than the date of their own birth. Women giving information leading to month and year of marriage totalled 7 per cent in Yemen, 11 per cent in Bangladesh, 27 per cent in Nepal, 46 per cent in Indonesia and as high as 73 per cent in Pakistan, whereas those who could provide similar information on their own date of birth numbered only 0.3, 1.4, 13.4, 22.3 and 6.8 per cent respectively for the five countries. The pattern is just the opposite among women in Latin America and the Caribbean, as might be expected in view of the differences in cultural and social systems existing there. Visiting unions, consensual unions and common-law marriages being socially acceptable in the Caribbean and in many of the Latin American countries, the date of entry into first union or relationship may be less easily identified and remembered by the women in those countries. In contrast, in most of Asia and in some African societies 'marriage' is an important event in a woman's life which essentially gives her social and legal permission to start cohabitation and she is therefore more likely to remember its date. One country which stands alone is Tunisia, where 88 per cent of the respondents could report information leading to month and year of their own birth but only 53 per cent similar information relating to their first marriage.

In general, the amount of DEIR imputation for date of first marriage/union is less than for date of the woman's own birth in most of Asia and in some African countries but not in the Caribbean and Latin America. Interestingly, re-interview of a sample of respondents from the Indonesia Fertility Survey showed that consistency in reporting age at marriage was somewhat less than that in reporting current age (McDonald *et al* 1978). A similar conclusion was reported from the re-interview studies undertaken in Peru and Dominican Republic.

The pattern of reporting by background characteristics shows the expected relationships: urban, educated and younger women tend to report the dates of first marriage more precisely than rural, illiterate and older women. The education effect is again the most striking. In ten out of the thirteen countries, well over 90 per cent of the women with seven or more years of education could report information leading to the month and year of their first marriage. Here again there is a striking difference when we come to the reporting of their date of birth. For instance, among the most educated women in Bangladesh, month and year of birth are available for only 13 per cent, but when it comes to date of first marriage this shoots up to 58 per cent. The differentials by age and residence are much less.

Table 9 presents the data for the dissolution of marriages/unions at national level. Once again, the regional pattern observed earlier is confirmed. Dates are better reported in Latin America and the Caribbean, where not less than 70 per cent of the women reported the exact dates of dissolution of their marriages in every country. In Senegal not a single woman could report the month and year of the dissolution of a marriage, while all of them could give information leading to the calendar year of the event. The year had to be imputed for more than half the events in Egypt, Morocco, Bangladesh and Indonesia. It should be recognized that there is wide variation in the incidence of dissolutions in those societies and in many of them the

women could at least report the year of occurrence of the dissolution even though they might not remember their year of birth.

4.3 DATES OF LIVE BIRTHS

Tables 10–13 relate to the reporting of the date of the first birth, tables 14–17 to the date of the last birth and table 18 to all the respondents' live births. Tabulations according to the three background characteristics are presented for the first and last births only.

The general pattern is not very different from what we have reported so far. Almost all respondents in the Latin American and Caribbean surveys reported information leading to the month and year of first and last births, with a very small increase in the percentages for last as compared to first birth. In the other regions, there is almost 100 per cent reporting of dates in Korea and the Philippines. The same is true for Nepal and Senegal, but this is known to be an artefact of special methods of data collection followed in the two surveys.

The birth history table in the Nepal survey questionnaire provided one row for each calendar year going back from the year of interview and the interviewers were automatically required to record every reported birth in the appropriate row whatever the type of response on the date of birth. The coders naturally coded the calendar year corresponding to each birth appearing on the questionnaire. Thus every birth reported had the calendar year located, or better imputed, in the field. However, what is interesting is that the month of the birth was also recorded for all births without exception. There are two possible explanations. First, in Nepalese society, as in some parts of the Indian subcontinent, people may remember precisely the month of birth in the local calendar because they regularly perform religious celebration of their birthday every year. Secondly, having recorded the calendar year and having obtained some ancillary information, such as the season or nearest local festival, the interviewer could have decided to impute a month. There are no data of any kind to indicate the extent of such imputation by the interviewer, if any. We believe that in Nepal the information on month is much more accurate than that on year.

The method of collecting the birth history data in Senegal differed from all other countries. Information on all live births was obtained at the time of the household survey and was then entered on an age-event chart giving the month and year of occurrence of each event. These dates were verified with the respondent at the time of the individual interview and changed if necessary. The net result was that it was not necessary to impute month and year by DEIR for 99 per cent of the live births. At the same time it is also obvious that the age-event chart has forced imputation of dates by the interviewer for an unknown proportion of events. Similar imputation could have been carried out, but probably to a lesser extent, in Benin, Ivory Coast and Mauritania while recording the births in the age-event chart. This is evident from the fact that the calendar year was not required to be imputed using the DEIR program for any live birth in these three countries.

Precise dates are obtained for a larger proportion of the last or more recent births and the percentage declines as the event moves further away from the date of the interview. This is evident from the difference in percentages for the first and last births (which are the same for a small proportion of one parity women) observed. Imputation of calendar year of occurrence by the DEIR program is therefore much less than might have been anticipated. Only in nine countries did both month and year have to be imputed for more than 10 per cent of first births, the highest incidence being in Bangladesh (83 per cent), Egypt (48 per cent), Indonesia (40 per cent), Morocco (26 per cent) and Jordan (21 per cent). If we consider the last birth of the woman, the situation is even better. The corresponding figures fall from 83 to 63 per cent in Bangladesh and from 48 to 37 per cent in Egypt, for example. Perhaps what is more interesting is that in a country like Pakistan, where almost 90 per cent of the respondents could not report the month and year in which they were born, they could provide information leading to date of birth for 80 per cent of the children born to them. Overall, if we exclude Bangladesh, Egypt and Indonesia, the DEIR program did not have to impute the calendar year of occurrence for 95 per cent of first births, 97 per cent of last births and 95 per cent of all births as the information was already available.

Now if we turn to the differentials in reporting, the impact of education is obvious. Almost all women with seven or more years of schooling in practically every one of the countries for which data are presented could report exactly the month and year of occurrence of the last birth they had. The only exception again is Bangladesh, and even there the dates are reported for as many as 60 per cent of last births. Naturally the educational differences are also highest in Bangladesh, with the proportion for women with no schooling declining to 28 per cent in the case of last births and 9 per cent in the case of first births. The differentials by place of residence are of lower magnitude across all countries. The two tables by age show that in all these countries, again excepting Bangladesh, women under 40 years of age are generally able to report information leading to the month and year of birth of their children; for eight out of every ten births at least the calendar year is available and for a majority the month of birth also.

The figures presented in these tables only tell us how much imputation was *not* done by the DEIR program, and we do not claim to report the extent of field and/or office imputation carried out. It should also be recognized that the countries did not all use the maternity histories as in the core questionnaire; the differences are described by Singh in her report on Comparability of Questionnaires (Singh 1984). Perhaps one aspect of the data collection instruments that requires special attention here is the use of event charts. Countries which have used such charts are marked with an asterisk (*) in table 18. There is no doubt that event charts have significantly contributed in assisting the respondent to recollect and locate the date of occurrence of the events in her life more accurately. But what is not known is the extent to which they have forced the interviewer or the respondent or both to impute the date of an event using incomplete or even inaccurate information provided by the respondent.

Table 10 Per cent distribution of first births by method of reporting date of occurrence

Country	Number of births	Per cent reporting		
		Month and year	Calendar year	Years ago or age
Africa				
Benin	3292	14.9	82.8	2.3[a]
Cameroon	6352	42.0	46.8	11.1
Ghana	4686	64.2	20.1	15.7
Ivory Coast	4841	29.4	70.6	—
Kenya	6253	78.1	8.7	13.2
Lesotho	3138	91.6	3.2	5.2
Nigeria	7370	27.8	34.0	38.2[b]
Senegal	3201	98.8	1.2	—
Egypt	7832	45.4	6.8	47.8
Mauritania	3097	12.5	87.5	—
Morocco	3625	58.6	15.6	25.8
Sudan (North)	2796	60.3	34.6	5.1
Tunisia	3815	71.1	16.7	12.2
Asia and Pacific				
Jordan	3338	69.0	9.9	21.1
Syria	4084	83.0	12.7	4.3
Yemen AR	2197	10.4	85.6	4.0
Bangladesh	5600	14.8	2.2	83.0
Nepal	4882	100.0[c]	0.0	—
Pakistan	4293	79.1	20.9	—
Sri Lanka	6234	77.8	14.3	7.9
Fiji	4368	88.3	11.7	—
Indonesia	8023	50.8	9.4	39.8
Korea, Rep. of	5079	100.0	0.0	—
Malaysia	5844	82.2	17.8	—
Philippines	8837	98.4	1.2	0.4
Thailand	3512	87.3	9.6	3.1
Americas				
Colombia	3225	100.0[d]	0.0	—
Ecuador	4367	85.0	15.0	—
Paraguay	2828	99.7	0.3	—
Peru	5372	95.0	5.0	—
Venezuela	2495	100.0[d]	0.0	—
Costa Rica	3067	100.0[d]	0.0	—
Dominican Rep.	2011	100.0[d]	0.0	—
Mexico	5895	100.0[d]	0.0	—
Panama	3058	98.2	1.8	—
Guyana	3272	95.0	1.3	3.7
Haiti	2001	94.5	5.5	—
Jamaica	2510	92.6	0.0	7.4
Trinidad & Tobago	2954	96.2	0.0	3.8

[a] Includes 2% with no information.
[b] Includes 1.5% with no information.
[c] The birth history automatically imputes only calendar year for all births.
[d] After imputation by an *ad hoc* program; extent of imputation unknown since raw data file is not available in London.

Table 11 Per cent distribution of first births by method of reporting date of occurrence, according to place of residence of mother

Country	Major urban			Other urban			Rural		
	Month and year	Calendar year	Years ago or age	Month and year	Calendar year	Years ago or age	Month and year	Calendar year	Years ago or age
Africa									
Kenya	91.7	3.8	4.5	79.9	6.1	13.9	76.6	9.4	14.0
Lesotho	95.7[a]	1.7[a]	2.6[a]	—	—	—	91.0	3.5	5.6
Senegal	99.8	0.2	—	97.5	2.5	—	98.9	1.1	—
Sudan (North)	66.7	33.3	—	67.4	32.6	—	64.1	35.8	—
Asia and Pacific									
Syria	91.0	7.8	1.2	88.2	10.2	1.6	80.2	12.8	7.0
Bangladesh	29.4	3.9	66.8	22.6	3.4	74.0	11.9	1.7	86.3
Nepal	100.0[a]	0.0	—	—	—	—	100.0	0.0	—
Pakistan	85.3	14.7	—	73.2	26.8	—	80.5	19.5	—
Sri Lanka	91.3	4.8	3.8	84.2	10.1	5.7	74.3	15.5	10.2
Fiji	92.6	7.4	—	87.6	12.4	—	87.5	12.5	—
Malaysia	93.0	7.0	—	89.0	11.0	—	78.2	21.8	—
Americas									
Haiti	97.2[a]	2.8[a]	—	—	—	—	94.1	5.9	—
Trinidad & Tobago	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—

[a] Includes all urban areas.

Table 12 Per cent distribution of first births by method of reporting date of occurrence, according to mother's number of years of schooling

Country	0 years' schooling			1–3 years' schooling			4–6 years' schooling			7+ years' schooling		
	Month and year	Calendar year	Years ago or age	Month and year	Calendar year	Years ago or age	Month and year	Calendar year	Years ago or age	Month and year	Calendar year	Years ago or age
Africa												
Kenya	62.6	14.0	23.4	84.9	7.5	7.7	94.7	3.2	2.1	98.6	0.9	0.5
Lesotho	63.8	15.1	21.1	82.9	5.4	11.7	95.0	2.2	2.8	96.8	1.0	2.2
Senegal	98.8	1.2	—	97.0	3.0	—	100.0	0.0	—	100.0	0.0	—
Sudan (North)	60.8	39.0	0.2	77.1	22.5	0.3	84.4	15.6	0.0	96.3	3.7	0.0
Asia and Pacific												
Syria	79.8	14.3	6.0	93.9	4.7	1.4	93.6	5.7	0.7	97.6	2.4	0.0
Bangladesh	9.1	1.6	89.4	18.6	2.7	78.7	26.8	2.9	70.4	54.7	5.5	39.8
Nepal	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—
Pakistan	79.0	21.0	—	84.2	15.8	—	79.9	20.1	—	92.7	7.3	—
Sri Lanka	52.9	28.8	18.3	70.2	16.1	13.7	82.5	11.7	5.9	96.0	2.2	1.7
Fiji	69.6	30.4	—	77.4	22.6	—	91.0	9.0	—	97.7	2.3	—
Malaysia	67.7	32.3	—	85.5	14.5	—	91.2	8.8	—	98.2	1.8	—
Americas												
Haiti	93.7	6.3	—	97.8	2.2	—	99.4	0.6	—	98.9	1.1	—
Trinidad & Tobago	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—

Table 13 Per cent distribution of first births by method of reporting date of occurrence, according to current age of mother

Country	15–19			20–24			25–29			30–34			35–39			40–44			45–49		
	Month and year	Cal. year	Years ago or age	Month and year	Cal. year	Years ago or age	Month and year	Cal. year	Years ago or age	Month and year	Cal. year	Years ago or age	Month and year	Cal. year	Years ago or age	Month and year	Cal. year	Years ago or age	Month and year	Cal. year	Years ago or age
Africa																					
Kenya	94.8	1.8	3.4	91.6	2.9	5.4	81.7	6.1	12.2	79.2	8.6	12.2	67.6	11.9	20.6	64.6	13.5	22.0	55.3	22.8	21.9
Lesotho	97.6	0.6	1.8	96.6	0.9	2.5	93.8	1.9	4.3	91.1	3.1	5.8	90.9	4.0	5.2	84.1	6.6	9.4	83.0	8.1	9.0
Senegal	98.7	1.3	—	98.8	1.2	—	98.1	1.9	—	100.0	0.0	—	98.7	1.3	—	98.7	1.3	—	99.2	0.8	—
Sudan (North)	88.6	10.9	0.6	74.9	24.8	0.3	73.5	26.5	0.0	63.7	35.9	0.4	59.0	41.0	0.0	49.3	50.7	0.0	45.8	53.9	0.3
Asia and Pacific																					
Syria	95.3	3.9	0.8	90.8	7.1	2.1	87.4	8.2	4.4	83.8	11.0	5.3	83.5	12.7	3.9	81.5	13.0	5.5	72.5	20.9	6.6
Bangladesh	43.8	4.1	52.1	18.0	2.7	79.3	6.7	1.0	92.3	5.1	0.5	94.3	3.1	1.8	95.1	3.9	0.8	95.3	4.3	2.2	93.4
Nepal	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—
Pakistan	94.4	5.6	—	89.4	10.6	—	81.5	18.5	—	77.7	22.3	—	74.5	25.5	—	73.2	26.8	—	72.1	27.9	—
Sri Lanka	68.1	31.9	0.0	78.0	15.4	6.6	78.4	14.1	7.5	82.3	11.4	6.4	78.5	12.9	8.6	76.4	13.3	10.3	66.0	18.7	15.2
Fiji	100.0	0.0	—	97.4	2.6	—	94.6	5.4	—	90.3	9.7	—	84.9	15.1	—	77.8	22.2	—	72.3	27.7	—
Malaysia	96.7	3.3	—	96.2	3.8	—	93.1	6.9	—	90.6	9.4	—	82.4	17.6	—	70.9	29.1	—	54.5	45.5	—
Americas																					
Haiti	100.0	0.0	—	99.0	1.0	—	97.2	2.8	—	95.0	5.0	—	92.3	7.7	—	93.0	7.0	—	90.6	9.4	—
Trinidad & Tobago	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—

Table 14 Per cent distribution of last births by method of reporting date of occurrence

Country	Number of births	Per cent reporting		
		Month and year	Calendar year	Years ago or age
Africa				
Benin	3292	26.8	72.0	1.2[a]
Cameroon	6352	56.8	35.6	7.6
Ghana	4686	78.3	12.5	9.2
Ivory Coast	4841	56.6	43.4	—
Kenya	6253	86.5	5.0	8.5
Lesotho	3138	94.3	2.7	3.0
Nigeria	7370	36.9	29.8	33.4[a]
Senegal	3201	99.3	0.7	—
Egypt	7832	57.5	6.0	36.5
Mauritania	3097	19.8	80.2	—
Morocco	3625	69.2	10.0	20.8
Sudan (North)	2796	83.8	14.9	1.3
Tunisia	3815	75.2	14.9	9.9
Asia and Pacific				
Jordan	3338	84.2	6.3	9.5
Syria	4084	95.2	4.2	0.6
Yemen AR	2197	40.3	57.9	1.8[b]
Bangladesh	5600	32.6	4.4	63.0
Nepal	4882	100.0[c]	0.0	—
Pakistan	4293	90.1	9.9	—
Sri Lanka	6234	83.3	11.8	4.9
Fiji	4368	96.1	3.9	—
Indonesia	8023	55.5	8.4	36.1
Korea, Rep. of	5079	100.0	0.0	—
Malaysia	5844	95.1	4.9	—
Philippines	8837	99.0	0.8	0.2
Thailand	3512	90.7	7.6	1.7
Americas				
Colombia	3225	100.0[d]	0.0	—
Ecuador	4367	89.3	10.7	—
Paraguay	2828	99.9	0.1	—
Peru	5372	97.9[d]	2.1	—
Venezuela	2495	100.0	0.0	—
Costa Rica	3067	100.0[d]	0.0	—
Dominican Rep.	2011	100.0[d]	0.0	—
Mexico	5895	100.0[d]	0.0	—
Panama	3058	98.9	1.1	—
Guyana	3272	93.4	2.8	3.8
Haiti	2001	96.5	3.5	—
Jamaica	2510	93.2	0.2	6.6
Trinidad & Tobago	2954	96.3	0.0	3.7

[a] No information given for 1.2% in Benin and 1.6% in Nigeria.
[b] Information given is interval since previous birth or marriage.
[c] The birth history automatically imputes only calendar year for all births.
[d] After imputation by an *ad hoc* program; extent of imputation unknown since raw data file is not available in London.

Table 15 Per cent distribution of last births by method of reporting date of occurrence, according to place of residence of mother

Country	Major urban			Other urban			Rural		
	Month and year	Calendar year	Years ago or age	Month and year	Calendar year	Years ago or age	Month and year	Calendar year	Years ago or age
Africa									
Kenya	94.1	2.9	3.0	86.4	3.9	9.7	85.2	5.4	9.4
Lesotho	97.1[a]	1.4[a]	1.4[a]	—	—	—	94.0	2.9	3.1
Senegal	100.0	0.0	—	98.6	1.4	—	99.3	0.7	—
Sudan (North)	87.6	12.4	—	88.0	12.0	—	83.7	16.3	—
Asia and Pacific									
Syria	98.2	1.5	0.3	98.2	1.5	0.2	95.3	3.7	1.0
Bangladesh	42.6	5.2	52.3	37.6	6.8	55.6	30.7	3.8	65.5
Nepal	100.0[a]	0.0	—	—	—	—	100.0	0.0	—
Pakistan	94.2	5.8	—	88.6	11.4	—	90.4	9.6	—
Sri Lanka	89.5	10.5	—	86.0	14.0	—	78.8	21.2	—
Fiji	98.1	1.9	—	94.9	5.1	—	95.9	4.1	—
Malaysia	97.8	2.2	—	96.7	3.3	—	94.2	5.8	—
Americas									
Haiti	96.7[a]	3.3[a]	—	—	—	—	96.9	3.1	—
Trinidad & Tobago	100.0	—	—	100.0	—	—	100.0	—	—

[a] Includes all urban areas.

Table 16 Per cent distribution of last births by method of reporting date of occurrence, according to mother's number of years of schooling

Country	0 years' schooling			1–3 years' schooling			4–6 years' schooling			7+ years' schooling		
	Month and year	Calendar year	Years ago or age	Month and year	Calendar year	Years ago or age	Month and year	Calendar year	Years ago or age	Month and year	Calendar year	Years ago or age
Africa												
Kenya	75.8	8.4	15.8	91.3	3.5	5.2	97.1	1.7	1.2	99.2	0.5	0.3
Lesotho	76.0	10.0	14.0	88.3	4.6	7.1	96.5	2.3	1.3	98.4	0.6	1.0
Senegal	99.3	0.7	—	98.5	1.5	—	100.0	0.0	—	98.9	1.1	—
Sudan (North)	82.4	17.6	—	95.8	4.2	—	96.2	3.8	—	98.8	1.2	—
Asia and Pacific												
Syria	95.8	3.3	0.9	98.6	1.4	0.0	98.5	1.3	0.1	99.6	0.4	0.0
Bangladesh	27.8	3.8	68.4	39.6	2.7	57.7	44.6	5.4	50.0	60.4	7.2	32.4
Nepal	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—
Pakistan	90.1	9.9	—	94.4	5.6	—	91.2	8.8	—	93.8	6.2	—
Sri Lanka	62.7	37.3	—	77.5	22.5	—	83.2	16.8	—	95.3	4.7	—
Fiji	89.0	11.0	—	92.0	8.0	—	97.3	2.7	—	99.4	0.6	—
Malaysia	91.0	9.0	—	95.6	4.4	—	98.1	1.9	—	99.5	0.5	—
Americas												
Haiti	95.9	4.1	—	98.9	1.1	—	100.0	0.0	—	98.9	1.1	—
Trinidad & Tobago	100.0	—	—	100.0	—	—	100.0	—	—	100.0	—	—

Table 17 Per cent distribution of last births by method of reporting date of occurrence, according to current age of mother

Country	15–19			20–24			25–29			30–34			35–39			40–44			45–49		
	Month and year	Cal. year	Years ago or age	Month and year	Cal. year	Years ago or age	Month and year	Cal. year	Years ago or age	Month and year	Cal. year	Years ago or age	Month and year	Cal. year	Years ago or age	Month and year	Cal. year	Years ago or age	Month and year	Cal. year	Years ago or age
Africa																					
Kenya	97.3	0.6	2.0	95.1	1.6	3.3	90.1	2.8	7.1	87.9	3.7	8.4	80.2	7.5	12.4	73.7	10.0	16.3	67.3	14.8	17.9
Lesotho	99.4	0.6	0.0	97.5	0.5	2.0	95.8	1.8	2.4	97.4	1.2	1.4	93.5	3.6	2.9	88.1	5.5	6.4	85.6	8.6	5.8
Senegal	99.0	1.0	—	99.2	0.8	—	98.7	1.3	—	99.8	0.2	—	99.4	0.6	—	99.7	0.3	—	99.6	0.4	—
Sudan (North)	95.4	4.6	—	89.9	10.1	—	91.8	8.2	—	85.9	14.1	—	84.3	15.7	—	71.3	28.7	—	66.2	33.8	—
Asia and Pacific																					
Syria	98.0	1.6	0.4	98.3	1.3	0.3	98.3	1.3	0.4	96.4	2.6	1.1	96.3	2.6	1.1	95.1	4.1	0.8	94.6	5.0	0.4
Bangladesh	53.7	4.8	41.5	41.8	5.4	52.8	33.9	3.3	62.8	29.8	4.0	66.1	21.2	3.9	75.0	12.0	2.9	85.1	6.3	2.0	91.7
Nepal	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—	100.0	0.0	—
Pakistan	98.2	1.8	—	97.6	2.4	—	96.0	4.0	—	91.2	8.8	—	88.3	11.7	—	81.7	18.3	—	78.7	21.3	—
Sri Lanka	73.8	26.2	—	89.5	10.5	—	90.9	9.1	—	88.4	11.6	—	79.4	20.6	—	73.9	26.1	—	65.2	34.8	—
Fiji	98.9	1.1	—	99.1	0.9	—	98.4	1.6	—	96.6	3.4	—	95.3	4.7	—	92.4	7.6	—	90.0	10.0	—
Malaysia	98.7	1.3	—	97.7	2.3	—	98.2	1.8	—	97.7	2.3	—	96.1	3.9	—	92.8	7.2	—	86.5	13.5	—
Americas																					
Haiti	100.0	0.0	—	99.3	0.7	—	98.2	1.8	—	96.5	3.5	—	96.5	3.5	—	95.1	4.9	—	93.0	7.0	—
Trinidad & Tobago	100.0	—	—	100.0	—	—	100.0	—	—	100.0	—	—	100.0	—	—	100.0	—	—	100.0	—	—

Table 18 Per cent distribution of all births by method of reporting dates of occurrence

Country	Number of births	Per cent reporting		
		Month and year	Calendar year	Years ago or age
Africa				
Benin*	13 381	12.4	85.4	2.2[a]
Cameroon	27 078	40.9	48.4	10.7
Ghana*	18 959	63.5	20.8	15.6
Ivory Coast*	21 099	28.4	71.6	—
Kenya*	31 925	75.4	9.8	14.8
Lesotho	11 301	89.7	4.3	6.0
Nigeria*	29 535	26.8	35.8	37.4[a]
Senegal*	15 362	99.0	1.0	—
Egypt*	35 880	41.4	7.5	51.1
Mauritania*	13 424	11.6	88.4	—
Morocco*	18 477	59.7	14.9	25.4
Sudan (North)*	13 818	63.0	33.2	3.8
Tunisia	20 020	70.4	17.8	11.8
Asia and Pacific				
Jordan	19 351	66.5	11.2	22.3
Syria*	23 268	83.2	13.6	3.3
Yemen AR*	10 567	11.0	84.2	4.8
Bangladesh	25 515	12.3	2.5	85.2
Nepal	19 382	99.9[b]	0.1	—
Pakistan	20 943	79.8	20.2	—
Sri Lanka	26 889	73.4	17.5	9.1
Fiji	18 634	86.3	13.7	—
Indonesia*	32 014	46.5	10.4	43.1
Korea, Rep. of*	19 410	100.0	0.0	—
Malaysia	26 473	86.2	13.8	—
Philippines	44 925	96.2	3.4	0.4
Thailand	14 849	84.2	12.6	3.2
Americas				
Colombia	14 432	100.0[c]	0.0	—
Ecuador	19 173	78.5	21.5	—
Paraguay	11 410	99.7	0.3	—
Peru	25 326	93.1	6.9	—
Venezuela	9 662	100.0[c]	0.0	—
Costa Rica	13 305	100.0[c]	0.0	—
Dominican Rep.	9 210	91.0[d]	9.0	—
Mexico	28 506	100.0[c]	0.0	—
Panama	12 769	97.7	2.3	—
Guyana	16 716	91.2	3.6	5.2
Haiti*	8 022	93.8	6.2	—
Jamaica	10 766	90.6	0.1	9.3
Trinidad & Tobago	13 093	94.5	0.0	5.5

[a] No information given for 2.2% in Benin and 1.8% in Nigeria.
[b] The birth-history automatically imputes only calendar year for all births.
[c] After imputation by an *ad hoc* program; extent of imputation unknown since raw data file is not available in London.
[d] Figures are those reported in the First Country Report.

* Used event chart.

5 Concluding Remarks

This report presents data from 39 national fertility surveys, 13 each for Africa, Asia and the Pacific, and the Americas. Even though we do not have any quantitative measure of the extent of imputation and guessing done by the interviewers in the field and the editors, we have enough information to make some general observations about the pattern of age/date reporting resulting from the WFS efforts to increase the accuracy of age data collected through the surveys. The data presented here are from respondents' individual interviews and hence are not strictly comparable with similar data from censuses and conventional household surveys, where information about members of the household is given by one individual, usually the head of the household. The overall conclusion emerging from these tables is that with properly trained field staff and well prepared instruments it is possible to obtain information on month and year of occurrence of a much higher proportion of events like births and marriages than hitherto thought possible. There are, however, some regional variations resulting probably from socio-cultural differences in the ways birthdays are identified and actual age is reckoned. Women in Latin America and the Caribbean countries almost invariably appear to remember the month and year of occurrence of the events (own birth, first union, births of children) in terms of the western calendar. In these countries information leading to the exact dates is available for almost 90–95 per cent of the events. The same is true for Korea and the Philippines in Asia. One country that stands out for poor date reporting is Bangladesh, which comes last in the league of 39 countries. The vast majority of Bangladeshi and Pakistani women (98 and 93 per cent respectively) did not (or could not) report the date of their birth. If we exclude Bangladesh and Pakistan, 84 per cent of the respondents in the remaining 37 countries for which data are available could provide information leading to at least the calendar year in which they were born and 70 per cent of these did not even require month of birth to be imputed.

Women in many of the Asian countries seem able to report the date of their first marriage/union more precisely than the date of their own birth. This is not so in the other regions. Direct information on date of first marriage is not available for about 86 per cent of the respondents in Bangladesh, the highest value recorded, the next being Nepal with 73 per cent and Egypt with 57 per cent. Again, if we exclude Bangladesh, Nepal and Egypt, calendar year of first marriage was not required to be imputed by the DEIR program for as many as 90 per cent of the respondents from the 36 countries, among whom 73 per cent also had given the actual month. The first marriage or union being an important event in a woman's life, it is perhaps only natural for the women to remember the date of that event more often than the date of their own birth.

The quality of reporting of the dates of births of children is far better than is generally believed, with Bangladesh, where the dates are not available for 85 per cent of the births, again being the exception, followed by Egypt (51 per cent) and Indonesia (43 per cent). In the remaining 35 countries, excluding Nepal for reasons explained earlier, well over half a million births have been reported; for 80 per cent of them there was no need to impute either month or year and for an additional 15 per cent only the month had to be imputed using the DEIR program. If we look at the status for the last birth, which is the most recent event in the birth history, the calendar year of occurrence has been imputed by the computer for only about 3 per cent of cases while both month and year were already available before DEIR routine for as many as 88 per cent. There is evidence to indicate that the reporting of dates by respondents is related to their education, residence status and age. The differentials are particularly noticeable in societies where a considerable proportion of women are not able to report the date of their own birth. Before concluding, we wish to reiterate three points which, we think, should be borne in mind while interpreting the data presented:

1 The main purpose of this cross-national summary, like others in the series, is to present comparable information on the topic for the countries participating in WFS and *not* to evaluate the quality of age reporting in those countries. As was mentioned at the beginning, the Standard Recode tapes for the individual interviews will contain information on all dates of almost all events in century month codes based on the western calendar system. The users of the tapes might, in the absence of a report such as this, conclude that the WFS surveys were highly successful in obtaining dates of events. This report is intended to quantify the extent of imputation of month and/or year by the computer using the WFS program DEIR.

2 We do not claim that the tables in the report tell the whole story. It is possible and indeed quite probable that approximation and imputation of month and/or year were carried out both in the field and in the office before the machine editing operation. We believe that the incidence of such field/office imputation may be relatively greater in some of the Latin American surveys which appear to have almost 100 per cent date reporting. We do not have any way of knowing if the dates were fixed by the interviewers/editors and, if so, to what extent. However, the observed general pattern of differentials (education, residence and age) is in the same direction in almost all the countries and the implications cannot be ignored in this context. We postulate that it is extremely difficult, though not impossible, to come up with observed patterns and differentials in situations where there has been a high incidence

of field/office imputation unless more or less similar patterns and differentials were present in the original reporting by the respondents.

3 When actual dates in the western calendar are reported for a large majority of the events, the general tendency among the researchers is to pass the data as of good quality. This may not be unreasonable since it is less likely, though not impossible, that the majority of respondents should have reported false dates. But the researcher should also recognize the possibility of imputation by others. For instance, even though the calendar year of birth (in the western calendar) was not required to be imputed using the DEIR for any of the 2605 respondents in the Yemen Arab Republic, the heaping observed in the resulting age distribution indicates clearly the possibility of imputation of the year using reported/estimated ages with heaping at digits 0 and 5. But what we are more concerned about is the dangerous possibility of condemning the data as bad if information reported for the majority of the events is not directly convertible to month and year in the western calendar. Any judgement on the quality of data should be based on other scientific checks and tests which are applicable and relevant to the situation in the particular country concerned. Perhaps the lesson to be learned from the contrasting experience in countries like Bangladesh and Nepal is that before deciding on the instruments for data collection the survey researcher should try to understand better the system by which the local population identifies birthdays and reckons age. The need for, or problems in, converting the information provided by the respondents into the western calendar system are rather less important and even irrelevant.

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Appendix A — Summary of Instruments and Methods Used for Obtaining Dates of Events in 40 WFS Surveys

Country	Types of calendars used	Use of event charts	Types of probes used for respondents		
			Own birth	Marriages and their dissolutions	Live births
1	2	3	4	5	6
Africa					
Benin	W	Yes	A	BY	O[b]
Cameroon	W	Yes	A[a]	BY	BY
Ghana	W	Yes	A	B	B
Ivory Coast	W	Yes	A	BY	O[b]
Kenya	W	Yes	A	B	B
Lesotho	W	No	A	B	B
Nigeria	W	Yes	A	B	B
Senegal	W	Yes	B	B	O[b]
Egypt	WM	Yes	A	B	BY
Mauritania	W	Yes	A	B	O[b]
Morocco	W	Yes	B[a]	A	B
Sudan (North)	WM	Yes	A	B	BY
Tunisia	WM	No	A[a]	A	BY
Asia and Pacific					
Jordan	W	No	B	B	B
Syria	WM	Yes	B	B	B
Turkey	WM	Yes	A	B	BY
Yemen AR	WM	Yes	A	B	BY
Bangladesh	WM	No	B	B	B
Nepal	WN	No	B	B	BY
Pakistan	WM	No	B	BY	A
Sri Lanka	W	No	B	O	Y
Fiji	W	No	A	O	B
Indonesia	WM	Yes	B	BY	B
Korea, Rep. of	WC	Yes	A	BY	O
Malaysia	WCM	No	B	O	B
Philippines	W	No	A	A	A
Thailand	W	No	B	O	B
Americas					
Colombia	W	No	A	B	A
Ecuador	W	No	A	B	B
Paraguay	W	No	A	B	A
Peru	W	No	A	B	B
Venezuela	W	No	A	O	A
Costa Rica	W	No	A[a]	B	B
Dominican Rep.	W	No	A	B	A
Mexico	W	No	A	O	A
Panama	W	No	B	B	B
Guyana	W	No	A	BY	B
Haiti	W	Yes	A	BY	B
Jamaica	W	No	B	BY	B
Trinidad & Tobago	W	No	B	BY	B

[a] Age asked at a later stage during the interview.
[b] Information first recorded in event chart and reconciled before transfer to birth history.

NOTES: Col. 2: W Western; M Muslim; N Nepal; C Chinese.
Cols. 4–6: A Core-recommended probes asked of all respondents; B Probes asked only if dates not reported; Y Other probes asked; O No specific probe appears on questionnaire.

Appendix B — Illustration of the Date Edit Process in the DEIR Program

To illustrate the edit procedure, consider the following example of a woman with two marriages and five births. The basic assumptions are:

— age and years ago are interpreted as completed years
— all forms of data are used with equal priority
— minimum age for first marriage and first birth is ten years
— minimum interval is 6 months between births and 0 months between marriage events
— interval data are used to define otherwise undefined dates
— pre-marital births are to be avoided, if possible
— 99 indicates a not stated value

The following shows the calculation of the initial logical ranges from a variety of sources and the use of the interval data to define ranges when no other data are available.

Interview date 11-77

Respondent's date of birth 99-42, giving a logical range 01-42–12-42

Birth history

Number	Month-year	Years ago	Years after previous	Initial logical range	After interval adjustments
1	99-99				07-58–05-60[b]
2		17	01	12-59–11-60	12-59–11-60
3	11-63			11-63–11-63	11-63–11-63
4	99-64	14		01-64–11-63[a]	01-64–12-64[c]
5	99-99		05		07-68–05-70[d]

Marriage history

Number	Month-year	Years ago	Years after previous	Initial logical range	After interval adjustments
1 (Start)		17		01-59–10-60	01-59–10-60
(End)			12 years		07-70–03-73[e]
2 (Start)	01-78			01-78–01-78	11-42–11-77[f]

[a] The initial logical range is negative because the sources of data are inconsistent. 99-64 gives a logical range of 01-64–12-64, while 14 years ago gives a range 12-62–11-63.
[b] The logical range for first birth is defined from the date of the second birth and the interval data (years after previous). A range of 6 months–1 year 5 months is used for the one-year interval.
[c] The inconsistent logical range is replaced by the logical range from the first source of data used (99-64).
[d] The logical range for the fifth birth is defined from the date of the fourth birth and the interval data (years after previous). A range of 4 years 6 months–5 years 5 months is used for the five-year interval.
[e] The logical range for the end of the first marriage is defined from the date of the beginning of the marriage and the interval data (duration of marriage).
[f] The date for the start of the second marriage, which is after the interview date, is rejected and replaced by the maximum possible range (lower limit of the respondent's birth and the date of interview).

The adjustments to the logical range have the following result:

Birth history

Number	After interval adjustments	After isolated constraints	After neighbouring adjustments
1	07-58–05-60	07-59–05-60[a]	07-59–12-59[b]
2	12-59–11-60	12-59–11-60	06-60–11-60[b]
3	11-63–11-63	11-63–11-63	11-63–11-63
4	01-64–12-64	01-64–12-64	05-64–12-64[c]
5	07-68–05-70	07-68–05-70	07-68–05-70

Marriage history

Number	After interval adjustments	After isolated constraints	After neighbouring adjustments
1 (Start)	01-59–10-60	01-59–01-59[a]	01-59–01-59
(End)	07-70–03-73	07-70–03-73	07-70–11-71[d]
2 (Start)	11-42–11-77	11-42–11-77	11-71–11-77[d]

[a] The logical ranges of the first birth and the first marriage are mutually adjusted to avoid a pre-marital birth.
[b] The logical ranges of the first and second births are mutually adjusted to ensure separation by the minimum interval of 6 months.
[c] The logical range of the fourth birth is adjusted to ensure separation by the minimum interval.
[d] The logical ranges for the end of the first marriage and the beginning of the second marriage are adjusted to ensure that they do not overlap, since the minimum marriage interval is 0 months.

Source: DEIR User's Manual, WFS Technical Paper no 1430, June 1980

Appendix C — A True Story

Mother: Son, you are not a baby any more, you should give accurate information and not approximations on matters like your age.

Son: What have I done? Why are you giving me this lecture?

Mother: Today when the visitor asked you, 'How old are you?', you said ten. That is not correct, you should have said eleven.

Son: How can I? I was born on 22 April 1968, agreed? I have not yet had my eleventh birthday, nor have you given me my eleventh birthday gift. Until then I am only ten, and I replied correctly.

Mother: Listen, my boy. You were born in April 1968, I know. So you were ten last April, I can count. Since then almost three-quarters of a year has passed, and are you saying that you have not been growing or changing during these months and that you will become eleven years old instantaneously on 22 April next year? This is obviously not so. Your growth, your behaviour, your eating habits are all changing, and you are now more like an eleven-year old than a ten-year old. So you should have said eleven—after all, in less than four months you will be eleven exactly.

The above discussion indicates that it is not necessarily right to assume that all people count age in completed years as presumed by most demographers in the western world. Moreover, using the information given by the mother in the above conversation, the WFS DEIR program will impute the boy's date of birth in mid-1967 as against the true date of April 1968.

This illustration is not a figment of my imagination, in fact I was present during the above conversation, which took place in December 1978. The mother was born and brought up in India and the son was born in the West. My purpose in reporting this private conversation is only to reinforce my plea for further attempts at a better understanding of the way in which local populations reckon age and birthdays, as part of our efforts to improve the quality of age data from some of the developing countries.

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