Scientific Reports

NUMBER 19, MARCH 1981

FLORENTINA REYES

Evaluation of the Republic of the Philippines Fertility Survey 1978

INTERNATIONAL STATISTICAL INSTITUTE
Permanent Office. Director: E. Lunenberg
428 Prinses Beatrixlaan, P.O. Box 950
2270 AZ Voorburg
Netherlands

WORLD FERTILITY SURVEY
Project Director:
Dr Milos Macura
35–37 Grosvenor Gardens
London SW1W OBS, U.K.

The World Fertility Survey 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 cooperation 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.
This publication is part of the WFS Publications Programme which includes the WFS Basic Documentation, Occasional Papers and auxiliary publications. For further information on the WFS, write to the Information Office, International Statistical Institute, 428 Prinses Beatrixlaan, Voorburg, The Hague, Netherlands.

L'Enquête Mondiale sur la Fécondité (EMF) est un programme international de recherche dont le but est d'évaluer l'état actuel de la fécondité humaine dans le monde. Afin d'atteindre cet objectif, des enquêtes par sondage sur la fécondité sont mises en oeuvre et financées dans le plus grand nombre de pays possible, Ces études, élaborées et réalisées de façon scientifique, fournissent des données représentatives au niveau national et comparables au niveau international.
L'Institut International de Statistique avec l'appui des Nations Unies, a été chargé de la réalisation de ce projet en collaboration avec l'Union Internationale pour l'Etude Scientifique de la Population. Le financement est principalement assuré par le Fonds des Nations Unies pour les Activités en matière de Population et l'Agence pour le Développement International des Etats-Unis.
Cette publication fait partie du programme de publications de l'EMF, qui comprend la Documentation de base, les Documents Non-Périodiques et des publications auxiliaires. Pour tout renseignement complémentaire, s'adresser au Bureau d'Information, Institut International de Statistique, 428 Prinses Beatrixlaan, Voorburg, La Haye, Pays-Bas.

La Encuesta Mundial de Fecundidad (EMF) es un programa internacional de investigación cuyo propósito es determinar el estado actual de la fecundidad humana en el mundo. Para lograr este objetivo, se están promoviendo y financiando encuestas de fecundidad por muestreo en el mayor número posible de países. Estas encuestas son diseñadas y realizadas científicamente, nacionalmente representativas y comparables a nivel internacional.
El proyecto está a cargo del Instituto Internacional de Estadística en cooperación con la Unión Internacional para el Estudio Científico de la Población y con la colaboración de las Naciones Unidas. 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.
Esta publicación ha sido editada por el Programa de Publicaciones de la EMF, el que incluye Documentación Básica, Publicaciones Ocasionales y publicaciones auxiliares. Puede obtenerse mayor información sobre la EMF escribiendo a la Oficina de Información, Instituto Internacional de Estadística, 428 Prinses Beatrixlaan, Voorburg-La Haya, Países Bajos.

Scientific Reports

Evaluation of the Republic of the Philippines Fertility Survey 1978

FLORENTINA REYES

Census Statistical Co-ordinator
National Census & Statistics Office
Government of the Philippines

Contents

APPENDIX TABLES

FIGURES

Preface

One of the major objectives of the World Fertility Survey programme is to assist the participating countries in obtaining high quality data through national fertility surveys. The high standards set by the WFS are expected to yield better quality data than typically obtained in the past, but this expectation in no way obviates the need for a detailed assessment of the quality of the data. It is recognized that such an evaluation will not only alert the analysts by identifying the defects, if any, in the data, but also may throw light on the shortcomings of the WFS approach, which can be taken into account in the design of future fertility surveys.

It is in this context that, as part of its analysis policy, WFS has initiated a systematic programme for a scientific assessment of the quality of the data from each survey. A series of data evaluation workshops is being organized at the WFS London headquarters with the dual objective of expediting this part of the work and of providing training in techniques of analysis to researchers from the participating countries. Working in close collaboration with WFS staff and consultants, participants from four or five countries evaluate the data from their respective surveys after receiving formal training in the relevant demographic and data processing techniques.

The first such workshop, involving researchers from four Latin American countries, was held between July and October in 1979. The second workshop, with participants from Jordan, Guyana, Indonesia, Malaysia and the Philippines, took place between January and April 1980. The present document reports on the results of the evaluation of the data of the 1978 Fertility Survey of the Republic of the Philippines, and was prepared by Florentina Reyes, the participant from that country. Abdullah Abdul-Aziz, Sundat Balkaran, Bondan Supraptilah and Masitah Mohd. Yatim, the other workshop participants, contributed to the present evaluation through their ideas and discussions.

Dr Shea Oscar Rutstein, as the co-ordinator of the workshop, assumed a major responsibility in successful completion of the work, while many other staff members also made significant contributions to it. Dr Noreen Goldman provided valuable assistance as a consultant.

Milos̊ Macura
Project Director

1 Introduction

The Philippine government has long recognized the need for up-to-date knowledge on population as input to its developmental planning policies. This was shown by a National Demographic Survey (NDS) conducted in 1968, followed by a similar survey in 1973. In line with this awareness of population policy and in keeping with the tradition of conducting a nationwide survey on a five-year basis, the Philippines participated in the World Fertility Survey programme (WFS).

The Republic of the Philippines Fertility Survey (RPFS), conducted in 1978, opens up possibilities of a detailed analysis of Philippine reproductive behaviour, since it offers a host of variables which hitherto had not been included in fertility surveys. Earlier surveys indicate that fertility in the Philippines has been declining, but the accuracy of the reported decline has not been ascertained. In order to use the RPFS data to obtain a true picture of the demographic situation in the Philippines, we have undertaken an assessment of the quality of data in the survey.

1.1 OBJECTIVES OF THE ANALYSIS

The quality of data obtained in any enumeration of the population, whether from a census or a survey, is almost always subject to shortcomings. Errors may arise from many sources: faults in the design of the questionnaire, errors produced by the interviewer or inaccurate information supplied by the respondents. It is well known that in developing countries, some respondents may supply inaccurate information because of misunderstanding of the questionnaire, memory lapse, inexperience with calendar systems, or embarrassment. Although it is not usually possible to distinguish the sources of error without experimenting with the design of the survey, the net effect of each source of error is to produce inaccurate responses on the final data tape and to distort the resulting demographic estimates.

The objectives of this analysis are twofold:

i To identify and examine the extent of response error in the RPFS and the extent to which these errors affect basic demographic measures.
ii To obtain reliable estimates of age at first marriage, age-specific and duration-specific fertility rates, and infant and childhood mortality rates.

In the following sections we investigate some of the basic types of errors: misreporting of age and duration, displacement of vital events and omission of vital events. Event displacement, eg the displacement of the date of first marriage or the dates of birth of a woman's children, may arise from misreporting the date of an event or misreporting intervals between events. Because event displacement can cause too many vital events to be concentrated in a particular period when they should have been reported elsewhere, displacement of marriages, births and deaths can cause false impressions of both the time and age patterns of marriage, fertility and infant mortality. Omissions of vital events, eg of early unions or of children who died or left home, can also distort time patterns of marriage, fertility and infant mortality, since typically omissions are more frequent in the remote past. In addition, omissions of births can result in an underreporting of the levels of fertility and infant mortality. Since these errors frequently operate simultaneously, it is often difficult, if not impossible, to distinguish between the types of errors.

The present analysis is divided according to demographic subject: age reporting, nuptiality, fertility, and infant and child mortality. We evaluate the data in the RPFS by checks for internal consistency of the data and tests for consistency with external sources of data. Information on marital status and fertility (numbers of children ever born) is available from the 1960, 1970 and 1975 censuses, and the 1968 and 1973 surveys (NDS). In addition, age-specific fertility rates for some calendar years are available from the 1973 NDS survey.

Before presenting the data evaluation, we review some general characteristics of the Philippine population and of the 1978 RPFS.

1.2 THE POPULATION OF THE PHILIPPINES

The Philippines is situated 600 miles off the south China coast, 6 to 20 degrees north of the equator. About 7107 islands comprise the archipelago. These islands are scattered over a distance of some 1000 miles from north to south and 625 miles from east to west. Its territorial jurisdiction extends over 300000 square kilometres or 116000 square miles.

The Philippine population, which in the 1975 census was about 42070660, is unevenly distributed over the country. While central Luzon accounts for only six per cent of the total area, it has 10 per cent of the total population. On the other hand, northern Mindanao, which represents 15 per cent of the total area, contains only eight per cent of the total population.

In general, the high fertility and much reduced mortality is responsible for the high density and young population prevailing in the country. There were approximately 140 persons per square kilometre in 1975. National Census and Statistics Office (NCSO) estimates indicate that the density will rise to at least 233 persons per square kilometre by the turn of the century. In 1970, 43 per cent of the Philippines population was under the age of 15 and in 1975 the figure rose to 44 per cent.

The level of literacy is very high. The 1970 census reported that eight out of every 10 Filipinos aged 10 years old and over could read and write. This figure represented a gain of over 11 per cent in literacy since 1960. About 86 per cent of the 1975 population had completed at least one grade of schooling, compared with only 81 per cent in 1970.

The population of the Philippines comes from very diverse ethnic and cultural groups and this is reflected in the linguistic situation in the country. No less than 75 different dialects or languages are spoken. However, there are two official languages: Pilipino which is spoken by more than half of the population, but is the mother tongue of about a quarter of the population, and English which is spoken by more than two-fifths of the population, but is the mother tongue of only a fraction.

1.3 THE REPUBLIC OF THE PHILIPPINES FERTILITY SURVEY (RPFS)

The RPFS was carried out in 1978 by the National Census and Statistics Office in close collaboration with the University of the Philippines Population Institute (UPPI), the Commission on Population (POPCOM) and the National Economic and Development Authority (NEDA). A multistage stratified cluster sample of 742 barangays provided a survey population of around 15000 households. The Household Questionnaire enumerated all persons present in the household, but provisions were made to distinguish the *de jure* and *de facto* populations. For the Individual Questionnaire, the *de jure*

population of ever-married women aged 15–49 was selected from the household listing. The main fieldwork was carried out between 27 February and 18 June 1978. The Household Survey yielded a response rate of 86.4 per cent out of 14747 selected households. These interviewed households in turn yielded 9609 potential respondents (ever-married women aged 15–49) for the individual interview. Of these, 9268 women were successfully interviewed, a response rate of 96.4 per cent. Apart from these two questionnaires, which are basic to the WFS programme, two other questionnaires were utilized, namely the Community Level Questionnaire and the Post Enumeration Survey individual questionnaire (PES). The Community Level Questionnaire was designed to obtain basic statistical information about each community: transportation, education, communication and health facilities. This information was supplied mainly by community leaders and barangay chairmen. On the other hand, the PES consisted of selected questions from the Individual Questionnaire. The purpose of this post enumeration was to investigate the reliability of the answers obtained from the individual interviews. Detailed descriptions of these two questionnaires are contained in the First Country Report (National Census and Statistics Office *et al* 1979).

This report concerns itself with data from two questionnaires: the household and individual, particularly the latter. Data available in the Household Questionnaire include basic information about the household members such as relationship to household head, sex, date of birth or age, education and marital status, facilities of the dwelling unit and vital events occurring in the household between 1 January and 31 December 1977. The respondents for the Household Schedule could be any adult member of the household. Normally this person was the head of household or the spouse.

The Individual Questionnaire administered to ever-married women formed the main part of the WFS survey. Interviewers collected information on the following eight broad topics: respondent's background, pregnancy history (including live and non-live births), marriage history, factors affecting fertility (other than contraception), contraceptive knowledge and availability, fertility planning, work history and husband's background. Due to the variety of dialects existing in the country, the Individual Questionnaire was printed in eight major dialects with an English translation underneath.

The records of the 9268 ever-married women who were interviewed were not always complete. There are instances where respondents failed to provide the information asked, particularly with regard to dates of vital events. In this case the missing information was imputed on the basis of response to related questions. If this was not possible, responses were coded as 'not stated'. Imputation can make it more difficult, if not impossible, to check on internal consistencies and response errors in the data. Fortunately, the number of not stated cases for many of the questions was small, and for these questions the effects of imputations are insignificant. For example, table 1 shows that less than three per cent of women could not supply a month and year for their own date of birth and less than two per cent were unable to supply the date of their first live birth. On the other hand, about 15 per cent of women with dissolved marriages could not supply a month and year of dissolution.

Table 1 Percentage of Cases Supplying Month and Year, and Year Only, for Dates of Vital Events

Vital event	Type of date supplied		Number of cases
	Month and year	Year only	
Respondent's birth	97.3	2.5	9 268
First marriage	95.8	3.4	9 268
Most recent marriage	96.9	3.0	9 268
Previous marriage	83.5	9.8	859
Dissolution of previous marriage	85.7	9.1	859
First birth	98.4	1.2	8 837
Penultimate birth	98.5	1.3	7 780
Last birth	99.0	0.8	8 837
Child's death	86.0	9.7	4 076
Pregnancy termination	96.2	3.4	45 238

Source: RPFS 1978

2 Age Reporting

Evaluation of the quality of age reporting in a survey or census is essential, since estimates of vital rates and other demographic measures are very much dependent on reports of age. However, surveys and censuses are frequently beset by age misreporting. This chapter attempts to examine the quality of age reporting from the Household Schedule and the Individual Questionnaire.

2.1 HOUSEHOLD SCHEDULE

Age misreporting may be analysed by graphical representation of the population distribution in single years of age. Age heaping on certain digits (digit preference) is revealed by such graphs. In addition, the extent of digit preference may be measured by Myers' Index.

The age distribution of the Philippine population as obtained from the Household Schedule and as compared with distributions from the 1975 census are presented in figures 1, 2 and 3. As can be noted, age heaping appears to be low for both males and females, with the latter showing slightly more than the former. This heaping is reflected in a Myers' Index of 5.6 for females and of 3.5 for males (see table 2). There seems to be an improvement in age reporting over time in the censuses, from a Myers' Index of 20.1 (with strong preference for digits 0, 5 and 8) in 1960 to 6.7 in 1975. The degree of heaping in the RFPS (4.1) is even lower than that obtained from the 1975 census. Panel B in table 2 shows values of Myers' Index by the type of respondent in the Household Survey. As expected, women who supplied their own reports showed less digit preference than did other informants.

Table 2 Myers' Index of Digit Preference[a] for Reports of Age for Total Population by Sex (from Censuses and Surveys) and for Selected Subgroups (RPFS 1978)

A Total population (ages 10–79)

Censuses	Both sexes	Female	Male
1960	20.1	21.1	19.6
1970	15.9	16.4	15.7
1975	6.7	6.2	6.7
Surveys			
1968 (NDS)	11.2	12.8	11.1
1973 (NDS)	4.9	NA	
1978 (Household Survey, RPFS)	4.1	5.6	3.5

B Subgroups in individual survey (females 20–49)

Respondent in household[b]			
Self-reported	9.4		
Proxy-reported			
• Head or husband	15.2		
• Others	20.8		
Level of education[c]		*Region of residence*[c]	
None	29.5	Metro Manila	12.1
Primary	15.3	Luzon	7.3
Intermediate	7.7	Visayas	13.0
High school	7.4	Mindanao	13.7
Some college	12.1		
College or more	20.5		
Degree of co-operation[c,d]		*Area of residence*[c]	
Bad	27.0	Urban	10.4
Average	11.1	Rural	10.8
Good	10.0		
Very good	16.3		

[a] Myers' Index can assume values between 0 and 180.
[b] According to reported age in the Household Schedule for ever-married women interviewed in the Individual Survey.
[c] According to reported age for ever-married women in the Individual Survey.
[d] According to interviewer's assessment.

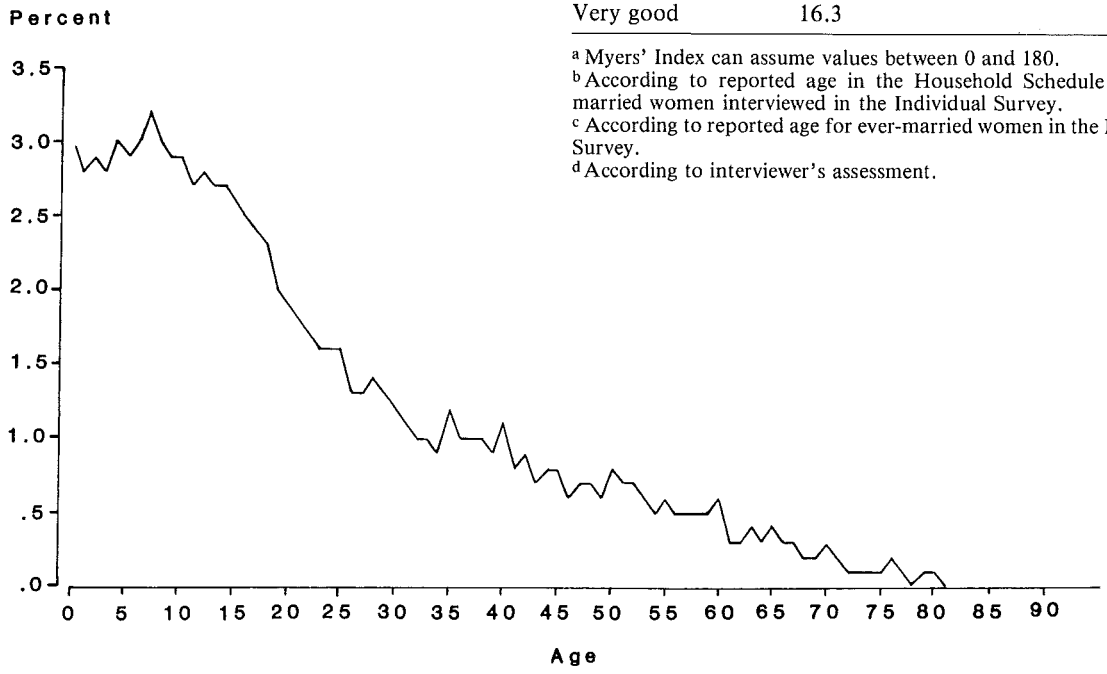

Figure 1 Reported Single-Year Age Distribution of Population in Per Cents, Household Survey, 1978 RPFS

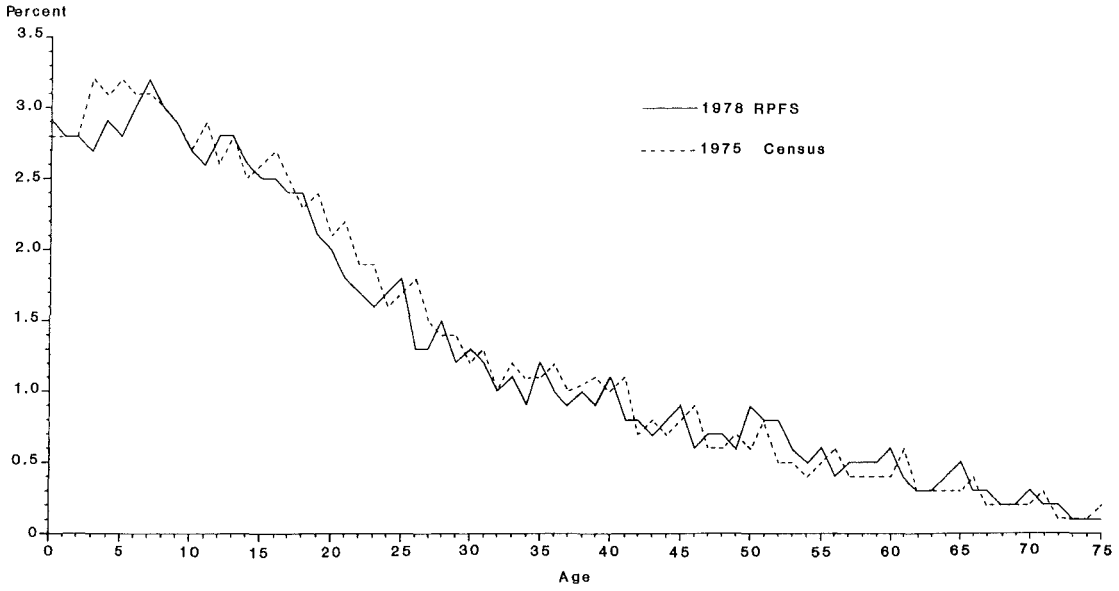

Figure 2 Reported Single-Year Age Distribution of Females in Per Cents, Household Survey, 1978 RPFS and 1975 Census

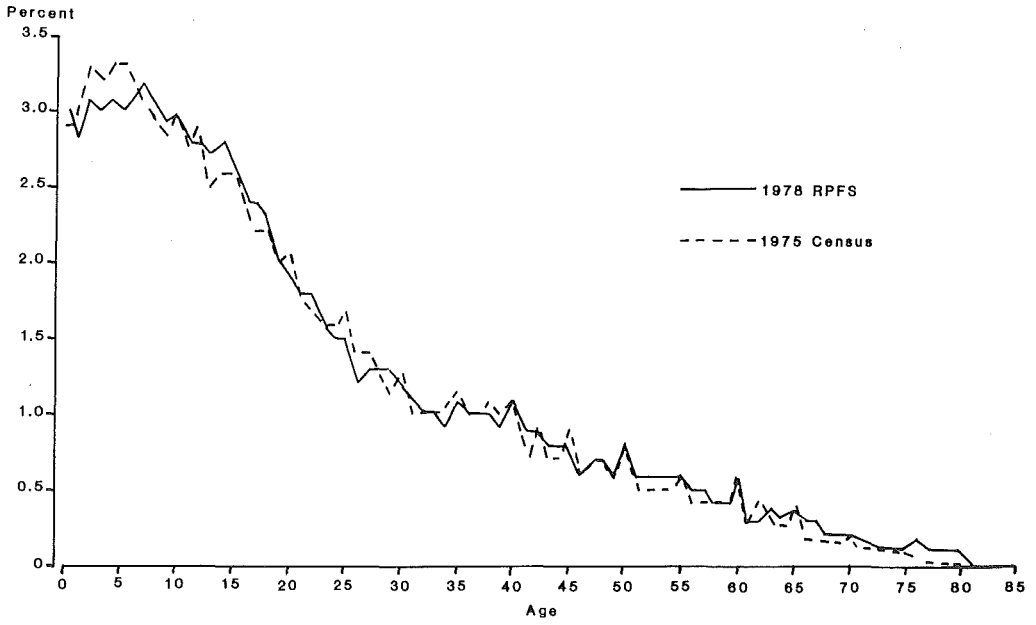

Figure 3 Reported Single-Year Age Distribution of Males in Per Cents, Household Survey, 1978 RPFS and 1975 Census

The age distribution of the RPFS is consistent with that of the most recent census, that of 1975 (see figures 2 and 3). Two points, however, are worth noting. The first is the considerable gap between the census and the survey in the proportion of males and females at the ages of two to five. This gap may be due to overnumeration or undernumeration in the census or survey respectively, or to a recent decline in fertility. The extent of the decline in fertility will be discussed later in chapter 5. The second point is the greater proportion at the ages of 50 to 54 in the survey, more evident among females than males, compared with neighbouring age groups. This anomaly is more pronounced when the age distribution is graphed by five-year age groups (see figure 4). Since 49 is the cut-off age for inclusion in the Individual Survey, it seems that women or interviewers may have shifted the woman's age to avoid interviews. The surplus in the age group 50–54 relative to 45–49 persists when the RPFS is compared with 1973 NDS (data not shown).

Age misreporting may also be examined by looking at sex ratios by age. Comparing the sex ratio in four different years—1970, 1973, 1975 and 1978—we note that the age group 40–44 in 1978 (RPFS) had a much higher sex ratio compared to that of the 1970 and 1975 censuses and the 1973 survey, and that the age group 50–54 had a sex ratio very much lower. These data also suggest that women in their 40s had their ages shifted to older ages (see table 3).

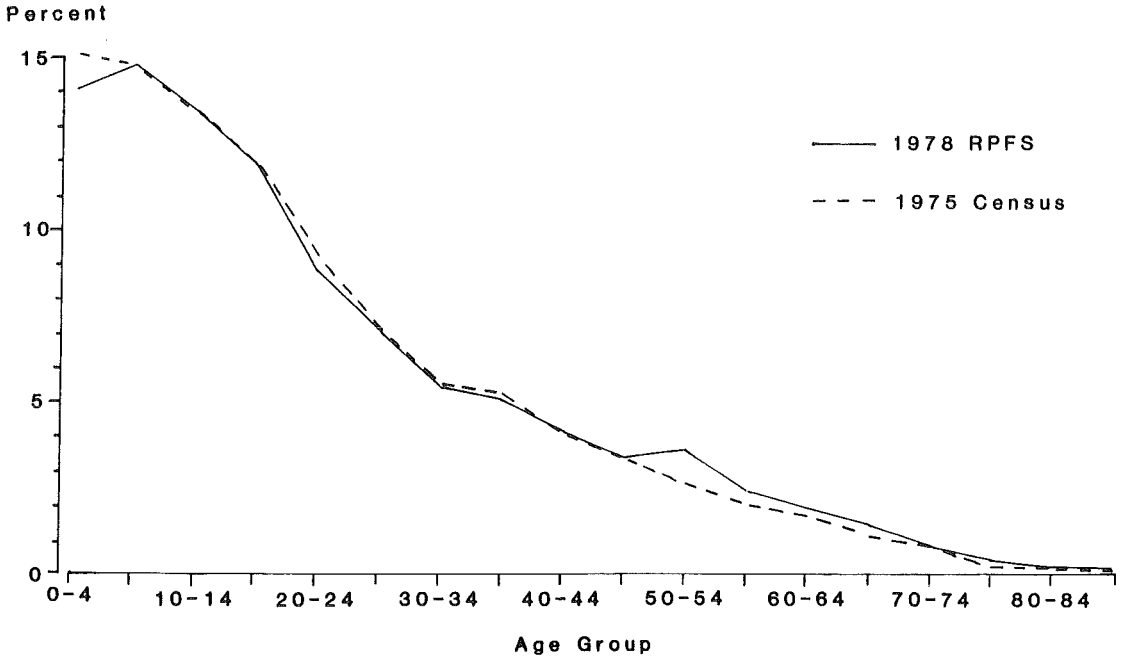

Figure 4 Per Cent Distribution of Female Population by Five-Year Age Groups, 1978 RPFS and 1975 Census

Table 3 Sex Ratio[a] of Philippine Population in 1970, 1973, 1975 and 1978 for Selected Age Groups

	Censuses		Surveys	
Age groups	1970	1975	1973 NDS	1978 RPFS
35–39	98.2	101.3	93.4	99.0
40–44	97.2	102.3	95.6	106.1
45–49	95.4	103.4	85.4	97.5
50–54	97.7	102.3	103.0	84.1
55–59	99.6	105.6	113.9	98.6
60–64	103.0	106.4	98.9	90.8

[a] Males per 100 females.

Source: 1970 census: NCSO (1974), table III-1
1975 census: NCSO (1978), table 6
1973 NDS: UPPI (1974b), table II.A

2.2 INDIVIDUAL QUESTIONNAIRE

Reports of age from the Individual Questionnaire are of particular interest since the Individual Survey is the source of most demographic measures. As noted earlier, all women responding to the Individual Questionnaire were ever-married women listed in the Household Schedule. Of the 9609 eligible respondents, 9268 were actually interviewed.

To determine the extent of digit preference by subgroup in the Individual Questionnaire, women were classified by their background characteristics (see panel B in table 2). There is no differential extent of heaping by urban and rural place of residence, but there is some by region of residence. Women who did not attend school have the highest value of Myers' Index. Contrary to expectation, women who finished college register the second largest index while women with an intermediate or high school education register about the same extent of digit preference.

Reliability of information in the survey can also be examined by the consistency of reports given in the Household Schedule and the Individual Questionnaire. However, since most of the household and individual interviews were administered by the same interviewer on the same day, we expect a high degree of consistency, even for inaccurate responses.

The extent of consistency of age reporting between individual and household schedules was examined using a matched file. Only 32 of 9268 interviews could not be matched with the Household Schedule. Table 4 shows that only two per cent of the interviewed women reported a five-year age group different from that reported in the household. In addition, there are about as many interviewed women whose reported age in the household survey is younger as women whose age is older than in the individual survey (approximately 1.1 and 0.8 per cent respectively). Women 40 years old and over were reported slightly younger in the household (1.8 per cent younger vs 0.6 per cent older) and women 20 years old and younger were reported older in the household (2.5 per cent older vs 0.7 per cent younger), but these inconsistencies result from the cut-off ages of 15 and 49 for the individual interview. Note that the largest numbers of inconsistent reports of age occur within the youngest and oldest age groups.

Table 4 Percentage of Interviewed Women who Reported the Same Age Group in the Individual Survey and the Household Survey by Age Group in Individual Survey, Respondent in the Household Survey and Degree of Co-operation Reported by Interviewer

Classification	Number of women	Percentage with consistent response	Percentage older in Household Survey	Percentage younger in Household Survey
Age group in Individual Survey				
15–19	276	96.8	2.5	0.7
20–24	1222	97.9	1.2	1.1
25–29	1765	98.9	0.7	0.4
30–34	1706	98.2	1.2	0.6
35–39	1665	98.1	1.0	0.8
40–44	1407	98.3	0.4	1.4
45–49	1196	96.6	0.9	2.5
Total	9236	98.0	0.8	1.1
Respondent in the Household Schedule				
Self-reported	8025	98.2		
Proxy-reported				
• Head or husband	606	97.0		
• Others	605	96.8		
Degree of co-operation				
Bad	90	94.8		
Average	2702	97.3		
Good	5669	98.4		
Very good	776	98.5		

Source: RPFS 1978

There are few subgroup differences in the consistency of age reports. The only background variables which seem to affect consistency are education and marital status. The lowest consistency is observed among non-educated (93.3 per cent) and separated women (95.8 per cent). It can be seen in table 4 that consistency is very high even if age is reported by a proxy in the Household Schedule.

Table 4 also shows that consistency of age reports is directly related to the degree of co-operation between respondent and interviewer as assessed by the interviewer. Note that although the level of consistency is highest for 'very good' co-operators, Myers' Index for this group is also relatively high (panel B in table 2). As noted earlier, this suggests consistency even for misreports of age.

In summary, age reporting in the Household Schedule and Individual Questionnaire is highly consistent and digit preference is low. However, it seems that older women may have been slightly undernumerated because of a shifting of ages from below 50 to above 50.

3 Nuptiality

The nuptiality data in the RPFS consist of a detailed marriage history obtained from the Individual Questionnaire as well as reported marital status in the Household Schedule. Data in the individual interview include date of onset of union, date of dissolution of union and reason for dissolution (if the union dissolved), for each union in a woman's history. Interviewers obtained additional information about the date of initial cohabitation through questions as to whether a couple began living together before (or after) the date of formal marriage. It is the date of onset of initial cohabitation, rather than the date of formal marriage, which is coded on the data tape and which is used in this analysis.

The data in the marriage histories will be evaluated via the following checks:

i The consistency of reported marital status in the Household Schedule and the Individual Questionnaire.
ii Comparison of reconstructed marital status distributions based on data in the Individual Questionnaire with published marital status distributions from the censuses and surveys (NDS).
iii Internal consistency of reported date of first union by cohort, as obtained from the Individual Questionnaire.

Calculations of marital status distributions and mean ages at marriage presented in this chapter (tables 6, 7, 8 and 9), as well as calculations of fertility and mortality rates presented in the following chapters, require total numbers of women by age group. Numbers of ever-married women in each age group (from the Individual Survey) must be divided by the proportions of all women who have ever been married in the corresponding age group (from the Household Survey) in order to obtain an age distribution for all women. These estimated numbers of all women are used in the calculations of rates as well as in the reconstructions of marital status and fertility distributions for periods in the past.

3.1 COMPARISON OF THE INDIVIDUAL QUESTIONNAIRE AND THE HOUSEHOLD SCHEDULE

Since only ever-married women are included in the Individual Survey, comparisons between the Individual Questionnaire and the Household Schedule are restricted to the statuses of currently married, widowed and separated. Note that divorce is not included in the questionnaire because divorce is illegal in the Philippines, but that separation refers to permanent separation.

The distribution of ever-married women (aged 15–49) by marital status according to both questionnaires is presented in table 5. Note the almost perfect consistency between the reported marital statuses. As noted earlier, we expect high consistency because, in general, the two questionnaires were administered by the same interviewers on the same day. The lowest level of consistency occurs among separated women, but even here, only three separated women (two per cent) were reported as not separated in the Household Schedule.

Table 5 Reported Marital Status of Ever-Married Women According to the Individual Questionnaire and the Household Schedule

Marital status in Household Schedule	Marital status in Individual Questionnaire			
	Married	Widowed	Separated	Total
Married	8831	1	2	8834
Widowed	1	238	1	240
Separated	1	–	161	162
Total	8833	239	164	9236

Source: RPFS 1978

3.2 COMPARISON WITH EXTERNAL SOURCES OF DATA

A direct comparison of data in the RPFS with data from other sources can be made through a reconstruction of marital status distributions at the dates of censuses and other surveys, on the basis of data in the marriage histories. Table 6 shows percentages of women ever married by age group at the dates of the 1960, 1970 and 1975 censuses, and the 1968 and 1973 surveys (NDS). Note that the percentages ever married as derived from data in the RPFS are considerably higher than the corresponding percentages from both census and other survey data. The discrepancies appear in every age group within each comparison, but are most notable for the younger

Table 6 Percentage of Women Ever Married by Age Group at the Dates of the Censuses and the NDS, Reconstructed from the Marriage History in the RPFS (1978) and as Reported in the Censuses and the NDS

Age group as of specified date	1960		1968		1970		1973		1975		1978
	RPFS	Census	RPFS	NDS	RPFS	Census	RPFS	NDS	RPFS	Census	RPFS
15–19	21.8	12.7	15.8	10.6	15.9	10.8	15.2	8.5	13.0	12.4	7.8
20–24	66.5	55.7	58.0	47.7	55.8	49.6	52.3	44.1	49.3	48.8	41.9
25–29	83.9	80.5	81.1	78.7	82.0	78.5	79.8	75.2	77.8	75.6	70.9
30–34			91.4	87.3	90.3	88.2	89.2	86.3	89.3	87.8	86.3
35–39			93.2	92.8	93.6	91.9	93.6	92.7	92.7	91.7	91.3
40–44							94.1	94.1	94.3	93.1	95.1
45–49											94.3

Source: 1960 census: BCS (1963, table 8)
1968 NDS: Flieger (1975, table 4.2); Stinner (1975, table 1.4)
1970 census: NCSO (1974, table III-1)
1973 NDS: UPPI (1973, table II.A)
1975 census: NCSO (1978, table 8)

age groups. In addition, the discrepancies are largest for time periods furthest in the past. The differences appear to be due to the existence of several probes in the Individual Survey to determine the date of onset of initial cohabitation of the couple, in addition to the date of onset of formal marriage. As noted earlier, the date of cohabitation is used in place of date of first marriage throughout the analysis. Although the censuses and NDS surveys also included both consensual and legal unions in the status 'currently married', it appears as if informal unions were more frequently omitted in these data. (The much closer agreement between the 1975 census data and the RPFS data may be due to more complete coverage of consensual unions in the 1975 census, as compared with previous censuses.)

Table 7 shows percentages of women currently married, widowed and separated at the census and survey dates, as reconstructed from the RPFS data and as reported in the external sources. As expected, percentages currently married are consistently higher from the RPFS than from the other sources. Note also that, in general, percentages widowed are higher from the census and other survey data than as derived from the RPFS marriage histories, suggesting either a misclassification of marital status in one or more of the data sources, or an underrepresentation of widowed women in the RPFS.

The trends in age at marriage as revealed by RPFS data and external sources of data are quite different. If we look at percentages ever married for successive dates from RPFS data (table 6), we note a generally continuous decline in proportions ever married, particularly for the younger age groups. (A steady rise in proportions single since the early 1900s in the Philippines, and hence a continuous increase in the mean age at marriage, has been noted by Smith (1975) and Gonzales (1978).) However, if we compare successive values obtained from census and NDS data, we note almost no decline for the age group 15–19 and a modest decline for 20–24. Although it is possible that misreporting of date of first union in the RPFS has produced some of these descrepancies, it appears as if a more complete recording of consensual unions in the RPFS may be responsible for the differences. The extent of omission and displacement of the date of first union by the older cohorts, as well as trends in age at marriage by period and cohort, are examined in the next section.

3.3 TRENDS IN AGE AT MARRIAGE BY PERIOD AND COHORT

The data presented above reveal increasing proportions single over time. This trend towards an increasing age at marriage is depicted more clearly in table 8, which shows proportions ever married by successive dates five years in the past. Values for a given age group occupy the same row, whereas values for a given cohort can be read along a diagonal. The declines in percentages ever married over time occur at all ages but are most notable in the youngest age groups. In addition, the declines are most rapid over the past five years. The percentages ever married are shown graphically by cohort in figure 5.

Table 7 Reconstruction of Marital Status Distributions of Ever-Married Women (in Per Cents) by Five-Year Age Group for Census Dates (1960, 1970, 1975) and Survey Dates (1968, 1973) from Reported Dates of Marriage in the RPFS, 1978

	Age group at specified date											
Marital status	15–19		20–24		25–29		30–34		35–39		40–44	
A 1960 census												
	RPFS	Census	RPFS	Census	RPFS	Census						
Married	21.6	12.4	65.9	54.5	82.8	78.2						
Widowed	0.3	0.1	0.2	0.6	0.5	1.4						
Separated	0.1	0.2	0.5	0.6	0.6	0.9						
B 1968 NDS[a]												
	RPFS	NDS	RPFS	NDS	RPFS	NDS	RPFS	NDS	RPFS	NDS		
Married	16.2	6.0	57.6	39.0	80.2	73.0	89.6	–	90.1	–		
C 1970 census												
	RPFS	Census	RPFS	Census	RPFS	Census	RPFS	Census	RPFS	Census		
Married	16.2	10.6	55.9	48.6	81.0	76.6	88.2	85.3	90.6	87.4		
Widowed	–	0.1	0.0	0.4	0.3	1.0	1.5	2.0	2.2	3.5		
Separated	0.1	0.1	0.2	0.6	0.6	0.9	0.7	1.0	0.7	1.1		
D 1973 NDS												
	RPFS	NDS	RPFS	NDS	RPFS	NDS	RPFS	NDS	RPFS	NDS	RPFS	NDS
Married	15.1	8.3	52.1	42.8	79.1	73.2	87.5	82.7	90.8	86.3	89.0	85.8
Widowed	–	0.1	0.0	0.1	0.3	0.5	0.9	2.0	1.9	5.1	4.2	5.8
Separated	0.2	0.1	0.3	1.2	0.5	1.5	0.8	1.7	0.9	1.3	1.0	2.6
E 1975 census												
	RPFS	Census	RPFS	Census	RPFS	Census	RPFS	Census	RPFS	Census	RPFS	Census
Married	12.9	12.1	48.5	48.0	77.1	74.2	87.1	85.3	89.2	87.9	89.5	87.1
Widowed	–	0.1	0.1	0.4	0.3	0.9	1.1	1.9	2.5	3.1	4.0	5.1
Separated	0.1	0.1	0.7	0.3	0.5	0.5	1.2	0.6	0.9	0.8	0.8	0.9

[a] 1968 NDS data for the categories 'widowed' and 'separated' for all age groups and for 'currently married' for age groups 30–34 and 35–39 are not available in published form.

Source: See table 6

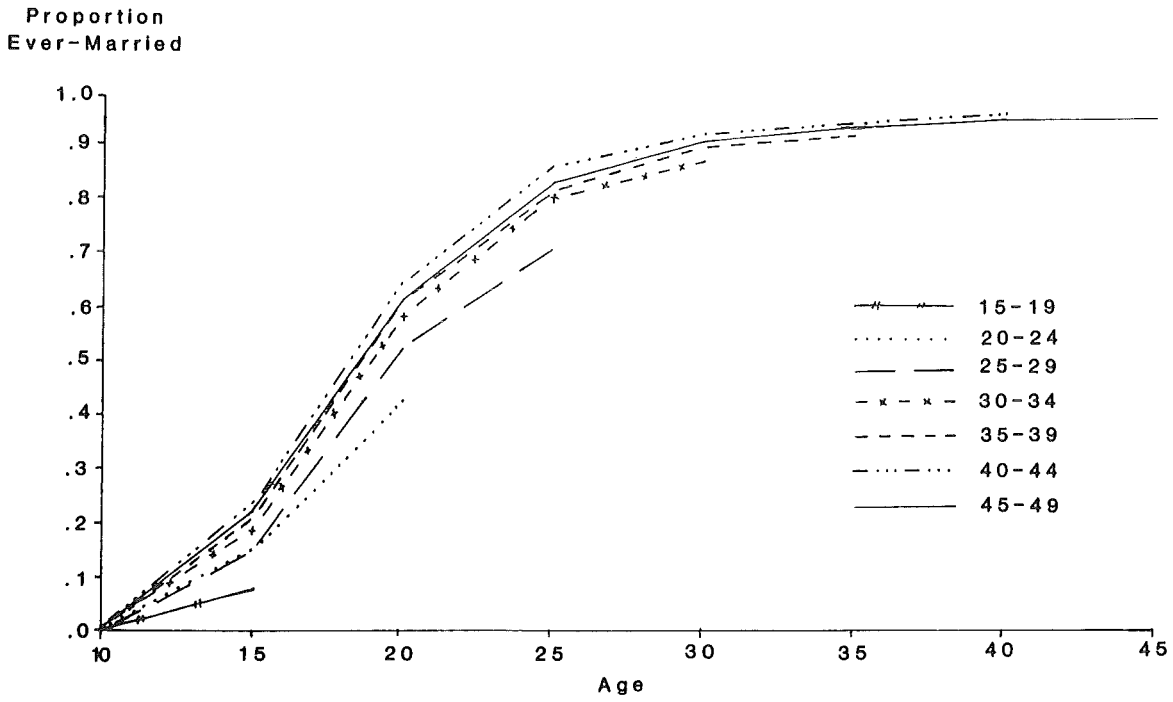

Figure 5 Cumulative Proportions of Women Ever Married by Successive Ages, by Age Group at Survey

Source: RPFS 1978

Table 8 Proportion of Women Ever Married by Age Group at Five-Year Intervals before the Survey

Age at specified period	Years before the survey						
	0	5	10	15	20	25	30
15–19	.076	.151	.152	.190	.211	.236	.229
20–24	.424	.523	.579	.607	.641	.608	
25–29	.704	.799	.813	.857	.827		
30–34	.863	.891	.916	.904			
35–39	.913	.936	.930				
40–44	.950	.941					
45–49	.943						

Source: RPFS 1978

Table 9 Mean Age at First Marriage and Proportion Eventually Marrying by Cohort Estimated from the Coale Nuptiality Model[a]

Age at survey	Model estimate of C		Fixed estimate of C	
	Mean	C	Mean	C
20–24	21.8	.677	24.4	.940
25–29	21.8	.823	23.1	.940
30–34	21.7	.914	22.0	.940
35–39	21.3	.927	21.4	.940
40–44	21.0	.955	21.0	.940
45–49	21.4	.944	21.4	.940

[a] Estimates have been obtained by a maximum likelihood estimation procedure (Rodríguez and Trussell 1980).

Source: Household Schedule and Individual Questionnaire, RPFS 1978

Note that the percentages ever married for the oldest cohort (45–49) are consistently lower than those for the next oldest cohort (40–44) at comparable ages. It appears as if the oldest cohort has displaced the date of first union towards the survey date (or has omitted early unions, most likely early consensual unions). This type of displacement of the date of first marriage has occurred for the older women in many of the WFS surveys (Chidambaram *et al* 1980). Note that a small degree of age misstatement among the older cohorts also could have produced the lower percentages ever married for women aged 45–49.

With the exception of the cohort 45–49, the percentages show a fairly steady decline across cohorts (ie over time). This smooth trend suggests that the extent of error in the dating of first marriage is not large. In particular, the probable displacement of date of first union *towards* the survey date for the oldest cohort suggests that the remaining cohorts would be unlikely to have displaced the date of first marriage *away* from the survey date. It is the latter type of displacement which would produce overestimates of percentages ever married for the earlier periods and would yield the discrepancies between the reconstructed RPFS data and the external sources of data noted in tables 6 and 7.

The marriage experience of each cohort is truncated at the current age of the cohort. Thus, for example, women aged 25 cannot have experienced marriages over age 25. In order to obtain estimates of the mean age at marriage for each cohort for the entire child-bearing period, we have fitted the Coale nuptiality model to reported proportions ever married for each cohort. Coale has shown that the first marriage curves in different populations can be described by a single model schedule which is characterized by three parameters: a_0, the starting age at marriage; k, the pace at which marriages occur relative to a standard population; and C, the proportion eventually marrying (Coale 1971).

Table 9 shows two sets of estimated mean ages at marriage for five-year cohorts. The first set of values is based on a statistical fitting procedure which provides estimates of C as well as estimates of the mean. We note a very low estimate of C for the cohort aged 20–24 (.667) and a moderately low estimate for the cohort aged 25–29 (.823). On the assumption that a high percentage of young women will remain single in the Philippines, the estimated mean ages at marriage (for those women who eventually marry) show little change across cohorts. Although this assumption is plausible and consistent with the reported proportions ever married for the younger cohorts, it appears unlikely that so many women will remain unmarried. Hence, we have obtained a second set of estimates for which we have constrained C to equal 0.94 (the reported

Figure 6 Single-Year Distribution of Age at First Marriage for Ever-Married Women

Source: RPFS 1978

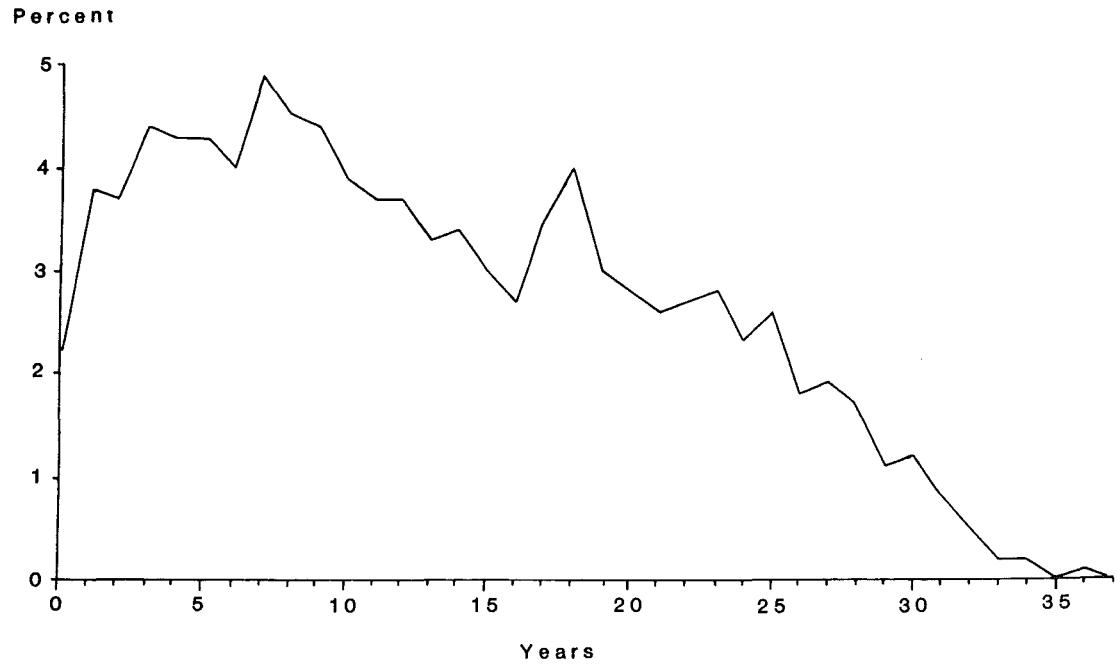

Figure 7 Single-Year Distribution of Years since First Marriage for Ever-Married Women

Source: RPFS 1978

value for the oldest cohort). On the assumption that 94 per cent of women in each cohort will eventually marry, the mean age at marriage shows a steady and large increase from a value of 21.4 for the cohort aged 35–39 to a value three years higher (24.4) for the cohort aged 20–24.

Note that the estimated mean age at marriage for the cohort 45–49 is 0.4 of a year higher than the value for the cohort 40–44. This finding is consistent with the lower percentages ever married reported for the oldest cohort (table 8) and suggests a slight misreporting of date of first marriage or of age for these women.

3.4 DIGIT PREFERENCE

Figure 6 shows the single-year distribution of age at first marriage (for all cohorts combined) and figure 7 shows the single-year distribution of years since first marriage. In general, there appears to be little digit preference in either variable. Although there is some heaping in reported durations, there is no systematic pattern in digit preference (aside from a slight heaping on 25 and 30 years and a larger heaping on 18 years, which probably results from preference for the year 1960 for the onset of marriages).

In summary, the data obtained from the marriage history of the Individual Survey appear to be fairly reliable. Although the reconstructed marital statuses obtained from data in the RPFS do not agree with data from the censuses and NDS surveys, the differences appear to be due to more complete recording of informal cohabitations in the RPFS. The data in the RPFS indicate a fairly steady decline in proportions ever married over time. On the assumption that most women will eventually marry, estimates from a fitted model schedule indicate a large recent increase in age at marriage in the Philippines.

4 Fertility

The detailed maternity histories obtained in the Individual Survey include the date of birth of each child born to the ever-married women in the sample, as well as date of death (or age at death) of each child who died. Hence, if these data are accurate, it is possible to obtain fertility rates by age or marital duration (or by birth or marriage cohort), not only for the recent past, but for periods more distant from the survey. In this chapter, we attempt to determine whether levels and trends in fertility as derived from data in the Individual Questionnaire are correct. As in the previous chapter, the accuracy of the data will be assessed by both internal consistency checks and comparisons with external sources of data (censuses and NDS surveys).

4.1 AGE-SPECIFIC FERTILITY RATES BY CALENDAR YEAR

Table 10 shows age-specific fertility rates by single calendar years for the past 30 years, as well as estimated total fertility rates (TFR) for 1965–1976. Since fertility estimates for the older ages become more truncated for successive years in the past, in the calculation of the TFRs we have estimated missing rates as the average of the rates for the last three years for which data are available. Note that if fertility has declined in the oldest age groups this procedure will underestimate the decline in the total fertility rate. In addition, the TFRs presented in table 10 have been calculated as three-year moving averages of single year TFRs in order to reduce sampling fluctuations.

Although the sampling errors in the calculation of rates in table 10 are high, we can detect a large recent decline in fertility. For example, from the late 1960s (or even 1970) to the mid 1970s (1975–6) the estimated TFR shows a decline from about 6.7 to 5.2, or more than 20 per cent in less than a decade. Moreover, the decline seems to occur in all age groups (see figure 8). As noted earlier, the recent declines in fertility are partly due to an increasing age at marriage, ie the reported declines in percentages ever married are largely responsible for the declines in age-specific fertility rates for the age groups 15–19 and 20–24. We also note large recent fertility declines in the older age groups, declines which result from reduced marital fertility (see section 4.4).

Note, however, that the fertility declines in most age groups are recent. The total fertility rates or the age-specific rates for available age groups show only a slight decline for the years before 1970.

Table 10 Age-Specific and Total Fertility Rates for All Women by Calendar Year

	Age group							
Calendar year	15–19	20–24	25–29	30–34	35–39	40–44	45–49	Total fertility rate (TFR)[a]
1977	42	205	241	248	171	88	12	5.03
1976	51	213	245	233	183	75	41	5.13
1975	56	207	248	239	168	86	27	5.18
1974	58	213	246	220	194	79		5.39
1973	68	236	282	266	179	113		5.71
1972	67	247	293	263	215	109		6.24
1971	73	228	286	273	210	138		6.63
1970	80	264	340	314	255	125		6.75
1969	70	248	315	279	231			6.78
1968	71	277	323	338	211			6.60
1967	67	253	303	279	228			6.71
1966	77	252	326	309	249			6.74
1965	70	277	330	314	257			6.91
1964	73	263	347	322				
1963	85	258	332	311				
1962	92	290	329	304				
1961	98	266	325	298				
1960	97	306	346	322				
1959	85	273	334					
1958	90	293	332					
1957	95	285	286					
1956	96	271	324					
1955	100	257	302					
1954	98	283						
1953	98	257						
1952	96	237						
1951	76	227						
1950	91	210						
1949	65							
1948	93							
1947	59							
1946	33							
1945	33							

[a] In computing the TFR the empty cells are estimated by the average of the last three rates which are available for the corresponding group. Except for 1977, the TFRs shown above are three-year moving averages of TFRs for single calendar years.

Source: RPFS 1978

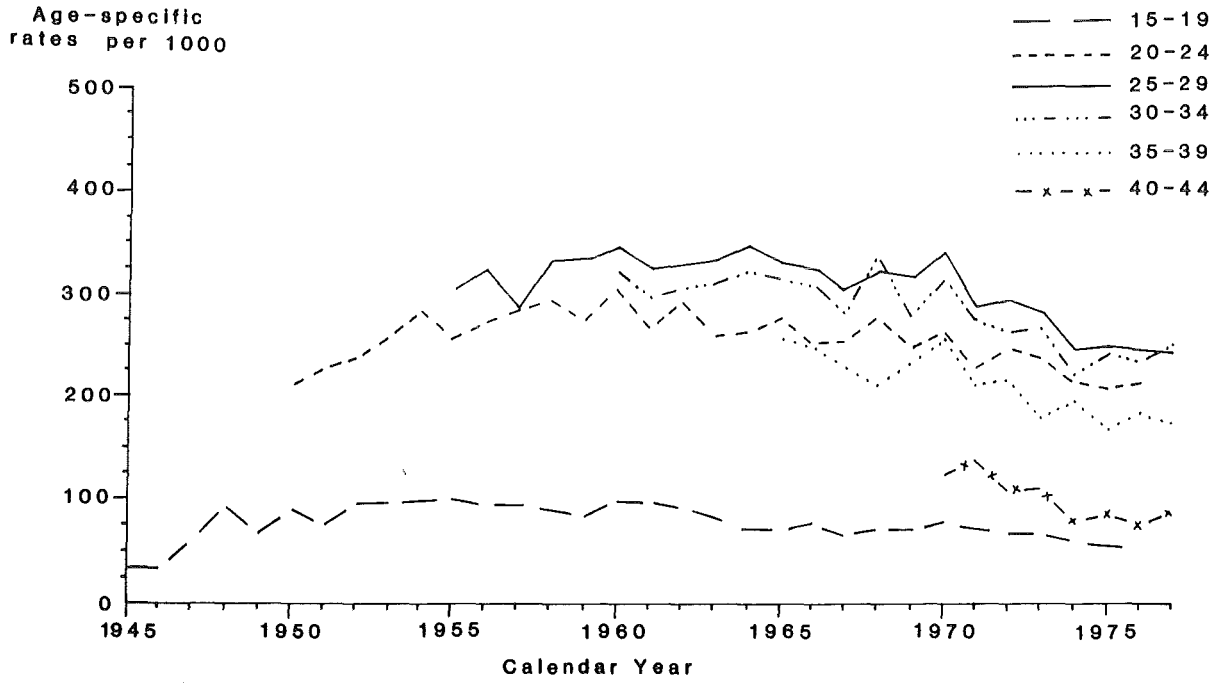

Figure 8 Age-Specific Fertility Rates by Five-Year Age Group by Calendar Year: 1945–77

Source: RPFS 1978

4.2 COMPARISONS WITH EXTERNAL SOURCES OF DATA

To check on the accuracy of reported fertility in the Individual Questionnaire, we can compare age-specific fertility rates derived from the RPFS with those from the 1968 and 1973 NDS surveys. Estimates of age-specific fertility for 1965 and 1970 derived from the 1973 NDS survey have been published and are presented in table 11, along with the corresponding rates reconstructed from data in the RPFS maternity histories. In order to reduce sampling error, the latter estimates have been calculated as three-year moving averages centred on the appropriate calendar year.

Table 11 Age-Specific Fertility Rates (per 1000 Women) for Calendar Years 1965 and 1970 Obtained from 1973 NDS and 1978 RPFS[a]

	1965		1970	
Age group	NDS	RPFS	NDS	RPFS
15–19	74	73	56	74
20–24	254	264	227	247
25–29	313	335	302	314
30–34	281	315	272	289
35–39	216	253	199	232
40–44			100	159

[a] Three-year moving averages of rates centred on 1965 and 1970.

Source: RPFS 1978

Although the age pattern of fertility as derived from the NDS survey and the RPFS are similar, the level of fertility from the RPFS is approximately ten per cent higher. Since it is unlikely that fertility has been overestimated for the recent past (a point which will be discussed in more detail in section 4.4), this comparison suggests that there has been omission of births in the NDS surveys. Note, however, that both data sources suggest a modest decline in fertility (seven per cent) between 1965 and 1970.

Data on the number of children ever born by five-year age group have been published for the censuses and the NDS surveys. These data, together with estimated numbers of children ever born as reconstructed from RPFS data for the census and survey dates, are presented in table 12 for ever-married women and for all women. For the younger age groups (ie below 30–34), the RPFS estimates and the other estimates agree quite closely. On the other hand, for the older age groups, estimates derived from the RPFS are consistently higher than both census estimates and NDS estimates. Since it is unlikely that total numbers of children ever born have been overestimated or that displacement of dates of birth has been large enough to produce overestimates of cumulative fertility at several successive dates (ie 1960, 1968, 1970, 1973 and 1975), the data suggest that children have been omitted from reports in the censuses and NDS surveys. The comparisons indicate that, in general, the NDS surveys have obtained a better coverage of children than have the censuses. The discrepancies between RPFS data and the census data are especially large for 1970, with estimated numbers of children ever born from the 1970 census lower than from any other data source. Hence, the level of omission in the 1970 census seems especially high.

Since reconstructed numbers from the RPFS data are consistently greater than estimates from other sources, it is difficult to determine whether omission of children has occurred in the Individual Questionnaire. We can say, however, that the RPFS obtained a more complete coverage of births than the prior surveys or the censuses. The general agreement between the NDS survey and the RPFS data for age groups 15–19, 20–24, 25–29 and 30–34 suggests that errors in the fertility data of the RPFS are minimal.

Comparing estimated numbers of children ever born for ever-married women and for all women, we note a more pronounced decline in fertility from 1968 to 1975 for the latter group. As we have seen previously, this is due to a rising age at marriage which has reduced fertility in the younger age groups.

Table 12 Mean Number of Children Ever Born (for Ever-Married and All Women) by Age Group at the Dates of the Censuses and the NDS, Reconstructed from the Fertility History in the RPFS (1978) and as Reported in the Censuses and the NDS

	1960		1968		1970		1973		1975	
Age group	RPFS	Census	RPFS	NDS	RPFS	Census	RPFS	NDS	RPFS	Census
A Ever-married women										
15–19	.71	.74	.63	1.11	.66	.68	.70	.85	.69	.82
20–24	1.76	1.77	1.69	1.84	1.70	1.61	1.68	1.85	1.74	1.72
25–29	3.10	3.13	3.20	3.18	3.13	2.77	3.06	3.14	2.94	2.92
30–34			4.80	4.58	4.79	3.92	4.58	4.48	4.43	4.35
35–39			5.89	5.68	6.05	4.86	6.08	5.68	5.95	5.57
40–44							6.76	6.54	6.83	6.37
B All women[a]										
15–19	.16	.09	.10	.12	.10	.10	.11	.07	.09	.10
20–24	1.17	.97	.98	.88	.95	1.02	.88	.82	.86	.84
25–29	2.60	2.47	2.59	2.50	2.56	2.57	2.44	2.36	2.29	2.21
30–34			4.39	4.00	4.32	3.66	4.09	3.87	3.96	3.82
35–39			5.48	5.27	5.66	4.28	5.69	5.27	5.52	5.11
40–44							6.37	6.15	6.44	5.94

[a] These values are based on the assumption that single women have not had any births.

Source: Gonzales *et al* (1978, tables 1 and 2); BCS (1965, table 1)

4.3 COMPLETED FERTILITY BY COHORT

Table 13 shows the reported numbers of children ever born (parity) by five-year cohort. As expected, parities increase with increasing age group of the women. Parity values by single years of age are plotted in figure 9. Again, parity increases with increasing age up to about age 42. However, the pattern is somewhat erratic in the later ages, and the lower than expected values for women in their upper 40s may suggest some omission of births for these women. In general, however, the data do not show the type of marked fluctuations which would indicate a correlation between age misreporting and omission of children.

Table 13 Reported Numbers of Children Ever Born to Women of All Marital Statuses by Five-Year Age Groups

Age group	Mean children ever born
15–19	.06
20–24	.80
25–29	2.08
30–34	3.68
35–39	5.17
40–44	6.40
45–49	6.59
15–49	2.73

Source: RPFS 1978

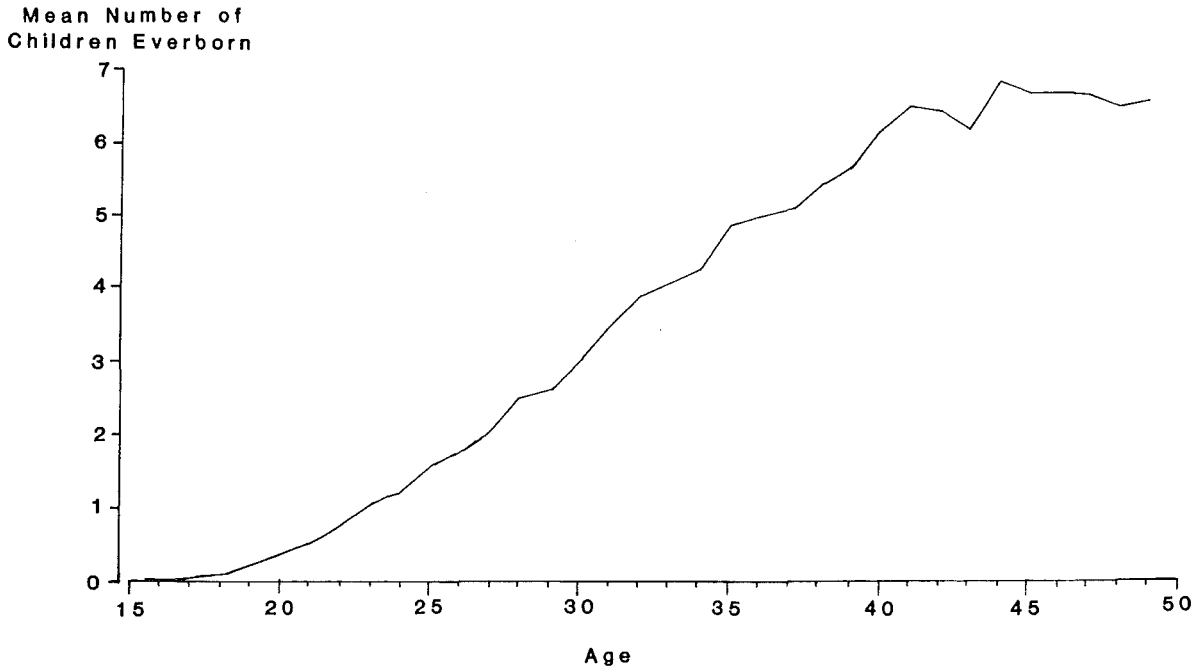

Figure 9 Reported Numbers of Children Ever Born by Single Years of Age

Source: RPFS 1978

4.4 EXAMINATION OF COHORT-PERIOD FERTILITY RATES

A more detailed examination of the birth history data can be undertaken by calculation of fertility rates by cohort and period. The tables throughout this section (and in the appendix) present cohort-period fertility rates, for either birth or marriage cohorts, by five-year periods before the survey. For a definition of these rates see Verma (1980, pp 11–19, 47–8). Panel A of table 14 shows cohort-period fertility rates for birth cohorts defined by five-year age groups at the time of the survey and for five-year periods before the date of the survey. For example the cohort aged 25–29 at the time of the survey had a fertility rate of 242 births per thousand women-years of exposure in the five years preceding the survey. Note that this measure is different from a conventional age-specific fertility rate, as births to the cohort 25–29 in the period 0–4 years from the survey have occurred to women aged 20–29 at the time of birth of the child, a span of ten rather than five years. This rate is directly comparable, however, with the rate of 294 for the cohort 30–34 in the period 5–9 years from the survey, when this cohort was also moving through the ages 20–29.

Comparison of cohort-period rates at equivalent ages, found down the diagonals of panel A in table 14, shows a continuous decline over time except for the cohort 45–49. For example the cohort-period rate of 292 for the cohort 45–49 in the period 20–24 years before the survey increased to 320 and then declined to 299, 294 and 242 for the younger cohorts going through equivalent ages in more recent periods. In the absence of an actual rise in fertility 25 to 30 years ago, these data suggest that the oldest cohort has either omitted some births, displaced dates of births towards the survey date, or misstated its age.

Panel B of table 14 shows cohort-period rates accumulated over time for each cohort. These values correspond to the mean parity that the cohort had achieved at the end of each period and are denoted P_i. Cumulative cohort rates show clearly a decline in fertility across cohorts, except for the cohort 45–49. For example the cohort 25–29 had a mean parity of 2.08 at the time of the survey, compared with a mean parity of 2.45 for the cohort 30–34 five years earlier. The cohort 45–49 had slightly more children by the survey date than the cohort 40–44 (6.59 vs 6.40), but the difference is small and the values in the table suggest that these women have both omitted births and displaced dates of birth in the maternity histories.

Panel C of table 14 shows cohort-period rates accumulated over cohorts for each time period. These values correspond to the cumulative fertility that a synthetic cohort would achieve

Table 14 Fertility Rates by Birth Cohort and Period, Cumulative Rates by Cohorts (P_i) and Periods (F_i) and Ratios of Cumulative Rates (P/F)

Age of cohort at survey	Years before the survey						
	0–4	5–9	10–14	15–19	20–24	25–29	30–34
A Cohort-period fertility rates (per 1000 women)							
15–19	13						
20–24	137	22					
25–29	242	154	19				
30–34	247	294	168	27			
35–39	214	299	299	189	32		
40–44	141	262	327	320	195	34	
45–49	51	177	279	328	292	167	25
B Cumulative rates for cohorts (P_i)							
15–19	0.06						
20–24	0.80	0.11					
25–29	2.08	0.87	0.10				
30–34	3.68	2.45	0.98	0.14			
35–39	5.17	4.10	2.60	1.11	0.16		
40–44	6.40	5.69	4.38	2.75	1.15	0.17	
45–49	6.59	6.34	5.46	4.06	2.43	0.96	0.13
C Cumulative rates for periods (F_i)							
15–19	0.06						
20–24	0.75	0.11					
25–29	1.96	0.88	0.10				
30–34	3.19	2.35	0.93	0.13			
35–39	4.26	3.85	2.43	1.08	0.16		
40–44	4.97	5.16	4.06	2.68	1.14	0.17	
45–49	5.22	6.04	5.46	4.32	2.60	1.01	
D P/F ratios							
15–19	1.01						
20–24	1.06	1.00					
25–29	1.06	0.98	1.00				
30–34	1.15	1.04	1.04	1.03			
35–39	1.21	1.06	1.07	1.02	1.00		
40–44	1.29	1.10	1.08	1.02	1.01	0.99	
45–49	1.26	1.05	1.00	0.94	0.93	0.95	

Source: RPFS 1978

if the period rates prevailed, and are denoted F_i. Cumulative period rates show a clear decline in fertility over time which has accelerated in the past ten and particularly the last five years. For example, in the five years preceding the survey, cumulative fertility up to ages 40 to 44 was 4.97 children, compared with 6.04 children up to an equivalent age in the period 5–9 years before the survey. It is frequently the case that, as a result of displacement of dates of birth in the more distant past towards the survey date, dates of birth become heaped in more recent periods, ie 5–9 or 10–14 years before the survey (Potter 1977; Chidambaram *et al* 1980). A heaping of births by period is not apparent in these data, although a continuous decline in fertility may have obscured some misreporting.

Panel D of table 14 shows the ratios of cohort (P) and period (F) cumulative fertility rates, commonly known as P/F ratios. Since in the absence of fertility change or reporting errors these ratios equal unity, the P/F ratios are frequently used as indicators of omission and displacement errors in reports of births or as measures of fertility change (see, for example, Brass 1978). The P/F ratios indicate a fairly large decline in fertility. A slight amount of omission and displacement of births or age misstatement for the older cohort is indicated by the lower ratios for these women. There is no evidence of misreporting for the remaining cohorts, as the higher ratios are consistent with the recent change in fertility. In particular, the high ratios for the younger cohorts are no doubt due to the recent increase in age at marriage documented earlier.

In table 15 we present cohort-period rates for marriage cohorts defined by marital duration at the time of the survey in five-year intervals. For example, the cohort married 5–9 years at the time of the survey had a rate of 363 births per thousand woman-years of exposure in the five years preceding the survey, when it was going through durations 0–9. Rates for the longer duration cohorts (25–29 and 30–34) should be interpreted with much caution. Since no women over age 49 were interviewed in the Individual Questionnaire, women married for long periods of time were necessarily married at young ages: eg women married 34 years must have been married before the age of 16. Hence, in this type of triangular array, rates for the longer duration cohorts in remote periods (when they were at early durations of 0–4 or 5–9) can often be low because of the subfecundity of the teenage years. On the other hand, rates for the shorter duration cohorts in the most recent periods are not substantially affected by this truncation bias.

An examination of the rates in table 15 shows a large recent decline in marital fertility for marital durations of 10–14 years and higher. In fact, the decline in marital fertility seems to have occurred over the past 15 years. The values for the oldest cohort at the early durations are very low as a result of both truncation bias and misreporting.

It has been shown that when age at marriage is changing, P/F values by marriage duration can frequently give a better indication of reporting errors than P/F ratios by age (Goldman and Chidambaram 1980). Because of the truncation problem we have just noted—women married for long durations were necessarily married at young ages—F values by marriage duration have to be modified. A detailed description of a P/F procedure by marriage duration which compensates for truncation bias is described in Goldman and Chidambaram (1980). P/F values by age and by marriage duration for the period 0–4 years before the survey are presented in table 16. We note that the modified P/F values by marriage duration are very close to unity for durations less than 20–24. These values indicate that no significant reference period error in the reports of recent births has occurred, ie the level of fertility as reported in the five years before the survey appears to be generally correct. The higher values of P/F for the longer marriage durations result from a decline in marital fertility for the higher durations of marriage in the Philippines.

Table 16 P/F Ratios for the Period 0–4 Years before the Survey, by Age and by Marriage Duration at Time of Interview

Age at survey	P/F	Years since first marriage	P/F	
			Unmodified	Modified
15–19	1.01	0–4	1.00	1.00
20–24	1.06	5–9	1.00	1.00
25–29	1.06	10–14	1.05	1.05
30–34	1.15	15–19	1.07	1.04
35–39	1.21	20–24	1.13	1.10
40–44	1.29	25–29	1.18	1.08
45–49	1.26	30–34	1.20	1.00

NOTE: P/F values by age are derived from table 14; unmodified P/F values by marriage duration are derived from the lower panel of table 15. P/F values, modified for truncation bias, are calculated according to the procedure in Goldman and Chidambaram (1980).

4.5 COHORT-PERIOD FERTILITY RATES BY SUBGROUPS

Cohort-period rates for five-year periods before the survey, completed parity values and P/F ratios by age for the period 0–4 years before the survey are presented in the appendix for subgroups defined by region of residence, area of residence and level of education. The data indicate a decline in fertility for all subgroups, with little apparent misreporting. Again, the most obvious error is omission and/or displacement of births and/or age misstatement on the part of the oldest cohort. This is particularly pronounced for women with a primary education or less, among whom the cohort 45–49 has the same number of children as the cohort 40–44, and considerably lower cumulative fertility rates at comparable ages. A comparison of the cumulative fertility or mean parity attained at various ages by the three oldest cohorts is presented in table 17, for the total sample as well as selected subgroups.

Table 15 Fertility Rates by Marriage Cohort and Period

Years since first marriage at survey	Years before the survey						
	0–4	5–9	10–14	15–19	20–24	25–29	30–34
0–4	439						
5–9	363	439					
10–14	264	404	447				
15–19	211	312	404	437			
20–24	156	274	349	417	428		
25–29	90	228	313	370	405	397[a]	
30–34	53	185	297	355	341	374[a]	287[a]

[a] See explanation in the text about truncation bias for longer duration cohorts in remote periods.

Source: RPFS 1978

Table 17 Mean Cumulative Fertility (Mean Parity) of Cohorts 35–39, 40–44 and 45–49, by Age, for Subgroups

Subgroup and cohort	Age						
	15–19	20–24	25–29	30–34	35–39	40–44	45–49
Total							
35–39	0.16	1.11	2.60	4.10	5.17		
40–44	0.17	1.15	2.75	4.38	5.69	6.40	
45–49	0.13	0.96	2.43	4.06	5.46	6.34	6.59
Region of residence							
Metro Manila							
35–39	0.13	0.79	1.93	3.03	3.74		
40–44	0.10	0.78	2.18	3.58	4.42	4.75	
45–49	0.11	0.74	2.10	3.65	4.74	5.30	5.35
Luzon							
35–39	0.14	1.16	2.70	4.24	5.38		
40–44	0.19	1.23	2.96	4.64	5.97	6.68	
45–49	0.12	1.04	2.49	4.16	5.63	6.58	6.89
Visayas							
35–39	0.15	1.08	2.57	4.11	5.20		
40–44	0.16	1.11	2.55	4.12	5.53	6.29	
45–49	0.13	0.84	2.20	3.75	5.10	5.94	6.16
Mindanao							
35–39	0.21	1.21	2.78	4.38	5.48		
40–44	0.19	1.24	2.90	4.68	6.13	7.01	
45–49	0.11	1.09	2.77	4.52	5.98	7.00	7.29
Area of residence							
Urban							
35–39	0.11	0.82	2.08	3.33	4.13		
40–44	0.12	0.88	2.35	3.88	4.94	5.38	
45–49	0.10	0.76	2.10	3.67	4.85	5.55	5.68
Rural							
35–39	0.18	1.25	2.86	4.48	5.68		
40–44	0.19	1.28	2.95	4.64	6.08	6.92	
45–49	0.13	1.05	2.57	4.24	5.73	6.71	7.02
Level of education							
Primary or less							
35–39	0.26	1.39	3.02	4.62	5.84		
40–44	0.30	1.52	3.23	4.92	6.41	7.24	
45–49	0.18	1.24	2.83	4.53	5.98	6.95	7.28
Intermediate							
35–39	0.15	1.24	2.87	4.47	5.62		
40–44	0.13	0.99	2.65	4.29	5.66	6.43	
45–49	0.12	1.00	2.54	4.22	5.70	6.61	6.86
High school or more							
35–39	0.06	0.63	1.78	3.05	3.85		
40–44	0.06	0.71	2.13	3.68	4.72	5.21	
45–49	0.02	0.44	1.61	3.10	4.32	5.03	5.16
Reliability of birth history[a]							
Good or fair							
35–39	0.16	1.10	2.59	4.09	5.15		
40–44	0.17	1.13	2.73	4.35	5.65	6.35	
45–49	0.12	0.94	2.39	4.01	5.39	6.28	6.53
Poor							
35–39	0.29	1.24	2.95	4.44	5.85		
40–44	0.23	1.60	3.36	5.49	6.96	7.85	
45–49	0.30	1.48	3.25	5.29	6.82	7.70	8.04

Continued on p. 24

Table 17 *(Contd.)*

Subgroup and cohort	Age						
	15–19	20–24	25–29	30–34	35–39	40–44	45–49
Degree of co-operation[a]							
Bad or average							
35–39	0.19	1.15	2.68	4.17	5.29		
40–44	0.19	1.22	2.82	4.55	5.87	6.60	
45–49	0.16	0.98	2.51	4.22	5.74	6.68	7.02
Good or very good							
35–39	0.15	1.09	2.57	4.07	5.12		
40–44	0.17	1.11	2.71	4.30	5.60	6.30	
45–49	0.11	0.96	2.38	3.97	5.30	6.15	6.35

[a] Fertility rates are based on proportions ever married for the entire population.

Source: RPFS 1978

We note from table 17 that interviewer assessments (ie reports of the reliability of the birth history and the degree of co-operation between respondent and interviewer) do not serve as good indicators of reporting errors in the birth histories. The oldest cohort has lower cumulative fertility than the next oldest cohort within all categories of assessment. Displacement of dates of children's birth towards the survey date appears to have occurred for urban as well as rural women, with errors apparent even for women with the highest level of education. It is important to note, however, that these errors appear to be confined to the oldest cohort (45–49), and the extent of omission and displacement is never large.

Cohort-period fertility rates (appendix tables A1–A3) show, as expected, much higher recent fertility rates in rural as compared with urban areas. For example, the TFR for the five years preceding the survey equals 6.0 in rural areas compared with 3.8 in urban areas. In addition, the TFR is approximately 5.5 in Luzon, Visayas and Mindanao, whereas the TFR in Metro Manila is 40 per cent lower (3.4). Fertility rates decrease with increasing levels of education, as expected. Although there is little difference in the TFR between women with primary education or less (6.6) and women with intermediate education (6.0), women with at least high school education have much lower fertility (3.9). The rapid decline in fertility for urban and for higher educated women occurs at all age groups, as a result of the increase in age at marriage which affects younger women and the decline in marital fertility which affects older women.

4.6 FURTHER TESTS FOR OMISSION OF BIRTHS

It has frequently been noted that certain types of live births are more likely to be omitted than others in fertility surveys in developing countries. In particular, because of poor memory or misunderstanding of the questionnaire, older women are more likely to fail to report children who died, particularly those who died during periods distant from the survey date. In addition, in societies with a preference for males, female births are more frequently omitted from birth histories than male births. An examination of sex ratios and infant and child mortality rates over time can sometimes point to these selective omissions.

An examination of sex ratios at birth reveals no selective omission by sex of child. The overall sex ratio at birth in the RPFS equals 107, a value which is consistent with ratios obtained from censuses in the Philippines. Sex ratios by period before the survey and subgroups do not indicate relative omission of female births in the remote past, nor noticeable omission for particular subgroups of the population.

Table 18 shows percentages dead among children ever born, for male and female births, by the age of the mother at survey. As we would expect, the proportions dead increase with increasing age of mother, and hence do not indicate selective omission of dead infants. A more detailed examination of infant and child mortality rates by period is presented in the next chapter.

Table 18 Percentage Dead among Children Ever Born by Sex and by Current Age of Mother

Age at survey	Sex		Total
	Male	Female	
15–19	6.0	8.4	6.8
20–24	7.6	6.3	7.0
25–29	8.1	7.5	7.8
30–34	9.1	8.4	8.8
35–39	10.0	9.5	9.8
40–44	12.1	11.2	11.7
45–49	14.2	12.1	13.2
Total	10.7	9.8	10.3

Source: RPFS 1978

4.7 SUMMARY

In summary, a detailed assessment of the fertility data in the RPFS has indicated that these data are generally accurate. Coverage of births in the RPFS is more complete than in any previous census or survey in the Philippines. The level of omission of births appears to be low and displacement of dates of birth seems to have occurred for only the oldest cohort. The reported level of fertility for the recent past (the five years preceding the survey) seems to be accurate. The fertility data indicate a continuous moderate decline in fertility over the 20 years before the survey, with a particularly large decline during the most recent decade. As the decline results from both a rise in age at mariage and reductions in marital fertility rates at older ages and higher marital durations, all age groups have experienced declining fertility.

5 Infant and Child Mortality

Information on date of death (or age at death) of each child who died was obtained in the Individual Questionnaire. These data, combined with data on dates of all births in the maternity history, can be converted into standard measures of infant and child mortality: the probability of dying between birth and exact age one ($_1q_0$), the probability of dying between exact age one and exact age five ($_4q_1$) and the probability of dying between birth and exact age five ($_5q_0$). A calculation of infant and child mortality rates by period can be used to determine whether children who died were selectively omitted from the survey, as well as to estimate levels and trends in mortality.

The data in table 19 show infant and child mortality rates for five-year calendar periods. With the exception of a lower infant mortality rate ($_1q_0$) for the period 1944–8 (.081) than for 1949–53 (.090), the estimates show a steady decline in $_1q_0$, $_4q_1$ and $_5q_0$, from the mid-1940s to the early 1970s. The decline is fairly rapid from about 1950 to 1960, but is very slight from the early 1960s onwards. Three-year moving averages of single-year infant and child mortality rates are plotted in figure 10 and confirm the rapid decline in the 1950s and the ensuing plateau.

Table 19 Numbers of Deaths and Probabilities of Dying within One ($_1q_0$) and Five ($_5q_0$) Years of Birth, and between One and Five Years ($_4q_1$), for Five-Year Periods in the Past

Period of birth	Number of births	Number of deaths by age at death			Probability of dying		
		<1	1–4	<5	$_1q_0$	$_4q_1$	$_5q_0$
1944–48	258	21	21	42	0.081	0.089	0.163
1949–53	1 555	140	87	227	0.090	0.061	0.146
1954–58	4 022	266	196	462	0.066	0.052	0.115
1959–63	6 780	392	241	633	0.058	0.038	0.093
1964–68	9 231	514	311	825	0.056	0.036	0.089
1969–73	11 128	622	352	974	0.056	0.033	0.090[a]
1974–76	6 459	383	–	–	0.059	–	–

[a] 1969–1972.

Source: RPFS 1978

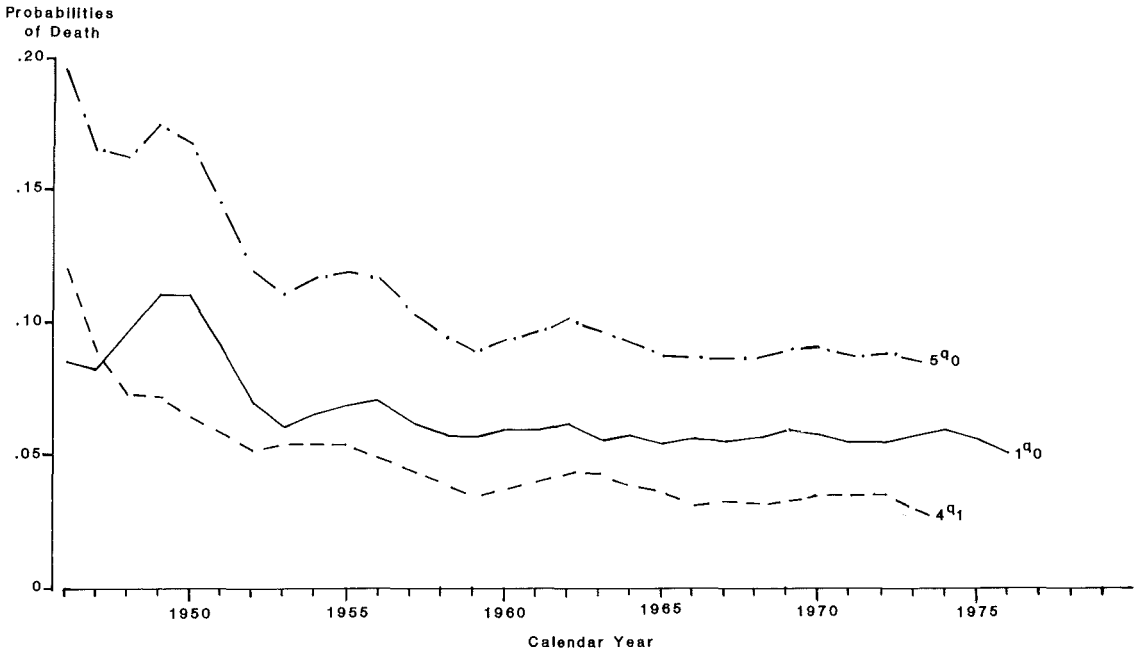

Figure 10 Probabilities[a] of Dying within One ($_1q_0$) and Five ($_5q_0$) Years of Birth and between One and Five Years ($_4q_1$) by Calendar Year: 1946–76

[a] Probabilities are three-year moving averages of single-year probabilities.

Source: RPFS 1978

Displacement errors in the dating of births and deaths, if they exist, are not frequent or large enough to produce an implausible trend in infant mortality rates. The data below show a comparison of the probabilities of dying in the first five years of life ($_5q_0$) as derived from the RPFS and the NDS surveys for the years 1960, 1968 and 1973:

	NDS	RPFS
1960	0.124	0.090
1968	0.081	0.083
1973	0.077	0.079

The two sets of estimates are extremely close to one another for 1968 and 1973 but differ considerably for 1960. Whether the discrepancy is the result of an overestimate in the NDS or an underestimate in the RPFS cannot be determined from the information available.

Table 20 shows the probabilities of dying in the first five years of life by five-year periods before the survey for male and female births. For each sex the data show an essentially monotonic decline in mortality, with male rates higher than the corresponding female rates (with one exception) as expected. The implied level of model life table (Coale and Demeny 1966, West level) is shown for each period and each sex. The basic agreement between the levels for males and for females (which implies an expected sex differential built into the model life tables) confirms the finding that female deaths have not been selectively omitted from the maternity histories.

Table 20 Proportion of Children Born at Least Five Years before the Survey who Died before Fifth Year ($_5q_0$), and Corresponding Level of Model Life Table, by Sex, for Five-Year Periods before the Survey

Years before the survey	Male		Female	
	$_5q_0$	Level[a]	$_5q_0$	Level[a]
5–9	0.096	18.2	0.081	18.4
10–14	0.097	18.1	0.086	18.1
15–19	0.095	18.2	0.092	17.9
20–24	0.115	17.2	0.117	16.7
25–29	0.177	14.2	0.138	15.8

[a] Level of model life table, West series (Coale and Demeny 1966).

Source: RPFS 1978

For successive periods further in the past, the average age of mother at the time of birth of the children becomes progressively younger. For example, for the period 20–24 years before the survey, no mother could have been older than 30, since no women older than 50 are included in the Individual Survey. Hence, strictly speaking, infant mortality rates for periods in the past should be calculated for comparable ages of motherhood. Table 21 shows these rates ($_1q_0$) for five-year periods before the survey, by the age of the mother at the time of birth of the child. We note the expected U-shaped pattern with the highest mortality rates in the age groups 15–19 and 40–44 (the sample size is very small for women aged 45–49). In general, the rates within each age group show a decline over time.

Infant and child mortality rates are shown by subgroup (region and area of residence and level of education) in table 22. Sample sizes are not sufficiently large to consider rates over time within each subgroup. However, the data indicate the expected differentials in mortality: higher values in rural as compared with urban areas and decreasing values with increasing levels of education.

In summary, the data on infant and child mortality appear to be accurate. Death rates show a steady decline over the past 30 years, and the rates follow the expected pattern by age of mother at time of birth of the child, as well as the expected sex differential in mortality. Although the data show a marked peak around 1950 (figure 10) and an unexpected long plateau through the 1960s and early 1970s, close examination of the data reveals no obvious errors.

Table 21 Probability of Dying within One Year of Birth ($_1q_0$) for Five-Year Periods before the Survey and Age Group of Mother at Time of Birth of the Child

Age group of mother at birth of child	Number of births	Years before the survey						
		1–4	5–9	10–14	15–19	20–24	25–29	Total
15–19	5 066	0.053	0.055	0.057	0.084	0.071	0.111	0.070
20–24	13 110	0.048	0.057	0.050	0.054	0.063	0.078	0.055
25–29	11 664	0.049	0.051	0.050	0.051	0.070		0.052
30–34	7 641	0.055	0.059	0.064	0.067			0.060
35–39	3 722	0.069	0.064	0.074				0.068
40–44	987	0.082	0.071					0.078
45–49	74	(0.055)						(0.055)
Total		0.055	0.057	0.056	0.059	0.066	0.097	0.059

Source: RPFS 1978

Table 22 Numbers of Deaths and Probabilities of Dying within One ($_1q_0$) and Five ($_5q_0$) Years of Birth and between One and Five Years ($_4q_1$) by Subgroup

Subgroup	Number of births	Number of deaths by age at death			Probability of dying		
		<1	1–4	<5	$_1q_0$	$_4q_1$	$_5q_0$
Region of residence							
Metro Manila	4 178	167	76	243	0.040	0.019	0.058
Luzon	18 942	1086	593	1679	0.057	0.033	0.089
Visayas	10 424	645	366	1011	0.062	0.037	0.097
Mindanao	8 932	592	323	915	0.066	0.039	0.102
Area of residence							
Urban	11 876	563	297	860	0.047	0.026	0.072
Rural	30 601	1927	1060	2987	0.063	0.037	0.098
Level of education							
Primary or less	15 982	1194	725	1919	0.075	0.049	0.120
Intermediate	15 687	885	480	1365	0.056	0.032	0.087
High school or more	10 806	412	152	564	0.038	0.015	0.052

Source: Based on births and deaths between 1939 and 1978, RPFS 1978

6 Summary of Findings

This detailed evaluation of age reporting, nuptiality, fertility, and infant and child mortality data has revealed few serious errors in the RPFS data. Reports of age seem to be more accurate and reports of unions and children ever born seem to be more complete than those previously obtained from censuses and the NDS surveys. There is no strong evidence of omission of births or infant deaths in the maternity histories, although some omission may be present in the reports of the oldest cohort (women aged 45–49). In addition, there is some evidence that the oldest cohort has displaced the date of first marriage and the dates of birth of their children towards the survey date, or has misstated its age. The displacement produces proportions ever married and fertility rates for periods in the past which are too low. However, the extent of displacement appears to be small, and this analysis suggests that such reporting errors are mainly confined to a single cohort.

The analyses have also indicated continuous declines in percentages ever married over time. On the assumption that most women in the Philippines will eventually marry, these declines indicate a large increase in the mean age at marriage, particularly in recent years. Fertility rates show a modest but steady decline through the 1960s and a more rapid decline since 1970. The fertility decline results from both an increase in age at marriage and from declines in marital fertility. Data on infant and child mortality indicate a steady reduction in death rates through the 1950s but only very modest declines since 1960.

Appendix Tables

Table A1 Cohort-Period Fertility Rates, Current Parity, Cumulative Fertility and P/F Ratios for 0–4 Years before the Survey, by Region of Residence

Age of cohort at survey	Number of women	Years before the survey							0–4 years before the survey		
		0–4	5–9	10–14	15–19	20–24	25–29	30–34	P	F	P/F
A Metro Manila											
15–19	591	6							0.03	0.03	1.00
20–24	517	87	7						0.47	0.47	1.01
25–29	420	173	105	13					1.45	1.33	1.09
30–34	295	188	220	92	4				2.52	2.27	1.11
35–39	224	141	220	229	130	27			3.74	2.98	1.25
40–44	187	66	167	281	281	135	20		4.75	3.31	1.44
45–49	155	12	111	218	311	271	126	22	5.35	3.37	1.59
B Luzon											
15–19	1389	13							0.06	0.06	1.00
20–24	1118	155	26						0.90	0.84	1.08
25–29	933	251	162	20					2.17	2.10	1.03
30–34	847	249	315	194	32				3.95	3.34	1.18
35–39	769	230	307	309	202	29			5.38	4.49	1.20
40–44	643	142	267	336	345	209	38		6.68	5.20	1.29
45–49	581	63	189	295	333	292	182	25	6.89	5.51	1.25
C Visayas											
15–19	924	10							0.05	0.05	1.00
20–24	575	135	15						0.75	0.72	1.03
25–29	580	263	172	21					2.28	2.04	1.12
30–34	464	275	300	155	29				3.80	3.42	1.11
35–39	461	216	308	299	186	30			5.20	4.50	1.15
40–44	387	152	281	314	289	190	32		6.29	5.26	1.20
45–49	327	44	168	270	309	273	141	26	6.16	5.48	1.12
D Mindanao											
15–19	807	17							0.08	0.08	1.00
20–24	668	151	32						0.91	0.84	1.09
25–29	601	248	157	21					2.13	2.08	1.02
30–34	377	255	298	182	31				3.82	3.36	1.14
35–39	381	220	319	315	200	41			5.48	4.46	1.23
40–44	268	175	290	357	331	210	38		7.01	5.33	1.31
45–49	212	57	206	291	351	336	195	23	7.29	5.62	1.30

Source: RPFS 1978

Table A2 Cohort-Period Fertility Rates, Current Parity, Cumulative Fertility and P/F Ratios for 0–4 Years before the Survey, by Area of Residence

Age of cohort at survey	Number of women	Years before the survey							0–4 years before the survey		
		0–4	5–9	10–14	15–19	20–24	25–29	30–34	P	F	P/F
A Urban											
15–19	1292	18							0.04	0.04	1.00
20–24	1160	95	11						0.53	0.52	1.03
25–29	937	194	117	15					1.63	1.49	1.09
30–34	727	207	242	125	13				2.93	2.52	1.16
35–39	603	160	250	253	142	21			4.13	3.32	1.24
40–44	498	88	212	307	294	150	25		5.38	3.76	1.43
45–49	416	25	139	238	313	267	133	20	5.68	3.77	1.50
B Rural											
15–19	2265	16							0.08	0.08	1.00
20–24	1728	165	29						0.97	0.90	1.08
25–29	1571	272	178	22					2.36	2.28	1.04
30–34	1255	271	324	192	35				4.11	3.62	1.14
35–39	1227	241	324	322	213	37			5.68	4.82	1.18
40–44	984	168	288	338	333	218	39		6.92	5.66	1.22
45–49	859	63	195	298	334	304	184	27	7.02	5.98	1.17

Source: RPFS 1978

Table A3 Cohort-Period Fertility Rates, Current Parity, Cumulative Fertility and P/F Ratios for 0–4 Years before the Survey, by Level of Education

Age of cohort at survey	Number of women	Years before the survey							0–4 years before the survey		
		0–4	5–9	10–14	15–19	20–24	25–29	30–34	P	F	P/F
A Primary or less[a]											
15–19	458	23							0.12	0.12	1.00
20–24	397	230	66						1.48	1.27	1.17
25–29	475	309	229	39					2.89	2.81	1.03
30–34	495	276	309	201	52				4.19	4.19	1.00
35–39	585	245	318	328	225	52			5.84	5.42	1.08
40–44	556	165	297	340	341	245	59		7.24	6.24	1.16
45–49	608	66	194	290	340	317	212	37	7.28	6.57	1.11
B Intermediate[a]											
15–19	1287	18							0.09	0.09	1.00
20–24	876	189	28						1.08	1.04	1.04
25–29	823	283	199	26					2.54	2.45	1.04
30–34	760	273	338	202	29				4.21	3.82	1.10
35–39	706	229	320	326	218	30			5.62	4.96	1.13
40–44	488	154	273	329	331	196	26		6.43	5.73	1.12
45–49	313	50	182	295	337	309	176	24	6.86	5.98	1.15
C High school or more[a]											
15–19	1768	6							0.03	0.03	1.00
20–24	1588	88	8						0.48	0.47	1.02
25–29	1196	191	97	7					1.48	1.42	1.04
30–34	724	202	238	109	8				2.78	2.44	1.14
35–39	539	160	253	232	114	11			3.85	3.24	1.19
40–44	437	98	207	312	283	130	11		5.21	3.73	1.40
45–49	353	26	141	244	297	235	84	5	5.16	3.86	1.34

[a] Primary or less education includes women with four or fewer years of schooling; intermediate education includes women with between five and seven years of schooling; high school or more education includes women with at least eight years of schooling.

Source: RPFS 1978

References

Brass, W. (1978). Screening Procedures for Detecting Errors in Maternity History Data. WFS Technical Paper No 810.

Bureau of the Census and Statistics (1963). *Census of the Philippines: 1960 Population and Housing*. Manila, Philippines.

Bureau of the Census and Statistics (1965). *Fertility and Labour Force Characteristics (Special Report)*. Manila, Philippines.

Chidambaram, V.C., J.G. Cleland, N. Goldman and S. Rutstein (1980). An Assessment of the Quality of WFS Demographic Data. Paper presented at the Seminar on the Analysis of Maternity Histories, London, 9–11 April 1980.

Coale, A.J. (1971). Age Patterns of Marriage. *Population Studies 25:* 193–214.

Coale, A.J. and P. Demeny (1966). *Regional Model Life Tables and Stable Populations*. Princeton, NJ: Princeton University Press.

Flieger, W. (1975). Fertility Levels and Fertility Trends. In Flieger, W. and P.C. Smith, Eds *Demographic Paths to Modernity*. Quezon City, Philippines: University of the Philippines Press.

Goldman, N. and V.C. Chidambaram (1980). A Reinvestigation of the P/F Ratio Method. WFS Technical Paper No 1429.

Gonzales, M. (1978). *The Impact of Changes in Marriage Patterns on Fertility in the Philippines*. NCSO Monograph No 13. Manila, Philippines.

Gonzalez, M., M.P. Alegre and A.R. Cross (1978). An Analysis of Cumulative Fertility in the Philippines using 1975 Census Data. *NCSO Occasional Paper* No 2. Manila, Philippines.

National Census and Statistics Office (1974). *1970 Census of Population and Housing*. Manila, Philippines.

National Census and Statistics Office (1978). *1975 Integrated Census of the Population and its Economic Activities*. Manila, Philippines.

National Census and Statistics Office, University of the Philippines Population Institute, Commission on Population, and National Economic and Development Authority (1979). *Republic of the Philippines Fertility Survey 1978, First Report*. Manila, Philippines.

Potter, J.E. (1977). Problems in Using Birth History Analysis to Estimate Trends in Fertility. *Population Studies 31:* 335–64.

Rodríguez, G. and J. Trussell (1980). Maximum Likelihood Estimation of the Parameters of Coale's Model Nuptiality Schedule for Survey Data. *WFS Technical Bulletin* No 7.

Smith, P.C. (1975). Twentieth-Century Trends in Marriage and Childbearing. In Flieger, W. and P.C. Smith, Eds *Demographic Paths to Modernity*. Quezon City, Philippines: University of the Philippines Press.

Smith, P., Z. Zablan and N. Viriña (1975). Preliminary Estimates of National Level Mortality, 1960, 1968 and 1973, and Mortality Differentials around 1970. *Research Note* No 43.

Stinner, W.F. (1975). Modernization, Marriage and Childbearing. In Flieger, W. and P.C. Smith, Eds *Demographic Paths to Modernity*. Quezon City, Philippines: University of the Philippines Press.

University of the Philippines Population Institute (1974a). Weighted Marginals on Records 1 through 8. National Demographic Survey of May 1973.

University of the Philippines Population Institute (1974b). Distribution of Population by Age, Sex, and Marital Status, May 1973: Urban–Rural and Regional Patterns. *Research Note* No 19.

Verma, Vijay (1980). Basic Fertility Measures from Retrospective Birth Histories. *WFS Technical Bulletin* No. 4.