FAMILY SIZE PREFERENCES IN PAKISTAN

By

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DECLARATION

Except where otherwise indicated

this thesis is my own work.

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ABSTRACT

In this study, an attempt is made to investigate and identify the most important predictors of family size preferences in Pakistan. The analysis is based on cross-sectional data of 9416 currently married women under age 50 from a national survey in 1979-80.

The findings of the analysis suggest that having sons in the family was the principal predictor, particularly for desired family size and desire for future births. Wife's education was another important variable whose effect on family size preferences remained the least influenced by other variables.

Overall, family size preferences were quite large in Pakistan and the levels did not vary greatly between urban and rural areas. There are indications that family size preferences were modified in view of the actual fertility experience.

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CHAPTER 1

INTRODUCTION

1.1 Purpose of the Study

Family size preferences play an important role in influencing actual reproductive behaviour. Changes in these preferences could affect the magnitude and tempo of population growth. In Pakistan, most of the research done so far has focussed on "observed fertility" and less attention has been paid to "family size preferences", which may be a better predictor of completed family size.

However, some demographers argue that family size preferences can affect the actual number of births only to the extent that women within a given socio-economic context can control their fertility. In developed countries, where a woman is relatively independent in her socio-economic and demographic behaviour, family size preferences may be a useful tool for predicting future family sizes and thus improving the reliability of population forecasts (United Nations, 1976). On the other hand, in non-western societies, the concept of choice in having a particular number of children may be an alien idea unconsidered before the interview (Lightbourne and MacDonald, 1982). Arguing on these lines, Hauser (1967:404), states that "in societies where number of children is determined by nature, spirits and God, the concept of a preferred family size may be meaningless".

However, in surveys across Africa it has been observed that "probes along the lines of 'If you could choose how many children God would send, how many would you choose?' do elicit meaningful numerical responses from the most fatalistic of respondents, all of whom are well aware that abstinence will limit God's gift" (Ware, 1974:5). Other

researchers were also of the view that adequate probing and careful rephrasing of questions could guide the respondents in pre-industrial societies to give definite numeric responses (Gay, 1971; Lightbourne and MacDonald, 1982). Farooq (1981) asserts that in developing countries, the measurement of the actual demand for children may theoretically be best achieved by the measures of attitudinal fertility rather than observed fertility.

1.2 Objectives of the Study

Using the data from Pakistan, an attempt is made here to study the factors which affect decision making about preferred family size. The main objectives of the study are:

-To assess, the extent to which stated fertility preferences are meaningful in Pakistan

-To identify the socio-economic and demographic factors which are the most important predictors of family size preferences

-To determine whether the preference for sons is an important factor in explaining the desire for additional fertility.

1.3 Review of the Literature

Family size preferences may be measured in a variety of different ways, and there is no standard methodological approach. About 700 surveys throughout the world have included questions on ideal family size, desired family size, expected family size and planned family size (Kent and Larson, 1982). However, in practice these surveys have varied widely in the wording of questions used to measure these concepts.

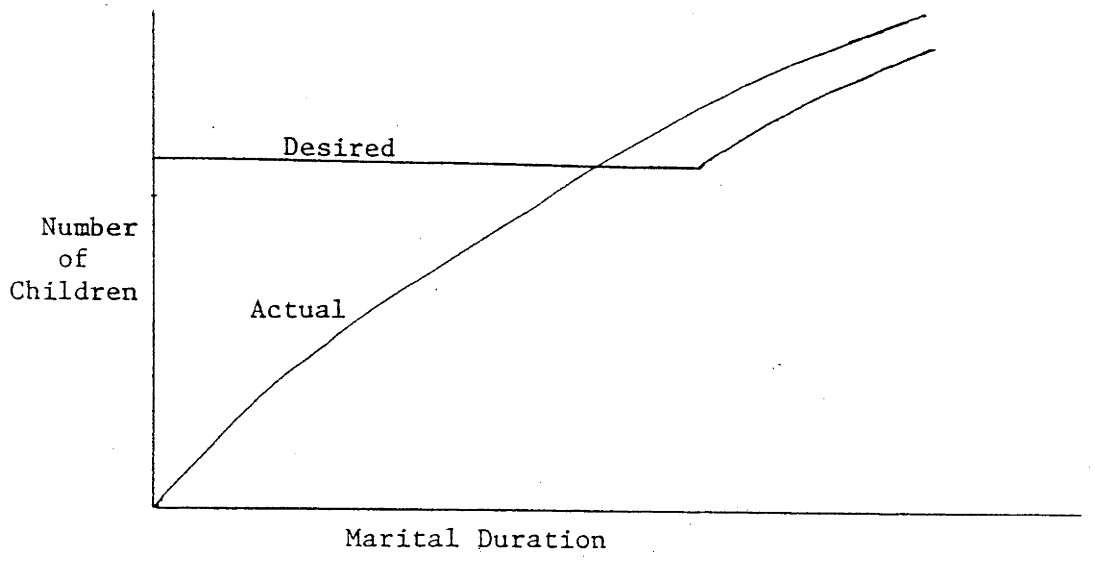
It has been argued that the relationship between the various measures of family size preferences is seen in the following sequence (Ware, 1974:9):

ideal -> desired -> intended -> expected -> actual family size

Ryder (1973) contends that couples plan to have a certain number of children according to the reproductive norms they have internalized. Their capacity to achieve or miss that target reflects the influence of regulatory norms and their own general capacity to deal with the wide variety of problems that may arise. However, (Ware, 1974) argued that the reverse sequence could also be likely, that is, the ideal family size is influenced by the rationalization of the already existing number of children the respondents have. Pullum (1980) explains both these situations by a hypothetical model relationship as illustrated in Figures 1.1 and 1.2.

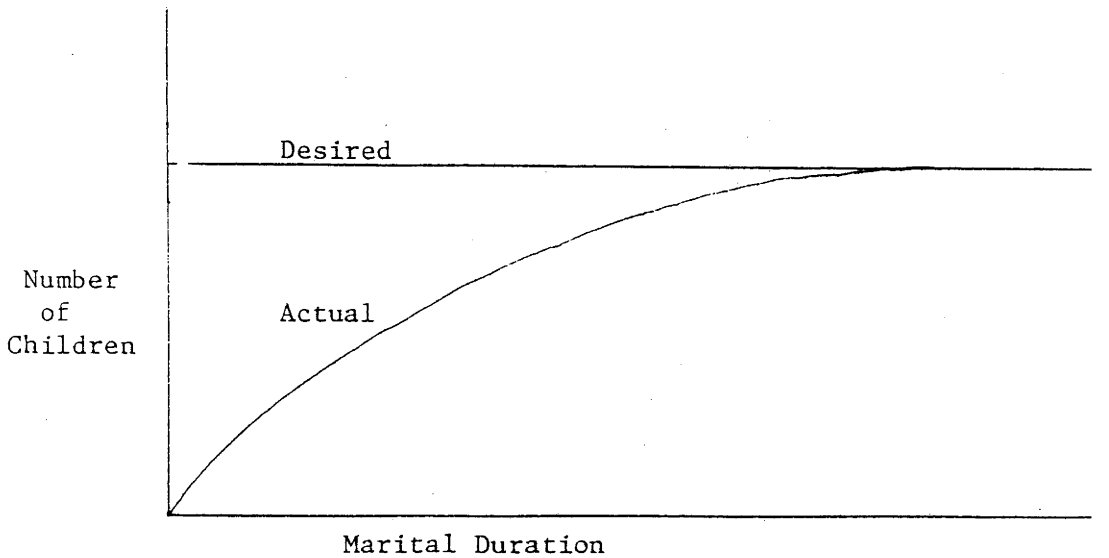
Figure 1.1 explains that with the progress in marital duration the difference between the actual family size and desired family size becomes less. Towards the end of a woman's reproductive career her actual family size is more or less equal to the number of children desired. This is the situation where her preferences are being implemented perfectly. Figure 1.2 shows that the women in later married life tend to have a desired family size less than or equal to the actual. In other words these women tend to rationalize their actual family size to correspond with their desires.

FIGURE 1.1 Hypothetical Graph of the Model Relationship Between Desired and Actual Family Size when there is Perfect Implementation of Preferences



Source: Pullum, 1980:12-3.

FIGURE 1.2 Hypothetical Graph of the Model Relationship Between Desired and Actual Family Size when there is Heavy Rationalization of Actual Family Size



Source: Pullum, 1980:12-3.

The present analysis is based upon only two measures of family size preferences, ideal and desired family size. The following paragraphs will discuss these measures.

1.3.1 Ideal Family Size

Examples of the questions asked in different surveys on ideal family size are:

"What do you consider is the ideal size of a family - a husband, wife and how many children?" - Gallup Poll, USA, 1936.

"In your opinion, what is the appropriate number of children for a family like yours?"- National Impact Survey, Pakistan, 1968-69.

"In your opinion, how many children should a married couple have?" - Pakistan Fertility Survey, Pakistan, 1975.

What is an ideal family size? According to Girard and Roussel(1982:337) "The ideal size is a collective image that corresponds to a precise standard of the family size desirable for all the members of a community at a certain time and in a given context". Another view is that "ideal family size refers to a hypothetical ideal family and may not necessarily share the respondent family's social, economic, cultural and demographic milieu" (Farooq, 1981:27). However, in examples like the National Impact Survey in Pakistan the word "your" in the ideal family size question changes the generalised nature of the ideal family size to correspond closely to personal ideals. In fact, the desired and ideal family size on the average were the same in this survey (Training, Research and Evaluation Centre, n.d.:162). Similarly a survey in West Germany observed little difference between the results of questions about the ideal family size for the respondents themselves and for an ideal family in Germany (Freedman et al., 1959).

Measuring the relationship between intended, expected, desired and ideal family size (from United States Survey data of 1965) Ryder and Westoff (1969) concluded that the least important variable is ideal

family size. Farooq (1981) also found ideal family size to be deficient for the measurement of family size preferences. Hauser (1967) criticised ideal family size as a meaningless measure in view of the fact that the response to this is highly correlated with the actual or completed family size.

However, a study in Nigeria shows that only a fifth of those over age 40 who gave numerical responses to the ideal family size question in fact had the number of children which they considered to be ideal (Ware, 1974:6). Moreover, the Michigan Mathematic Psychology Programme (MMPP, 1973) claims that it is not the concept but the method of measurement which is at fault. In fact, to improve the quality of its measurement, projection techniques were applied in Haiti, where pairs of photographs with large and small families were shown to the respondents, who were asked to choose the family they would prefer from each pair. This projection technique was not successful as most of the respondents, it seems, were influenced by the differences in the economic status as judged from the facial expressions and poses, rather than differences in size. Ware (1974) suggests that the use of line drawing may be more appropriate. She concludes that, despite its limitations, ideal family size as a predictor for future family size, will always hold "pre-eminent" position in the study of fertility change. Similar views are also expressed by Knodel and Prachuabmoh (1973), and Prachuabmoh, Knodel and Alers (1974). Blake (1974) found the ideal family size data of "unique value" in view of the recent declining trend in birth expectations in United States.

1.3.2 Desired Family Size

Desired family size is generally defined as the total number of children a person wants in her/his life time. Knodel and Prachuabmoh (1973:620-1) defined desired family size as the number of children a respondent would have if he (or she) could have only the number wanted. However, sometimes desired family size is also defined as the sum of the existing children and additional number of children wanted (Ware, 1974; Farooq, 1981). In most of the World Fertility Surveys the question on desired family size was:

"If you could choose exactly the number of children to have in your whole life, how many children would that be?" (cited in Kent and Larson, 1982:6).

The meaningfulness and validity of desired family size in predicting family size norms for the future has been questioned. Ryder (1973) pointed out that this measure provides a number which is heavily rationalized by actual family size. However, Ware (1974) was of the view that the respondents are not totally realistic in their response to the question on desired family size.

Another problem arises when this question is asked of women who continue to bear children, even when they have no desire for further children. Such women tend to report their family size as their desired family size, in order to avoid implying that any of their children are unwanted. Nevertheless, in societies where preference for a specific sex is strong, a couple with no children may understate their fertility preference but actually keep on having children until they have at least one or two children of a given sex.

Another criticism of the concept of desired family size is that it does not reflect differential demographic pressure among those wanting no additional children as all the excess fertility, irrespective of its magnitude, is assigned a zero value (Farooq, 1981). Hence it may be argued that conceptualisation of additional children desired, while relatively clearer at lower parities, becomes vaguer at higher parities.

Using longitudinal data from Thailand in 1969-70, Rodgers (1976) found that the superiority of this variable as a measure of demand for children may be outweighed by errors in reporting and inaccuracy in the concept with which it is used. To have an idea of the reporting errors and the change in responses to questions on desired family size over a short period, the WFS in Fiji did a retest of a number of these questions and found that the proportions giving identical responses were 65 per cent for "the additional number of children wanted"

variable, 77 per cent for the "whether more children wanted" variable, and 71 per cent for "last pregnancy wanted" variable (Srikantan, 1979:25). Using the same longitudinal data from Thailand, Knodel and Prachuabmoh (1973) found a clear association between desired family size and current practice of contraception. A similar finding is reported in a study by Shah and Palmore (1979) of the 1975 Pakistan Fertility Survey. In view of this evidence, it may be true to say that responses on desired family size do have some relevance with respect to fertility behaviour. Farooq (1981) also found that the desired family size was a better attitudinal measure in the study of family size preferences.

1.4 Population, Labour Force and Migration Survey

The present analysis is based on the data collected in 1979-80 for the survey "Studies in Population, Labour Force and Migration"(PLM). This "four in one" venture consisted of four questionnaires: (1) Labour Force (2) Household Income and Expenditure, (3) Migration, and (4) Fertility. The survey was carried out by the Pakistan Institute of Development Economics (PIDE) with the collaboration of the Federal Bureau of Statistics (FBS) and was jointly sponsored by the International Labour Organization (ILO) and United Nations Funds for Population Activities (UNFPA). The surveys on Labour Force and Income and Expenditure were carried out in the last two quarters of 1979, whereas the information regarding Migration and Fertility was collected from September 1979 to April 1980.

1.4.1 Sample Description

The sampling frame used for this project was designed to provide a sample that would be representative of the whole country and of urban and rural areas. The frame was based on the 1972 population census adjusted for the estimated population in 1979-80. The universe consisted of all areas of Pakistan excluding federally administered tribal areas, military restricted areas and tribal areas in the Peshawar, Dera Ismail Khan and Malakand divisions (see Map 1). The population of the areas excluded from the survey constituted about 6.7 per cent of the total population of Pakistan (Irfan, 1981:5).

Two stage random sampling was used. The stratification was done at the urban/rural and provincial levels. The number of sampled households per province was roughly in proportion to the ratio of households between provinces obtained in the 1972 census. However, the urban and rural breakdown of the sampled households did not replicate the actual distribution. In order to capture its diversity and heterogeneity, the urban population was over sampled (about 40 per cent instead of 25 per cent yielded by the 1972 census). Correspondingly, 60 per cent of the sample was drawn from the rural population.

Table 1.1 shows that 11288 households (6675 rural and 4613 urban) were drawn in the sample, but only 10244 were actually enumerated, the difference between the two figures being due to non-respose. The present analysis is based on the Fertility Module. Ever married woman aged 50 or less for the Fertility Module Were selected after identification of eligible woman by the Migration Module. Out of the 10244 households enumerated for the Migration Module, 8884 households were found to have at least one eligible woman. Finally, 10098[1] women from 8397 households were interviewed for the Fertility Module. The difference between actually enumerated households and the ones with eligible women can be accounted for by non-response.

The structure of the households covered for the Fertility Module suggests that of all the households interviewed, 83 per cent had only one eligible woman in each. In 3 per cent of the households, 3 or more eligible women were found. The provinces of Sind and Baluchistan have greater percentages of households with more than one eligible woman (see Appendix A). This could be due to the prevalence of the traditional joint family system or a relatively high incidence of polygamy (Sathar et al., 1984). This pattern is more distinct in the rural areas of Sind and urban areas of Baluchistan.

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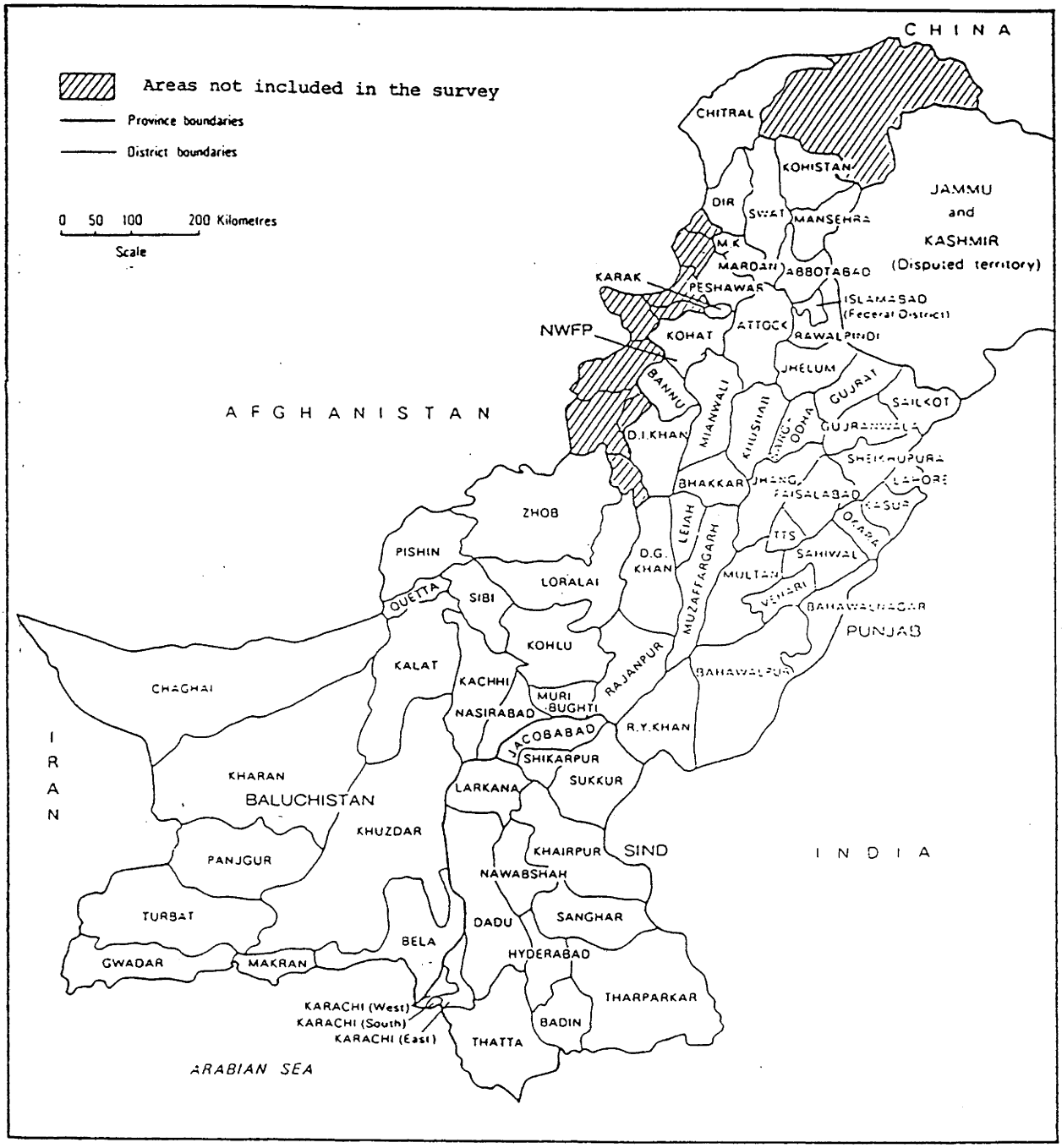
[1]At the time of editing 13 questionnaires were found incomplete and hence excluded from the final data tape.



Map 1. Pakistan.

Table 1-1: Number of Sampled and Enumerated Households in the Migration and Fertility Modules of the PLM Survey in Urban and Rural Areas of Pakistan, 1979-80

Area	Sampled households	Total enumerated households	H.H's with no women	H.H's with no eligible women	H.H's with eligible women	Enumerated H.H's for fertility module	Enumerated H.H's in the fertility module by the number of eligible women interviewed		
							1	2	3+
Pakistan	11288	10244	330	1030	8884	8397	7011	1137	249
	100%	100%	3%	10%	87%	100%	84%	13%	3%
Urban(N)	4613	3902	155	345	3402	3216	2709	419	88
	41%	100%	4%	9%	87%	100%	84%	13%	3%
Rural(N)	6675	6342	175	685	5482	5181	4302	718	161
	59%	100%	3%	11%	86%	100%	83%	14%	3%

Notes:
Percentages for sampled households total down the column while those for enumerated households total across rows.
1. An eligible female is an ever-married woman 50 years of age or less at the time of interview.
Source: Sathar et al.,1984:28.

1.4.2 Data and Their Limitations

The present analysis is primarily based on data collected for the Fertility Module. The information regarding "household income" has been derived from the Household Income and Expenditure Module and merged with the Fertility Module. As mentioned earlier, a total of 10098 ever married women aged 50 and less were successfully interviewed. The data tape on which this analysis is based includes only women aged 49 and less, thus excluding women aged 50, about 3.5 per cent of the total sample. The survey was conducted by the Federal Bureau of Statistics (FBS). The fertility survey was carried out by female interviewers and supervised by the male staff of the data gathering agency (FBS).

The fertility questionnaire of the 1975 Pakistan Fertility Survey was adopted without modifications for the PLM survey. However, unlike other WFS questionnaires, where desired family size was determined by a

direct question on the total number of children desired, in the case of Pakistan this question was modified to a generalized ideal family size. So care should be exercised when comparing the results with other World Fertility Surveys.

In developing countries, the "up to God", or "as many as possible", answers in response to the question on "ideal family size" or "additional children desired" occurs frequently. In the case of the PLM data, such non-numeric answers were up to 15.6 per cent for the question on ideal family size and 7.7 per cent for the one on additional children desired. Moreover, a further 5.8 per cent of the women were undecided about the additional number of children desired. In the 1975 PFS, non-numeric responses to the question on number of additional children wanted were 8 per cent (Lightbourne and MacDonald, 1982:10).

The present analysis is based only on numeric answers to these questions. Analysing the data from Guatemala and India, where a relatively large number of women gave non-numeric responses to a question on additional children desired, Jensen (1985) observed that the non-numeric responses were randomly distributed over family size preferences. In WFS data from Bangladesh, approximately 14 per cent of respondents were reported to give non-numeric answers to the question on number of additional children wanted (Lightbourne and MacDonald, 1982). The authors observed no difference in the underlying preferences between those who did and who did not provide numeric responses. An examination of the non-numeric responses on ideal family size in the PLM data showed that there were no large differences between age groups (see Appendix B). Slightly more young women (15-19 years of age) gave non-numeric responses, possibly because they were recently married and had not yet formulated a specific number for an ideal family size. Older women (over age 40) also were more likely to give such responses, because generally such women tend to be more conservative and thus are hesitant to offer specific numbers about matters such as children desired, such things being best left to God to decide. In view of the above findings and also because of the relatively large sample size of

the present data, it is expected that validity of the results will not suffer much. Besides the above mentioned limitations, the data also suffer from all the limitations of a cross-sectional survey, such as under-reporting of births and deaths and also mis-reporting of age.

1.5 Outline of the Analysis

In this study, an attempt is made to examine family size norms among currently married women in Pakistan with differing socio-economic and demographic backgrounds. The first part of the analysis is based on cross-tabulations which examine the relationships between the several dependent variables and each of the major independent variables. This is followed by multivariate analysis in which the effects of several independent variables upon each of the dependent variables can be assessed simultaneously in an effort to determine their relative importance.

The following are the main dependent variables, with the actual wording used in the questionnaire:

1. Ideal family size. "In your opinion how many children should a married couple have?".

2. Desired family size. This is equal to the sum of the number of living children and additional children wanted, Where living children is a total of "How many (sons/daughters) are living with you?" and "How many (sons/daughters) are living away from you?" and additional children wanted is worded as "How many more children do you want to have?".

3. Desire for future birth. "Do you want to have another child?".

The independent variables are selected from the following variables: age, age at marriage, education of respondent, education of husband, occupation of husband, working status, number of living children, number of living sons, number of children who have died, and income of household.

The analysis covers all of Pakistan and urban and rural areas separately. Wherever possible, the results will be compared with the findings of a few earlier surveys, including the 1975 Pakistan Fertility Survey. Weights have been applied to compensate for sampling variability.

CHAPTER 2

CHARACTERISTICS OF THE POPULATION

2.1 Introduction

This chapter describes the variables used in the analysis and the socio-economic and demographic conditions of the population under investigation. The variables discussed here are grouped into four broad categories of characteristics, that is, demographic characteristics, knowledge and use of family planning methods, family size preferences and socio-economic characteristics. Although not all of these variables will be used in the subsequent analysis, they are examined here in order to provide a more complete picture of factors affecting fertility in Pakistan.

2.2 Demographic Characteristics

2.2.1 Age

The age distribution of a population is the product of past fertility behaviour, mortality and migration trends. Many social researchers consider it to be the most important feature of any population and thus it is one of the most commonly used variables in socio-economic and demographic research. This distribution describes the structure of population under review, in terms of young, middle aged or old. In the present survey, the information regarding age was obtained by the question "In what month and year were you born?".

Table 2.1 presents the distribution of currently married women under 50 years of age according to demographic characteristics. The greatest number of such females was in the age group 25-29 years.

LE 2.1 Demographic Characteristics of Currently Married Women Under the Age of 50 in Urban and Rural Areas of Pakistan 1979-80 (Percentage)

ographic racteristics	All Pakistan	Urban	Rural
ber of Women	9416	2505	6911
groups			
	8.9	7.2	9.5
24	17.4	16.8	17.6
29	19.9	20.8	19.6
34	16.2	16.2	16.2
39	15.3	15.4	15.3
44	11.8	12.1	11.8
49	10.5	11.5	10.2
al	100.0	100.0	100.0
ian Age	30.1	30.4	30.0
at Marriage			
	36.4	34.1	37.3
17	23.2	24.2	22.8
19	20.2	20.4	20.1
	20.2	21.4	19.8
al	100.0	100.0	100.0
n	17.1	17.2	17.1
ber of Living Children			
	14.3	11.6	15.3
	14.0	11.8	14.8
	14.2	12.9	14.7
	14.1	14.2	14.1
	12.5	12.3	12.5
	10.2	11.5	9.8
	8.8	9.7	8.5
	11.8	16.1	10.2
al	100.0	100.0	100.0
n	3.3	3.7	3.2
ber of Living Sons			
	26.7	23.3	28.0
	24.5	22.6	25.2
	21.1	22.8	20.4
	27.7	31.4	26.4
al	100.0	100.0	100.0
n	1.7	1.9	1.7
ber of Children who have Died			
	59.5	61.3	58.8
	21.4	20.6	21.7
	10.7	10.4	10.8
	8.5	7.7	8.7
al	100.0	100.0	100.0
n	0.8	0.7	0.8
undity Status			
gnant	14.0	13.9	14.0
f/Spouse Sterilized	0.9	2.0	0.5
Fecund	7.6	8.1	7.4
und	77.5	76.0	78.1
al	100.0	100.0	100.0

rce: Population, Labour Force and Migration (PLM) Survey 1979-80, original analysis of data tape.

Twenty-six per cent of females were under 25 years of age. The same group accounted for 32 per cent in 1968 (Training Research and Evaluation Centre, n.d.) and 30 per cent in 1975 (Population Planning Council of Pakistan, 1976). The change in age distribution may be partly attributed to the rising age at marriage during this period (Sathar et al., 1984). However, as the quality of age reporting has been found to be inadequate in Pakistan (Zaki and Zaki, 1981), it is not reasonable to attribute this change totally to the increase in age at marriage.

A relatively greater number of rural women were in the younger age group compared to urban women. This is also reflected in a lower median age in rural than urban areas. However, the overall age pattern in urban and rural areas was similar to that for all Pakistan.

2.2.2 Age at Marriage

Female age at marriage, as a determinant of the reproductive span, is known to have an important role in fertility behaviour. Particularly in societies where the use of contraception is not wide-spread, and where most births take place within legal marriages, age at marriage is observed to have a strong effect on fertility (Malakar, 1972; Karim, 1982). Marriage is considered an important social institution in Pakistan and is almost universal. In 1981 about 92 per cent of women were married by age 29 and nearly 96 per cent by age 34 (Pakistan Census Organization, 1982).

In this survey, age at marriage was determined by a number of questions. Firstly, respondents were asked "In what month and year were you married?". Those who did not remember the year were subsequently asked "For how long have you been married?". Another question "What was your age when you got married?" was asked of all respondents to check the accuracy of the information provided earlier. The interviewers were given special training to deal with any discrepencies between the responses to these three questions.

Table 2.1 shows that more than one-third (36 per cent) of women

were married at an age less than the legal age at marriage, which is 16 years in Pakistan (Mahmood, 1964). This age at marriage was set in 1961 and has remained the same since then. An earlier study in 1968 reported that more than half (55 per cent) of the females were married before reaching the age of 16 years (Training Research and Evaluation Centre, n.d.). Furthermore, Table 2.1 also shows that four-fifths (80 per cent) of the females were married in their teens. The corresponding figure was 90 per cent in 1968 and 85 per cent in 1975 (Population Planning Council of Pakistan, 1976). This trend of gradually delaying marriage has consequently brought about an increase of more than one year in the average age at marriage during the period 1968 to 1979-80 (Mahmood and Ali, n.d.).

2.2.3 Fecundity Status

Fecundity status is an important indicator of current and future fertility. It indicates the proportion of women currently exposed to the risk of becoming pregnant, the number of births expected in the near future, and also the levels of sterilized and infecund women in a society. Such information is important to policy makers for planning purposes.

Table 2.1 reveals that more than three-quarters (78 per cent) of women were exposed to the risk of becoming pregnant and 14 per cent were pregnant. Correspondingly, 70 per cent were exposed and 17 per cent were pregnant in 1975 (Population Planning Council of Pakistan, 1976). Urban and rural differentials were found to be marked only in case of sterilized women, who were 2 per cent of the total in urban and 0.5 per cent in rural areas.

2.2.4 Number of Living Children

Total number of children includes both those living with and those living away from the parents. Two questions "How many children are living with you?" and "How many children are living away from you?" were asked of all ever married women.

Table 2.1 indicates that roughly 14 per cent of the women did not

have any living children. Presumably, a substantial number of these women were in their first year of married life. On the other hand, nearly one-third (31 per cent) of the respondents had more than 4 children. The same proportion was also reported in 1975 (Population Planning Council of Pakistan, 1976).

There was a distinct pattern for urban and rural areas. The distribution was weighted towards lower parities[1] in rural areas but higher parities in urban areas. On average, higher numbers of living children were found in urban than rural areas. This is consistent with earlier findings based on Pakistan Fertility Survey data (Sathar, 1979).

2.2.5 Number of Living Sons

In many societies, having at least one son is important for economic, social and religious reasons. The desire to achieve a specific number of sons also affects fertility behaviour (Lucas, 1980). In Pakistan, which is still mainly a man's world, the importance of sons to a family cannot be overstated. In fact, a number of studies show that the number of living sons is an important determinant of completed family size in Pakistan (Rukkunddin, 1975; Khan and Sirageldin, 1977). In view of its demographic importance in Pakistan, this variable is considered in detail in the next two chapters, where its relationship to and effect on family size preferences is analysed in a wider socio-economic and demographic framework.

Table 2.1 shows that roughly one-fourth of the respondents did not have a son. On the other hand, about 28 per cent had 3 or more sons. In comparison to the rural distribution, fewer urban women had none or one living son. The reverse pattern was evident for two or more living sons. Similarly, on an average there were more living sons in urban areas than rural areas.

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[1]Parity here refers to number of living children.

2.2.6 Number of Deceased Children

The information about the number of deceased children was derived from two questions. The first question, "Have you ever given birth to any boy or girl who later died, even if the child lived for only a short time?" was asked of all respondents. The next question, which was asked only of those who had responded in the affirmative to the first question, was "How many of your children have died?".

It has been argued that high mortality is preceded by high fertility. Usually more children are produced as insurance against possible losses of children, so that the number of survivors corresponds to the desired number of children. In Pakistan, infant and child mortality is quite high and, as can be seen in Table 2.1, 40 per cent of women had experienced the loss of at least one child. The comparable figure was 47 per cent in 1975 (Population Planning Council of Pakistan, 1976). Correspondingly, the average number of deceased children was also estimated to be 0.3 children fewer in the present survey than in 1975. A breakdown into urban and rural areas indicates that slightly more rural women had lost children than urban women.

2.3 Knowledge and Use of Family Planning Methods

2.3.1 Contraceptive Knowledge and Use

The level of contraceptive knowledge was obtained from the question "As you know, there are various ways that a couple can delay the next pregnancy. Do you know of or have you heard of any of these ways or methods?". All those women who reported knowledge of a specific contraceptive method were asked "Have you ever used that method?". These questions were asked of all ever married women. But the information about current use of contraception was obtained only from currently married, non-pregnant women, who had ever used a contraceptive method. The question was worded "Did you or your husband use any family planning method during the last month?".

The Pakistan Family Planning Programme started in 1965 as a policy instrument to check rapid population growth through the diffusion of contraceptive use. But after roughly twenty years of operation, the programme has failed to attract the attention of the people and contraception levels remain very low. The low level of contraceptive knowledge (27 per cent) and ever use(5 per cent) as cited in Table 2.2 is reflective of the scepticism shown by Robinson (1966) at the very beginning of the programme. He indicated that staunch religious sentiments were much too firmly established to allow changes in the near future. However, it is interesting to note that contraceptive knowledge and use was reported to be much higher (75 per cent knowledge and 10 per cent use) in 1975 (Population Planning Council of Pakistan, 1976).

A possible explanation for this decline is that if the respondent in the PLM survey failed to report knowledge of a contraceptive method without prompting, no information was solicited about contraceptive use. Alam et al., (n.d) report evidence of prompting in the knowledge question during the 1975 Pakistan Fertility Survey. Apart from the above factors, the decline in contraceptive use may also have been due to the political situation in the years immediately before the commencement of this survey. Lieberman (1981) observed, that due to the political instability in the country, the programme activities were suspended and no propaganda was carried out through any type of communication channels after 1977. When this survey was conducted, strong religious sentiments were prevailing, and thus many people probably refrained from admitting about knowledge and use of contraceptive methods. Similar views have been expressed by Soomro and Ali (n.d.).

2.3.2 Intentions to Practice Contraception in the Future

The question on intentions to use contraceptive methods in the future was asked of currently married, fecund women who had never used any contraceptive method. The question was "Do you think you or your husband may use any method at any time in the future so that you will not become pregnant?".

TABLE 2.2 Knowledge and Use of Family Planning Methods of all Currently Married Women Under the Age of 50 in Urban and Rural Areas of Pakistan 1979-80 (Percentage)

	All Pakistan	Urban	Rural
Knows Any Method of Contraception			
Yes	27.0	43.3	21.1
No	73.0	56.7	78.9
Total	100.0	100.0	100.0
(N)	9416	2505	6911
Ever Used any Method of Contraception			
Yes	5.0	11.2	2.8
No	95.0	88.8	97.2
Total	100.0	100.0	100.0
(N)	9416	2505	6911
Current Use of any Method of Contraception[1]			
Yes	4.3	8.9	2.3
No	95.7	91.1	97.7
Total	100.0	100.0	100.0
(N)	7386	1954	5432
Intentions to Use Contraception in Future[2]			
Yes[3]	30.2	39.3	27.3
No	69.8	60.7	72.8
Total	100.0	100.0	100.0
(N)	8236	2027	6208

Notes:

1. Currently exposed and contraceptively sterilized women

2. Fecund women who have never used any contraception

3. Undecided responses are added into "yes" category

Source: PLM Survey 1979-80, original analysis of data tape.

Table 2.2 indicates that roughly 30 per cent of respondents indicated their readiness to use contraceptives in the future, which is a considerable decline from the corresponding figure of 58 per cent in 1975 (Population Planning Council of Pakistan, 1976). The urban (53 per cent) and rural (59 per cent) differential was not so marked in 1975 (Shah and Shah, 1984). But in the present survey about one and a half times as many urban respondents as rural ones intended to use contraception in the future (39 per cent urban and 27 per cent rural).

Assuming that motivational activities have a positive effect on behaviour and attitudes towards contraceptive use, then the decline in the proportion of those who intended to use contraception in the near future may be explained by the fact that family planning motivational activities such as the Continuous Motivation Scheme (CMS) were much more wide-spread in the early and mid-seventies. Such activities, as mentioned earlier, were suspended a couple of years before the commencement of the present survey. On the other hand, Shah and Shah (1984), analysing the data from the 1975 Pakistan Fertility Survey, doubted the validity of this variable as a measure of unmet need for contraception. They argued that some, particularly the younger women, might have responded in the affirmative to the question on "intentions to use" to please the interviewer, and hence the answer is not necessarily reflective of their future behaviour.

2.4 Family Size Preferences

2.4.1 Ideal and Desired Family Size

The study of family size preferences is important in understanding not only actual reproductive behaviour but also attitudes about family size norms. However, many demographers have pointed out the theoretical and methodological problems involved in the measurement of these preferences. The formation of the questions on which these variables are based is discussed in the first chapter.

Table 2.3 indicates "four children" the most popular choice for

TABLE 2.3 Family Size Preferences of Currently Married Women under the Age of 50 in Urban and Rural Areas of Pakistan 1979-80 (Percentage)

Family Size Preferences	All Pakistan	Urban	Rural
Ideal Family Size[1]			
0	0.0	0.0	0.0
1	0.2	0.1	0.2
2	4.2	8.4	2.6
3	10.0	11.0	9.7
4	44.5	50.2	42.4
5	15.7	12.7	16.8
6	17.2	11.0	19.5
7+	8.2	6.6	8.8
Total	100.0	100.0	100.0
(N)	7916	2160	5756
Mean	4.64	4.34	4.75
Desired Family Size[2]			
0	0.1	0.1	0.1
1	0.9	1.3	0.7
2	4.3	5.4	3.9
3	14.9	15.7	14.6
4	28.8	25.9	30.0
5	19.5	18.5	19.9
6	14.8	13.2	15.5
7+	16.7	20.1	15.4
Total	100.0	100.0	100.0
(N)	7384	2017	5368
Mean	4.88	4.94	4.86
Desire for Future Births[3]			
Yes	55.4	44.7	59.3
No	38.2	49.3	34.2
Undecided	6.4	6.0	6.5
Total	100.0	100.0	100.0
(N)	8702	2302	6400

Notes:

1. Women who gave numeric responses

2. Fecund women who gave numeric responses

3. Fecund women

Source: PLM Survey 1979-80, original analysis of data tape.

ideal family size. The findings of the Pakistan Fertility Survey (1975) data also confirms this result (Population Planning Council of Pakistan, 1976). However, it is interesting to note that while a small proportion (14 per cent) reported less than 4 children as the ideal family size, a considerably large number (41 per cent) stated 5 or more children as the ideal family size. These differentials were even more distinct in rural areas.

Four children was also found to be the most frequently mentioned desired family size, but less frequently than as the choice for ideal family size. On the other hand, a larger proportion (52 per cent) gave 5 or more children as their desired family size. It must be remembered, however, that the question on ideal family size reflects the preferences in a generalized context, and the construction of the desired family size variable is such that rationalization of actual family size has a strong impact. Urban and rural comparisons show that while average ideal family size was less in urban areas, the reverse pattern was evident for desired family size.

2.4.2 Desire for Future Births

The "desire for future births" may be the most appropriate variable for measuring subsequent fertility. Moreover, this variable may also meaningfully quantify the effect of son preference (Khan and Sirageldin, 1983). An examination of Table 2.3 reveals that 55 per cent of respondents wanted additional children, 38 per cent responded in the negative and 6 per cent were undecided. The proportion of women wanting additional children was higher in rural than urban areas. However, without controlling for the effect of variables such as age, age at marriage and number of living children, it would be hazardous to conclude that the desire for additional children was less in urban than in rural areas.

2.5 Socio-Economic characteristics

2.5.1 Wife's and Husband's Education

Many studies carried out in Pakistan and other parts of the world provide empirical evidence of the significance of education as an important variable in socio-economic and demographic research. Female education has been found in Pakistan to have a significant inverse relationship with fertility (Sathar, 1979; Alam et al., n.d.), while female schooling and age at marriage were found to have a positive association (Karim, 1982; Mahmood and Ali, n.d.). A few other studies observed a positive relationship between female education and contraceptive use (Shah and Shah, 1984; Soomro and Ali, n.d.).

The literacy rate is very low (23 per cent) in Pakistan. Nevertheless, more males are literate than females (Pakistan Census Organization, 1982). In the present survey information about levels of education was derived by two questions. The first question was "Did you (your husband) ever attend school?". The next question was put to those who responded in the affirmative to the first question. The question is "What was the highest class you(he) passed?".

According to Table 2.4, 11 per cent of women and 40 per cent of men were found to have passed at least class one. The corresponding statistics were 11 per cent for women and 41 per cent for men in 1975 (Population Planning Council of Pakistan, 1976). The findings of another national survey in 1968 indicated that 10 per cent of women and 45 per cent of men had at some time attended school (Training Research and Evaluation Centre, n.d.). Corresponding to this observation one can say that a gradually improving trend is evident in the case of women's education and a declining one in the case of husbands. Assuming these statistics are valid, the declining trend in educational level of husbands can probably be attributed to the fact that men prefer short term vocational training which readily provides jobs and money (but does not usually have any pre-requisites for formal education), whereas regular education is more time consuming and probably of less economic

value. As expected, educational attainment for both husbands and wives was appreciably higher in urban than in rural areas. These differentials were marked particularly in the case of those with secondary and higher education.

2.5.2 Working Status

Information about the working status of women was obtained from the following question: "As you know, many women work - I mean aside from doing their own house work some take up jobs for which they are paid in cash or kind. Others sell things or have a small business. Are you doing any such work at present?". A few other questions were asked of those who were not working presently but who might have worked sometime before or after their marriage.

The under-developed nature of the economy is reflected in the low level of female labour force participation. Table 2.4 indicates that only 13 per cent of women between 10 and 49 years of age had ever been in the labour force. The corresponding figure was 21 per cent in 1975 (Population Planning Council of Pakistan, 1976). In the absence of any further evidence of data, it would be risky to assign any reason to this decline in female labour force participation during this period. A breakdown into urban and rural areas shows that there were more rural women in the labour force than urban women. Furthermore, the table reveals that marriage does not seem to be an obstacle to continued participation in the labour force, as most of the women who were working at the time of their marriage continued working afterwards. Of the women who reported having worked at some time, the majority entered the labour market after their marriage. This may be due to the fact that the increased number of children strained an already meagre family income which compelled the women to enter the labour market.

2.5.3 Husband's Occupation

To ascertain the husband's occupation, the following question was asked of the wife "Now I have some questions about your husband's work. What (is/was) his occupation - that is, what kind of work (does/did) he do?". This question was asked of all ever married women. These

TABLE 2.4 Socio-Economic Characteristics of Currently Married Women under the Age of 50 in Urban and Rural Areas of Pakistan 1979-80 (Percentage)

Socio-Economic Characteristics	All Pakistan	Urban	Rural
Number of Women	9416	2505	6911
Wife's Education			
No schooling	88.8	72.1	94.8
Primary	5.3	10.2	3.5
Secondary	4.8	13.9	1.5
Tertiary	1.1	3.8	0.2
Total	100.0	100.0	100.0
Husband's Education			
No schooling	60.1	38.9	67.8
Primary	13.2	12.9	13.3
Secondary	21.2	33.9	16.5
Tertiary	5.6	14.3	2.4
Total	100.0	100.0	100.0
Wife's Working Status			
Worked before and after marriage	4.9	2.9	5.6
Worked after marriage only	7.0	5.6	7.5
Worked before marriage only	0.9	1.4	0.7
Never worked	87.2	90.0	86.2
Total	100.0	100.0	100.0
Husband's Occupation			
Professional and Clerks	8.7	18.6	5.1
Sales and service	15.5	29.0	10.6
Agriculture	41.4	5.1	54.6
Skilled and unskilled workers	34.4	47.3	29.7
Total	100.0	100.0	100.0
Monthly Household Income (in rupees)[1]			
≤500	21.5	16.1	24.1
501-750	25.0	17.3	27.8
751-1000	19.8	18.2	20.4
1001-1250	11.2	12.7	10.7
1251-1500	7.2	10.4	6.1
1501-2000	6.9	10.4	5.6
2001 and above	7.8	14.9	5.3
Total	100.0	100.0	100.0
Median Income	783	1000	730

Notes:

1. Approximately Rs. 10 equal to A$1.00 at time of survey.

Source: PLM survey 1979-80, original analysis of data tape.

occupations were classified according to the International Standard Code of Occupations. However, in the present analysis these occupations are merged into four broad categories: agriculturist, skilled and unskilled workers, sales and service, and clerks and professionals. Moreover, it may be noted here that in this survey about 20 per cent of respondents failed to report their husband's occupation. This group has been classified according to the level of household income and husband's education in the following way:

1. Men with no education and with a household income of Rs.500[2] and less per month were merged with unskilled workers.

2. Men with some schooling and income above Rs.500 were added to skilled workers.

3. The remaining husbands with college education and income Rs. 1500 or less were grouped with the clerical category.

4. All others with income higher than Rs.1500 and college and university education are added to the professionals.

About 72 per cent of the Pakistani population lives in the rural areas, and due to the agrarian base of the country most of the people are engaged in agriculture and its related fields (Pakistan Census Organization, 1981). Table 2.4 shows that 41 per cent of husbands were engaged in this occupational category. As expected, most of these lived in rural areas. On the other hand, cities are usually associated with trade and industry. Accordingly, a large proportion of people engaged in sales and service, skilled and unskilled occupations were found in cities. Similarly, most professionals and clerical staff were also reported to be in the urban areas rather than rural areas.

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[2]Approximately Rs 10 equal to A$ 1.00 at the time of survey.

2.5.4 Monthly Household Income

As has been mentioned earlier, this information was gathered in the Household Income and Expenditure Survey and merged with the individual level data for ever married women. Due to the unavailability of information about husband's income, gross household income is presented here to give some indication of national variations in income.

Table 2.4 indicates that the majority of the households (66 per cent) had a monthly income of Rs. 1000 or less. The proportion of households in this category was considerably higher (72 per cent) in the rural areas than the urban areas (52 per cent). On the other hand, only 5 per cent of households in rural areas were in the highest income group, that is, Rs. 2001 and above, whereas 15 per cent of urban households were in that range. These differentials are also evident from the median household monthly income, which was Rs. 1000 in urban areas as against only Rs.730 in rural areas.

2.6 Summary

In summary, one can say that the population under investigation may be characterized as a high fertility population with very limited use of contraception, and is also generally in poor socio-economic conditions. A comparison of findings of the present survey and with earlier surveys indicates that there has been little change in many of these characteristics during the last ten or fifteen years. An important exception is age at marriage which has been steadily rising. On the other hand, contraceptive knowledge, practice, and intentions to use in the future have been declining along with female labour force participation and husband's education. In the next two chapters some of these variables will be used in order to determine the most important predictors of family size preferences.

CHAPTER 3

DIFFERENTIALS IN FAMILY SIZE PREFERENCES

3.1 Introduction

The preference for a specific number of children may vary between different groups of people according to their socio-economic and demographic characteristics. Moreover, in some countries, the preference for a certain number of a specific sex is another important factor in determining the demand for additional children. This chapter examines differentials in family size preferences in Pakistan according to these characteristics. The reliability and accuracy of the responses concerning preferred family size are also evaluated.

3.2 Consistency of the Measures of Family Size Preferences

From the discussion presented in the first chapter on measures of family size preferences, it may be concluded that the usefulness of these measures in forecasting the future course of fertility has been established in developed countries but its meaningful application is not yet established universally in developing countries. An attempt is made here to examine the validity and reliability of these measures in Pakistan.

To measure the consistency of the responses, two variables - ideal family size and whether a woman wants more children - were combined so that the proportion of consistent responses was obtained by adding together those who belonged to two categories: (a) women who wanted no more children when they already had more than or the same number as their ideal, and (b) women who wanted more children when they had fewer than their ideal. The inconsistent responses were those who wanted more

children inspite of having as many as, or more than, their ideal, and those who did not want any more children, although they had fewer than their ideal number.

In the present survey, the question on ideal family size was asked in terms of a general ideal. However, it is assumed that the ideal number was given with reference to the respondents own socio-economic and demographic situation and hence reflected personal ideals. Similar assumptions were made by Shah and Palmore (1979), when analysing data from the Pakistan Fertility Survey. In fact, an analysis of present survey data indicates that 85 per cent of those who were interviewed gave consistent responses (Table 3.1). The corresponding figure in the 1975 PFS was 84 per cent (Shah and Palmore, 1979). Interestingly, no difference was found between rural and urban areas. Similarly a high level of consistency was also found in many previous studies. For example, a study of ten developing countries based on the WFS data shows a range of consistent responses from a low of 73 per cent in Bangladesh to a high of 94 per cent in Sri Lanka (Palmore and Concepcion, 1981). In Taiwan, 90 per cent of 2325 women studied gave consistent responses (Freedman, Hermalin and Chang, 1975). Rahman (1983) estimated 87 per cent consistent responses in a study on Malaysian data. In most of these studies the responses actually represented the personal ideals of the women interviewed.

Most of the inconsistent responses are from those whose actual family size was less than their stated ideals, but who said that they wanted no more children. Presumably, most of these women have not responded to this question in the context of a personal ideal. Another explanation is that in optimum circumstances these women would have wanted more, but presumably their circumstances at the time of survey were such that they did not express a desire for more children. (Shah and Palmore, 1979; Palmore and Concepcion, 1981).

It may be noted that the other measurement of family size preference available here is desired family size. The construction of this variable is such that all the living children are assumed to be

Table 3-1: Consistency of Responses to Question About Ideal Family Size and Desire for More Children[1] in Urban and Rural Areas of Pakistan, 1979-80

Consistent responses		All Pakistan		Urban		Rural	
		%	N	%	N	%	N
Ideal number ≤ of children	Living number of children for mothers who want no more children	32.9	1916	42.8	669	29.2	1247
Ideal number > of children	Living number of children for mothers who want more children	52.5	3061	42.7	667	56.1	2394
Total		85.4	4977	85.5	1336	85.3	3641
Inconsistent responses							
Ideal number ≤ of children	Living number of children for mothers who want more children	3.3	194	3.7	58	3.2	136
Ideal number > of children	Living number of children for mothers who want no more children	11.3	658	10.8	169	11.5	489
Total		14.6	852	14.5	227	14.7	625
Grand Total		100	5829	100	1563	100	4266

Notes:
Women who were undecided about having more children are excluded here.
1. Currently married fecund women who gave numeric responses.
Source: PLM Survey 1979-80,original analysis of data tape.

wanted. Thus it is expected that a similar analysis of desired family size would yield one hundred per cent consistency of responses.

The above findings suggest that responses about family size preferences are fairly consistent. It therefore seems reasonable to draw conclusions about future fertility from the analysis of these variables.

3.3 Demographic Factors

Generally, demographic factors such as age, age at marriage, number of living children, and number of deceased children have a strong relationship with family size preferences. A longitudinal study during 1969-73 in Thailand found that the mean number of children desired increased with the advancement of age, in both urban and rural areas (Knodel and Prachuabmoh, 1973). A number of other studies also showed a positive relationship between age and preferred family size (Ware, 1973; Freedman et al., 1974; Cho, 1978). Similarly, in Pakistan, as can be seen in Table 3.2, there was a continuous rise in ideal and desired family size with increasing age. However, the difference between the young (under 20 years) and older women (45 years and above) was 1.8 children for desired family size compared to only 0.7 children for ideal family size. Urban and rural comparisons indicate a further widening of this difference, especially for desired family size in urban areas where the difference was 2.2 children.

In the 1979-80 PLM, an inverse relationship was found between ideal and desired family size and age at marriage, and again the range was greater in urban areas (Table 3.2). In view of the steady increase in age at marriage during the past two or three decades in Pakistan, it is expected that a large proportion of the women who married early belong to the older generation with a larger family size. Either family size norms are changing in Pakistan, or there has been rationalization of actual family size. It is possible to explain these variations in preferences by comparing the responses of women in the respective age cohorts in the 1975 PFS and 1979-80 PLM. As stated earlier, these two surveys have many comparable features: the fertility portion of the questionnaires were identical; the two surveys were largely conducted by the same interviewers; both surveys were representative of the country; and presumably both surveys sufferred from similar reporting problems. Therefore, it can be assumed that data on fertility from the two surveys are comparable.

Family size preference data from the two surveys are compared in

E 3.2 Mean Family Size Preferences[1] According to Various Demographic Characteristics in Urban and Rural Areas of Pakistan, 1979-80

acteristics	All Pakistan		Urban		Rural	
	Mean Ideal	Mean Desired[2]	Mean Ideal	Mean Desired[2]	Mean Ideal	Mean Desired[2]
Women	4.64 (7916)	4.88 (7384)	4.34 (2160)	4.94 (2017)	4.75 (5756)	4.86 (5368)
Groups (in years)						
	4.31	4.03	4.27	3.89	4.33	4.07
4	4.36	4.14	4.02	3.91	4.48	4.21
9	4.55	4.50	4.20	4.27	4.69	4.60
4	4.68	5.06	4.38	5.15	4.79	5.03
9	4.82	5.45	4.56	5.66	4.92	5.36
4	4.86	5.68	4.52	6.11	5.00	5.51
9	5.02	5.87	4.64	6.11	5.18	5.77
at Marriage (in years)						
	4.84	5.14	4.62	5.47	4.92	5.03
7	4.59	4.81	4.34	4.86	4.69	4.79
9	4.52	4.75	4.21	4.74	4.63	4.76
nd above	4.47	4.62	4.07	4.40	4.64	4.72
er of Living Children						
	4.16	3.84	3.92	3.66	4.23	3.89
	4.28	3.96	4.03	3.68	4.36	4.05
	4.31	4.05	3.91	3.75	4.45	4.15
	4.52	4.25	4.07	3.95	4.69	4.37
	4.69	4.56	4.43	4.42	4.75	4.61
	5.04	5.32	4.58	5.18	5.25	5.39
	5.22	6.21	4.95	6.18	5.34	6.23
	5.42	7.96	4.95	7.99	5.69	7.93
er of Living Sons						
	4.27	4.09	4.03	3.96	4.34	4.12
	4.48	4.36	4.19	4.15	4.57	4.42
	4.67	4.74	4.25	4.59	4.86	4.81
	5.13	6.23	4.79	6.44	5.28	6.13
er of Children who have died						
	4.45	4.72	4.12	4.71	4.58	4.72
	4.75	5.12	4.49	5.24	4.85	5.07
	5.00	5.18	4.78	5.35	5.08	5.12
	5.33	5.06	5.29	5.46	5.35	4.92

es:
Figures in parenthesis indicate number of women in each category.
Currently married women under the age of 50 who gave numeric responses.
Fecund women only.
rce: PLM Survey 1979-80, original analysis of data tape.

Table 3-3: A Comparison of Family Size Preferences: PFS 1975 and PLM 1979-80

Comparable age groups		Average desired family size			Average ideal family size		
[a] PFS	[b] PLM	PFS	PLM	Change	PFS	PLM	Change
20-24	25-29	3.6 (798)	4.5 (1513)	+0.9	4.0 (822)	4.6 (1595)	+0.6
25-29	30-34	4.1 (859)	5.1 (1269)	+1.0	4.2 (896)	4.7 (1274)	+0.5
30-34	35-39	4.7 (775)	5.5 (1191)	+0.8	4.2 (798)	4.8 (1218)	+0.6
35-39	40-44	5.3 (572)	5.7 (818)	+0.4	4.3 (605)	4.9 (992)	+0.6
40-44	45-49	5.4 (558)	5.9 (568)	+0.5	4.4 (593)	5.0 (801)	+0.6

Notes:
Figures in parenthesis are number of women in each sub-group.
Sources: (a) Population Planning Council of Pakistan, 1976:83.
(b) PLM survey, original analysis of data tape.

Table 3.3, and show that reproductive goals in terms of both ideal and desired family size modified over time within cohorts. Presumably, this change may be attributed to the actual fertility experience during this period. An earlier study based on Pakistani data of 1968 suggests a sequential element in the fertility decision-making process (Khan and Sirageldin, 1977). The change in desired family size was greater among women under age 40, but in ideal family size the differences between cohorts were small.

As expected, the results of the 1979-80 PLM survey show a strong positive association between average ideal and desired family size and number of living children (Table 3.2). The increase in the average preferred family size is more marked for women with four or more living children. In rural Bangladesh, Ahmed (1981) found that IN values -- a scale of measuring family size preferences developed by Coombs (1974,

1979) -- were high for most women of all parities. Another study based on the World Fertility Survey data of nineteen developing countries, including Pakistan, found that the mean number of children desired was closely associated with the number of living children (Kent and Larson, 1982).

However, it is useful to note that the average ideal was consistently higher than the average desired for women with four or less children, while the reverse pattern was found for those with more than four children. A roughly similar relationship was found in urban and rural areas. These findings substantiate the argument that family size preferences are affected by the rationalization of actual family size. However, it is argued that the rationalization effect does not necessarily account for all associations observed between number of living children and mean number of children desired. Lightbourne and MacDonald (1982) contend that in many countries part of the association is explained by a tendency for women of low parity to understate the total number of children they may ultimately desire. The relationship of number of living sons and family size preferences is not very different from that of living children and desired and ideal family size.

In the developing countries, it is generally felt that children provide a form of insurance for assistance when parents are sick or old (Lucas and Meyer, 1980). Therefore parents keep on revising their attitude about number of children in the event of the death of a child. Alam et al. (n.d.) found a positive association between child mortality and cumulative fertility. A study of Taiwanese couples showed that fear of child mortality raised the desired number of children (Rutstein, 1974). Another explanation of this relationship could be that older women with more children will be more likely to experience a greater number of child deaths; they also have larger ideal and desired family size because of rationalization of existing number of children.

Data from the present study indicate that the ideal increased from 4.5 children for those who experienced no child deaths to 5.3 for those

who had lost three or more children. A roughly similar pattern was observed for urban and rural areas, though the difference between the largest and smallest figure was greater in urban than rural areas. On the other hand, desired family size was positively associated with this variable only up to 2 children.

3.4 Socio-economic Factors

A number of studies have shown that family size preferences change according to differences in socio-economic status. A comparative study of twelve countries in Europe around 1970 indicated a negative association between education of the spouse and expected family size (United Nations, 1976). The effect of education seems to be equally important in developing countries. An examination of the results from a number of studies shows education was negatively associated with various measurements of family size preferences (Freedman et al., 1974; Stoeckel, 1975; Coombs and Freedman, 1979; Ahmed, 1981). A similar relationship was also evident in the 1979-80 PLM. Ideal family size decreased on average from 4.7 children for women with no education to 3.3 children for those with tertiary education. Correspondingly, women with tertiary education desired on average 1.3 children fewer than those with no education. Interestingly, the mean desired and ideal family size at each level of education in urban and rural areas was not too different from those observed for the whole country. It is argued that education enables a couple to rationalize their demand for children. The time involved in the pursuit of higher education delays a woman's marriage and hence reduces the period of exposure to the risk of pregnancy. This in turn may affect her demand for children.

In a male dominated society like Pakistan, husbands tend to make most of the important decisions, especially those concerning vital events. In such a situation, the husband's education is of greater significance than the wife's. It is interesting to note that, unlike wife's education, the relationship between husband's education and ideal and desired family size was curvilinear: mean family size increased with an increase in husband's education up to primary level,

LE 3.4 Mean Family Size Preferences[1] According to Various Socio-Economic Characteristics in Urban and Rural Areas of Pakistan, 1979-80

racteristics	All Pakistan		Urban		Rural	
	Mean Ideal	Mean Desired[2]	Mean Ideal	Mean Desired[2]	Mean Ideal	Mean Desired[2]
Women	4.64 (7916)	4.88 (7384)	4.34 (2160)	4.94 (2017)	4.75 (5756)	4.86 (5368)
e's Education						
schooling	4.74	4.94	4.56	5.19	4.79	4.87
mary	4.21	4.63	4.09	4.72	4.32	4.54
ondary	3.86	4.36	3.84	4.27	3.92	4.66
tiary	3.31	3.64	3.29	3.62	3.43[3]	3.76[3]
band's Education						
schooling	4.78	4.94	4.63	5.21	4.81	4.88
mary	4.81	5.05	4.60	5.34	4.89	4.94
ondary	4.37	4.75	4.18	4.79	4.51	4.72
tiary	4.01	4.39	3.84	4.29	4.38	4.62
band's Occupation						
iculture	4.89	4.91	5.13	5.40	4.89	4.89
lled and Unskilled Workers	4.49	4.84	4.34	4.97	4.69	4.77
es and Service	4.55	4.96	4.40	5.04	4.57	4.87
fessional and clerks	4.23	4.77	4.06	4.60	4.48	5.01
e's Work Status						
r Worked	4.97	5.12	4.24	4.87	5.18	5.19
er Worked	4.60	4.84	4.35	4.94	4.69	4.80

es: Figures in parenthesis indicate number of women in each category.

Currently married women under the age of 50 who gave numeric responses.

Fecund women only.

Fewer than 20 cases.

rce: PLM Survey 1979-80, original analysis of data tape.

but an inverse relationship was observed with higher education. A similar pattern was found for rural areas, but in urban areas a clearly inverse relationship was evident between ideal family size and husband's education.

It has often been said that a major factor affecting the fall in fertility in western countries was the increased participation of women in the labour force. An analysis of the data from twelve developed countries indicated that a simple dichotomy between women "currently working" and "not currently working" produced differentials in average family size expectations of about one-half to nearly one child in most countries (United Nations, 1976:106). However, in developing countries there was hardly any difference between working and non-working women in their preference for family size. In fact working women in Pakistan, preferred larger families (see Table 3.4). A possible explanation might be that rural working women, who comprised the majority of the female work force in Pakistan, often belong to the poorer and less educated class and therefore tend to have the traditional outlook of a large family size.

Pakistan is basically an agricultural country and most of its population is engaged in occupations related to agriculture. In the absence of mechanization, farming is labour-intensive and thus larger families mean more working hands in the fields. Conforming to this observation, wives whose husbands were agriculturists reported the highest average preference for children as ideal family size. The wives of professional and clerical groups preferred the smallest ideal family size. The difference was 0.7 children on average. Generally, professionals and clerks are associated with the educated class in Pakistan and hence prefer fewer children as they must invest more in their children to maintain or improve their social status (Irfan and Farooq, n.d.). In urban areas, professionals and clerks reported an ideal family size nearly one child less than that for agriculturists.

In contrast to the ideal family size pattern , the wives of sales and service men reported the highest number of children for desired

family size. As for ideal family size, the wives of professional and clerical group preferred the smallest desired family size. The difference between largest and smallest desired family size was not marked here. The social setting of rural areas of Pakistan has a great deal of uniformity. Most rural residents, irrespective of their occupations, have similar life styles and attitudes. Thus, ideal and desired family size showed little variation across occupational groups in rural areas.

Table 3.5 shows that "four children" was the most preferred family size all over Pakistan, including urban and rural areas. However, an examination of the relationship between desired and ideal family size indicates that 48 per cent of the sampled women (49 per cent in urban and 43 per cent in rural areas) reported the same number for ideal and desired family size. Controlling these responses by age of women, the consistency increased to 57 per cent for women under 25 years of age. For women aged 35 and over, the consistency was only 37 per cent (see Appendix C). This is probably due to the fact that the confidence and awareness of younger women in the present age encourages a more logical approach which is replacing the purely fatalistic approach to family size norms. However, further investigation into this relationship is required particularly by controlling for the effect of achieved family size.

3.5 Desire to Cease Childbearing

Another way of measuring attitudes about family size norms is to examine a woman's desire to cease childbearing. A cross tabulation of this variable by parity and age helps to identify the present demographic circumstances of women who want to stop childbearing. Namboodiri (1974:45) also focussed his attention on a similar problem and examined the question "which couples at given parities expect to have additional children?". This type of analysis has immediate implications for the family planning programme, but here it will be regarded as a predictor of subsequent fertility.

LE 3.5 Percentage Distribution of Currently Married Fecund Women[1] According to Desired and Ideal Family Size in Urban and Rural Areas of Pakistan, 1979-80.

al Family Size	Desired Family Size 1	2	3	4	5	6	7+	Total	Number of Women
				All Pakistan					
	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	12
	0.2	1.8	0.7	0.4	0.3	0.2	0.3	4.1	266
	0.1	0.9	5.6	1.7	0.7	0.5	0.5	10.0	670
	0.4	1.2	7.5	21.6	6.2	3.5	4.0	44.4	2965
	0.1	0.2	1.1	3.9	7.3	2.0	1.9	16.4	1095
	0.0	0.1	0.6	2.0	3.8	6.6	3.8	16.8	1126
	0.0	0.0	0.3	0.5	1.0	1.6	4.8	8.2	550
al	0.9	4.3	15.7	30.0	19.3	14.4	15.4	100.0	6685
ber of Women	59	289	1051	2007	1290	961	1028		
				Urban					
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
	0.6	3.1	1.4	1.0	0.8	0.7	0.5	8.1	143
	0.2	0.8	5.9	1.6	1.2	0.7	0.9	11.2	200
	0.5	1.6	8.5	20.3	7.6	4.3	6.9	49.8	888
	0.0	0.1	0.8	2.8	5.9	1.4	2.5	13.5	240
	0.0	0.0	0.2	1.3	2.2	3.8	3.0	10.5	187
	0.0	0.0	0.1	0.4	0.7	1.5	4.1	6.9	123
al	1.4	5.7	16.9	27.4	18.4	12.4	17.9	100.0	1782
ber of Women	24	101	300	488	328	221	320		
				Rural					
	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	11
	0.1	1.3	0.5	0.2	0.2	0.1	0.2	2.6	123
	0.1	0.9	5.4	1.7	0.6	0.5	0.4	9.6	470
	0.4	1.1	7.2	22.1	5.6	3.1	2.9	42.6	2078
	0.1	0.3	1.2	4.3	7.8	2.2	1.6	17.4	855
	0.0	0.2	0.7	2.2	4.3	7.6	4.0	19.2	939
	0.0	0.0	0.3	0.5	1.1	1.6	5.1	8.7	427
al	0.7	3.8	15.3	31.0	19.6	15.1	14.4	100.0	4902
ber of Women	35	187	750	1519	963	740	708		

es:

The outlined diagonal cells indicate those women who gave the same response for both questions. These totalled 47.7 % for all Pakistan, 43.1 % for urban and 49.3 % for rural areas.

Women under the age of 50 who gave numeric responses.

rce: PLM Survey 1979-80, original analysis of data tape.

LE 3.6 Percentage of Currently Married, Fecund Women Under the Age of 50 in Each Age and Parity Group (Including Current Pregnancy) Who Want No More Children in Urban and Rural Areas of Pakistan, 1979-80

Groups (in Years)	Number of Living Children									
	0	1	2	3	4	5	6	7+	All	Number of Women
Pakistan										
er 25	0.1	1.7	7.3	16.6	48.4	50.0	-	-	6.0	2463
34	1.0	3.9	11.2	25.1	49.0	61.6	71.3	76.4	34.9	3364
44	1.0	11.3	31.3	53.7	68.1	76.7	82.1	86.0	51.9	2261
and above	0.0	42.9	54.8	60.4	76.6	85.6	89.0	100.0	78.7	616
	0.5	3.6	13.2	30.8	56.1	70.1	79.2	85.2	38.2	8703
ber of Women	1017	1319	1338	1231	1161	886	745	1006		
Urban										
er 25	0.0	0.5	14.2	19.7	54.2	71.4	-	-	9.7	596
34	0.0	5.1	20.0	38.3	62.5	72.7	79.3	81.5	47.9	917
44	0.0	15,8	33.3	63.5	84.1	81.0	86.0	92.8	79.2	611
and above	0.0	66.7	100.0	73.3	84.2	89.7	100.0	93.2	86.6	179
	0.0	5.4	19.2	39.3	69.1	78.2	84.9	90.1	49.3	2303
ber of Women	211	295	323	323	307	261	218	365		
Rural										
er 25	0.2	1.5	4.9	15.1	46.5	28.6	-	-	4.9	1866
34	1.3	3.5	8.3	20.5	44.3	57.2	66.5	72.2	30.0	2447
44	9.2	10.4	30.6	50.8	62.7	74.9	80.7	82.2	62.7	1650
and above	0.0	28.6	53.8	55.3	73.3	83.8	86.5	89.0	75.9	436
	0.6	2.9	11.3	27.7	51.2	66.8	77.0	82.4	34.2	6400
ber of Women	806	1023	1015	909	855	624	526	641		

:

ty here refers to number of living children.

rce: PLM Survey 1979-80, original analysis of data tape.

As can be seen in Table 3.6, the proportion of women who wanted no more children increased at each successive level of current family size. Almost all childless women wanted children, which reveals a strong adherence to the tradition of child bearing, following marriage. However, a majority (70 per cent) of those with five living children wanted to cease childbearing. The proportion of females wanting no more children also increased with rising age, and this was true for each parity. A higher proportion of women who did not want additional children was found in urban than rural areas, and this difference was found for nearly all parity and age groups.

The sex composition of the living children in a family has an influence on the desire for additional children. This is particularly true in most Asian countries. In Korea, for example, in a family with three children, the proportion of women who wanted no more children jumped from 47 per cent for those with no sons to 82 per cent for those with one son and to 96 per cent for those with two sons (Kent and Larson, 1982:20). In another study based on a nation-wide survey of 2910 currently married women in Pakistan, Khan and Sirageldin (1983) observed that the effect of the number of living sons on the desired number of additional children was about twice that of the effect of the number of living daughters.

Table 3.7 presents the percentage of currently married, fecund, non-pregnant women who did not want additional children by number of living children, living sons and age. Currently pregnant women are excluded from this analysis because of the difficulty in ascertaining the sex and live birth status of the child to be born. The Table clearly indicates the effect of son preference among women with two or more children. Considering families with two children, those women having two sons were almost twice as likely to want to cease childbearing as were those with two daughters. However, those with a balanced family, consisting of one son and one daughter, seemed to be the most likely to stop childbearing. Such women were three times the number of those with two daughters. This observation is substantiated by the results shown in Appendix D, where among families with two

BLE 3.7 Percentage of Currently Married, Fecund, Non-pregnant Women Under the Age of 50 in Each Age and Family Composition Group who Want no More Children in Urban and Rural Areas of Pakistan, 1979-80

mber of Living Children d Sons	Age Groups				
	<25	25-34	35-44	45 and Above	All
			Pakistan		
ne or One Child	1.1	3.1	6.0	22.0	2.5
son	0.7	1.9	4.1	15.2	1.6
e son	2.5	5.3	11.1	42.9	4.9
o Children	9.1	12.4	33.3	56.1	15.6
son	1.1	6.4	12.9	57.1	6.7
e son	12.9	16.8	48.7	55.0	21.1
o sons	8.5	10.2	19.4	61.5	13.0
ree Children or More	32.1	52.5	78.1	86.1	65.7
son	*	5.8	14.3	36.8	10.8
e son	14.5	33.7	66.4	68.8	44.6
o sons	43.7	54.8	76.2	86.5	64.1
ree sons or more	*	68.4	85.2	91.2	79.6
			Urban		
ne or One Child	1.4	3.6	9.7	30.8	3.4
son	0.9	2.7	*	*	2.2
e son	3.0	5.3	27.3	66.7	6.8
o Children	18.3	20.5	34.6	*	22.3
son	0.0	8.8	25.0	*	6.8
e son	25.0	22.8	43.8	*	26.8
o sons	19.4	27.8	40.0	*	26.7
ree Children or More	33.3	64.7	87.2	91.2	75.1
son	*	8.6	28.6	80.0	20.3
e son	13.6	42.9	69.2	75.0	49.7
o sons	53.1	69.3	90.0	85.7	76.9
ree sons and more	*	81.0	91.5	96.0	87.5
			Rural		
ne or One Child	1.1	3.0	5.4	14.8	2.2
son	0.5	1.7	4.8	13.0	1.5
e son	2.3	5.3	7.0	25.0	4.1
o Children	5.9	9.4	32.7	56.8	13.5
son	1.4	5.5	11.5	57.1	6.2
e son	8.3	14.9	50.0	57.9	19.4
o sons	4.8	4.5	15.4	54.5	8.1
ree Children or More	31.4	47.5	74.2	84.1	61.8
son	*	4.7	7.1	21.4	7.2
e son	14.9	30.1	65.9	64.3	42.6
o sons	39.4	48.9	70.6	86.7	58.9
ree sons or more	*	63.2	82.3	88.8	76.2

tes:

Twenty or fewer cases.

urce: PLM Survey, 1979-80, original analysis of data tape.

children, those with a balanced family of one son and one daughter desired the lowest number of additional children.

Contrary to the general belief that girls are unwelcome due to the dowry system, in rural areas additional children were desired by a larger proportion of women with two sons than of those with one son and one daughter. This implies a desire for at least one daughter. In urban areas, irrespective of whether the family consisted of two sons or was a balanced family of one son and one daughter, 27 per cent of women wished to cease childbearing. Where there were no sons only 7 per cent wanted to cease childbearing.

For families with three or more children, a strong positive relationship was evident between number of living sons and the proportion of women who wanted no more children. In other words, with an increase in the number of living sons the proportion of women who wished to cease childbearing also increased. The difference between the largest and the smallest figure was roughly 70 per cent.

In Pakistan, it is customary for women to bear children at a young age, and with advancing age women consider it unbecoming to bear children. Probably, this is due to a "grand mother taboo", which deters women from wanting to have more children once they are grand mothers. In accordance with this observation, the age breakdown in Table 3.7 indicates that the desire to cease childbearing increased with the advancement of age, irrespective of the number and sex composition of the family.

3.6 Summary

In summary, it may be said that the age of the women, number of living children and presence of sons in a family were the most important factors explaining family size preferences. However, a major part of this explanation lies in the women's own modification of the family size goals in terms of her actual fertility experience. Education, particularly beyond secondary level, was found to have an

influence in bringing about a downward change in family size norms. The sex composition of the children in the family also has a bearing on the demand for additional children. Although a clear son preference was evidenced in Pakistan, among families with two children, women with a balanced family consisting of one son and one daughter were most likely to stop childbearing. This was particularly true in rural areas.

CHAPTER 4

DETERMINANTS OF FAMILY SIZE PREFERENCES

4.1 Introduction

Fertility preferences are affected by a variety of inter- related factors. The analysis so far has examined the relationship between the dependent variable and the selected predictors primarily through bivariate analysis. In the analysis that follows, an attempt is made to measure the net effect of each predictor on the dependent variable controlling for the effect of other predictors and covariates. For this purpose, as mentioned earlier, the technique of Multiple Classification Analysis (MCA) is used for each of the three dependent variables.

4.2 Multiple Classification Analysis

Multiple Classification Analysis is a multivariate technique. However, compared to other types of multivariate analysis, MCA has some distinct advantages. For example, this technique can be used when the dependent variable is interval scaled or even if it is a dichotomous variable which is not greatly skewed. Some other multivariate techniques also can be used with either interval scaled or dichotomous dependent variables, but the major advantage of MCA over other techniques is that it can incorporate predictor variables which are interval, ordinal, or nominal scaled. Of three dependent variables used in this analysis, two -- ideal family size and desired family size -- were interval scaled. The third -- desire for future birth -- was dichotomous. All the three predictors used here were ordinal scaled. Another advantage of MCA is that, it can be used where there are correlated predictors. Furthermore, MCA does not assume any linearity between dependent and predictor variables. However, a major limitation

of this technique is that interaction effects can bias the results (Andrews et al., 1973).

Statistically the MCA model assumes that the dependent variable is predicted by the additive effect of the predictors. The model can be expressed by the following equation.

$$Y_{ij....n} = \bar{Y} + a_i + b_j + \ldots\ldots\ldots\ldots + e_{ij....n}$$

where $Y_{ij....n}$ is the score of individual n who falls in the i-th category of predictor A, J-th category of predictor B, etc.

$\bar{Y}$ is grand mean on the dependent variable.

a_i is the effect of membership in the i-th category of predictor A.

b_j is the effect of membership in the j-th category of predictor B.

$e_{ij....n}$ is an error term.

The MCA program computes various statistics. A few major statistics will be discussed here. The mean value for each category is calculated with deviations of each category from the grand mean before and after adjusting for other predictors and covariates. The eta statistic, which is also known as the correlation ratio, indicates the closeness of association between predictors and dependent variables. The coefficient obtained after controlling for the effect of predictors and covariates is called the beta or partial correlation ratio. In addition to the above statistics, the multiple-R provides a summary estimate of the overall relationship between predictors and the dependent variable, adjusted for the degrees of freedom. The multiple-R when squared measures the total variation in the dependent variable explained by all the predictors and covariates taken together, adjusted for degrees of freedom.

The three predictors selected for the present analysis are age at marriage, wife's education and number of living sons. In the analysis of variance, these predictors were found to be significant for most of the cases (see appendices E-M). Initially husband's occupation was also included as a predictor in the analysis but its effect in terms of eta/beta values was found to be negligible and hence was omitted from the final analysis. Efforts were also made to achieve uniformity in the selection of predictors (and the number of categories in each) for each of the three dependent variables. The analysis was carried out for the total population and for urban and rural areas. Some changes, however, were made in the analysis of "desire for future births". The number of sons were converted into a dummy variable, which took the value of unity if the respondents had at least one son, and took the value of zero if otherwise. It was expected that the dichotomous dependent variable "desire for future birth" would be explained better by the presence of sons as a dummy variable. This seemed more appropriate, as this analysis is based upon women under 40 years of age and with at least one living child. The three covariates used in all nine equations of analysis were age, number of living children and number of children who have died. These variables were also found to be highly significant in most cases (see appendices E-M).

Because of excessive computer space requirements, three-way and higher order interaction effects were ignored here. The analysis of variance was applied to test the two-way interaction effect between all possible pairs of independent variables. An examination of appendices (E-M) indicates some interaction effect between the following pairs of independent variables:

1. Women's education and age at marriage (Appendix K)

2. Women's education and having at least one son (Appendix K)

Both were significant at the 5 and 1 per cent level respectively. In a study of contraceptive use in Java-Bali, Soeradji and Hatmadji (1982) applied a further check on all the interacting pairs of

variables by taking the ratio of the sum of the squares of the interacting term to the sum of the squares of the main effects of the corresponding variables. They suggested that if the ratio is smaller than 10 per cent then the interaction effect is negligible. The application of this check on these data indicated that the ratio for the second pair of interacting variables was much lower than the ten per cent level whereas for the first pair it was slightly higher than 10 per cent level. Another check -- the ratio of the interaction sum of squares to the total sum of square -- as suggested by the same authors was applied on the first interacting pair of variables. This check estimated a ratio much less than 1 per cent, a level above which interaction was observed to be affecting the dependent variable. Thus it may be concluded that the interaction terms here do not influence the dependent variables and hence the prediction of the dependent variables would be unbiased.

4.3 The Results

The Tables 4.1 to 4.9 present the results of the MCA for the three dependent variables. These tables are divided into three sets of three tables each. Tables 4.1 to 4.3 indicate the effect of predictor variables on ideal family size and were based on all currently married women. The second set of Tables, 4.4 to 4.6, display the effect of the same predictors on desired family size. This analysis is based on currently married fecund women, although the information on this variable was gathered from fecund women only. The last three, Tables 4.7 to 4.9, pertain to currently married fecund women under 40 years of age who have at least one living child. As mentioned earlier, the analysis was limited to this particular group because it was considered to be less influenced by obvious age and parity effects on the desire for more children.

As is evident from the multiple-R^2 values, the predictability of all the independent variables taken together without the covariates was quite low. For example, only 8 per cent of variance was explained in "ideal family size" (Table 4.1) and 10 per cent in the "desire for

Table 4-1: Multiple Classification Analysis of Ideal Family Size and Selected Variables, Controlling for Age, Number of Living Children and Children Who Have Died - All Pakistan[1]

Grand mean = 4.64

Predictor variables	N	Unadjusted		Adjusted for independents		Adjusted for independents and Covariates	
		Deviations	Eta	Deviations	Beta	Deviations	Beta
Wife's education							
No schooling	6911	0.10		0.09		0.08	
Primary and less	464	-0.44		-0.39		-0.37	
Secondary and above	541	-0.89		-0.78		-0.75	
			0.18		0.16		0.15
Age at marriage(in years)							
< 15	2841	0.20		0.11		0.05	
16-18	2696	-0.08		-0.05		-0.06	
19+	2380	-0.15		-0.08		-0.00	
			0.10		0.06		0.03
Number of living sons							
0	2108	-0.37		-0.35		0.05	
1	1974	-0.17		-0.15		-0.03	
2	1671	0.03		0.04		-0.07	
3+	2163	0.49		0.45		0.04	
			0.23		0.21		0.03
Multiple R squared					.083		.126
Multiple R					.288		.355

Notes:
1. Currently married women who gave numeric responses.
Source: PLM Survey 1979-80, original analysis of data tape.

Table 4-2: Multiple Classification Analysis of Ideal Family Size and Selected Variables, Controlling for Age, Number of Living Children and Children Who Have Died - Urban[1]

Grand mean = 4.34

Predictor variables	N	Unadjusted		Adjusted for independents		Adjusted for independents and Covariates	
		Deviations	Eta	Deviations	Beta	Deviations	Beta
Wife's education							
No schooling	1501	0.22		0.18		0.16	
Primary and less	231	-0.26		-0.24		-0.20	
Secondary and above	428	-0.62		-0.51		-0.44	
			0.23		0.19		0.16
Age at marriage(in years)							
< 15	696	0.28		0.13		0.05	
16-18	788	-0.03		-0.03		-0.04	
19+	676	-0.25		-0.10		-0.00	
			0.14		0.06		0.03
Number of living sons							
0	510	-0.32		-0.25		0.11	
1	504	-0.16		-0.11		0.00	
2	499	-0.09		-0.09		-0.14	
3+	647	0.44		0.36		0.02	
			0.20		0.16		0.06
Multiple R squared					.087		.135
Multiple R					.294		.367

Notes:
1. Currently married women who gave numeric responses.
Source: PLM Survey 1979-80, original analysis of data tape.

Table 4-3: Multiple Classification Analysis of Ideal Family Size and Selected Variables, Controlling for Age, Number of Living Children and Children Who Have Died - Rural[1]

Grand mean = 4.75

Predictor variables	N	Unadjusted		Adjusted for independents		Adjusted for independents and Covariates	
		Deviations	Eta	Deviations	Beta	Deviations	Beta
Wife's education							
No schooling	5411	0.04		0.03		0.03	
Primary and less	233	-0.43		-0.34		-0.31	
Secondary and above	113	-0.88		-0.75		-0.72	
			0.11		0.09		0.08
Age at marriage(in years)							
< 15	2145	0.16		0.11		0.05	
16-18	1907	-0.09		-0.05		-0.05	
19+	1704	-0.10		-0.08		-0.01	
			0.09		0.06		0.03
Number of living sons							
0	1599	-0.41		-0.39		0.05	
1	1470	-0.18		-0.18		-0.05	
2	1172	0.10		0.10		-0.04	
3+	1515	0.53		0.51		0.02	
			0.25		0.24		0.03
Multiple R squared					.074		.122
Multiple R					.271		.349

Notes:
1. Currently married women who gave numeric responses.
Source: PLM Survey 1979-80, original analysis of data tape.

Table 4-4: Multiple Classification Analysis of Desired Family Size and Selected Variables, Controlling for Age, Number of Living Children and Children Who Have Died - All Pakistan[1]

Grand mean = 4.88

Predictor variables	N	Unadjusted		Adjusted for independents		Adjusted for independents and Covariates	
		Deviations	Eta	Deviations	Beta	Deviations	Beta
Wife's education							
No schooling	6469	0.07		0.04		0.05	
Primary and less	432	-0.25		-0.15		-0.15	
Secondary and above	486	-0.67		-0.44		-0.49	
			0.11		0.07		0.08
Age at marriage(in years)							
< 15	2643	0.26		0.11		-0.02	
16-18	2559	-0.09		-0.03		-0.03	
19+	2184	-0.22		-0.10		0.07	
			0.11		0.05		0.03
Number of living sons							
0	2012	-0.80		-0.78		0.70	
1	1818	-0.53		-0.52		0.01	
2	1518	-0.14		-0.14		-0.50	
3+	2039	1.36		1.33		-0.33	
			0.48		0.47		0.26
Multiple R squared					.241		.561
Multiple R					.491		.749

Notes:
1. Currently married fecund women who gave numeric responses.
Source: PLM Survey 1979-80, original analysis of data tape.

Table 4-5: Multiple Classification Analysis of Desired Family Size and Selected Variables, Controlling for Age, Number of Living Children and Children Who Have Died - Urban[1]

Grand mean = 4.94

Predictor variables	N	Unadjusted		Adjusted for independents		Adjusted for independents and Covariates	
		Devia- tions	Eta	Devia- tions	Beta	Devia- tions	Beta
Wife's education							
No schooling	1412	0.26		0.14		0.09	
Primary and less	216	-0.22		-0.16		-0.06	
Secondary and above	389	-0.82		-0.43		-0.31	
			0.22		0.12		0.08
Age at marriage(in years)							
< 15	672	0.55		0.21		-0.00	
16-18	727	-0.10		-0.04		-0.05	
19+	618	-0.48		-0.17		0.06	
			0.21		0.08		0.02
Number of living sons							
0	466	-0.98		-0.91		0.91	
1	451	-0.79		-0.74		-0.01	
2	454	-0.36		-0.35		-0.55	
3+	646	1.51		1.42		-0.26	
			0.54		0.51		0.27
Multiple R squared					.320		.677
Multiple R					.566		.823

Notes:
1. Currently married fecund women who gave numeric responses.
Source: PLM Survey 1979-80, original analysis of data tape.

Table 4-6: Multiple Classification Analysis of Desired Family Size and Selected Variables, Controlling for Age, Number of Living Children and Children Who Have Died - Rural[1]

Grand mean.= 4.86

Predictor variables	N	Unadjusted		Adjusted for independents		Adjusted for independents and Covariates	
		Devia- tions	Eta	Devia- tions	Beta	Devia- tions	Beta
Wife's education							
No schooling	5056	0.02		0.01		0.01	
Primary and less	215	-0.32		-0.11		-0.11	
Secondary and above	97	-0.30		-0.09		-0.19	
			0.05		0.02		0.02
Age at marriage(in years)							
< 15	1971	0.17		0.07		-0.04	
16-18	1832	-0.08		-0.02		-0.03	
19+	1565	-0.12		-0.07		0.08	
			0.07		0.03		0.03
Number of living sons							
0	1545	-0.73		-0.72		0.62	
1	1367	-0.43		-0.43		0.01	
2	1064	-0.05		-0.05		-0.46	
3+	1392	1.28		1.27		-0.34	
			0.46		0.45		0.25
Multiple R squared					.210		.514
Multiple R					.458		.717

Notes:
1. Currently married fecund women who gave numeric responses.
Source: PLM Survey 1979-80, original analysis of data tape.

Table 4-7: Multiple Classification Analysis of Desire for Future Birth[1] and Selected Variables, Controlling for Age, Number of Living Children and Children Who Have Died - All Pakistan[2]

Grand mean = 0.64

Predictor variables	N	Unadjusted		Adjusted for independents		Adjusted for independents and Covariates	
		Deviations	Eta	Deviations	Beta	Deviations	Beta
Wife's education							
No schooling	5164	0.01		0.01		0.01	
Primary and less	329	-0.02		-0.03		-0.05	
Secondary and above	402	-0.07		-0.09		-0.14	
			0.04		0.06		0.08
Age at marriage(in years)							
< 15	2134	-0.05		-0.03		-0.02	
16-18	2110	-0.00		-0.01		-0.01	
19+	1650	0.06		0.06		0.04	
			0.09		0.08		0.06
Having at least a son							
No	1035	0.37		0.35		0.11	
Yes	4859	-0.07		-0.07		-0.02	
			0.31		0.30		0.11
Multiple R squared					.102		.361
Multiple R					.319		.601

Notes:
1. All the affirmative responses to "desire for future birth" are assigned a value of one and otherwise zero.
2. Currently married fecund women of age less than forty years who have at least one live birth.
Source: PLM Survey 1979-80, original analysis of data tape.

Table 4-8: Multiple Classification Analysis of Desire for Future Birth[1] and Selected Variables, Controlling for Age, Number of Living Children and Children Who Have Died - Urban[2]

Grand mean = 0.52

Predictor variables	N	Unadjusted		Adjusted for independents		Adjusted for independents and Covariates	
		Deviations	Eta	Deviations	Beta	Deviations	Beta
Wife's education							
No schooling	1119	-0.01		0.01		0.03	
Primary and less	168	0.04		0.03		0.02	
Secondary and above	317	-0.00		-0.04		-0.10	
			0.03		0.04		0.10
Age at marriage(in years)							
< 15	509	-0.09		-0.07		-0.03	
16-18	625	0.02		0.01		0.00	
19+	469	0.08		0.06		0.03	
			0.13		0.10		0.05
Having at least a sons							
No	253	0.41		0.40		0.18	
Yes	1350	-0.08		-0.07		-0.03	
			0.36		0.35		0.16
Multiple R squared					.137		.379
Multiple R					.371		.616

Notes:
1. All the affirmative responses to "desire for future birth" are assigned a value of one and otherwise zero.
2. Currently married fecund women of age less than forty years who have at least one live birth.
Source: PLM Survey 1979-80, original analysis of data tape.

Table 4-9: Multiple Classification Analysis of Desire for Future Birth[1] and Selected Variables, Controlling for Age, Number of Living Children and Children Who Have Died - Rural[2]

Grand mean = 0.68

Predictor variables	N	Unadjusted		Adjusted for independents		Adjusted for independents and Covariates	
		Deviations	Eta	Deviations	Beta	Deviations	Beta
Wife's education							
No schooling	4045	-0.00		-0.00		0.00	
Primary and less	161	-0.01		-0.02		-0.06	
Secondary and above	85	0.08		0.06		0.00	
			0.02		0.02		0.03
Age at marriage(in years)							
< 15	1624	-0.04		-0.02		-0.02	
16-18	1486	-0.01		-0.01		-0.02	
19+	1181	0.06		0.05		0.05	
			0.09		0.07		0.06
Having at least a son							
No	782	0.28		0.28		0.09	
Yes	3509	-0.06		-0.06		-0.02	
			0.29		0.28		0.09
Multiple R squared					.088		.347
Multiple R					.297		.589

Notes:
1. All the affirmative responses to "desire for future birth" are assigned a value of one and otherwise zero.
2. Currently married fecund women of age less than forty years who have at least one live birth.
Source: PLM Survey 1979-80, original analysis of data tape.

future births" (Table 4.7). Desired family size was the only variable where a relatively higher R^2 value (24 per cent) was found. However, it may be noted that R^2 values increased substantially, particularly for "desired family size" and "desire for future births", when the additive effect of all the predictors and covariates was included. Nevertheless, for ideal family size the level of prediction was quite low. A possible explanation of these low R^2 values is that there could have been a number of other factors responsible for the variance in the dependent variable which cannot be evaluated from these data. Furthermore, ideal family size is a rather vague concept for many people, especially in a society like Pakistan, and this vagueness may be due to a variety of subjective factors which may be beyond measurement.

4.3.1 Education

As can be seen from Tables 4.1 to 4.6, a roughly inverse relationship was found between wife's education and ideal and desired family size -- a pattern already noted in the bivariate analysis. This pattern did not change, though the effect as measured by eta/beta values diminished when adjusted for other predictors and covariates. In this case, a diminishing effect may also be noted by comparing differences between unadjusted and adjusted deviations among education groups. For example, the difference in the reported ideal family size between the respondents with no schooling and those with secondary education and above was nearly one child (Table 4.1). This had reduced to nearly four-fifths of a child when the effect of predictors and covariates was controlled. Roughly the same reduction was evidenced in case of desired family size (Table 4.4). Urban and rural comparisons indicated a higher effect in urban areas for both ideal and desired family size. This pattern remained unchanged when adjusted for other factors and covariates.

The effect of wife's education on "desire for future births", as indicated by the eta value, was quite low (Table 4.7) . However, unlike ideal and desired family size, the effect here increased from 0.04 to 0.08 (Table 4.7) when adjusted for predictors and covariates, indicating a suppressing effect of all these variables on wife's

education. Simultaneously the differentials in educational groups also became sharper and in the expected direction, suggesting a lesser demand for additional children among educated women. This pattern was especially marked in urban areas.

4.3.2 Age at marriage

Age at marriage was found to be negatively associated with ideal and desired family size (Tables 4.1 to 4.6). After controlling for the effect of other predictors, the pattern remained unchanged, although the variation between "age at marriage" groups diminished. This was also reflected in decreased eta/beta values from 0.10 to 0.06 for ideal family size (Table 4.1) and 0.11 to 0.05 for desired family size (Table 4.4). When adjustments were made for the covariates the variation was reduced further and the relationship also changed from linear to non-linear. A possible explanation of this change could be that, when unadjusted, the confounding effect of other variables influenced age at marriage. However, in view of the small beta values, it is not advisable to draw any conclusions.

The effect of "age at marriage" on "desire for future births" was also found to be not very strong. Nevertheless, the relationship was linear and positive. When the confounding effect of other predictors and covariates was controlled, the difference between "age at marriage" groups was reduced, although the direction of the relationship remained unchanged. This indicates that relatively more women who married late wanted additional children than did those who married at an early age. This could be due to the shorter reproductive span ahead of women who marry late and thus have to complete their families in a relatively shorter period of time.

4.3.3 Son Preference

As can be seen in Tables 4.1 to 4.6, the number of sons was found to be the most important predictor of ideal and desired family size when unadjusted. A positive relationship existed between the two measures of family size preference and the number of living sons. This relationship remained the same even when the other predictors were

controlled, though the variation between the groups was slightly reduced. However, a greater change appeared when adjustments were made for the covariates including number of living children. The net effect of son preference as measured by beta values became negligible on ideal family size, but it remained important on desired family size inspite of diminishing after adjustment. This is probably because ideal family size, as mentioned earlier, is a rather vague concept for many people. In the PLM survey, the question on ideal family size was a generalized ideal and not explicit, as it did not specify whether the number stood for live births or surviving children. As expected, the positive relationship between the living number of sons and desired family size became negative, indicating a desire for a smaller family size among women with two sons.

The effect of son preference may be best explained when measured by the "desire for future births". As expected, the presence of at least one son in a family depicted a marked difference in the demand for additional children. The unadjusted figures indicated the probability of desiring more children was 40 per cent less when the woman had at least one son (Table 4.7). This difference was reduced considerably when adjusted for other predictors and covariates simultaneously. This change was also shown by the reduction in the eta/beta values which decreased from 0.31 to 0.11 in all of Pakistan, from 0.36 to 0.16 in urban areas, and from 0.29 to 0.09 in rural areas. However, it may be noted that son preference as used in this analysis remained the principal determinant for additional children desired, even after controlling for the predictors and covariates.

4.4 Summary

In summary, the overall predictability of the independent variables was low except for "desired family size" where these predictors explained relatively more variance. Having sons was found to be the principal predictor of "desired family size" and "desire for future births", whereas in "ideal family size" its effect became negligible when adjusted for covariates. Two sons in a family seemed

to be a good reason for desiring a small number of children. The effect of education was not as strong as the preference for sons but remained invariably the most unaffected by other predictors and covariates. Nevertheless its effect seemed to be higher in urban than rural areas. In general, the net effect of "age at marriage" was quite weak.

CHAPTER 5

SUMMARY AND CONCLUSIONS

5.1 Summary of Findings

The reliability and validity of measures of family size preferences in predicting fertility have not been universally established. Many demographers have agreed upon the usefulness of these measures in developed countries but doubt the meaningful application of these measures in developing countries. However, some are of the opinion that the measures could be useful in developing countries provided the questions are correctly framed and presented. Many studies conducted in developing countries indicate a fairly high level of consistency in responses about family size preferences. Using the data of the 1979-80 PLM survey of Pakistan, the consistency of the responses was measured by combining the two measures, ideal family size and whether a woman wants more children. These measures, together with the woman's current family size, indicate the consistency of the woman's response. The achieved consistency of responses was 85 per cent. This suggests that results could be interpreted with some degree of confidence.

Ideal family size reflects the individual's generalized ideals. On the other hand, the variable "desired family size" in this study was constructed in such a way that it assumes all living children were wanted. Despite these conceptual differences, on average there was little difference between the mean ideal of 4.6 and the mean desired of 4.9 children. Even this slight difference was found to diminish in rural areas. However, an examination of the relationship between ideal and desired family size indicated four children to be the most acceptable family size all over Pakistan, including urban and rural areas.

The largest differentials in ideal and desired family size were found for age, number of living children, number of living sons and wife's education. As expected, a positive association was found between wife's age and both the measures, but the difference between the largest and smallest figure was much higher for desired family size. This gap widened further in urban areas.

Again as expected, ideal and desired family size were also found to increase with number of living children and number of living sons. Generally, the increasing trend in this case is attributed to the rationalization of achieved family size. However, it is also argued that in many countries women with low parity tend to understate the number of children they may ultimately desire. Moreover, on average, ideal family size was consistently higher than desired family size for women with four or fewer children, while the reverse pattern was found for those with more than four children. This could be due to differences in the method of measurement for both methods and partly due to the nature of the question on ideal family size, which refers to the acceptable norms prevailing in the society given ideal circumstances. Wife's education was found to be inversely related with ideal and desired family size. The impact of education in bringing about a change in family size norms was more evident among women with secondary and higher education. Moreover, the overall pattern in urban and rural areas was roughly similar.

Another measure of family size preference is "desire for additional children". This variable as a predictor of subsequent fertility has assumed importance from a policy point of view. As expected the proportion of women wanting no more children increased with rising age and at each successive parity. A majority (70 per cent) wanted to cease childbearing by the time they had five children.

In a male dominated society like Pakistan, where sons are valued more for various socio-economic and cultural reasons, the demand for additional children is influenced by the sex composition of the children already in the family. Table 3.7 clearly indicates the effect

of son preference in Pakistan. For example, among families with two children, women having two sons were almost twice as likely to want to stop childbearing as were those having two daughters. But contrary to the general belief that sons are always preferred, a larger proportion of women with a balanced family of one son and one daughter wanted to stop childbearing than did those having two sons. This was particularly true in rural areas. However, with a family size of three or more children, the desire for more children was heavily influenced by the number of surviving sons.

Multiple Classification Analysis (MCA) was applied to measure the net effect of selected variables on measures of family size preferences. Although the overall predictability of independent variables as measured by R^2 values was low, the predictabilty increased substantially, particularly for "desired family size" and "desire for future births", when the additive effect of all the predictors and covariates was taken together.

Having sons remained the principal predictor for "desired family size" and "desire for future births" even after adjusting for other factors including number of living children. However, the effect of the number of sons on ideal family size became negligible when adjusted for the covariates (wife's age, number of living children and children who have died). On the other hand, it was also found that families with two sons preferred a smaller number of children.

The effect of age at marriage on family size preferences also became negligible once other predictors and covariates were controlled. This was also true at the sub-national level. This suggests that age at marriage has almost no bearing in bringing about a change in family size norms. The effect of education on family size preferences, though not as strong as the effect of preference for sons, remained the least influenced by other predictors and covariates. Nevertheless, its effect seemed to be higher in urban than rural areas.

5.2 Conclusions

The above findings suggest that at the time of the survey overall family size preferences were quite large in Pakistan and levels did not vary much between urban and rural areas. There is a clear indication that preferences were modified by actual fertility experience. However, the extent and direction of these changes may best be examined from longitudinal survey data. Furthermore, in view of the inherent limitations of these variables, it is suggested that future surveys should include more refined measures, such as the I-scales developed by Coombs (1974, 1979), which reflect the underlying preferences for the number and sex of children.

Having sons was found to be the principal predictor, particularly for "desired family size" and "desire for future births". In view of this, counselling services or clinics which assist couples to increase the probability of conceiving a child of a particular sex, similar to the ones in Singapore (another country with strong son preference), could provide a solution to the demand for boys in the family. This approach would raise problems, firstly, due to the traditional outlook of Pakistani women who do not accept new ideas easily, and secondly, ignorance and low literacy would make the complex method all the more difficult to practice. However, if such services are popularised through effective propaganda, it could in the long run result in smaller family size norms. A criticism of such a policy is that it could imbalance the sex ratio in a country with strong son preference. But it has been argued that in such situations, the economic law of supply and demand would operate and such an imbalance would ultimately disappear.

The most important approach to controlling family size in Pakistan should be made by the government to formulate policies enhancing the opportunities and status of females in society. In this direction, some initiative measures have been adopted in Pakistan by establishing a Women's Division in 1978. The primary aim of this division is to advise the government on the formulation of national policies for women's

development. Considering that there does exist a desire for daughters, implementation of this policy is likely to gradually bring about a change in the present attitude of the parents so that daughters and sons are considered equal. Such a policy has provided positive results in bringing down the overall level of fertility in Korea, a country with very strong son preference (Government of the Republic of Korea, 1982).

In a few earlier studies in Pakistan, the recent decline in fertility was attributed to the steady increase in age at marriage (Alam, 1984; Alam et al., n.d.). But age at marriage in the present study had almost no influence on family size preferences.

The effect of education on family size preferences was quite important and remained almost unaffected by other factors. Thus a further investment in education is likely to bring about a change in the overall attitude towards small family size norms. Finally, it may be concluded that low fertility rates can only be achieved through concentrated efforts to secure small family size norms.

REFERENCES

AHMED, N.R. 1981
"Family Size Preferences Among Women in Bangladesh", *Studies in Family Planning*, vol. 12, no. 4, pp. 359-376.

ALAM, I. 1984
"Fertility Levels and Trends", *Fertility in Pakistan: A Review of findings from the Pakistan Fertility Survey*, eds. I. Alam and B. Dinesen, pp. 113-122. Voorburg: International Statistical Institute.

ALAM, I., M. IRFAN and N.I. FAROOQUI n.d.
"Fertility Levels, Trends and Differentials in Pakistan: Evidence from the Population Labour Force and Migration Survey 1979", *PLM Project Report*, no.1, Islamabad: Pakistan Institute of Development Economics.

ANDREWS, F.M., J.N. MORGAN, J.A. SONQUIST and L. KLEM 1973
Multiple Classification Analysis, Survey Research Centre, University of Michigan, Ann Arbor: Institute for Social Research.

BLAKE, J. 1974
"Can We Believe in Recent Data on Birth Expectations in the United States", *Demography*, vol. 11, no. 1, pp. 25-44.

CHO, L. 1978
"Fertility Preference in Five Asian Countries", *International Family Planning Perspective and Digest*, vol. 4, no. 1, pp. 2-8.

COOMBS, L.C. 1974
"The Measurement of Family Size Preferences and Subsequent Fertility", *Demography*, vol. 11, no. 4, pp. 587-611.

COOMBS, L.C. 1979
"Underlying Family Size Preferences and Reproduction Behaviour", *Studies in Family Planning*, vol. 10, no. 1, pp. 25-36.

COOMBS, L.C. and R. FREEDMAN 1979
"Some Roots of Preference: Roles, Activities and Familial Values", *Demography*, vol. 16, no. 3, pp. 359-376.

FAROOQ, G.M. 1981
"Concepts and Measurement of Human Reproduction in Economic Models of Fertility Behaviour", *Working Paper* no. 102, Geneva: International Labour Organization.

FREEDMAN, R., G. BAUMRT and M. BOLTE 1959
"Expected Family Size and Family Size Values in West Germany", *Population Studies*, vol. 13, no. 1, pp. 136-150.

FREEDMAN, R., L.C. COOMBS, M. CHENG and T. SUN 1974
"Trends in Fertility, Family Size Preferences and Practice of Family Planning: Taiwan 1965-1973", *Studies in Family Planning*, vol. 5, no. 9, pp. 270-288.

FREEDMAN, R., A. HERMALIN and M.C. CHANG 1975
"Do Statements About Family Size Predict fertility? The Case of Taiwan, 1967-1970", *Demography*, vol. 12, no. 3, pp. 407-416.

GAY, J. 1971
Mathematics and Logic in Kpelle Language, New York.

GIRARD, A. and L. ROUSSEL 1982
"Ideal Family Size, Fertility and Population Policy in Western Europe", *Population and Development Review*, vol. 8, no. 2 pp. 323-346.

GOVERNMENT OF THE REPUBLIC OF KOREA 1982
"The Fifth Five Year Economic and Social Development Plan 1982-1986".

HAUSER, P.M. 1967
"Family Planning and Population Programs", *Demography*, vol. 4, no. 3, pp. 397-414.

IRFAN, M. 1981
"An Introduction to Studies in Population, Labour Force and Migration: A PIDE/ILO-UNFPA Project", *Research Report* no. 118, Islamabad: Pakistan Institute of Development Economics.

IRFAN, M. and G.M. FAROOQ n.d.
"An Investigation of Household reproductive Behaviour in Pakistan", *PLM Project Report* no. 4, Islamabad: Pakistan Institute of Development Economics.

JENSEN, E. 1985
"Desired Fertility, the 'upto God' Response, and Sample Selection Bias", *Demography*, vol. 22, no. 3, pp. 445-454.

KARIM, M.S. 1982
"Female Nuptiality and Fertility in Pakistan", Unpublished PH.D. Thesis, Cornell: Cornell University.

KENT, M.M. and A. LARSON 1982
"Family Size Preferences: Evidence From the World Fertility Survey", Report no. 4, Washington: Population Reference Bureau.

KHAN, M.A. and I. SIRAGELDIN 1977
"Son Preference and the Demand for Additional Children in Pakistan", *Demography*, vol.14, no. 4, pp. 481-495.

KHAN, M.A. and I. SIRAGELDIN 1983

"How Meaningful Are Statements About the Desired Number of Additional Children?: An Analysis of 1968 Pakistani Data", *The Pakistan Development Review*, vol. 22, no. 1, pp. 1-22.

KNODEL, J. and V. PRACHUABMOH 1973
"Desired Family Size in Thailand: Are the Responses Meaningful?", *Demography*, vol. 10, no. 4, pp. 619-637.

LIEBERMAN, S.S. 1981
"Accomodation and Control of Population Growth: Some Demographic Perspective on Pakistan's Development", *Working Paper* no. 76, New York: The Population Council.

LIGHTBOURNE, R.E. and A.S. MACDONALD 1982
"Family Size Preferences", *WFS Comparitive Studies* no. 14, Voorburg: International Statistical Institute.

LUCAS, D. 1980
"Fertility", in *Begining Population Studies*, ed. D.Lucas, pp. 63- 92. Canberra: Australian National University.

LUCAS, D. and P. MEYER 1980
"Population Economics, and the Value of Children",in *Begining Population Studies*, ed. D. Lucas, pp. 173-194. Canberra: Australian National University.

MAHMOOD, S.S. 1964
"Muslim Family Law Ordinance, 1961", Lahore: Pakistan Times Publications.

MAHMOOD, N. and S.M. ALI n.d.
"Nuptiality Patterns in Pakistan", *PLM Project Report* no. 2. Islamabad: Pakistan Institute of Development Economics.

MALAKAR, C.R. 1972
"Female Age at Marriage and Birth Rate in India", *Social Biology*, vol. 19, no. 3, pp. 297-301.

MICHIGAN MATHEMATICAL PSCHOLOGY PROGRAM 1973
The Measurement and Analysis of Family Composition Preferences, Michigan: University of Michigan.

NAMBOODIRI, N.K. 1974
"Which Couples at Given Parities Expect to Have Additional Births? An Excercise in Discriminant Analysis", *Demography*, vol. 11, no. 1, pp. 45-56.

PAKISTAN, CENSUS ORGANIZATION 1981
"Bulletin no. 1", Islamabad: Census of Pakistan.

PAKISTAN, CENSUS ORGANIZATION 1982
"Bulletin no. 7", Islamabad: Census of Pakistan.

PALMORE, J.A. and M.B. CONCEPCION 1981
"Desired Family Size and Contraceptive Use", *WFS Conference 1980: Record of Proceedings*, vol. 2, pp. 519-564, Voorburg: International Statistical Institute.

POPULATION PLANNING COUNCIL OF PAKISTAN 1976
"Pakistan Fertility Survey", First Report, Islamabad.

PRACHUABMOH, V., J. KNODEL and J. ALERS 1974
"Preference for Sons, Desire for Additional Children and Family Planning in Thailand", *Journal of Marriage and the Family*, vol. 36, no. 3, pp. 601-614.

PULLUM, T.W. 1980
"Illustrative Analysis: Fertility Preferences in Sri Lanka", *WFS Scientific Report*, no. 9, Voorburg: International Statistical Institute.

RAHMAN, A.A. 1983
"Family Size Preferences and Contraception in Peninsular Malaysia", Unpublished M.A. Thesis, Canberra: Australian National University.

ROBINSON, W.C. 1966
"Family Planning in Pakistan's Third Five Year Plan", *The Pakistan Development Review*, vol. 6, no. 2, pp. 163-175.

RODGERS, G.B. 1976
"Fertilty and Desired Fertility: Longitudinal Evidence from Thailand", *Population Studies*, vol. 30, no. 3, pp. 511-526.

RUKKUNDDIN, R.A. 1975
"The Effect of Sex Preference and Infant and Child Mortality on Fertility Behaviour of Couples in Pakistan", Unpublished PH.D. Dissertation, Maryland: Johns Hopkins University.

RUTSTEIN, S.O. 1974
"The Influence of Child Mortality on Fertility in Taiwan", *Studies in Family Planning*, vol. 5, no. 6, pp. 182-188.

RYDER, N. 1973
"A Critic of the National Fertility Study", *Demography*, vol. 10, no. 4, pp. 495-506.

RYDER, N. and C. WESTOFF 1969
"Relationship among Intended, Expected, Desired and Ideal Family Size: United States, 1965", USA: Population Research.

SATHAR, Z.A. 1979
"Rural-Urban Fertility Differentials in Pakistan, 1975", *The Pakistan Development Review*, vol.18, no. 3, pp. 231-251.

SATHAR, Z.A., S.M. ALI and G.M. ZAHID 1984
"Socio-Economic and Demographic Characteristics of the Population in Pakistan: Findings of the Population, Labour Force and Migration Survey 1979-80", *PLM Project Report*, no. 8, Islamabad: Pakistan Institute of Development Economics.

SHAH, N.M. and J.A. PALMORE 1979
"Desired Family Size and Contraceptive Use in Pakistan", *International Family Planning Perspective*, vol. 5, no. 4, pp. 143-150.

SHAH, N.M. and M.A. SHAH 1984
"From Non-use to Use: Prospects of Contraceptive Adoption", in *Fertility in Pakistan*, ed. I. Alam and B. Dinesen, pp. 149-162, Voorburg: International Statistical Institute.

SOERADJI, B. and S.H. HATMADJI 1982
"Contraceptive Use in Java-Bali: A Multivariate Analysis of the Determinants of Contraceptive Use", *WFS Scientific Report,* no. 24, Voorburg: International Statistical Institute.

SOOMRO, G.Y. and S.M. Ali n.d.
"Prevalence of Knowledge and Use of Contraception in Pakistan", *PLM Project Report,* no. 3, Islamabad: Pakistan Institute of Development Economics.

SRIKANTAN, K.S. 1979
"An Evaluation of the Fiji Fertility Based on the Post-Enumeration Survey", *WFS Occasional paper,* no. 21, Voorburg: International Statistical Institute.

STOECKEL, J. 1975
"Differential in Fertility, Family Planning Practice and Family Size Values in South Korea 1965-71", *Studies in Family Planning,* vol. 6, no. 4, pp. 54-70.

TRAINING RESEARCH AND EVALUATION CENTRE n.d.
"National Impact Survey Report", Lahore.

UNITED NATIONS 1976
"Fertility and Family Planning in Europe Around: 1970", *Population Studies,* no. 58, New York.

WARE, H. 1973
"The Limits of Acceptable Family Size", *Journal of Biosocial Science,* vol. 5, no. 3, pp. 309-328.

WARE, H. 1974
"Ideal Family Size", *WFS Occasional Paper,* no. 13, Voorburg: International Statistical Institute.

ZAKI, K.P. and M.J.A. ZAKI 1981
" A Comparative Study of Age Reporting in Selected Censuses and Surveys in Pakistan", *Research Report,* no. 130, Islamabad: Pakistan Institute of Development Economics.

APPENDIX A Number of Sampled and Enumerated Households in the Migration and Fertility Modules of the PLM Survey in Each Province of Pakistan, 1979-80

Area	Sampled Households	Total Enumerated Households	H.H's with no women	H.H's with no eligible women	H.H's with eligible women	Enumerated H.H's for fertility module	Enumerated H.H's in the fertility module by the number of eligible women interviewed		
							1	2	3+
Punjab	6475	6290	183	739	5368	5128	4399	621	108
Urban	2388	2036	72	213	1751	1653	1427	195	31
Rural	4087	4254	111	526	3617	3475	2972	426	77
Sind	2625	2278	91	160	2027	1953	1526	332	95
Urban	1425	1269	55	95	1119	1075	885	152	38
Rural	1200	1009	36	65	908	878	641	180	57
NWFP	1375	1201	43	102	1056	942	789	123	30
Urban	500	385	21	27	337	320	271	39	10
Rural	875	816	22	75	719	622	518	84	20
Baluchistan	813	475	13	29	433	374	297	61	16
Urban	300	212	7	10	195	168	126	33	9
Rural	513	263	6	19	238	206	171	28	7

Source: Sathar et al., 1984: 28.

APPENDIX B: Percentage of Currently Married Women who gave non-numeric Responses According to Age Groups in Urban and Rural Areas of Pakistan, 1979-80

Age Groups	All Pakistan		Urban		Rural	
	Per cent	Number of Women	Per cent	Number of women	Per cent	Number of women
<20	16.9	834	14.4	181	17.6	654
20-24	13.1	1635	12.4	421	13.4	1213
25-29	14.8	1876	11.5	522	16.0	1354
30-34	16.0	1524	12.6	406	17.3	1118
35-39	15.3	1442	13.8	385	16.0	1057
40-44	16.9	1115	12.0	303	17.6	812
45-49	18.1	991	18.1	288	18.1	703
All Women	15.6	9416	13.5	2505	16.3	6911

Source: PLM Survey 1979-80, original analysis of data tape.

APPENDIX C: Percentage Distribution of Currently Married, Fecund Women[1] According to Desired and Ideal Family Size and Age, 1979-80 (All Pakistan)

Ideal Family Size	Desired Family Size								
	1	2	3	4	5	6	7+	Total	Number of Women
Age < 25 Years									
1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1
2	0.2	2.3	1.0	0.2	0.0	0.0	0.0	3.8	75
3	0.2	1.4	8.4	2.5	0.4	0.1	0.0	12.9	250
4	0.4	1.4	11.3	23.8	5.7	1.0	0.6	53.1	1033
5	0.1	0.1	1.4	4.3	6.8	1.4	0.2	14.3	278
6	0.1	0.1	0.4	1.7	3.0	4.8	0.6	10.7	209
7+	0.0	0.1	0.2	0.5	0.9	1.2	2.2	5.1	100
Total	1.1	5.3	22.6	42.1	16.8	8.5	3.6	100.0	1946
Number of Women	22	104	440	819	326	165	70		
Age 25-34 Years									
1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	5
2	0.3	1.7	0.7	0.4	0.4	0.3	0.2	3.9	99
3	0.0	0.7	5.2	1.8	1.1	0.6	0.3	9.6	245
4	0.3	1.1	7.0	22.2	6.7	3.5	2.7	43.5	1106
5	0.1	0.2	1.1	4.8	8.9	1.9	1.3	18.3	465
6	0.0	0.1	0.6	2.1	4.5	7.1	2.9	17.3	439
7+	0.0	0.0	0.1	0.3	0.8	1.5	4.4	7.1	181
Total	0.7	3.8	14.7	31.7	22.4	14.9	11.8	100.0	2540
Number of Women	18	97	373	806	568	377	301		
Age ≥ 35 Years									
1	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.3	6
2	0.2	1.4	0.6	0.6	0.5	0.4	0.6	4.2	92
3	0.2	0.7	3.5	0.8	0.7	0.8	1.2	8.0	175
4	0.5	1.3	4.8	10.9	6.0	5.6	8.5	37.6	826
5	0.0	0.4	0.8	2.4	5.8	2.6	4.0	16.0	352
6	0.0	0.1	0.7	2.1	3.6	7.5	7.7	21.8	479
7+	0.0	0.0	0.4	0.6	1.4	2.1	7.7	12.2	269
Total	0.9	4.0	10.8	17.4	18.0	19.1	29.9	100.0	2199
Number of Women	19	88	237	382	396	419	657		

Notes:

The outlined diagonal cells indicate those women who gave the same responses for both questions. These totalled 1.5% for women under age 25, 49.5% for women aged 25-34 and 36.8% for women aged 35 and over.

[1] Women who gave numeric responses.

Source: PML Survey, 1979-80, original analysis of data tape.

APPENDIX D: Mean Number of Additional Children Wanted by Currently Married Fecund Non-Pregnant Women in each Age and Family Composition Group in Urban and Rural Areas of Pakistan, 1979-80

Number of Living Children and Sons	Age Groups				
	< 25	25-34	35-44	45 and Above	All
Pakistan					
None or One Child	3.66	3.42	2.94	1.95	3.50
No son	3.81	3.67	3.23	2.05	3.68
One son	3.23	2.96	2.13	1.57	3.03
Two Children	2.28	2.17	1.41	0.67	2.04
No son	2.39	2.24	1.83	0.96	2.20
One son	2.22	2.15	1.05	0.52	1.95
Two sons	2.30	2.14	1.87	0.72	2.09
Three Children and More	1.29	0.79	0.26	0.17	0.51
No son	*	1.97	1.54	1.05	1.75
One son	1.95	1.12	0.50	0.57	0.94
Two sons	0.89	0.75	0.27	0.05	0.52
Three sons and more	*	0.45	0.13	0.10	0.24
Urban					
One or One Child	3.55	2.95	2.21	1.62	3.26
No son	3.72	3.16	*	*	3.48
One son	3.03	2.58	1.61	1.13	2.70
Two Children	1.79	1.77	1.50	0.0	1.73
No son	1.97	2.07	1.35	*	1.97
One son	1.71	1.85	1.38	*	1.72
Two sons	1.81	1.33	2.09	*	1.54
Three Children and More	1.17	0.52	0.14	0.7	0.34
No son	*	2.05	1.27	0.25	1.65
One son	1.94	0.64	0.36	0.30	0.65
Two sons	0.58	0.47	0.10	0.07	0.30
Three sons and more	*	0.24	0.07	0.02	0.14
Rural					
One or One Child	3.69	3.57	3.06	2.08	3.57
No son	3.84	3.83	3.31	2.12	3.74
One son	3.28	3.08	2.28	1.90	3.12
Two Children	2.46	2.31	1.39	0.73	2.15
No son	2.52	2.31	1.92	0.96	2.27
One son	2.40	2.25	0.95	0.54	2.02
Two sons	2.53	2.40	1.83	0.91	2.29
Three Children and More	1.35	0.91	0.31	0.21	0.57
No son	2.13	1.93	1.63	1.33	1.80
One son	*	1.31	0.54	0.78	1.05
Two sons	1.03	0.88	0.34	0.05	0.62
Three or more sons	*	0.54	0.16	0.13	0.29

Notes:

* Twenty or fewer cases.

Source: PLM Survey, 1979-80, original analysis of data tape.

APPENDIX E

ANALYSIS OF VARIANCE OF IDEAL FAMILY SIZE

-- ALL PAKISTAN

Source of variation	Sum of Squares	df	Mean Square	F	Significance of F
Main effects	1423.842	7	203.406	107.502	P < .001
a. Wife's education	444.196	2	222.098	117.381	P < .001
b. Age at marriage	54.824	2	27.412	14.488	P < .001
c. Number of living sons	731.846	3	243.949	128.929	P < .001
Covariates	737.526	3	245.842	129.930	P < .001
d. Wife's age	94.948	1	94.948	50.181	P < .001
e. number of living children	522.060	1	522.060	275.914	P < .001
f. number of children who have died	226.395	1	226.395	119.652	P < .001
2-way interactions	37.377	16	2.336	1.235	NS (P ⩾ .05)
a x b	10.005	4	2.501	1.322	NS (P ⩾ .05)
a x c	10.453	6	1.742	0.921	NS (P ⩾ .05)
b x c	15.252	6	2.542	1.343	NS (P ⩾ .05)
Explained	2198.745	26	84.567	44.695	P < .001
Residual	14926.844	7889	1.892		
Total	17125.590	7915	2.164		

Notes:
Source: PLM Survey 1979-80, original analysis of data tape.

APPENDIX F

ANALYSIS OF VARIANCE OF IDEAL FAMILY SIZE -- URBAN

Source of variation	Sum of Squares	df	Mean Square	F	Significance of F
Main effects	409.458	7	58.494	30.600	P < .001
a. Wife's education	163.509	2	81.755	42.769	P < .001
b. Age at marriage	18.158	2	9.079	4.750	P < .001
c. Number of living sons	120.524	3	40.175	21.017	P < .001
Covariates	229.268	3	76.423	39.979	P < .001
d. Wife's age	44.429	1	44.429	23.242	P < .001
e. number of living children	133.316	1	133.316	69.7424	P < .001
f. number of children who have died	108.082	1	108.082	56.542	P < .001
2-way interactions	16.437	16	1.027	0.537	NS (P ⩾ .05)
a x b	4.775	4	1.194	0.625	NS (P ⩾ .05)
a x c	3.854	6	0.642	0.336	NS (P ⩾ .05)
b x c	7.360	6	1.227	0.642	NS (P ⩾ .05)
Explained	655.163	26	25.199	13.182	P < .001
Residual	4077.340	2133	1.912		
Total	4732.503	2159	2.192		

Notes:
Source: PLM Survey 1979-80, original analysis of data tape.

APPENDIX G

ANALYSIS OF VARIANCE OF IDEAL FAMILY SIZE

-- RURAL

Source of variation	Sum of Squares	df	Mean Square	F	Significance of F
Main effects	892.782	7	127.540	68.761	P < .001
a. Wife's education	93.259	2	46.630	25.139	P < .001
b. Age at marriage	38.453	2	19.227	10.366	P < .001
c. Number of living sons	679.911	3	226.637	122.186	P < .001
Covariates	582.735	3	194.245	104.723	P < .001
d. Wife's age	57.217	1	57.217	30.847	P < .001
e. number of living children	454.601	1	454.601	245.088	P < .001
f. number of children who have died	122.895	1	122.895	66.256	P < .001
2-way interactions	26.568	16	1.660	0.895	NS (P ⩾ .05)
a x b	7.339	4	1.835	0.989	NS (P ⩾ .05)
a x c	4.813	6	0.802	0.432	NS (P ⩾ .05)
b x c	14.634	6	2.439	1.315	NS (P ⩾ .05)
Explained	1502.085	26	57.773	31.147	P < .001
Residual	10626.410	5729	1.855		
Total	12128.495	5755	2.107		

Notes:
Source: PLM Survey 1979-80, original analysis of data tape.

APPENDIX H

ANALYSIS OF VARIANCE OF DESIRED FAMILY SIZE

-- ALL PAKISTAN

Source of variation	Sum of Squares	df	Mean Square	F	Significance of F
Main effects	5742.155	7	820.308	579.553	P < .001
a. Wife's education	111.509	2	55.754	39.391	P < .001
b. Age at marriage	56.508	2	28.354	19.962	P < .001
c. Number of living sons	5231.125	3	1743.708	1231.942	P < .001
Covariates	7627.036	3	2542.345	1796.185	P < .001
d. Wife's age	371.904	1	371.904	262.752	P < .001
e. number of living children	7112.808	1	7112.808	5025.248	P < .001
f. number of children who have died	43.671	1	43.671	30.854	P < .001
2-way interactions	34.002	16	2.125	1.501	NS (P ⩾ .05)
a x b	5.406	4	1.351	0.955	NS (P ⩾ .05)
a x c	13.292	6	2.215	1.565	NS (P ⩾ .05)
b x c	16.185	6	2.697	1.906	NS (P ⩾ .05)
Explained	13403.194	26	515.507	364.210	P < .001
Residual	10416.034	7359	1.415		
Total	23819.228	7385	3.225		

Notes:
Source: PLM Survey 1979-80, original analysis of data tape.

APPENDIX I

ANALYSIS OF VARIANCE OF DESIRED FAMILY SIZE

-- URBAN

Source of variation	Sum of Squares	df	Mean Square	F	Significance of F
Main effects	2442.234	7	348.891	283.988	P < .001
a. Wife's education	96.106	2	48.053	39.114	P < .001
b. Age at marriage	43.633	2	21.816	17.758	P < .001
c. Number of living sons	1871.772	3	623.924	507.858	P < .001
Covariates	2726.338	3	908.779	739.723	P < .001
d. Wife's age	94.440	1	94.440	76.872	P < .001
e. number of living children	2470.821	1	2470.821	2011.184	P < .001
f. number of children who have died	0.824	1	0.824	0.670	NS (P > .05)
2-way interactions	17.095	16	1.068	0.870	NS (P ⩾ .05)
a x b	1.918	4	0.479	0.390	NS (P ⩾ .05)
a x c	4.108	6	0.685	0.557	NS (P ⩾ .05)
b x c	11.301	6	1.883	1.553	NS (P ⩾ .05)
Explained	5185.666	26	199.449	162.346	P < .001
Residual	2444.796	1990	1.229		
Total	7630.463	2016	3.785		

Notes:
Source: PLM Survey 1979-80, original analysis of data tape.

APPENDIX J

ANALYSIS OF VARIANCE OF DESIRED FAMILY SIZE

-- RURAL

Source of variation	Sum of Squares	df	Mean Square	F	Significance of F
Main effects	3394.308	7	484.901	330.796	P < .001
a. Wife's education	3.804	2	1.902	1.298	NS (P ≥ .05)
b. Age at marriage	19.121	2	9.561	6.522	P < .001
c. Number of living sons	3277.465	3	1092.488	745.288	P < .001
Covariates	4922.416	3	1640.805	1119.346	P < .001
d. Wife's age	273.324	1	273.324	186.460	P < .001
e. number of living children	4628.385	1	4628.385	3157.451	P < .001
f. number of children who have died	50.778	1	50.778	34.640	P < .001
2-way interactions	32.729	16	2.046	1.395	NS (P ≥ .05)
a x b	4.706	4	1.177	0.803	NS (P ≥ .05)
a x c	16.846	6	2.808	1.915	NS (P ≥ .05)
b x c	11.242	6	1.874	1.278	NS (P ≥ .05)
Explained	8349.453	26	321.133	219.074	P < .001
Residual	7829.165	5341	1.466		
Total	16178.617	5367	3.014		

Notes:
Source: PLM Survey 1979-80, original analysis of data tape.

APPENDIX K

ANALYSIS OF VARIANCE OF DESIRE FOR FUTURE BIRTHS

-- ALL PAKISTAN

Source of variation	Sum of Squares	df	Mean Square	F	Significance of F
Main effects	138.925	5	27.785	187.891	P < .001
a. Wife's education	4.125	2	2.062	13.947	P < .001
b. Age at marriage	7.987	2	3.994	27.005	P < .001
c. Having atleast a son	123.794	1	123.794	837.132	P < .001
Covariates	354.658	3	118.219	799.436	P < .001
d. Wife's age	13.149	1	13.149	88.921	P < .001
e. number of living children	133.389	1	133.389	902.017	P < .001
f. number of children who have died	1.441	1	1.441	9.745	P < .001
2-way interactions	3.222	8	0.403	2.724	P < .01
a x b	1.422	4	0.356	2.405	P < .05
a x c	1.931	2	0.965	6.529	P < .01
b x c	0.290	2	0.145	0.981	NS (P ≥ .05)
Explained	496.805	16	31.050	209.972	P < .001
Residual	869.081	5877	0.148		
Total	1365.886	5893	0.232		

Notes:
Source: PLM Survey 1979-80, original analysis of data tape.

APPENDIX L

ANALYSIS OF VARIANCE OF DESIRE FOR FUTURE BIRTHS

-- URBAN

Source of variation	Sum of Squares	df	Mean Square	F	Significance of F
Main effects	55.025	5	11.005	70.633	P < .001
a. Wife's education	0.763	2	0.381	2.448	NS (P ⩾ .05)
b. Age at marriage	4.036	2	2.018	12.950	P < .001
c. Having atleast a son	47.283	1	47.283	303.470	P < .001
Covariates	96.830	3	32.277	207.157	P < .001
d. Wife's age	6.100	1	6.100	39.150	P < .001
e. number of living children	29.446	1	29.446	188.987	P < .001
f. number of children who have died	0.339	1	0.339	2.177	NS (P ⩾ .05)
2-way interactions	1.336	8	0.167	1.072	NS (P ⩾ .05)
a x b	0.669	4	0.167	1.073	NS (P ⩾ .05)
a x c	0.687	2	0.344	2.206	NS (P ⩾ .05)
b x c	0.106	2	0.053	0.340	NS (P ⩾ .05)
Explained	153.191	16	9.574	61.451	P < .001
Residual	247.110	1586	0.156		
Total	400.301	1602	0.250		

Notes:
Source: PLM Survey 1979-80, original analysis of data tape.

APPENDIX M

ANALYSIS OF VARIANCE OF DESIRE FOR FUTURE BIRTHS -- RURAL

Source of variation	Sum of Squares	df	Mean Square	F	Significance of F
Main effects	82.369	5	16.474	115.455	P < .001
a. Wife's education	0.303	2	0.152	1.062	NS (P ⩾ .05)
b. Age at marriage	4.607	2	2.304	16.145	P < .001
c. Having atleast a son	75.005	1	75.005	525.670	P < .001
Covariates	242.015	3	80.672	565.382	P < .001
d. Wife's age	8.134	1	8.134	57.004	P < .001
e. number of living children	94.383	1	94.383	661.476	P < .001
f. number of children who have died	1.178	1	1.178	8.253	P < .01
2-way interactions	1.614	8	0.202	1.414	NS (P ⩾ .05)
a x b	1.088	4	0.272	1.906	NS (P ⩾ .05)
a x c	0.380	2	0.190	1.331	NS (P ⩾ .05)
b x c	0.190	2	0.095	0.667	NS (P ⩾ .05)
Explained	325.997	16	20.375	142.796	P < .001
Residual	609.694	4273	0.143		
Total	935.691	4289	0.218		

Notes:
Source: PLM Survey 1979-80, original analysis of data tape.