Fertility in Pakistan during the 1970s

Shah, Iqbal H. and Pullum, Thomas W. and Mohammad, Irfan

Vrije Universiteit Brussel, Brussels, Belgium, University of Washington, USA, Pakistan Institute of Development Economics Islamabad Pakistan

June 1985

J. biosoc. Sci. (1986) **18**, 215–229

FERTILITY IN PAKISTAN DURING THE 1970s

IQBAL H. SHAH*, THOMAS W. PULLUM† AND MUHAMMAD IRFAN‡

**Vrije Universiteit Brussel, Brussels, Belgium, †University of Washington, Seattle, Washington, USA, and ‡Pakistan Institute of Development Economics, Islamabad, Pakistan*

Summary. A survey conducted in 1975, as part of the World Fertility Survey programme, provided evidence that fertility began to decline in Pakistan during the early 1970s. Because of the low level of contraceptive use recorded in that survey, the fertility decline was attributed to delayed marriage. However, a second and similar survey conducted approximately 5 years later showed almost exactly the same pattern of very recent decline, and indeed a reduction in contraceptive use. The two surveys disagreed for the period of overlap. It is concluded that there were essentially no changes in fertility during the decade, and that it remained at pre-1970 levels.

Introduction

This paper analyses evidence of trends in fertility and related variables in Pakistan during the 1970s using data from two comparable surveys, the 1975 Pakistan Fertility Survey (PFS) and the 1979–80 Population, Labour Force, and Migration Survey (PLM). Both surveys suggest that fertility was fairly constant, with a total fertility rate around 7·0 until the 5-year period preceding the survey (1970–74 and 1975–79, respectively), during which it declined abruptly (Fig. 1). They therefore conflict in the apparent date of decline. The critical issue is whether this decline is real or spurious.

With a 1981 population of 84·3 million people, Pakistan is the ninth most populous country in the world. It has a total land area of 796,095 km^2. The country is divided into four major provinces: the North-West Frontier Province (NWFP), Punjab, Sind, and Baluchistan, as well as some special areas. According to the 1981 Census, about 56% of the total population lives in Punjab, 23% in Sind, 13% in NWFP, 5% in Baluchistan, and the remaining 3% in federally administered tribal areas and the capital city of Islamabad. The people are almost universally Muslim (97%), predominantly illiterate (79%), and largely rural (71%). Selected socioeconomic indicators reported in the Sixth Five-Year Plan (1983–88) for the benchmark year 1983 are: (1) an infant mortality rate of 90 per 1000 live births; (2) an average life expectancy at birth of 55 years; (3) clean drinking water available to only 38% of the population (22% of the rural population); (4) modern

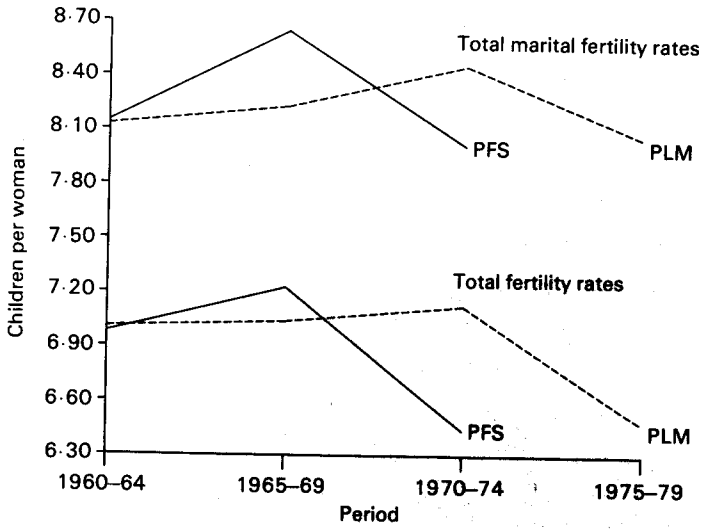

Fig. 1. Total marital fertility and total fertility rates, by period, PFS and PLM.

sewerage facilities confined to 16%; and (5) electricity available to only 31% of the population. The per capita gross national product for 1981, provisionally estimated by the World Bank, amounted to US$349. An upsurge in out-migration of workers was witnessed during the 1970s. Three million workers, approximately 4% of the total 1981 population, were estimated to be working abroad in 1980–81, mostly in Middle Eastern countries.

Social indicators of women's status show a wide gap between males and females with regard to literacy and labour force participation. Only 10% of females are literate as compared to 30% of males (UNESCO, 1983). There are only fourteen female employees to every 100 male employees (International Labor Office, 1983, Tables 2A and 2B).

The intercensal growth rate between 1972 and 1981 averaged nearly 3% per annum. Fertility is high, with women aged 45 and over averaging approximately seven children ever born. Despite the existence of a family planning programme since 1965, the use of contraception is extremely low. Programme coverage has been inadequate even in years of high priority and relatively greater political stability. For example, in 1975 the programme reached only 6% of the couples of whom the wife was of reproductive age. Among those couples who were covered by the programme that year, 75% of wives were over age 30 and had already had several births.

Sources of data

Pakistan has a long tradition of data collection. In areas which now constitute Pakistan, the first census was [illegible] census data have been available on a decennial basis [illegible] conducted on a national

scale in Pakistan include (1) the Population Growth Estimation Experiment (PGE) of 1962–65; (2) the Population Growth Survey (PGS) of 1968–71 and 1976–78; (3) the National Impact Survey (NIS) of 1968–69; (4) the Household, Economic, and Demographic Survey (HED) of 1973; (5) the Pakistan Fertility Survey (PFS) of 1975; and (6) the Population, Labour Force, and Migration Survey (PLM) of 1979–80. The PGE and PGS were multi-round surveys, whereas the others were cross-sectional single round surveys.

Despite this large accumulation of data, the precise levels of fertility, mortality, and population growth have remained elusive (e.g. Yusuf, 1981). In addition to the problem of consolidating evidence from several surveys with differing methodologies, the data in most of these surveys are seriously affected by reporting errors. For example, among women included in the PGE, for whom data were obtained through a dual record system (longitudinal registration through repeated household visits and cross-sectional data during 1962–65), 23% reported ages 1–3 years higher in 1965 than they should have been according to the ages they reported in 1962 (Hashmi & Alam, 1969). The registration system is likewise highly deficient. The data collected through vital registration are too incomplete to be used for demographic analyses.

The data to be analysed in the present project come from the two most recent surveys: the 1975 Pakistan Fertility Survey (PFS) and the 1979–80 Population, Labour Force, and Migration Survey (PLM).

The 1975 Pakistan Fertility Survey (PFS)

The PFS was conducted from May to December in 1975 by the Population Planning Council of Pakistan as part of the World Fertility Survey programme. Sparsely populated or highly inaccessible areas were excluded from the sample, as well as a few cantonment areas, former states and tribal areas of the NWFP. The population covered by the sample represented 93·2% of the population according to the 1972 census. The survey sample consisted of 5246 households. From the 4901 households eventually covered by the PFS, 4952 ever-married women under age 50 were successfully interviewed. The response rate was 99%.

The procedures proposed by the WFS were followed closely with a few exceptions. For all members of the selected households, some basic information such as age, marital status, education and household composition, was obtained using a household schedule. All ever-married women in the households who were below age 50 were interviewed in detail. The WFS core questionnaire was adapted to the socio-cultural conditions of Pakistan and then translated into the main local languages: Punjabi, Sindhi, Pushto, Baluchi, and Barohi. Information was obtained on the background of the respondent and her current (last) husband, marriage history, birth history, knowledge and use of contraception, fertility preferences, and exposure to the mass media (Population Planning Council of Pakistan, 1976).

The 1979–80 Population, Labour Force, and Migration Survey (PLM)

With the object of investigating the inter-relationships between economic and demographic factors, the PLM was undertaken by the Pakistan Institute of Development Economics (PIDE) in collaboration with the International Labour

Organization (ILO) and the United Nations Fund for Population Activities (UNFPA). The Federal Bureau of Statistics (FBOS) of the Statistics Division routinely conducts a Household Income and Expenditure Survey and a Labour Force Survey every 5 years. The migration and fertility schedules of the PLM were integrated into this scheme, and the data collection for the PLM was undertaken completely by the FBOS. Modules on household income and expenditure, labour force activity, and migration were administered to all households and household members, and the fertility module was administered to all ever-married women below age 50 in the household. The migration module contained some information on household fertility distinct from that obtained from the ever-married women. The geographic coverage of the PLM was similar to that of the PFS.

The field work for the migration and fertility questionnaires extended between August 1979 and June 1980, although 99% of the interviews on fertility were completed between September 1979 and April 1980. Among the 10,098 women eventually interviewed in the PLM, 366 were excluded from the analysis because their questionnaires were incomplete (13) or they were reported to be aged 50 (353). The final sample for the PLM therefore consisted of 9732 ever-married women of ages below 50, and for the PFS, 4952 ever-married women. Both surveys over-sampled urban households, by an urban–rural ratio of 40:60 for the PFS and 41:59 for the PLM. Weights were subsequently used to adjust to the urban–rural proportions in the population. Further details on the PLM sample design and related information are given by Irfan (1981).

Comparability between the PFS and PLM

These two surveys are more closely comparable than any other pair of surveys conducted in Pakistan. The same geographic areas were excluded from both surveys. The individual questionnaire of the PFS was used again in the PLM. Apart from a few trivial changes, the questionnaire was completed in the manner of the PFS. For the fertility module of the PLM, data were collected by female interviewers, as in the PFS. However, data for the PLM were collected by the FBOS whereas fieldwork for the PFS was done by the Training, Research, and Evaluation Centre (TREC) of the Pakistan Population Council. The former is a national data collection agency and the latter was established by the Population Planning Programme for research and training in the field of family planning. Another difference between the two surveys is that in the PFS, household data were collected together with the individual data, but in the PLM, they were collected as part of the migration module. In a few cases, the PLM migration module (household schedule) was not completed for households where the fertility module was completed for eligible women. The PLM proportions ever-married therefore do not refer to the sample of all women to the same degree as the PFS proportions. This non-comparability does not affect estimates of marital fertility but does affect the comparisons of overall fertility rates to some extent.

Overall, the PFS and the PLM seem highly comparable, but the social and political environment changed considerably in Pakistan between the two surveys. The PFS was conducted at a time when the family planning programme was given much greater emphasis by the government. The programme was in disarray after

1977 when a new government took over from the previous regime of Prime Minister Bhutto. The new government placed a great emphasis upon adherence to Islamic values and traditions. The PLM data on knowledge and use of contraception, in particular, are likely to have been affected by these changes in socio-political conditions.

Quality of data

An evaluation of the quality of the PFS data was undertaken by Booth & Shah (1984). They found no over-riding problems with the information collected in the PFS, although information for the recent period before the survey was judged to be of relatively better quality than that for the earlier periods. No systematic evaluation of the PLM data has yet been undertaken.

There are some glaring differences between the surveys in the completeness of date reporting. For example, both month and year of birth were reported by mothers for 52% of all the births recorded in the PFS as compared to 17% of births reported in the PLM. Month reporting of even the relatively more recent events, such as the dates for the next-to-last and the last live births, showed differences of the same order of magnitude between the PFS and the PLM.

Distribution of births by period since birth reveals heaping at multiples of 6 months to a much greater degree in the PFS than in the PLM. However, this difference is largely due to the different degrees of date imputation in the two data sets. The PLM required more imputation, which served to smooth out the birth function. Both surveys show a greater number of births in the last year and the fourth year before the survey than in the second, third, and fifth years (Table 1). The total fertility rate (TFR) and total marital fertility rate (TMFR) also show similar patterns in the two surveys (Table 2).

Each survey, when analysed separately, gives evidence of a recent decline in fertility, but the two patterns of decline are incompatible. In both surveys, the period roughly 5–9 years before the survey shows a higher TFR and TMFR than the periods 10–14 and, more particularly, 0–4 years before the survey (Fig. 1). The estimates differ for the years 1965–74, when their birth histories overlap and they

Table 1. Distribution of births (%) by years before the survey, PFS (1975) and PLM (1979–80)

Years before survey	PFS	PLM
No. of births	5481	10,803
%	100·0	100·0
1	21·0	20·2
2	18·5	19·0
3	19·8	19·8
4	21·2	20·9
5	19·5	20·1

Table 2. Total fertility rates (TFR) and total marital fertility rates (TMFR) for 1960–79, PFS and PLM

	TMFR		TFR	
Year	PFS	PLM	PFS	PLM
1975–79		8·06		6·48
1970–74	8·02	8·46	6·44	7·13
1965–69	8·65	8·23	7·23	7·04
1960–64	8·15	8·13	6·98	7·01

For periods with truncated age group(s), TFR and TMFR are estimated by replacing the missing rate with the rate(s) available for the same age group in other period(s): e.g. the TFR for the PFS in 1960–64 is based on rates for ages 15–39 in 1960–64, for age group 40–44 in 1965–69, and for age group 45–49 in 1970–74.

Figures refer to calendar periods and so may differ from figures reported in Alam *et al.* (no date) who used periods before the survey.

ideally should agree. The pattern of apparent distortion may result from a compression effect, as described by Potter (1977), because the birth histories were collected from the first birth to the most recent one, rather than in the reverse direction. Alternatively, there may be a tendency to exaggerate slightly the ages of very young children, shifting them from the age group 0–4 into the age group 5–9, which would be observed even if the births were collected in reverse order.

Evidence of change

Levels and trends in fertility

The several surveys conducted in Pakistan have produced estimates of levels and trends in fertility which do not always agree. For example, the 1973 HED survey reported a TFR of only 3·7 children per woman, whereas most other surveys have produced TFRs around seven. The PFS data showed a decline in the TFR from 7·2 in 1965–69 to 6·4 in 1970–74. This decline was considered genuine and was attributed to rising age at marriage (Alam, 1984). The PLM data, however, showed a TFR of 7·1 in 1970–74 and virtually no decline previous to 1970. Likewise, the PLM data showed evidence of a recent decline to 6·5 in 1975–79. The evidence of recent decline in each survey is likely to be spurious, the result of systematic distortions in the reporting of dates. Total marital fertility rates reveal a pattern similar to that reported for the TFRs. There appears to be no genuine change in TMFRs over the last 20 years or so, and rates cluster around eight for most periods.

Table 3 shows the age-specific rates and TFRs for 1970–74 from the PFS and 1975–79 from the PLM. Because of parallel patterns of distortion, all of these rates are suspected to be low, but differences between them might nevertheless indicate genuine changes. However, these rates show virtually no changes at any ages between 1970–74 and 1975–79 for the overall population or for the urban and rural subpopulations. Except for the oldest age group of 45–49, all of the age-specific rates for the two periods are very close (Fig. 2). Even if the higher PLM age-specific rates are substituted in age-groups 40–44 and 45–49 for the lower PFS rates for the same ages, no appreciable change is noted in the total.

The evidence of change in urban and rural fertility from 1970–74 to 1973–79 is so trivial that no discussion seems necessary. By regions, an appreciable decline of 11% appears for Sind (Table 4). A trivial decline of 4% appears for literate women (Table 5). At the same time, however, small increases appear for the fertility of illiterate women and for NWFP and Punjab if the rates are taken at face value.

Most measures of period fertility appear so close that one might wonder whether the analysis were being carried out on a single data set rather than two. For example, the mean number of children born during the first 5 years of marriage

Table 3. Age-specific and total fertility rates, and marital age-specific and total marital fertility rates, by urban–rural residence, 1970–74 (PFS) and 1975–79 (PLM)

Age at period (years)	All women		Urban		Rural	
	1970–74	1975–79	1970–74	1975–79	1970–74	1975–79
Age-specific						
15–19	0·135	0·105	0·106	0·081	0·146	0·117
20–24	0·281	0·288	0·274	0·281	0·283	0·291
25–29	0·324	0·311	0·342	0·321	0·317	0·307
30–34	0·264	0·263	0·267	0·268	0·263	0·261
35–39	0·191	0·181	0·192	0·166	0·190	0·184
40–44	0·080	0·101	0·069	0·073	0·084	0·112
45–49	0·014	0·048	0·009	0·029	0·016	0·057
TFR*	6·44	6·48	6·29	6·09	6·49	6·65
Marital age-specific						
15–19	0·303	0·297	0·328	0·340	0·295	0·285
20–24	0·351	0·357	0·371	0·387	0·344	0·346
25–29	0·354	0·330	0·375	0·349	0·346	0·324
30–34	0·283	0·276	0·285	0·283	0·283	0·274
35–39	0·207	0·192	0·209	0·177	0·206	0·198
40–44	0·089	0·107	0·078	0·077	0·093	0·119
45–49	0·016	0·051	0·011	0·031	0·018	0·060
TMFR*	8·02	8·05	8·28	8·22	7·93	8·03

* Children per woman.

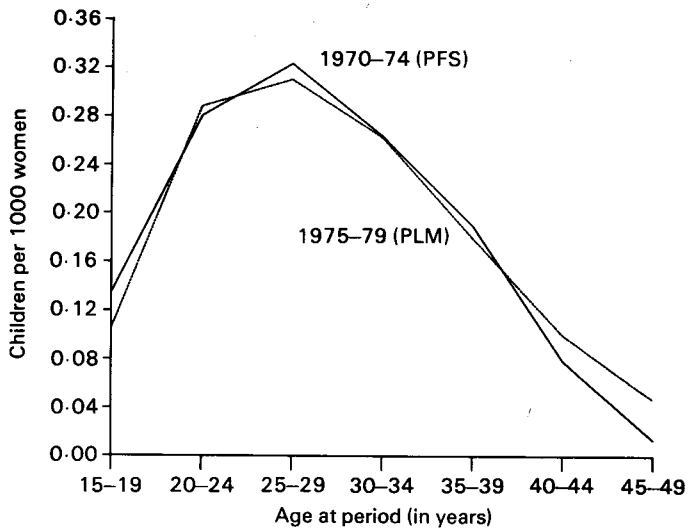

Fig. 2. Age-specific fertility rates for Pakistan, 1970–74 (PFS) and 1975–79 (PLM).

Table 4. Age-specific and total fertility rates, by region of residence*, 1970–74 (PFS) and 1975–79 (PLM)

Age at period (years)	Punjab		Sind		NWFP	
	1970–74	1975–79	1970–74	1975–79	1970–74	1975–79
15–19	0·115	0·096	0·168	0·117	0·173	0·112
20–24	0·283	0·286	0·289	0·276	0·245	0·330
25–29	0·327	0·311	0·316	0·299	0·311	0·310
30–34	0·270	0·266	0·262	0·243	0·222	0·280
35–39	0·180	0·176	0·215	0·186	0·212	0·204
40–44	0·070	0·106	0·102	0·084	0·134	0·103
45–49	0·011	0·046	0·024	0·039	0·021	0·060
TFR	6·28	6·44	6·88	6·21	6·58	7·00

* Excluding Baluchistan because of small sample size in the PFS.

by age at marriage (Table 6) or the mean number of children born in the 5 years preceding the survey (Table 7) show the same figures in seven of the twelve age groups examined, as well as for the overall means. Overall average parity by age is consistently lower in the PLM than in the PFS, but the differences are trivial.

It must be emphasized that this discussion of rates for 1970–74 and 1975–79 has been intended to identify possible change in fertility. The levels presented should not be taken at face value; they are almost certainly too low by about 8%.

Table 5. Age-specific and total fertility rates, by education of women, 1970–74 (PFS) and 1975–79 (PLM)

Age at period (years)	Illiterate		Literate	
	1970–74	1975–79	1970–74	1975–79
15–19	0·156	0·123	0·062	0·054
20–24	0·293	0·302	0·223	0·234
25–29	0·326	0·316	0·306	0·279
30–34	0·270	0·268	0·227	0·224
35–39	0·193	0·187	0·145	0·102
40–44	0·082	0·104	0·048	0·052
45–49	0·015	0·049	0·000	0·026
TFR	6·67	6·75	5·06	4·85

Table 6. Mean number of children ever born within first 5 years of first marriage by age at marriage, women married 5 years or longer, PFS and PLM

Age at marriage (years)	PFS		PLM	
	Mean no. of children	No. of women	Mean no. of children	No. of women
All ages	1·5	3971	1·5	7911
<15	1·3	1242	1·3	1816
15–17	1·5	1629	1·5	3069
18–19	1·7	581	1·6	1497
20–21	1·7	285	1·7	864
22+	1·6	234	1·7	666

Levels and trends in selected components of fertility

It is possible that changes might occur in various components of overall fertility, the proximate determinants or intermediate variables, but in a compensatory manner to cancel out each other's influence to reduce or to increase fertility. The components to be considered here are age at marriage, breast-feeding, and use of contraception. Possible changes in contraceptive knowledge and fertility preferences will also be examined.

Nuptiality. Marriage is a very important event in a Pakistani woman's life. Virtually all women marry; 99% of women aged 45–49 have married in both the PFS and the PLM. Marriages are ordinarily arranged by the heads of the young people's families and it is especially the obligation of a father to arrange for his daughter's marriage at the customary age, for it reflects badly on her if her marriage is delayed for some years. In Pakistan, marriage represents the initiation

Table 7. Mean number of children ever born in the past 5 years to women who have been continuously married for the past 5 years, by age at survey, PFS and PLM

Age at survey (years)	PFS		PLM	
	Mean no. of children	No. of women	Mean no. of children	No. of women
All ages	1·3	3668	1·3	7573
15–19	1·2	46	1·4	59
20–24	1·8	524	1·8	797
25–29	1·8	784	1·7	1703
30–34	1·6	757	1·6	1488
35–39	1·2	573	1·2	1426
40–44	0·8	554	0·8	1111
45–49	0·2	430	0·4	988

of sexual activity and childbearing for women; premarital sexual relations of women are regarded with the utmost severity. It is because marriage clearly marks the beginning of exposure to the risk of conception that it is particularly important to examine changes in age at marriage and differentials across socioeconomic categories.

Despite the cultural significance of marriage in Pakistan and the care taken in the PFS and PLM to record the marriage history accurately, the study of marriage patterns is difficult. In some areas, most notably in the NWFP and among some social groups, women are kept nearly invisible and it is considered impolite to ask a man about women in his home and especially their ages and marital statuses, even for the purpose of census enumeration. The PFS may well have overcome this problem by recruiting female interviewers who had direct access to women in the household. On the other hand, PLM data on age and marital status of household members were obtained by male interviewers during the collection of data for the migration module. Age at marriage and dates of marriage for ever-married women were obtained in the individual questionnaires by female interviewers in both the PFS and the PLM.

From the household data on age and marital status, the singulate mean age at marriage (Hajnal, 1953) for females (Table 8) seems to have risen by 7 months over the 5 years between the surveys. All subgroups except literate women show a rise in the average age at marriage of the order of half a year or so. The largest increase, 1·6 years, occurred in Sind province, which includes the largest city in Pakistan, Karachi, and manifested the youngest age at marriage in the PFS. Perhaps the reason why the literate women did not show a rise is that their age at marriage was already quite late as compared to other subgroups.

Differentials between subgroups are in the expected direction, with literate women marrying later than illiterate ones and women in urban areas marrying later than women in rural areas. The difference between urban and rural areas has

Table 8. Singulate mean age at marriage (SMAM) by background characteristics of women, Household Data, PFS and PLM

Characteristics	SMAM (years)		
	PFS	PLM	Difference (PLM – PFS)
All women	19·8	20·4	+0·6
Place of residence			
Urban	20·8	21·7	+0·9
Rural	19·4	19·8	+0·4
Educational level			
Illiterate	19·0	19·6	+0·6
Literate	22·9	22·8	−0·1
Region of residence*			
Punjab	20·1	20·6	+0·5
Sind	18·6	20·2	+1·6
NWFP	20·5	21·5	+1·0

* Excluding Baluchistan because of small sample size in the PFS.

Sources: Household Data for the PFS: computer listings of the PLM migration data.

widened because of a greater rise in age at marriage in the urban areas. On the other hand, educational differences have decreased because of the lack of change among literate women.

Breast-feeding. Pakistani women traditionally breast-feed their children for a prolonged period, which may be measured with either the woman or the child as the unit of analysis. Furthermore, irrespective of the unit of analysis, two types of data can be used: (1) retrospectively reported durations of breast-feeding for weaned children along with censored durations for children still being breast-fed at the time of the survey, and (2) current status information on whether or not a child is currently being breast-fed, according to the child's age at the time of the survey. Retrospectively reported durations of breast-feeding show a marked pattern of heaping at multiples of 6 months in most surveys. The quality of the current status estimate depends on the extent to which dates of births and ages of children are reliably reported.

For present purposes, applying the current status method of Mosley, Werner & Becker (1982) to data on children born during a period of 2 years before each survey shows no notable change in the percentage of children being breast-fed (Table 9). The largest drop amounted to three percentage points (i.e. from 96% to 93%) for Sind. However, the average duration of breast-feeding shows a non-trivial decline, from 17·2 months in the PFS to 14·6 months in the PLM. Sind again exhibits the greatest decline across regions, a substantial 5 months. Urban women

Table 9. Percentage of children breast-fed and mean duration of breast-feeding* for children born in the 2 years before the survey (N), PFS and PLM

	PFS			PLM		
	% breast-fed	Duration (months)	N	% breast-fed	Duration (months)	N
All	95	17·2	2254	94	14·6	4405
Urban	92	15·2	609	92	11·8	1196
Rural	96	17·9	1646	95	15·5	3209
Punjab	94	17·3	1478	94	15·8	2809
Sind	96	16·7	518	93	11·9	997
NWFP	95	17·7	221	94	15·4	466

* Estimated as: $\frac{\text{no. of children being breast-fed at time of survey}}{\text{average no. of births per month}}$

Figures for Baluchistan not shown separately because of small numbers but are included in estimation for total sample.

show a decline of 3 months duration, widening the urban–rural difference from 2·7 months to 3·7 months. Although a decline in duration is noted in all subgroups, the PLM shows that prolonged breast-feeding is still the general practice.

The results in Table 9 are based on all births. If a child dies early, it will obviously be breast-fed for a shorter interval. When the analysis is restricted to surviving children, the mean durations increase by an average of approximately 2 months.

Contraceptive knowledge and use. Among all items included in both surveys, data on contraceptive knowledge and use show the most striking differences (Table 10) for all measures indicate declines from the first survey to the second one. Of all ever-married women included in the PLM, only 27% reported knowledge of one or more contraceptive methods as compared with 75% in the PFS. Likewise, only 5% reported ever-use of any method in the PLM as compared with 10% in the PFS. Among currently married and non-pregnant women, the level of current use was 4% in the PLM and 6% in the PFS.

A drop in current use may be explained by the fact that family planning activities suffered major setbacks in the period following 1977. However, it is startling that the reported levels of knowledge and ever-use declined by as much as is shown by the two surveys. The questions and the methods were so similar that little, if any, of the apparent decline can be attributed to the survey method. Female interviewers were used in both surveys and many of those in the PLM had also participated in the PFS. Yet, even within cohorts of women, for whom it is logically impossible for ever-use to decline, much lower levels were reported in the second survey. The explanation of this kind of a drop must lie in unmeasured social and

Table 10. Summary indicators of contraceptive knowledge and use, PFS and PLM

Measures	PFS			PLM		
	%*	SE	*N*	%	SE	*N*
Knowledge of effective method	74·6	0·88	4952	26·7	0·81	9732
Ever used contraceptives	9·9	0·43	4952	4·9	0·25	9732
Ever used effective methods	8·4	0·39	4952	4·7	0·25	9732
Currently using (exposed women)	7·3	0·48	3326	4·3	0·26	7391
Currently using effective method (exposed women)	5·3	0·39	3326	4·1	0·25	7391
Using effective method among exposed women who want no more children	10·9	0·81	1464	8·8	0·54	3135
Used in past	4·9	0·29	4952	1·6	0·14	9732
Currently using	4·9	0·33	4952	3·3	0·20	9732

* Estimates from McDonald (1984).

Table 11. Mean number of desired children among currently married women, by age, PFS and PLM

Age at survey (years)	PFS		PLM	
	Mean no. of children	No. of women	Mean no. of children	No. of women
All ages	4·2	4524	4·6	9416
<20	4·1	600	4·3	834
20–24	4·0	795	4·4	1635
25–29	4·2	859	4·6	1876
30–34	4·2	762	4·7	1524
35–39	4·3	563	4·8	1442
40–44	4·4	534	4·9	1115
45–49	4·2	411	5·0	991

political factors which produced a backlash against family planning activity and even against the reporting of previous attitudes and behaviour.

Fertility preferences. Finally, data on fertility preferences have been examined for possible trends. The PLM data suggest an increase, especially among women aged 30 or over, in the average number of children desired (Table 11). Of currently married fecund women in the PFS, 43% stated they did not want more children, and by the time of the PLM this had declined to 38%, a statistically significant change. This desire for more children in the second survey must be attributed again to the social and political climate of the times, the decline of the family planning programme, and a return to traditional values.

Conclusions

This research has found evidence that fertility as measured by age-specific and marital age-specific fertility rates did not change in Pakistan during the 1970s except for a decline in age group 15–19 as a result of delayed marriage. Current use of contraception at the time of the two surveys actually declined by 1980, while knowledge, reported ever-use, and fertility preferences all moved in a pro-natalist direction. Among the various socioeconomic categories considered here, Sind showed the greatest changes of all kinds during the 1970s.

Overall fertility should actually have been higher than was observed in the PLM, given that the main proximate determinants were all working to increase fertility, even if slightly, except for the effect of delayed marriage upon the youngest ages. There is an apparent inconsistency between observed fertility and the higher fertility which would be implied by the change in the proximate determinants.

There are essentially three possible explanations for this kind of inconsistency. The first is that the downward reporting bias in recent fertility was less serious in the more recent survey. The second is that there are substantial errors in the measurement of the proximate determinants in one or both of the surveys. The third possible explanation is that unmeasured proximate determinants, such as underlying fecundity, frequency of coitus, and use of abortion, have indeed altered significantly during the 5-year interval, and in such a way as to compensate for the changes which would have produced an increase in fertility.

There is no proof that underlying fecundity, etc., did not change between the surveys, but it seems unlikely that the net effect of such changes would have been substantial. Rather, it is more likely that the biases in recent fertility were somewhat different in the two surveys and also that the actual extent of contraceptive use, including the use of inefficient methods, was underestimated in the PLM, due to social sanctions which were pervasive at the time of that survey. Some respondents—at most about 5%—may have been current users but declined to admit it. The impossibly low reporting of ever-use in the second survey also suggests an under-reporting of current use. This is a very tentative hypothesis, offered to account for the absence of a rise in fertility.

The findings provide one of those relatively rare instances when the apparent absence of change is of great interest. Separate analyses of the PFS alone and of the PLM alone would lead to the conclusion that fertility was declining in Pakistan during the 1970s. The analysts of the PFS, in particular, without having a similar survey to obtain leverage on reporting errors, quite responsibly reached the conclusion that fertility was declining during 1970–74 (Alam, 1984). All of the evidence pointed in that direction. This conclusion now appears erroneous, the result of systematic patterns of misreporting of dates in the birth histories.

The lessons of this study are primarily methodological. In particular, the analysis of fertility change in the future in Pakistan will require either more reliable reporting of birth histories, or the continued piecing together of two (or more) surveys. Studies of the source of distortions should be undertaken on groups of women whose dates of childbirth are known precisely by registration or some other means. It is recommended that the next major fertility survey should use the

same approach as the PFS and PLM for half of its sample, in order to maintain continuity with the earlier surveys, and apply a modified and, it is hoped, more reliable procedure to the other half.

Acknowledgments

This work was conducted under the auspices of the World Fertility Survey, largely while the authors were consultants at WFS Headquarters in London. The authors gratefully acknowledge support and advice from John B. Casterline and the late V. C. Chidambaram, programming assistance from Nellie Mangubat, and helpful comments from Zeba Sathar who also provided the computer listings of the PLM migration data for Table 8.

References

ALAM, I. (1984) Fertility levels and trends. In: *Fertility in Pakistan: A Review of Findings from the Pakistan Fertility Survey.* Edited by I. Alam & B. Dinesen. International Statistical Institute, Voorburg, Netherlands.

ALAM, I., IRFAN, M. & FAROOQUI, N.I. (no date) *Fertility Levels, Trends and Differentials in Pakistan: Evidence from the Population, Labour Force and Migration Survey 1979–80.* Project Report No. 1. Pakistan Institute of Development Economics, Islamabad.

BOOTH, H. & SHAH, I.H. (1984) The data and their quality. In: *Fertility in Pakistan: A Review of Findings from the Pakistan Fertility Survey.* Edited by I. Alam & B. Dinesen. International Statistical Institute, Voorburg, Netherlands.

HAJNAL, J. (1953) Age at marriage and proportions marrying. *Popul. Stud.* **8**, 111.

HASHMI, S. & ALAM, I. (1969) Age reporting in Pakistan. In: *Proceedings of Population Conference, London.* International Union for the Scientific Study of Population, Liege.

IRFAN, M. (1981) *An Introduction to 'Studies in Population, Labour Force, and Migration': a PIDE/ILO-UNFPA* project. Research Report Series No. 118. Pakistan Institute of Development Economics, Islamabad.

INTERNATIONAL LABOR OFFICE (1983) *Yearbook of Labor Statistics 1982.* ILO, Geneva, Switzerland.

MCDONALD, J.W. (1984) Pakistan Fertility Survey: sampling errors for selected estimates. In: *Fertility in Pakistan: A Review of Findings from the Pakistan Fertility Survey.* Edited by I. Alam & B. Dinesen. International Statistical Institute, Voorburg, Netherlands.

MOSLEY, W. H., WERNER, L.H. & BECKER, S. (1982) *The Dynamics of Birth Spacing in Marital Fertility in Kenya.* Scientific Report No. 30. International Statistical Institute, Voorburg, Netherlands.

POPULATION PLANNING COUNCIL OF PAKISTAN (1976) *Pakistan Fertility Survey: First Report.* Population Planning Council of Pakistan, Islamabad.

POTTER, J.E. (1977) Problems in using birth-history analysis to estimate trends in fertility. *Popul. Stud.* **31**, 335.

UNESCO (1983) *Statistical Yearbook 1982.* United Nations, New York.

YUSUF, F. (1981) Fertility and infant mortality rates in Pakistan: a reassessment of the 1971 Population Growth Survey. *J. biosoc. Sci.* **13**, 189.

Received 5th June 1985