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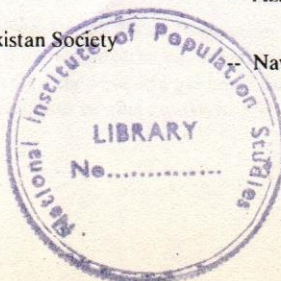
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CONTRACEPTIVE USE IN PAKISTAN: VARIATIONS AND DETERMINANTS

ABDUL HAKIM*

Both demographic and Socioeconomic factors influence contraceptive use in Pakistan. Among the demographic factors, age of the women and the number of living children are positively related to the use of contraception. However, in multivariate analysis, age has not been found to be significant factor. The number of living children, particularly sons, has been found to be an important determinant of contraceptive use. Among the Socioeconomic factors, education both of women and their husbands, and occupation of husbands influence contraceptive use. However, the most important among these is women's education, which increases contraceptive use. Husband's education and their occupation also increase the use of contraception to some extent. A significant difference has been observed in the use of contraception between urban and rural women. The use of contraception is very low in the rural areas compared to the urban areas. The urban-rural differentials are only reduced to some extent if women are educated. The number of living children is equally important in both urban and rural areas of Pakistan to influence the use of contraception.

1. INTRODUCTION

Pakistan has been experiencing rapid population growth since the second half of this century. The growth rate accelerated, after the independence of the country was attained in 1947 as a result of decline in mortality coupled with sustained high fertility. Pakistan was one of the first developing countries to recognize the problem of rapid population growth and tried to control it through the family planning programme since 1960. A more ambitious population control programme was launched in 1965. Since then the efforts to achieve rapid decline in fertility have been intensified by making contraceptive services available to eligible couples through different family planning strategies and approaches, but with little success. Some major surveys have also been conducted to evaluate the progress of the programme.

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During 1984-85, the Pakistan Contraceptive Prevalence Survey (PCPS) was undertaken to measure the level of contraceptive use and related aspects. The findings of PCPS 1984-85 indicate a low level of contraceptive prevalence. Many factors contribute to the use and non-use of contraception in the country. In this article, using data from Pakistan Contraceptive Prevalence Survey (PCPS) 1984-85 [1], variations in contraceptive use and its determinants have been examined. The analysis identifies effects of demographic and socioeconomic factors on contraceptive use.

2. DEMOGRAPHIC FACTORS AND CONTRACEPTIVE USE

In many societies, age and number of living children, particularly living sons, are considered important factors indicating variations in contraceptive use [2,p.234]. Most of the women in Pakistan are married off relatively at an early age and after marriage women want to have children as soon as possible. Therefore, a woman's current age and number of living children are important to explain variations in contraceptive use.

The analysis of the PCPS 1984-85 data indicates that both age and number of living children indicate differentials in contraceptive use (Table 1). However, number of living children appears to be comparatively more significant. Women in younger age groups, particularly 15-19 and 20-24 have a very low level of current use (except for aged 20-24 with four or more living children). In higher age groups the use of contraceptive tends to increase with increasing parity.

TABLE 1

PERCENTAGE OF CURRENTLY MARRIED NON-PREGNANT WOMEN WHO ARE CURRENT CONTRACEPTIVE USERS BY NUMBER OF LIVING CHILDREN AND AGE, PAKISTAN 1984-85

Age of women	Number of living children						Total
	0	1	2	3	4	5+	
15-19	0.0 (236)	3.4 (164)	1.5 (46)	0.0 (6)	0.0 (6)	a (a)	1.4 (454)
20-24	0.6 (223)	2.9 (354)	4.4 (288)	8.1 (171)	11.1 (64)	16.4 (21)	4.4 (1120)
25-29	2.6 (106)	2.5 (171)	5.2 (260)	12.3 (282)	9.3 (258)	9.9 (211)	7.8 (1289)
30-34	0.0 (43)	0.0 (51)	7.2 (97)	13.9 (131)	11.2 (206)	15.5 (425)	12.0 (953)
35-39	0.0 (48)	3.3 (43)	5.7 (50)	8.5 (106)	11.6 (137)	15.3 (626)	12.4 (1010)
40-44	0.0 (23)	0.0 (29)	4.8 (48)	2.8 (75)	9.8 (96)	15.8 (537)	12.2 (809)
45-49	0.0 (14)	9.7 (13)	1.6 (29)	3.7 (40)	20.9 (72)	14.0 (386)	13.0 (553)
Total	0.6 (693)	2.8 (825)	4.8 (817)	9.8 (810)	11.3 (837)	14.7 (2266)	9.1 (6188)

Notes: a = refers to no cases. Figures in parentheses indicate number of women.

Source: Pakistan Contraceptive Prevalence Survey 1984-85, original analysis of data.

The number of living sons is another important factor influencing the use of contraception [3,p.302-307]. As the numbers of living children and living sons are interdependent, the proportion of current users, controlling for these two factors simultaneously, is presented in Table 2. The current use rate in each category of women by number of surviving children tends to increase with the increasing number of sons. Although the number of living children is an essential consideration in Pakistan before a woman can think about the use of contraception, nevertheless, to have a son is of paramount importance to make this decision. Compared to the

number of living children, the number of living sons is a stronger indication of use of contraception.

TABLE 2
PERCENTAGE OF CURRENTLY MARRIED NON-PREGNANT WOMEN
WHO ARE CURRENT CONTRACEPTIVE USERS BY NUMBER OF
LIVING SONS AND LIVING CHILDREN,
PAKISTAN 1984-85

Number of living sons	Number of living children						
	0	1	2	3	4	5+	Total
0	0.6 (693)	4.4 (396)	1.5 (191)	4.4 (99)	4.3 (32)	8.0 (25)	2.2 (1435)
1		1.3 (430)	6.5 (401)	8.2 (288)	7.3 (187)	12.3 (178)	6.1 (1483)
2			4.7 (225)	12.4 (313)	12.4 (316)	11.9 (425)	10.9 (1279)
3				11.5 (109)	14.0 (236)	15.3 (611)	14.6 (957)
4 or more					11.1 (65)	16.2 (967)	15.9 (1033)
Total	0.6 (693)	2.8 (825)	4.8 (817)	9.8 (810)	11.3 (837)	14.7 (2206)	9.1 (6188)

Note: Figures in parentheses indicate number of women.
 Source: Pakistan Contraceptive Prevalence Survey 1984-85, original analysis of data.

The findings also suggest that women in Pakistan rarely use contraception for spacing; rather, most of them use contraception for limiting family size after they have completed their desired family size. The demand for children, particularly sons, is still very high among families, for economic, social and lineage reasons.

3. SOCIO-ECONOMIC FACTORS AND CONTRACEPTIVE USE

3.1 Education and Contraceptive Use

Literacy and educational attainment alter parents' perceptions of the advantages of small families, bring changes in the status of women, change the social

and economic aspirations which children would have, and affect both attitude towards contraception and ability to understand and make use of particular methods [4,p.790]. Education has positive effects on attitudes towards contraception, knowledge of contraception, communication between husband and wife, and through these and other variables, contraceptive usage which ultimately affects fertility. Various studies contain empirical evidence of the relationship between education and contraceptive use in Pakistan and other developing countries. A positive relationship between education and contraceptive use has been found in several studies [5,p.147-246; 6,p.117-138; 7,p.330, 8,p.32-35].

An analysis of World Fertility Survey data [9,p.22], revealed that education, measured by literacy as well as years of schooling, is closely associated with contraceptive use. Widespread contraceptive use is difficult to achieve where literacy levels are low. Except for Haiti, none of the countries where less than 30 percent of adults are literate have contraceptive use levels higher than 10 percent. The levels are considerably higher in countries where 50 percent or more of the adults are literate. Similarly, educational attainment is a critical ingredient in the mix of factors contributing to higher contraceptive use. Contraceptive use increases dramatically as women's years of schooling increase. For instance, Bangladeshi women who have attended school for seven or more years are nearly five times more likely to be contraceptive users than women with no education. Similar findings are also confirmed in developed countries. Data from 16 developed countries showed that, regardless of the number of living children they had, the more educated women were more likely to use contraception than those with less schooling. A direct relationship between education and contraceptive use, even after controlling for other factors such as age, parity or marital status, in many studies in Latin America, Asia and the Middle East has also been found [10,p.133]. The 1975 Pakistan Fertility Survey and the 1979 Population Labour Force and Migration Survey showed that contraceptive use was very low among the uneducated but increases with educational levels [11,p.606-615].

The education level of women appears to be a better determinant of contraceptive use, particularly in the least developed countries [12,p.56-86]. The study of the 1968 National Impact Survey and the 1975 Pakistan Fertility Survey data also found that education was markedly higher for users than for non-users, indicating comparatively higher use by educated females than educated males

[13,p.149-162]. This implies that better educated women are either more able to regulate or more motivated towards regulating fertility, compared to educated men in Pakistan. This also reflects, at least in part, that the family planning programme is generally oriented towards women rather than men, but it is the men who are still the decision makers in Pakistan, as in many parts of the developing world.

In this analysis sharp differentials in contraceptive use by education levels of women can be seen (Table 3). Women who have attained some education (primary) are two-and-a-half times more likely to use contraception than are those who have no education. If women have attained a secondary or higher than secondary level of education, they are five times more likely to use contraception than those who have no education. These differentials are more striking in the younger age groups (35 years and under) than the older groups. Nevertheless, differentials are striking in all categories by age and education levels of women. In comparison to women's education, their husbands' education indicates less striking differentials in contraceptive use between different education levels. In fact, there is no difference in contraceptive use between those women whose husbands have attained primary education and those who have no education. It is only with attainment of at least secondary level education by the husband that differentials in contraceptive use become clear.

TABLE 3
PERCENTAGE OF CURRENTLY MARRIED NON-PREGNANT WOMEN
WHO ARE CURRENT CONTRACEPTIVE USERS BY EDUCATION
AND AGE, PAKISTAN 1984-85

Educational level	Age of women			
	15-24	25-34	35-49	15-49
Women's education				
No education	2.0 (1306)	5.1 (1820)	10.2 (2106)	6.4 (5232)
Primary	4.4 (140)	16.6 (215)	26.0 (143)	15.9 (497)
Secondary +	17.7 (127)	41.2 (207)	36.4 (124)	33.4 (458)

Husbands' education				
No education	1.5 (754)	4.7 (1063)	9.6 (1390)	6.1 (3207)
Primary	0.3 (239)	5.6 (353)	10.8 (359)	6.2 (952)
Secondary +	7.5 (573)	17.7 (817)	20.0 (611)	15.5 (2001)
Total	3.5	9.6	12.5	9.1

Notes: Husbands' educational level does not include 28 cases where educational level was not indicated; Figures in parentheses indicate number of women.

Source: Pakistan Contraceptive Prevalence Survey 1984-85, original analysis of data.

It has been noted earlier that number of living children is one of the important demographic factors that influences the proportion of current users. Therefore, the effect of education on current use of contraception, controlling for the number of living children, is analysed in Table 4. It is evident that differentials are clearly pronounced by education levels of women even when the number of living children is controlled for. The current use of contraception increases systematically at nearly all levels of parity. With two living children and some education (primary) of women, the current use is above average (9 percent) in all categories. If women have secondary education, current use is 34 percent with two living children and 46 percent with three living children. The differentials in contraceptive use are less pronounced when husbands' education and the number of living children are considered.

It is only when husbands have secondary education and with at least two living children that contraceptive use is greater than the overall average of 9 percent. Use increases to 25 percent only when husbands have secondary level of education and at least five living children. In comparison to this, the level of use among secondary educated women with 5 or more living children is 50 percent.

TABLE 4

PERCENTAGE OF CURRENTLY MARRIED NON-PREGNANT WOMEN
AGED 15-49 WHO ARE CURRENT CONTRACEPTIVE USERS BY
EDUCATION AND NUMBER OF LIVING CHILDREN,
PAKISTAN 1984-85

Educational level	Number of living children						Total
	0	1	2	3	4	5+	
Women's education							
No education	0.2 (575)	1.7 (669)	0.7 (664)	5.1 (664)	7.1 (700)	11.9 (1959)	6.4 (5232)
Primary	0.0 (59)	2.3 (83)	10.3 (69)	14.8 (69)	23.0 (65)	29.2 (153)	15.9 (497)
Secondary +	4.7 (59)	13.3 (73)	33.5 (84)	45.5 (77)	42.1 (72)	50.3 (94)	33.4 (458)
Husbands' education							
No education	0.4 (314)	0.8 (391)	1.5 (415)	3.3 (398)	7.7 (429)	11.0 (1260)	6.1 (3207)
Primary	0.0 (112)	1.8 (122)	0.3 (107)	5.6 (129)	6.2 (122)	11.7 (360)	6.2 (952)
Secondary +	1.1 (260)	5.7 (310)	11.2 (295)	21.1 (280)	19.1 (283)	24.9 (573)	15.5 (2001)
Total	0.6	2.8	4.8	9.8	11.3	14.7	9.1

Note: Figures in parentheses indicate number of women; Husbands' educational level does not include 28 cases where educational level was not indicated.

Source: Pakistan Contraceptive Prevalence Survey 1984-85, original analysis of data.

Although contraceptive use rates also vary according to a husband's education level, differentials in the proportion of current users are comparatively more pronounced if a woman's own education level is considered. Table 5 represents current use of contraceptives controlling both for the education levels of women and their husbands. Women's education levels clearly show stronger effects on current use of contraception than their husbands' education level. Husbands' primary education has no effect on current use of contraception. It is interesting to

note that women's education has a positive effect on contraceptive use even when her husband has no education. In this category when husbands have no education and women have primary education, the current use is 19 percent and it is 33 percent if she has secondary education. Presumably women having some education and living with uneducated husbands enjoy somewhat higher status in the family and are able to have access to contraception.

However, if husbands have primary level education, contraceptive use is reduced even if women also have some education (Table 5). Perhaps less educated husbands do not allow their educated wives to enjoy higher status or independence in the family decisions which also affect their ability to use contraception. The situation only changes when husbands have secondary level education; then contraceptive use increases with women's educational attainment.

TABLE 5
PERCENTAGE OF CURRENTLY MARRIED NON-PREGNANT WOMEN
AGED 15-49 WHO ARE CURRENT CONTRACEPTIVE USERS BY
WOMEN'S EDUCATION CONTROLLING FOR HUSBANDS'
EDUCATION, PAKISTAN 1984-85

Women's education	Husbands' education			Total
	No education	Primary	Secondary+	
No education	5.6 (3108)	5.7 (860)	9.1 (1238)	6.4 (5206)
Primary	18.5 (71)	10.5 (75)	16.1 (349)	15.6 (495)
Secondary+	33.1 (29)	15.1 (16)	34.1 (414)	33.4 (458)
Total	6.1 (3207)	6.2 (952)	15.5 (2001)	9.1 (6160)

Note: Figures in parentheses indicate number of women.
 Source: Pakistan Contraceptive Prevalence Survey 1984-85, original analysis of data.

3.2 Work Status and Contraceptive Use

Occupation is another factor that affects contraceptive use. Style of living is generally associated with the type of work women do and the occupation of their

husbands. The analysis of WFS data during the period 1974-1981 for 38 developing countries, including Pakistan, reveals that the level of contraceptive use appears to be higher among women in modern sector occupations than among women in traditional occupations and those who do not work outside the home [14,p.75-80]. Gainful employment outside the home in farm and non-farm occupations was also analysed by Sadik [15,p.575] for its relation to the practice of contraception in 10 developing countries, including Pakistan. She found that women in non-farm jobs outside the home were more likely to practice contraception than women who had not worked or who had worked in farming. Controlling for the influence of the demographic variables of the number of living children and number of years married did not alter these relationships in any consistent manner. Women who had worked in non-farm occupations were generally more likely to practice contraception than women who had worked on a farm, possibly because the women who had worked on a farm had limited access to contraceptive counselling and supplies, low levels of education, and because small children are less of an obstacle to farm work than to factory or office work. Some studies, however, suggest that even employment opportunities in rural areas contribute to contraceptive use [16].

Husband's occupation is a measure of social status in the community as well as the economic circumstances of the family. In the WFS, the occupation categories varied somewhat from country to country but normally included a range from unskilled workers to professionals which follows internationally accepted standards. For all the countries except Indonesia, the use rates for women who knew a family planning outlet were lowest for wives of agricultural workers and highest for women married to clerical, professional and managerial personnel [17]. The comparative studies of WFS, also observed that the use of contraceptives is highest among wives of men engaged in professional and clerical occupations [18]. Ahmad [19,p.201-202] confirmed that professional and clerical groups in Pakistan used contraceptive methods more than other groups, and that they probably used them mostly for spacing children rather than for controlling fertility.

The PCPS 1984-85 data show that women working as employees have a higher level of current use (18 percent) than those who are self-employed or performing home duties (Table 6). For working women, the current use remains high in all age groups indicating a slightly higher proportion in age groups 15-34. This suggests that working women at these ages also start to use contraception for

spacing purposes. However, it is noted that working women are only 2 percent of the sample and the number of working women in age group 15-19 is relatively small.

TABLE 6
PERCENTAGE OF CURRENTLY MARRIED NON-PREGNANT WOMEN
AGED 15-49 WHO ARE CURRENT CONTRACEPTIVE USERS BY
WOMEN'S WORK STATUS AND HUSBANDS' OCCUPATION,
CONTROLLING FOR AGE, PAKISTAN 1984-85

Characteristics	Age of women			
	15-24	25-34	35-49	15-49
Women's work status				
Employed	19.9 (14)	18.2 (38)	17.1 (52)	17.9 (104)
Self-employed	2.4 (255)	5.7 (403)	7.0 (495)	5.5 (1153)
Work at home	3.5 (1304)	10.3 (1794)	13.9 (1820)	9.8 (4918)
Husbands' occupation				
Employed	5.4 (499)	12.8 (846)	19.9 (605)	12.8 (1950)
Self-employed	2.3 (462)	10.9 (648)	13.4 (712)	9.7 (1822)
Agriculture	2.5 (529)	3.8 (687)	8.3 (918)	5.4 (2134)
Unemployed	5.3 (80)	13.2 (58)	6.3 (136)	7.4 (274)
Total	3.5	9.6	12.5	9.1

Notes: Figures in parentheses indicate number of women; Number of women may not tally as 13 women did not indicate their own work status and 8 did not indicate their husbands' occupations.

Source: Pakistan Contraceptive Prevalence Survey 1984-85, original analysis of data.

The contraceptive use by husband's occupation (Table 6) also indicates that women whose husbands are salaried employees have comparatively higher current use than those who are self-employed, agriculture workers or unemployed.

However, current use is low in the younger age group (15-24), even for those women whose husbands are employed. The lowest current use is among those women whose husbands are working in the agriculture sector and is consistently low in all age groups.

TABLE 7
PERCENTAGE OF CURRENTLY MARRIED NON PREGNANT WOMEN
AGED 15-49 WHO ARE CURRENT CONTRACEPTIVE USERS BY
WORK STATUS AND HUSBANDS' OCCUPATION CONTROLLING
FOR UMBER OF LIVING CHILDREN, PAKISTAN 1984-85

Characteristics	Number of living children						Total
	0	1	2	3	4	5+	
Women's work status							
Employed	19.3 (7)	0.0 (8)	32.2 (14)	40.7 (8)	22.8 (22)	10.2 (44)	16.0 (104)
Self-employed	0.0 (101)	3.4 (128)	2.1 (162)	1.1 (148)	7.8 (157)	9.2 (459)	5.5 (1153)
Work at home	0.5 (585)	2.7 (687)	5.0 (639)	11.4 (654)	11.8 (657)	16.4 (1696)	9.8 (4918)
Husbands' occupation							
Employed	0.6 (233)	4.3 (279)	6.7 (274)	15.3 (270)	16.2 (268)	21.4 (626)	12.8 (1950)
Self-employed	0.7 (201)	2.8 (244)	7.1 (226)	10.1 (239)	11.6 (227)	15.0 (680)	9.7 (1822)
Agriculture	0.7 (206)	1.3 (268)	0.9 (282)	3.8 (274)	6.6 (317)	9.7 (792)	5.4 (2134)
Unemployed	0.0 (51)	2.0 (34)	8.1 (34)	8.4 (26)	15.9 (25)	10.3 (104)	8.2 (274)
Total	0.6	2.8	4.8	9.8	11.3	14.7	9.1

Note: Figures in parentheses indicate number of women. The number of women may not tally as 13 women did not indicate their own work status and 8 did not indicate their husbands' exact occupation.

Source: Pakistan Contraceptive Prevalence Survey 1984-85, original analysis of data.

The pattern of current use of contraceptives has also been analysed by work status of women and occupation of their husbands controlling for the number of living children (Table 7). It is evident that current use is higher among working women with at least two or more living children. Similarly, current use of contraception increases with additional number of living children and remains higher in all categories for women whose husbands are working compared to other occupational groups of husbands.

Women's education level and participation in the labour force increase contraceptive use. It is generally the case that occupation is related to education. If a woman is engaged in employment outside home, it is more likely that she has had some schooling. However, in Pakistan working women mostly have no education. The analysis of this study shows that women's employment, if combined with educational attainment of at least secondary level, is an important factor leading to the use of contraception (Table 8). Women who are employed and who have secondary level education or above have the highest current use (54 percent),

TABLE 8
PERCENTAGE OF CURRENTLY MARRIED NON-PREGNANT WOMEN
AGED 15-49 WHO ARE CURRENT CONTRACEPTIVE USERS BY
WOMEN'S WORK STATUS AND EDUCATION,
PAKISTAN 1984-85

Women's work status	Educational level of women			Total
	No education	Primary	Secondary+	
Employed	3.6 (72)	0.0 (2)	53.8 (30)	16.0 (104)
Self-employed	4.5 (1085)	16.3 (44)	31.7 (24)	5.5 (1153)
Work at home	6.9 (4064)	15.9 (449)	32.0 (405)	9.8 (4918)
Total	6.4 (5221)	15.9 (496)	33.4 (458)	9.1 (6175)

Note: Figures in parentheses indicate number of women.
 Source: Pakistan Contraceptive Prevalence Survey 1984-85, original analysis of data.

compared to those who are employed but have no education (4 percent). Similarly, the influence of education is also visible in other categories of women's work status indicating higher use of contraception with primary and secondary levels of education.

3.3 Region of Residence and Contraceptive Use

The percentage distribution of currently married non-pregnant women aged 15-49 years who are current users of contraception by region of residence according to demographic and Socioeconomic variables is presented in Table 9. The level of current use is almost identical and near the national level (9 percent) in Punjab, Sindh and NWFP with slightly higher use in Sindh. However, current use of contraception is very low (4 percent) in Balochistan, the least populated province of Pakistan. The pattern of contraceptive use represents the consistently expected direction in relation to demographic variables except for a few variations noted for NWFP and Balochistan. Current users in NWFP are heavily concentrated in the older age group 35-49 years, whereas in all the other three provinces most of the women using contraception are also found in the age group 25-34 years. In Balochistan women only start using contraception when they have two living children with at least one living son. In Sindh, it is also essential to have at least one living child before a woman can initiate use of contraception.

Some variation by Socioeconomic variables is also noted between the provinces. Women's education represents current use in the expected direction; that is, there is a positive relationship between current use and level of education. A similar pattern has been found for husbands' education, except in NWFP where women whose husbands are uneducated have a level of contraceptive use which is twice as high as those whose husbands have primary education, that is 9 percent compared to 4 percent. These women may belong to older cohorts where the maximum proportion of current users was found. In the case of employment of women, Punjab indicates the highest proportion of employed women using contraception (21 percent). In contrast to this, in Sindh, women belonging to the employed category are less likely to use contraceptives (5 percent). The employed women in Sindh are presumably uneducated and forced by economic pressure on

TABLE 9

PERCENTAGE OF CURRENTLY MARRIED NON-PREGNANT WOMEN AGED 15-49 WHO ARE CURRENT CONTRACEPTIVE USERS BY REGION OF RESIDENCE AND BACKGROUND CHARACTERISTICS, PAKISTAN 1984-85

Background Characteristics	Region of residence				Total	Number
	Punjab	Sindh	NWFP	Balochistan		
Age of women						
15-24	3.2	4.0	4.3	1.6	3.5	1574
25-34	10.2	11.0	7.0	4.5	9.6	2242
35-49	12.3	12.2	15.5	5.6	12.5	2372
Living children						
0	0.7	0.0	1.4	0.0 ^c	0.6	693
1	3.5	2.8	0.6	0.0 ^c	2.8	825
2	5.0	6.9	0.9	4.8	4.8	817
3	9.6	11.0	10.3	2.7	9.8	810
4	11.9	10.7	11.8	5.9	11.3	837
5+	14.8	15.0	16.1	6.8	14.7	2206
Living sons						
0	2.6	2.1	1.6	0.0	2.2	1435
1	7.0	5.3	4.4	3.5	6.1	1483
2	10.7	12.7	10.4	5.4	10.9	1279
3	16.1	12.3	13.6	10.0	14.6	957
4+	14.3	19.4	19.3	4.7	15.9	1033
Women's education						
No education	6.3	5.6	8.7	2.5	6.4	5232
Primary	13.8	21.7	14.6 ^c	36.5 ^b	15.9	497
Secondary+	33.3	36.7	21.7 ^c	38.0 ^b	33.4	458
Husbands' education						
No education	6.2	4.1	9.0	2.4	6.1	3207
Primary	7.7	4.4	4.0	2.3	6.2	951
Secondary+	14.2	21.9	12.4	11.2	15.4	2001
Women's work status						
Employed	21.3	5.0	11.7	a	16.0	104
Self-employed	5.8	3.5	5.7	10.0 ^b	5.5	1153
Work at home	10.2	10.4	9.7	4.2	9.8	4918
Husbands' occupation						
Employed	12.9	18.3	6.7	8.4	12.8	1950
Self-employed	9.4	10.4	13.3	4.6	9.7	1822
Agriculture	5.8	1.4	11.2	0.7	5.4	2134
Unemployed	8.8	4.2 ^c	5.8	0.0 ^b	8.2	274
Place of residence						
Urban	18.2	18.1	18.0	13.1	18.1	1811
Rural	5.6	2.7	8.0	2.6	5.4	4377
Total						
Number	9.3	9.6	9.4	4.2	9.1	
	3674	1326	929	259	6188	

Note: a refers to no case, b to < 10 and c to < 50 but > 30 cases. In all other cells N is > 50.

Source: Pakistan Contraceptive Prevalence Survey 1984-85, original analysis of data.

their families to work outside their homes in factories. Husband's occupation indicates that women whose husbands are employed represent the highest proportion of contraceptive users in Sindh (18 percent). In NWFP employment of husbands has less effect on contraceptive use than other regions of Pakistan.

There exist large differentials between rural and urban women in the use of contraception in all four provinces. However, these differentials are more pronounced in the case of Sindh and Balochistan, with a very low use of contraception (3 percent) among women living in rural areas of these regions. In Balochistan, where the rural population is small and widely scattered, women may have less access to contraceptives. Other reasons for the low use of contraception in both rural areas of Sindh and Balochistan may be certain cultural factors.

3.4 Place of Residence and Contraceptive Use

Nortman [20,p.13] shows that for eight World Fertility Survey countries in Asia, the Pacific and Latin America, current use of contraceptives is higher for couples with better education (both husband and wife) and for those who are living in urban places compared to those with less education and those who are living in rural areas. However, in urban areas, other factors of modernization may have played a role as well [2,p.197-250]. London [21,p.289] is of the view that women with higher education tend to live in urban areas, where higher levels of contraceptive use among such women may be due to the greater availability of family planning services.

Although the family planning programme in Pakistan started at the same time both in urban and rural areas, still there are better facilities for family planning services in urban than in rural areas. Most of the family welfare centres, health clinics, and hospitals which provide family planning services are located in urban or nearby areas. In addition, condoms can be bought from local pharmacists and some general stores in urban areas. Because of easy access to modern health care and hospital facilities in urban areas, infant mortality is also lower in urban than in rural areas, which also leads to the greater use of contraception in urban areas.

The findings of this study show that there are distinct differentials in the levels of contraceptive use between rural and urban women even controlling for various demographic and socio economic variables (Table 10). The proportion of

current users is three-and-a-half times higher among urban women (18.1 percent), compared to rural women (5.4 percent) and controlling for ages of women, differences have little impact. In urban areas the difference in current use is highest between two younger age groups, seven percent for 15-24 years and 21 percent for 25-34 years. However, there is only a small difference in the use of contraception between 25-34 and 35-39 years among urban women. There also exist visible differentials in the use of contraception between all age groups in rural areas, especially between those who have no education and those who have secondary and higher education.

When the number of living children is controlled for, a negligible proportion of rural women who have two or less surviving children practice contraception, whereas in the case of urban women, current use starts increasing with one surviving child. Differences in the proportion of rural and urban users increase with an increase in the number of surviving children. The proportion of current users increases dramatically among urban women with more than two living children, whereas the increase is of smaller magnitude among rural women. With regard to the number of living sons, the proportion of current users increases consistently among rural women but the pattern is different among urban women. A substantial increase in the level of contraceptive use among urban women starts after having one son. Almost half of the women using contraception in urban areas have accepted use of family planning when they have one son, whereas in rural areas the proportion of half of contracepting women reaches when they have two living sons.

Having at least a primary level of education has a very small effect on the use of contraception for women in rural areas compared to urban women with the same level of education. However, if women have secondary level education or above, current use increases substantially both in rural and urban areas. The increase in contraceptive use with secondary level education is also more pronounced in urban areas, which may be due to other factors like better communication and access to family planning services. Moreover, educated women in urban areas are likely to be more mobile than their rural counterparts. However, compared to the average level of use in rural areas (5.4 percent), women in those areas with secondary education are much more likely to use contraceptives (23 percent); this is the highest rate observed for any group of women in rural areas with different background

TABLE 10

PERCENTAGE OF CURRENTLY MARRIED NON-PREGNANT WOMEN AGED
15-49 WHO ARE CURRENT CONTRACEPTIVE USERS BY PLACE OF
RESIDENCE AND BACKGROUND CHARACTERISTICS,
PAKISTAN 1984-85

Characteristics	Place of residence			Number
	Rural	Urban	Total	
Age of women				
15-24	2.2	6.9	3.5	1574
25-34	4.7	20.9	9.6	2242
35-49	8.3	22.1	12.5	2372
Number of living children				
0	0.3	1.3	0.6	693
1	1.8	5.9	2.8	825
2	1.9	13.1	4.8	817
3	5.8	19.3	9.8	810
4	6.4	24.5	11.3	837
5 and more	9.6	25.4	14.7	2206
Number of living sons				
0	1.3	4.6	2.2	1435
1	3.0	14.1	6.1	1483
2	6.2	22.1	10.9	1279
3	9.1	27.5	14.6	957
4 and more	10.8	26.6	15.9	1033
Women's education				
No education	4.9	11.1	6.4	5232
Primary	6.8	26.3	15.9	497
Secondary +	23.1	36.0	33.4	458
Husbands' education				
No education	4.7	11.8	6.1	3207
Primary	4.8	10.2	6.2	951
Secondary +	7.8	24.5	15.4	2001
Women's work status				
Employed	14.0	23.4	16.0	104
Self-employed	4.2	18.9	5.5	1153
Work at home	5.7	17.9	9.8	4918
Husbands' occupation				
Employed	6.2	21.4	12.8	1950
Self-employed	5.4	15.6	9.7	1822
Agriculture	5.1	12.0	5.4	2134
Unemployed	5.2	12.3	8.2	274
Total	5.4	18.1	9.1	6188*

Notes: * Total may not add to exact 6188 in case of husbands' education, women's work status and husbands' occupation as a result of few non stated cases.

Source: Pakistan Contraceptive Prevalence Survey 1984-85, original analysis of data.

characteristics. This indicates that education of women to secondary level strongly affects the use of contraception in rural as well as in urban areas.

Husbands' education has a pronounced effect on current use of contraception only with secondary education or above in urban areas. However, even in urban areas the differentials are not as large among various categories of husbands' education level compared to the effect observed for women's own education levels.

In the case of women's work status, it is noted that employment of women depicts striking differentials in various categories in rural areas compared to urban areas. In rural areas, the proportion of employed women using contraceptives is about two and half times greater than the proportion of those using contraceptives who are engaged in family business or who do not work outside their homes. In urban areas, differentials between women who are employed and those who are self-employed or work at home are rather small. Husbands' occupation does not represent much difference in rural areas, but manifests higher use among the employed in urban areas than other categories.

Since differentials in current use have been striking by level of women's education, age, and urban or rural residence, the use of contraception has been analysed by controlling for these three factors (Table 11). Even allowing for cohort and educational effects, the proportion of current users is still higher among urban than rural women except in the younger age group, 15-24 years, where there are negligible differentials among urban or rural users with primary level education. In the older age groups, 25-34 and 35-49 years, differences between urban and rural women are quite substantial, even controlling for education.

The rural-urban differentials have also been noted in current use while controlling for women's education and number of living children (Table 12). The rural urban differentials are less pronounced among women having no education compared to those who have primary education even controlling for the number of living children. It is also notable that contraceptive use is reasonably high (above 20 percent) both in rural and urban areas, if women have secondary education or above with at least two living children. In urban areas, the proportion of women using contraception is higher among educated women having at least one child.

TABLE 11

**PERCENTAGE OF CURRENTLY MARRIED NON PREGNANT WOMEN
AGED 15-49 WHO ARE CURRENT CONTRACEPTIVE USERS BY
PLACE OF RESIDENCE AND AGE CONTROLLING FOR
EDUCATION, PAKISTAN 1984-85**

Place of residence	Education of women			
	No education	Primary	Secondary+	Total
All Ages				
Rural	4.9 (4019)	6.8 (267)	23.1 (91)	5.4 (4377)
Urban	11.1 (1213)	26.3 (231)	36.0 (367)	18.1 (1811)
15-24 Years				
Rural	1.5 (880)	4.1 (74)	11.4 (35)	2.4 (1158)
Urban	3.8 (364)	5.7 (70)	18.9 (111)	6.5 (415)
25-34 Years				
Rural	3.5 (1237)	9.7 (93)	29.6 (27)	4.7 (1567)
Urban	9.6 (594)	23.3 (120)	40.2 (229)	20.9 (675)
35-49 Years				
Rural	7.5 (1312)	8.0 (50)	23.1 (13)	8.3 (1652)
Urban	16.8 (742)	38.2 (110)	42.6 (136)	22.1 (720)

Note: Figures in parenthesis are number of women.

Source: Pakistan Contraceptive Prevalence Survey 1984-85, original analysis of data.

Educated urban residents may be more conscious about the health, education and living standard of their children and seek help by using contraception more often than rural residents. The comparatively high cost of raising a large number of children may also be playing an important role in the decisions by urban women to adopt contraception.

TABLE 12

**PERCENTAGE OF CURRENTLY MARRIED NON-PREGNANT WOMEN
AGED 15-49 WHO ARE CURRENT CONTRACEPTIVE USERS BY
PLACE OF RESIDENCE AND NUMBER OF LIVING CHILDREN
CONTROLLING FOR EDUCATION, PAKISTAN 1984-85**

Place of residence	Number of living children						Total
	0	1	2	3	4	5+	
All Women							
Rural	0.3 (487)	1.8 (621)	1.9 (601)	5.8 (572)	6.4 (609)	9.6 (1487)	5.4 (4377)
Urban	1.3 (206)	5.9 (204)	13.1 (216)	19.3 (238)	24.5 (228)	25.4 (720)	18.1 (1811)
No Education							
Rural	0.3 (387)	1.3 (463)	0.2 (463)	3.8 (447)	5.4 (480)	8.7 (1189)	4.9 (4019)
Urban	0.0 (190)	1.3 (153)	3.6 (195)	8.0 (199)	11.9 (194)	19.2 (769)	11.1 (1213)
Primary							
Rural	0.0 (28)	2.3 (44)	9.8 (41)	12.5 (32)	7.1 (28)	11.4 (44)	6.8 (267)
Urban	0.0 (32)	2.6 (38)	13.8 (29)	21.6 (37)	41.5 (41)	35.8 (123)	26.3 (231)
Secondary and Above							
Rural	0.0 (12)	0.0 (15)	20.0 (15)	50.0 (12)	33.3 (6)	26.7 (15)	23.1 (91)
Urban	3.8 (53)	17.1 (70)	34.1 (85)	43.7 (87)	44.9 (78)	53.4 (103)	36.0 (367)

Note: Figures in parenthesis are number of women.
Source: Pakistan Contraceptive Prevalence Survey 1984-85, original analysis of data.

4. DETERMINANTS OF CONTRACEPTIVE USE: MULTIVARIATE ANALYSIS

In the previous sections, the relationship between contraceptive use and selected background variables was examined separately for each variable. A limited number of other variables was statistically controlled using cross tabulations. In this section, the effects of individual variables on current use of contraception will be examined when all other variables are simultaneously controlled.

4.1. Method of Analysis

The use of the logit linear model, a particular type of the general log linear model, is considered appropriate when the dependent variable is dichotomous and the independent variables are all categorical. This model allows the statistical control of the independent variables and hence determines the net effect of each variable on the dependent variable. The use of the logit linear model in social science research has been described in Goodman [22, 23, 24], Little [25], Knoke and Burke [26], Tsui et al., [27], Hogan and Frenzen [28], and Frenzen and Hogan [29]. These models are the basis of the present analysis, where the current use of contraception is taken as the dependent variable. In a logit linear model, an appropriate link function is performed for the transformation of data. This transformation using logarithms performs two functions: firstly, non-linear coefficients are changed to linear, and secondly, it ensures that each observation or cell has equal variance. Illustrated examples of these transformation procedures can be seen in Nelder and Wedderburn [30,p.370-384] and Little [25,p.19-36]. There are several advantages in using the logit linear model over the ordinary linear model. Firstly, dependent and independent variables can be categorical (e.g., dichotomous and polytomous). Secondly, as non-normal structures are permitted, the method does not object to having skewed dependent and independent variables. Thirdly, the problem of homoscedacity does not arise. Finally, it provides an index measure analogous to the multiple correlation coefficient [23,p.42].

The model in brief can be described by taking the case of two independent variables only. If g_{ij} is the expected probability of current use of contraception, then the model with two independent variables in its simplest form will be:

$$\text{Logit } g_{ij} = a + b_i + c_j \quad (1)$$

where 'a' provides a measure of overall chance of current use of contraception for the data analysed, 'b_i' provides a measure of the effect of the i-th category of the first variable with $\sum_i b_i = 0$, and 'c_j' provides a measure of the effect of the j-th category of second variable with $\sum_j c_j = 0$. Equation 1 is known as a main effect model. If we consider interactions between the two variables, then Equation 1 will take the form:

$$\text{Logit } g_{ij} = a + b_i + c_j + (bc)_{ij} \quad (2)$$

$$\text{where } \sum_i (bc)_{ij} = 0 \quad \text{and} \quad \sum_j (bc)_{ij} = 0$$

The quantities on the right hand side of the above equations 1 and 2 are the parameters to be estimated from the observed data. Equation 2 in this case considers all possible effects between the two independent variables and as such it is called a saturated model. On the other hand, equation 1, whose parameters are a subset of the parameters in equation 2, is known as an unsaturated model. In the saturated model, the observed frequency in each cell of the cross-classified data equals the corresponding expected frequency. The rationale of the logit analysis should be to find an unsaturated model which best fits the observed data and which is as simple as possible. In other words, the model should be a parsimonious one, as overly complex models are of little practical use.

The present analysis is based primarily on the main effect model. The parameters in the right hand side of equation 1 have been estimated by using the SPSS-X program (SPSS Inc, 1988). The SPSS-X program produces the maximum likelihood estimates of parameters by means of a Newton-Raphson algorithm. The quantities that are displayed by the program are half of the parameters in equation 1 (that is, 1/2 a, 1/2 b_i, 1/2 c_j). Therefore, in the above equation, the parameter estimates need to be multiplied by 2 to get the estimates of the parameters a, b_i, c_j respectively. The programme also produces the likelihood ratio chi-square (symbolically, LRX²) and the Pearson chi-square to compare the observed and the expected frequencies based on the parameter estimates. The statistical significance of a particular variable can be assessed from the LRX² value associated with degrees of freedom.

Adena and Wilson [31,p.17] suggested that the chi-square distribution is a general guide in assessing goodness of fit. The chi-square value relative to the degrees of freedom is also used to assess the relative impact of the selected variable on the current use of contraception by comparing two models. The difference in degrees of freedom between the two models is the degrees of freedom relating to the test variable. The parameter estimates and the odds ratios can be interpreted as the assessment of the effectiveness between the categories of the variable. Odds ratios are obtained as an exponential value of the parameter estimates. Odds ratios are the relative risk due to its being in a particular cell category. If the odds ratio is greater than unity, the current use of contraception in the given category is higher than the average.

In the bivariate analysis, differentials in contraceptive use have been found for both demographic and socio-economic factors. These differentials are pronounced for age, number of living children and living sons, education of women and their husbands, work status of women and occupation of their husbands. Significant differentials were also found in contraceptive use by urban-rural residence of women. Using the logit linear model, the effects on contraceptive use of each of the various demographic and socio-economic factors, and place of residence are examined by controlling for the effect of other variables. Interaction effects between variables included in the model were checked and it was found that these variables have no significant interaction with each other. Variables are introduced in the models based partly according to the assumed causal ordering and partly according to the aims of the study.

5. RESULTS AND DISCUSSIONS

5.1 Demographic and Socio-Economic Effects

Among the demographic variables in the bivariate analysis, age, number of living children and number of living sons were found to positively affect the use of contraception. Results of the logit linear model of the effects of these demographic variables on contraceptive use are presented in Table 13. In Model I, it is evident that number of living children and living sons are important demographic variables to influence positively the use of contraception. Age has not been found significant whereas both number of living children and living sons are significant at the 1 percent level with the number of living children having the highest LRX^2 (57.2) with

two degrees of freedom. In Model II, run without age of women, the strength of number of living children and living sons has increased further as indicated with an increase in LRX². Among categories of number of living children, women with 3-5 living children are 3.2 times (1.369/0.426) more likely to use contraception than those with upto 2 living children. Similarly, women with 1 or more living sons are 2.4 times (1.533/0.653) more likely to use contraception than those who have no son.

TABLE 13
LOGIT LINEAR MODEL OF MAIN EFFECTS OF DEMOGRAPHIC
FACTORS ON CURRENT USE OF CONTRACEPTION,
PAKISTAN 1984-85

Variables	Model I		Model II		df	N
	Odds ratio	LRX ²	odds ratio	LRX ²		
Age of women		3.2			2	
15-24	0.821					1574
25-34	1.091					2242
35-49	1.116					2372
Living children		57.2*		95.4*	2	
0-2	0.464		0.426			2335
3-5	1.335		1.369			2318
6 or more	1.616		1.716			1535
Living sons		17.3*		18.9*	1	
No son	0.663		0.653			1435
1 or more	1.508		1.533			4752
Overall effect	0.064		0.066			

Note: * Significant at P < 0.001.
 Source: Pakistan Contraceptive Prevalence Survey 1984-85, original analysis of data.

In the bivariate analysis, differentials in contraceptive use were observed by various socio-economic variables. The logit linear model of the effects of women's education, husbands' education, women's work status and husbands' occupation on contraceptive use are shown in Table 14. In Model I, women's education appears to be the most important socio-economic variable to impact upon contraceptive use.

This variable is highly significant ($P < 0.01$), having the highest LRX^2 with 2 degrees of freedom. Husbands' education and occupation have also been found to be significant variables. However, women's work status has not been found significant and hence is not included in Model II. In Model II, where only significant variables were included, the LRX^2 value of women's education increases further, indicating its importance in the use of contraception.

TABLE 14
LOGIT LINEAR MODEL OF THE MAIN EFFECTS OF SOCIO-ECONOMIC
FACTORS ON CURRENT USE OF CONTRACEPTION,
PAKISTAN 1984-85

Variables	Model I		Model II		N
	Odds ratio	LRX^2	Odds ratio	LRX^2 df	
Women's education		145.8**		152.9** 2	
No education	0.450		0.445		5232
Primary	0.968		0.694		497
Secondary	2.296		1.560		458
Husbands' education		10.2*		10.6* 2	
No education	0.927		0.926		3207
Primary	0.841		0.838		952
Secondary	1.296		1.289		2001
Women's work status		3.6		2	
Employed	1.274				104
Self-employed	0.790				1153
Work at home	0.994				4918
Husbands' occupation		9.5*		11.3* 3	
Agriculture	0.840		0.817		2134
Employed	1.229		1.245		1950
Self-employed	1.098		1.109		1822
Unemployed	0.883		0.887		274
Overall effect	0.154		0.150		

Note: ** Significant at $< 1\%$; * - at 1% .

Source: Pakistan Contraceptive Prevalence Survey 1984-85, original analysis of data.

Among the demographic factors, number of living children and number of living sons have been found to be significant factors which positively affect the use of contraception. Studies have shown that age at marriage is low in Pakistan and

that women after marriage try to have children as soon as possible [32]. Moreover, the use of contraception among women increases with an addition in the number of living children, particularly sons. It was therefore decided to create a composite variable of sex composition of living children to examine the relative association of living children of both male and female sex with contraceptive use. Since age and the number of living children are interdependent for married women in Pakistan, and since there is a stronger association of contraceptive use with living children [33], age was not found to be significant and hence not included in the best fit model. From socio-economic variables, education both for women and husbands and occupation of husbands have been found significant, while work status of women has not been found to be a significant factor.

Finally, the best fit model of significant demographic and socio-economic variables has been run (Table 15). The logit linear model estimates for the effect of women's education, husbands' education, husbands' occupation and sex composition of living children are presented in this model. Based on the likelihood ratio chi-square value and the associated degrees of freedom, the analysis shows that all variables have a significant net effect on contraceptive use. However, sex composition of living children and women's education remain the most significant variables in the model, explaining most of the variation around the grand mean. The strength of the variables has increased in this model over the models presented in Tables 13 and 14.

It is evident from Table 15 that the effect of women's education on contraceptive use rises from no education to primary education and rises further with secondary education or higher. The odds ratios of current contraceptive use are 0.413 among women having no education, 0.934 among women having primary education and 2.643 among women having secondary or higher education. Therefore, compared to women with no education the contraceptive use rate is 2.3 times higher among women with primary education ($0.934/0.413$), 6.4 times higher among women with secondary or higher education ($2.643/0.413$). Even the contraceptive use is 2.8 times higher among women with secondary or higher education compared to women having primary education ($2.643/0.934$).

TABLE 15

**LOGIT LINEAR MODEL OF MAIN EFFECTS OF SOCIO-ECONOMIC AND
DEMOGRAPHIC FACTORS ON CURRENT USE OF CONTRACEPTION,
PAKISTAN 1984-85**

Variables	Number	Parameter estimates	Odds ratio	LRX ²	df
Women's education				168.8**	2
No education	5232	-0.884	0.413		
Primary	497	-0.088	0.934		
Secondary+	458	0.972	2.643		
Husbands' education				17.4**	2
No education	3207	-0.129	0.879		
Primary	952	-0.201	0.818		
Secondary+	2001	0.330	1.391		
Husbands' occupation				14.4*	3
Agriculture	2134	-0.246	0.782		
Employed	1950	0.230	1.259		
Self-employed	1822	0.118	1.125		
Unemployed	274	-0.102	0.903		
Sex composition of children				264.8**	5
Sons > Daughters	1261	1.271	3.564		
Sons = Daughters	1545	1.092	2.980		
Sons < Daughters	1078	0.676	1.966		
All sons	868	-0.117	0.881		
All daughters	743	-0.510	0.601		
No children	693	-2.412	0.090		
Overall effect		-2.494			

Note: ** P < 0.001 and * P < 0.01.

Source: Pakistan Contraceptive Prevalence Survey 1984-85, original analysis of data.

Although husbands' education has also been found to be a significant variable in the model, the effect of different categories of husbands' education on contraceptive use is not as visible as for women's education. In fact, it makes no difference to contraceptive use whether the husband has primary education or no education. There is some visible difference only if the husband has secondary education or higher; that is, the odds ratio of current users is nearly 1.6 times higher for women whose husbands have secondary education or higher compared to the

other categories of husbands' education level (1.391/0.879). The finding confirms the bivariate analysis that, compared to women's own education, their husbands' education does not affect the use of contraceptives significantly.

The effect of husbands' occupation also represents a similar picture to that of husbands' education. There is negligible difference in the contraceptive use among women whose husbands are employed or self-employed. Although the odds ratios for salaried employees and self-employed are higher than for agricultural workers, the difference is not very pronounced. Women whose husbands are employed are about one-and-a-half times more likely to be contraceptive users than those whose husbands are agricultural workers (1.259/0.782 or 1.125/0.782).

The prevalence of current contraceptive use also varies according to the sex composition of the living children. When the number of living sons is equal to or greater than the number of living daughters, chances for contraceptive use are increased. The odds of being a contraceptive user are one-and-a-half times greater for women who have only sons than for those who have only daughters (0.881/0.601). The chances of being users of contraception are least for those who have only daughters and lowest (almost negligible) for those having no child at all. Thus, the highest current contraceptive users are found among those women who have more sons than daughters followed by those having an equal number of surviving children of both sexes, and then those having fewer sons than daughters. These findings suggest that the number of surviving children is one of the strongest determinants of contraceptive use in Pakistan. While having children is considered important, it still appears to be desirable to have more sons than daughters.

5.2 Place of Residence

A significant difference appeared in cross-tabulations between rural and urban current use of contraception. It is therefore important to examine the effect of rural-urban residence simultaneously, while controlling for other socio-economic and demographic variables.

The analysis reveals that there is a significant relationship between the place of residence and contraceptive use (Table 16). Although the contribution of the chi square value due to place of residence drops dramatically once the number of living children, education and work status are introduced in the model, place of residence

continues to be significantly related to current use. In model A, the gross effects of urban-rural residence on contraceptive use have been shown. The odds ratios indicate that the current use of contraception is 3.8 times higher for women living in urban areas than for those who are living in rural areas (1.958/0.511).

TABLE 16
LOGIT LINEAR MODEL TO DETERMINE THE EFFECTS OF PLACE OF
RESIDENCE ON CURRENT USE OF CONTRACEPTION,
PAKISTAN 1984-85

Place of residence	Parameter estimates	Odds ratio	LRX ²
Model A: gross effects			488.2**
Urban	0.672	1.958	
Rural	-0.672	0.511	
Model B: net effects			277.2**
Urban	0.668	1.950	
Rural	-0.668	0.513	
Model C: net effects			73.3*
Urban	0.426	1.531	
Rural	-0.426	0.653	
Model D: net effects			69.5*
Urban	0.407	1.502	
Rural	-0.407	0.666	
Overall Effects in Model A: -2.182, Model B: -1.739, Model C: -1.667 and Model D: -2.208.			

- Notes:
- (1) ** P < 0.001 and * P < 0.05
 - (2) Model A is based on urban rural residence only, so it is a univariate model and describes the relationship between current use of contraceptives and place of residence.
 - (3) Model B controls for number of living children.
 - (4) Model C controls for number of living children and women's education.
 - (5) Model D controls for number of living children, women's education and work status.
 - (6) The number of women in urban areas is 1811 and in rural areas 4377.

Source: Pakistan Contraceptive Prevalence Survey 1984-85, original analysis of data.

In model B, the effect of urban-rural residence is net of the number of living children. The differentials as revealed by odds ratios remain almost at the same level for urban and rural women when the control for number of living children is introduced. This suggests that the effect of the number of living children is of equal importance in both urban and rural areas.

In model C, education of women is introduced in the model along with the number of living children. The introduction of women's education in the model reduces differentials between urban and rural contraceptive users from 3.8 to 2.4 times (1.531/0.653). However, women's work status does not lead to any change in the current use of contraception between urban and rural women (Model D). The introduction of women's work status as another control variable along with the number of living children and women's education does not change the odds ratio much. The differentials are still 2.3 times (1.502/0.666); that is, women living in urban areas are still 2.3 times more likely to use contraception than rural women. It is evident from this analysis that a wide gap in contraceptive use between urban and rural women persists even when controlling for demographic or socio-economic variables. However, when the control for women's education is introduced, the gap is reduced to some extent. This finding suggests that education of women has a more significant effect on contraceptive use in rural than in urban areas. However, the demographic factor, the number of living children, is equally important in both urban and rural areas for the use of contraception.

6. CONCLUSION

In this study differentials in contraceptive use by demographic and socio-economic factors have been analysed. The bivariate analysis indicates that current use of contraception increases with an increase in age and the number of living children. In multivariate analysis, number of living children and living sons have been found to be the most significant demographic variables affecting the use of contraception, while age was not found to be significant. Although the number of living children is an essential consideration in Pakistan before a woman can think about the use of contraception, nevertheless, to have a son is of paramount importance in adopting this behaviour.

The most important among the socio-economic variables influencing contraceptive use is women's education. Women who have attained some education

(primary) are two-and-a-half times more likely to use contraception compared to those who have no education. If women have attained secondary or higher education, they are five times more likely to use contraception than are those who have no education. The differentials are clearly pronounced by education levels of women even when controlled for age or the number of living children. In comparison to women's education, their husbands' education indicates less striking differentials in contraceptive use. No differential in contraceptive use has been found between those women whose husbands have attained primary level of education and those who have no education. It is only with attainment of at least secondary level of education by husbands that differentials in contraceptive use become clear.

While controlling both for the education levels of women and their husbands,, women's education clearly shows stronger effects on current use of contraception than does their husbands' education. It is noted that women's education indicates its positive effect on contraceptive use even when her husband has no education. In this category (no education of husbands) current use is 19 percent with women's primary education and 33 percent with women's secondary education. Presumably women having some education and living with uneducated husbands enjoy somewhat higher status in the family and are able to have access to contraceptive use. However, if husbands of educated women have a primary level of education, contraceptive use is reduced. Perhaps less educated husbands do not allow their educated wives to enjoy higher status or independence in family decisions which also affect their abilities to use contraception. The situation only changes when husbands have secondary level education, when contraceptive use increases with women's educational attainment. In multivariate analysis, both women's and their husbands' education have been found to be significant factors influencing contraceptive use.

The current use of contraception by work status of women shows that women working as employees have a higher level of contraceptive use than do those who are self-employed or performing home duties. It is also observed that women's employment, if combined with educational attainment of at least secondary level, is an important factor leading to the use of contraception. Women who are employed and have secondary education have a very high rate of contraceptive use (54 percent) compared to those who are employed but have no education (4 percent).

However, the number of women employed and having some education is small and in the multivariate analysis work status of women is not found to be a significant variable. Husband's occupation has been observed to be a significant variable in the multivariate analysis. Contraceptive use by husband's occupation indicates that women whose husbands are salaried employees have a higher level of contraceptive use than those whose husbands are self-employed or agriculture workers.

There are not many differentials in contraceptive use by region of residence, except for Balochistan, where current use of contraception is very low (4 percent). Compared to other regions of Pakistan, women in Balochistan are less educated and facilities for family planning are also inadequate. However, there exist large differentials between rural and urban women in the use of contraception in all four provinces. The study shows that there are distinct differentials in the levels of contraceptive use between rural and urban women even controlling for various demographic and socio-economic factors. The proportion of current users is three-and-a-half times higher among urban women (18.1 percent) compared to rural women (5.4 percent). Among demographic factors, number of living children and living sons appear to be more crucial in rural areas for the use of contraception. Similarly, women's education and employment, although important in both urban and rural areas, appear to have more impact in rural areas.

The analysis also revealed a significant relationship between place of residence and contraceptive use. Controlling for the number of living children does not change the differentials, suggesting that number of living children is of equal importance, in both urban and rural areas. However, the introduction of women's education in the model reduces differentials between urban and rural contraceptive users from 3.8 to 2.4 times.

It is evident from this study that a wide gap in contraceptive use between urban and rural women persists even when controlling for demographic or socio-economic variables. However, women's education can reduce this gap to some extent. This also confirms the bivariate analysis that women's education has a more significant effect on contraceptive use in rural areas. Although the family planning programme in Pakistan started at the same time both in rural and urban areas, there are better facilities for family planning services in urban than in rural areas. Most of the family welfare centres, health clinics, and hospitals which provide family

planning services are located in urban or nearby urban areas. In addition, condoms can be bought from local pharmacists and some general stores in urban areas. Because of easy access to modern health care and hospital facilities in urban areas, infant mortality is also lower in urban than in rural areas, which also leads to the greater use of contraception in urban areas. The higher cost of raising a large number of children may also play an important role in the decisions by urban women to adopt contraception.

The findings suggest that the programme need to motivate and pursue the married couples to initiate the use of contraception at low parity. More efforts are required to motivate uneducated couples and special attention needs to be paid to the rural areas.

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FERTILITY TRENDS AND FAMILY PLANNING IN SELECTED ISLAMIC COUNTRIES AND PAKISTAN

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The analysis shows that strong political and administrative support, comprehensive coverage of national populations, direct involvement of the Health Sector and female literacy are the major factors contributing to the successful implementation of the family planning programmes in the selected Islamic countries. The female literacy, which is a key for achieving sustainable development, is playing a vital role in the acceptance of small family norm and practice of family planning among these countries. In Pakistan, among other major factors, it has been the prevalence of female illiteracy which has thwarted the progress of the Population Welfare Programme. In view of the present conditions, there is an urgent need for supervising, monitoring and evaluating of each component of the programme of the Ministry of Population Welfare as well as programmes of the Ministry of Health and Non-Governmental Organizations including the literacy and education programme of the Ministry of education.

In this article, attempt is made to compare fertility trends and family planning indicators of selected Islamic countries in Asia and Africa with those of Pakistan. The selected countries include Indonesia, Malaysia, Bangladesh, Iran, Turkey, Egypt, Morocco, and Tunisia. All these countries have family planning programmes supported by their governments to reduce the level of fertility.

Although family planning programmes in these countries were initiated later than Pakistan, more significant progress in reducing the level of fertility and growth rate of population has been made in these countries. The specific objective of this article is to find out why Pakistan has not been able to achieve similar success as the selected countries have. Average indicators of the world, more developed regions less developed regions and less developed regions excluding China have also been presented as criterion for comparison.

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More specifically, a brief account is presented about the programme and progress achieved by each country which is followed by some explanation, why Pakistan has made slow progress. A regression analysis has been undertaken to observe the impact of female literacy on family planning and fertility parameters of Islamic countries. Some differences may be due to the extent of reliability of estimates of indicators selected for the comparability which may vary from country to country. However, reliance is placed on the published or reported indicators available which are easy to interpret and provide scope for comparative analysis.

I. FAMILY PLANNING PROGRAMMES IN SELECTED COUNTRIES

A comparative picture of past and present total fertility rates (TFRs), crude birth rates (CBRs), current annual growth rates and contraceptive prevalence rates (CPRs) in the world, its regions, selected Islamic countries and Pakistan are presented in Table 1.

TABLE 1

PAST AND PRESENT BIRTH RATES, CURRENT GROWTH AND CONTRACEPTIVE PREVALENCE RATES OF WORLD, MORE DEVELOPED AND LESS DEVELOPED REGIONS, SELECTED ISLAMIC COUNTRIES AND PAKISTAN

World/Region/ Country	Past Year	Past		Current			
		TFR	CBR	TFR	CBR	Annual Growth Rate 1994	CPR 1985-92
World	1970-75	4.5	32.7	3.1	25.0	1.6	57
More Developed	1970-75	2.2	17.0	1.7	13.0	0.3	70
Less Developed	1970-75	5.5	38.7	3.5	28	1.9	54
Less Developed (Excluded China)	---	---	---	4.2	33	2.2	42
Indonesia	1976-79	4.7	36.2	2.8	24.0	1.6	50
Tunisia	1981	5.2	34.1	3.3	25.0	1.9	50
Malaysia	1978	3.9	33.0	3.5	28.0	2.3	48
Turkey	1976-77	4.3	32.0	3.5	29.0	1.9	63
Bangladesh	1971-75	6.1	42.9	3.9	31.0	1.8	40
Egypt	1979	6.0	36.9	3.9	30.0	2.1	46
Morocco	1973	7.4	47.7	4.0	30.0	2.3	42
Iran	1973-76	6.3	41.8	5.0	35.0	2.6	31
Pakistan	1968-71	6.0	37.8	5.4	34.0	2.7	22 (1993)

Source: For past TFR and CBR of the world, its regions and all countries except Pakistan [1,pp.38-41] and for Pakistan [2,p.53]. For current TFR, CBR and Annual Rates of Growth of Indonesia, Malaysia and Bangladesh [3], for Iran [29], for Turkey, Egypt, Morocco and Tunisia [4,pp.174-175], [23] and for Pakistan [5,p.46]. For CPR of all countries except Iran and Pakistan [4,pp.174-175], for Iran [28,p.69] and for Pakistan [5,p.85]. For current rates of the world and its regions [PRB 1994 World Population Data Sheet] and for CPR of more developed regions [24,p.42].

I.1 Indonesia

It is noted that Indonesia which had a TFR of 4.7 per woman and a CBR of 36.2 per thousand population in 1976-79 has been able to reduce these indicators to 2.8 (TFR) and 24.0 (CBR) in 1993-94. These reduced indicators are the lowest among the countries being compared and are significantly lower than the averages for the less developed regions of the world even excluding China.

In this country the family planning programme was established in 1970 on the basis of Presidential decree. Senior official of the family planning programme of Pakistan provided consultancy in 1969 for the preparation of this programme. The President issued another decree in 1972 under which the coverage of the programme was extended to cover most population of the country. The Ministry of Population and Environment was created in 1983 to formulate policy, coordinate all population activities and provide reports to the President [6,p.67]. The programme has full political support and is integrated with family health services. The country has been able to achieve the current prevalence rate of contraceptive use of 50 percent, which is the second highest among countries which are being compared. Besides the country has been able to achieve a current rate of growth of 1.6 percent per annum which is the lowest among the nine countries.

I.2 Malaysia

Malaysia had a TFR of 3.9 and a CBR of 33.0 in 1978 which decreased to the present TFR of 3.5 and a CBR of 28. This decline appears to be relatively slow. This country started the family planning programme earlier but the new population policy was launched in 1984. Under this policy a target of 70 million population has been set for the year 2100 [6,p.151].

The source indicated in Table 1 shows that the CPR in 1985-92 was 48 percent, but the United Nations, World Population Policy report shows a CPR of 51 percent as of 1984. Also the same source indicates that the female mean age at marriage during 1980-85 was 23.5 years. In any case Malaysia made a significant progress in reducing its TFR to the current level of 3.5 and CBR of 28.0. These indicators are lower than those of the less developed regions of the world and compare favourably with those for the less developed regions of the world excluding China. The CPR (48) of Malaysia is higher than that for the less developed regions excluding China. However, the Government has stopped a campaign for couples to

have two children [6,pp.150-152]. But it has been able to reduce its annual rate of growth and its current level is 2.3 percent per annum.

I.3 Bangladesh

The TFR and CBR in Bangladesh in 1971-75 were of the order of 6.1 and 42.9, which appear to have been reduced to 3.9 and 31 respectively. The present rate of growth is 1.8 percent per annum which is the second lowest among the selected countries. Also all the three current indicators of Bangladesh (TFR, CBR and GR) are lower than the corresponding indicators of less developed regions. This seems to be a significant progress along with a current CPR of 40 percent. The family planning programme in Bangladesh was started in the Second Five Year Plan 1960-65 when it was East Pakistan. Since it separated in 1971, the country has made more progress in family planning than Pakistan.

After separation, it launched a new Five Year Plan 1973-78. Since then family planning is made an integral part of development plans within primary health care and socio-economic development programmes and has full political and administrative support [7,pp.42-43]. Heavy input of financial and technical input of international and foreign agencies [28].

I.4 Iran

In the Islamic Republic of Iran the level of TFR and CBR has decreased from 6.3 per woman and 41.8 per thousand population in 1973-76 to the current levels of 5.0 and 35.0 respectively. The present rate of growth is 2.6 percent per annum. Originally, official family planning in the country began in 1966. But due to the 1979 revolution followed by the war with Iraq and its consequences and the economic embargo, there was a set back to the family planning programme.

After the war in 1989, the Islamic Consultative Assembly issued a national birth control policy. The new policy encourages family planning as well as breast feeding and participation of women in the society. The new policy has the agreement of religious leaders that family planning and use of contraceptive methods are permissible [8,pp.47-48]. The family planning services are provided through the net work of primary health care and the coverage is very extensive. The level of female literacy in this country is higher than it is in Pakistan, Bangladesh, Egypt or Morocco.

During 1990, there were 31 percent of the married women in the reproductive age who were using the contraception [28, Table 11]. The family planning programme is receiving greater support and firm commitment from the highest-level. The President of the country, while stressing the need for accelerated social and economic development, also gives importance to the role of population. High level councils and committees have been set up to monitor the programme and deal with population issues. The prospects are bright for Iran to catch up with other countries.

1.5 Turkey

Turkey has the highest CPR among the countries which are being compared. In 1976-77 its TFR was 4.3 per woman and CBR was 32.0 per thousand population, which were the lowest at that time among the countries that are being compared. These rates have been reduced to the present level of TFR of 3.5 and CBR of 29 and a growth rate of 1.9 percent. These indicators compare favourably with less developed regions of the world. However, Turkey's CPR is 63 percent which is higher than those of the world and its regions with the exception of more developed regions. The Government policy of lowering fertility is being implemented through programmes of family planning combined with maternal and child health [9,p.164].

Although the CPR of the country is the highest (63 percent), its TFR and CBR are not the lowest. The major reason for such a high CPR is that 28 percent of the users were practicing traditional methods and 35 percent were using modern methods. Comparing in terms of modern methods, all countries with the exception of Bangladesh, Iran and Pakistan had higher CPR than Turkey. Although traditional methods are less effective, the over all impact would be reduced but in view of the magnitude would still be higher than other countries being compared. This could also be partly due to the variation and limitations of the quality of data used in the computation of the indicators of different countries. However, the Government of Turkey is vigorously pursuing the policy of lowering fertility as the present level is considered too high to meet the development objectives [9,pp.162-164].

The national family planning campaign is combined with the supply of contraception and improving maternal and child health care. In 1988, the President of Turkey announced the largest campaign in the history of the programme for the use of modern methods of contraception and establishing family planning clinics in

all 200 government's general hospitals and 25 maternal hospitals of the country. There were also institutionalized 25 maternal and child health and family planning training centres. At the same time efforts were being made to raise the status of women [9,pp.162-164].

I.6 Egypt

Egypt is another selected country which has made a significant progress and in which TFR of 6.0 and a CBR of 36.9 in 1979 have been reduced to the present level of TFR of 3.9 and CBR of 30.0. Its current annual growth rate is 2.1 percent and the level of CPR is 46 percent.

The country has an official policy of family planning with the object of reducing the fertility rates along with infant and child mortality rates and the rate of population growth. In 1983 there were 3,200 Ministry of Health clinics providing family planning services throughout the country [7,p.196].

The current level of fertility is considered as too high and the policy is to provide family planning services, improving the status of women, reducing infant and child mortality rates and improving the well being of the family. The programme is the first among Arab countries to recognize the problem of population pressure. The country established the Supreme Council for Population and Family Planning as far back as 1965 and has full political support [7,p.195]. Subsequently the President set up the National Population Council in 1985.

To provide further boost to the programme, the President established a State Ministry of Population and Family Welfare in 1993. Recognizing the political and administrative support provided to the programme, the President has been awarded the 1994 UNFPA Population Award [21,p.1]. Besides Egypt provided the host facilities for the International Conference on Population and Development (ICPD) which was held in Cairo, 5-13 September 1994.

I.7 Morocco

Another notable example of success is Morocco which has been able to reduce its TFR and CBR from 7.4 and 47.7 in 1973 to 4.0 and 30.0 respectively. Its current annual growth rate of population is 2.3 percent and the CPR is 42 percent.

The Government has not fixed any specific demographic targets but considers the level and trends of fertility as too high [6,pp.186-87].

There are other socio-economic policies which affect the level of fertility and infant mortality. The Planning Ministry ensures the integration of demographic variables into development planning. There is a High Commission on Population to formulate and coordinate policies affecting population variables [6,pp.186-189].

Family planning has been included in the development programme since 1968 and service centres were established in 1966. Improvement of the status of women especially in the rural areas is an integral part of the Ministry of Youth and Sports. There is a ministerial level committee to monitor 'family planning [6,pp.186-189].

However, reducing the level of TFR from 7.4 in 1973 to the current level of 4.0 is a significant achievement of the country. This has been due to its level of CPR of 42 percent. The Summary of 1992 Morocco Demographic and Health Survey shows that the knowledge rate of any method was 97.3 percent, the current use rate of modern methods was 35.5 percent and of traditional methods was 6.0 percent and infant mortality rate was 57 per thousand births.

1.8 Tunisia

Tunisia reduced its TFR of 5.2 per woman and CBR of 34.1 per thousand population in 1981 to the current level of TFR of 3.3 and CBR of 25.0 respectively. Both these fertility indicators along with its rate of growth of 1.9 percent are lower than those for the less developed regions. Its CPR of 50 percent is the second highest along with Indonesia among the countries which are being compared. The family planning programme in this country began in 1964 and its impact on birth rate showed up after 1968. The major effort in the programme started around 1974. These efforts coupled with duration of marriage of women 15-49 years of age and birth interval have reduced the fertility rates [10,p.35].

The Government has a coordinated population policy integrated with maternal and child care for reducing the level of fertility. Additional measures being taken include improving the status of women, their employment and education. For

ensuring this, the Government developed the Personal Status Code which defines the rights and obligations of husbands and wives [8,pp.45-46].

II. FAMILY PLANNING PROGRAMME IN PAKISTAN

Finally, the status of Pakistan with regards to the level of fertility, growth of population and use of contraception is presented in some what more detail. The rates mentioned in Table 1 for the country are obtained from the national sources and are based on research. The past TFR of 6.0 per woman and CBR of 37.8 per thousand population were obtained from the data of the national Population Growth Survey undertaken during 1968-71 [11]. The current rates are based on the more recent Population and Family Planning Indicators (PFPI) continuous survey designed for the five year period 1993-98 [5].

The rates based on these data show that the TFR of 6.0 and CBR of 37.8 in 1968-71 have been reduced to the present level of 5.4 and 34.0 respectively. The current rate of population growth obtained from the PFPI survey is 2.7 percent, although 2.9 percent was assumed for the base year 1992-93 and 2.6 percent target for the last year of the Eighth Five Year Plan 1997-98. The current CPR obtained from the PFPI survey is 22 percent and 24.4 percent is the target for 1997-98 which was fixed in 1992-93 [12,pp.6-7].

Pakistan is one of the pioneering countries in recognizing the need for family planning, when the country consisted of East Pakistan (now Bangladesh) and West Pakistan (now Pakistan) and had very limited resources. In the First Five Year Plan, 1955-60, provision was made to support the Family Planning Association of Pakistan which was established in 1953. In the Second Five Year Plan, 1960-65 family planning was made an official programme. Since then family planning programme has continued to be the integral part of each development plan.

The financial allocations and expenditure including foreign assistance have been rising to support the programme with the main objective of slowing the rate of population growth and improving the welfare and standard of living of the people. The current fertility rates have been considered as unsatisfactory and too high [9,pp.6-9].

The success until recently has been limited. It is this reason that the TFR of 5.97 per woman, a CBR of 39, a CDR of 10 per 1000 population and a CPR of 14 percent were assumed for the base year 1992-93 of the Eighth Five Year Development Plan 1993-98. On the bases of the past experience, several factors contributed to the failures of the programme to achieve any viable break through [18].

At the macro or programme level, lack of sustained political and administrative support; frequent changes in the strategy; lack of integration with primary health care; more reliance on the foreign assistance; lack of supervision, monitoring, guidance and evaluation; inadequate coverage of population, especially the rural population by the programme and non-programme service delivery outlets; inadequate infrastructure; lack of outreach or inefficient facilities for those who cannot go to service delivery outlets, specially in rural areas; insufficient information and knowledge about family planning; inadequate or no follow up arrangements and treatment of side effects; lack of truly integrated approach; lack of involvement of health outlets; lack of support from other ministries and departments and local communities; inadequate decentralization of the programme to the provinces; and questionable service statistics, to mention the main ones [13,pp.vii-viii].

At the micro or individual level, the factors which have contributed to the inadequate performance of the family planning activities include illiteracy or inadequate education; shyness among couples about family planning and visiting family planning centres; fear of side effects of modern methods; ignorance about the programme methods and sources of services and supplies; son preference; infant and child mortality; lack of adequate information about the insusceptibility of breastfeeding; fatalism; disapproval of husband or other family members; perception of low status of women and lack of motivation; poverty; and non-availability of services and supplies at the door steps of the clients [13,pp.viii-ix].

While all these factors at the macro as well as at the micro levels are important, the major problems of the programme have been the lack of political and administrative support along with the low coverage of population which until recently was only 20 percent in the country, 54 percent in urban and only five percent in the rural areas. There has been no proper effort to reach, motivate and provide services to at least those women who either wanted to space or limit births.

In any case whatever have been the problems, constraints and draw backs, the consequences of the inadequate performances of the programme have been serious. The population in the meanwhile has continued to grow rapidly and at the same time it has built-in a strong momentum for the future growth. In spite of the increasing allocation of funds and changing strategies, objectives and targets of the programme were never achieved until the end of Seventh Five Year Plan 1988-93.

The continued rapid growth of population has diminished the pace of demographic and socio-economic development [16,pp.36-50]. The main focus of development has been on economic growth without giving adequate consideration to the distribution and social development aspects. It must be admitted that the price which the nation has paid in terms of the expenditure on the programme and due to its failure to achieve the demographic targets and consequent poverty and suffering is irreversible.

II.1 Recent Population and Family Planning Indicators of Pakistan

More recent survey undertaken by the National Institute of Population Studies (NIPS) in 1993 followed by 1994 has shown somewhat encouraging results. It has revealed a TFR of 5.4 per woman, a CBR of 34 per thousand population, a CDR of 7 per thousand population, a rate of natural increase (RNI) of 2.7 percent per annum and a CPR of 22 percent of currently married women of 15-49 years of age. Compared with other selected countries, the TFR, CBR and rate of natural increase in Pakistan are the highest and the CPR is the lowest. Similar is the result when compared with corresponding indicators of the world and its regions.

These results are modest but it can be argued that targets of the Eighth Five Year Plan fixed for 1998 with the exception of CPR have more or less already been achieved in 1993. On the other hand comparing with the past performance, this progress is significant and rapid. The TFR according to the 1984/85 survey was 6.0 per woman [14,p.40] which has decreased to 5.4 in 1993. The CBR which was 37 per thousand population in 1984-85, 35 per thousand in 1990-91 [15,p.37] has declined to 34 in 1993. The singulate mean age at marriage of females in 1951 was 16.9 years which has increased to 22.7 years in 1993 [5, table 3.5]. This increase has partly contributed to the decline in the TFR.

Besides, knowledge about family planning of married women 15-49 years of age has increased from 62 percent in 1984-85 to 78 percent in 1990-91 and to 82 percent in 1993 [5,p.112]. The current use of contraception increased from 6.7 percent in 1984-85 to 11.9 percent in 1990-91 and to 21.9 percent in 1993 [5, table 9.6]. The recent development is encouraging and is consistent with other population parameters of the country. It is possible that couples are perceiving that large family size is not economically and socially beneficial and are therefore developing a smaller family norm. However, the TFR and rate of growth are still among the highest among the less developed regions of the world.

III. WHY LOW PROGRESS OF THE PROGRAMME IN PAKISTAN

It is apparent that all selected countries with the exception of Iran and Pakistan have made a significant progress by increasing the contraceptive prevalence rate and reducing the level of fertility and the rate of growth of their populations. Iran, inspite of the interruption of one decade 1979-89 the traditional contraceptive methods are included, has definitely higher CPR than Pakistan. Also Iran with the recent impetus which is being provided by the political and religious support and higher level of female literacy and education and integration of the programme with primary health care, is expected to catch up with other selected countries sooner than Pakistan.

Why the programme in Pakistan is left far behind? There are four major factors which have contributed to the success of programmes in other Islamic countries and due to lack or inadequacies of these factors the programme in Pakistan has been handicapped.

The first and the foremost factor has been the lack of the strong and continuous political and administrative support. The policy as well as the programme was included in each five year development plan beginning 1960 but this element has been weak and consequently there has been no supervision, monitoring and accountability to ensure its implementation.

The second major factor has been that the programme unlike other Islamic countries was not the integral part of the primary health care. Third major factor has been the inadequate coverage of the rural population which until recently was

only around five percent. And, fourthly, little effort has been made to improve and enhance the level of literacy or education, especially of females which is the index of the status of females.

It appears that all other macro and micro factors already identified for the slow progress of Pakistan programme are subsidiary to these major factors. If a strong political and administrative support was given and provided continuously, most of other deficiencies of the programme would have been removed.

III.1 Family Planning and Health Care

The family planning policy and the programme in the public sector were introduced in the Second Five Year Plan, 1960-65. In this plan the programme was administered through the existing health services and was made the responsibility of the Ministry of Health [17,p.360]. At that time the programme, being the first one, was in the formative stage, and there was an acute shortage of medical and para-medical staff who were supposed to be trained in family planning. In spite of this, spade work was done, National Institute of Fertility Research was established, service outlets were set up and supplies for both health and family planning were provided to the extent possible under the economic constraints.

Since then the programme has been in and out of the Ministry of Health but it remained as an autonomous organization or a separate division and at present is a separate Population Welfare Ministry and has not been integrated with the health services although in the mean while, the number of medical doctors available along with services and supplies including the establishment of Rural Health Centres (RHCs) and Basic Health Units (BHUs), has increased, which is more than the number which can be absorbed in the health sector.

There have been discussions to integrate family planning with health services but due to the lack of interest of the health sector, administrative issues and who should own the programme, could not be resolved. However, some primary health care services are being provided through Family Welfare Centres of the Ministry of Population Welfare to provide antenatal services and treatment for minor ailments. But couples are shy to enter FWCs and have more confidence to enter hospitals and medical centres or outlets than FWCs. Also, countries which have made significant

progress have provided family planning services and supplies through primary health care rather than the other way round.

However, in the Population Welfare Programme included in the Eighth Five Year Plan, services and supplies are being strengthened in the rural area by creating a new infrastructure of Village Based Family Planning Workers (VBFPWs) who are being engaged on contract basis [18]. The success of this scheme has yet to be evaluated.

Effecting change needs earnest implementation of policy and action programme which influence all aspects of the programme including couples decision making about family size. More recently the Government, realizing the acute shortage of family planning and primary health care services in rural areas and the need for integrating family planning with primary health care, has prepared a new programme which is being launched by the Ministry of Health to supplement efforts of the Population Welfare Programme of the Ministry of Population Welfare.

The objective of this Programme is to expand family planning services and supplies integrated with primary health care services to the villages which were neglected in the past. Under this programme, currently 10,000 female Village Health Workers (VHWs) are being engaged indigenously and trained by phases with the ultimate objective of increasing this number to 33,000.

Until recently the coverage of the rural population which was only five percent would be increased to 70 percent. If this programme and the programme of the Ministry of Population Welfare are implemented in competition, cooperation and coordination with each other, the target of 70 percent coverage of rural population is likely to be achieved by the end of Eighth Five Year Plan in 1998 [19].

III.2 Female Literacy and Family Planning

Female literacy and education is another neglected aspect which was often debated in the past but no concrete steps were taken. So much so that the country in terms of female education has been classified as very poor and it has been ranked 107th among 112 countries of the world [20]. It is also noted that Pakistan among the selected Islamic countries is at the bottom with regard to literacy and education of females indicator.

In the past, discussions on the role of female literacy and education in family planning, it was often argued that developing female literacy and education is a lengthy process and the country, in view of the challenge posed by the rapid growth of population, could not afford to wait that long. Hence not much improvement could be made in either family planning or female education. The literacy and education, especially of females, which is a master key to all human developments including the status of women has been retarded and has placed Pakistan among countries which have one of the lowest profile in social and demographic development. Its current rate of growth of population has shown some decline, but it is still 2.7 percent per annum which is one of the highest in the world.

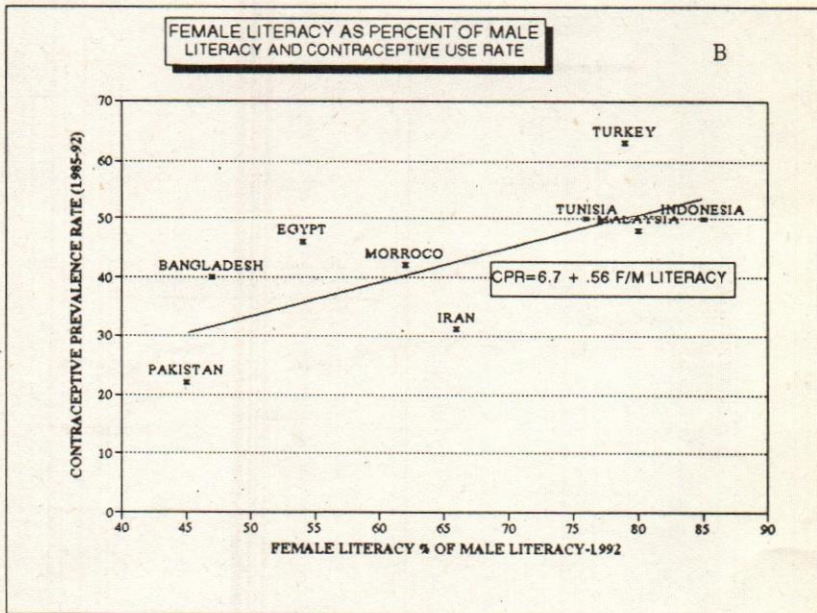
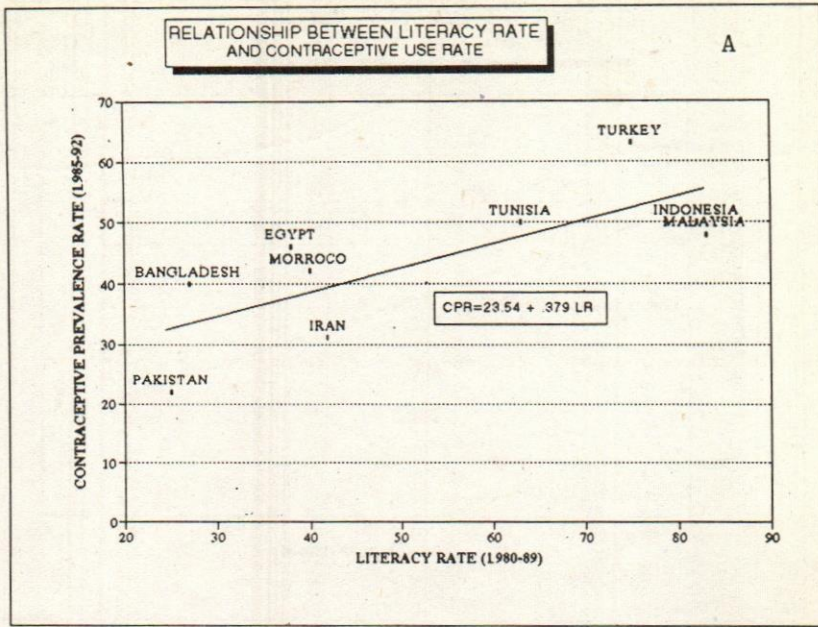
In Islam, there is no prohibition on currently married couples adopting family planning. According to several religious scholars, contraceptive use is permissible [22,p.12]. Besides, a minimum period of 24 months is specified for breastfeeding which means a minimum spacing between successive births of about 34 months. The roles and rights of women including inheritance, approval of marital partner, health, literacy and quality of life are defined. However, due to exogenous influences local practices may vary from country to country. It is mandatory for every Muslim man and woman to obtain education and knowledge. But as will be noted, there is a variation in the adherence to this mandate and in Pakistan the female literacy has been neglected more than any other country.

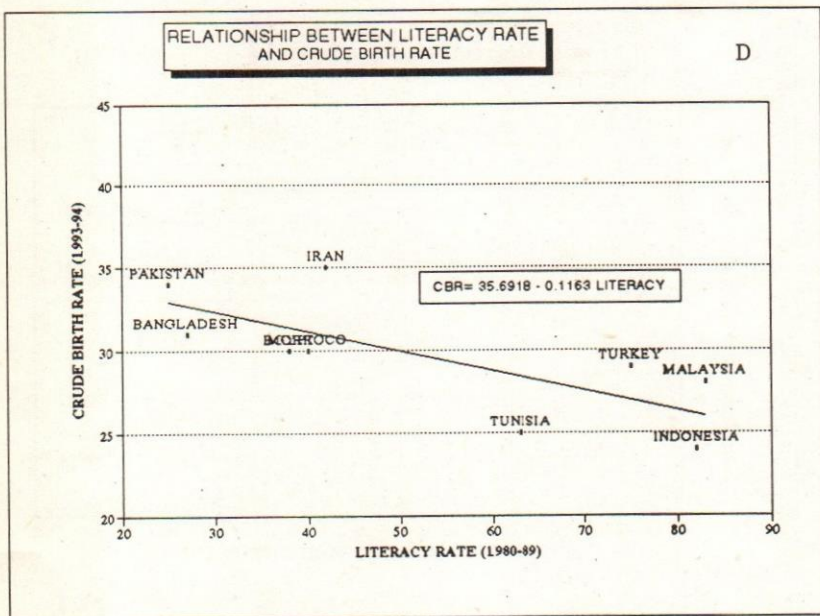
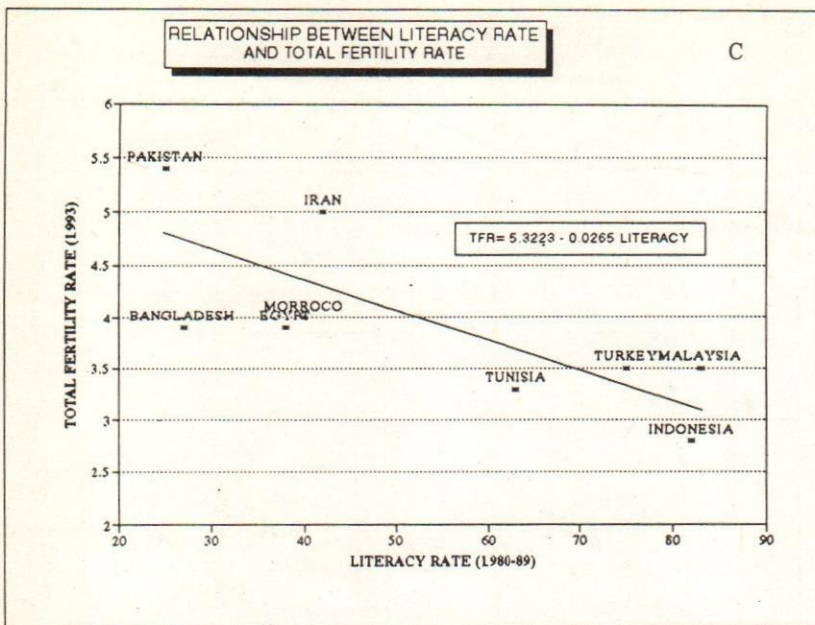
The recent (as of 1994) literacy of females 10 years of age and over in Pakistan was only 23.5 percent [16,p.43], although it is an empirical fact that literacy, especially of females is an indicator of status of women and is the most important determinant of fertility. It is therefore assumed in the remaining analysis that adoption of family planning and the resulting fertility levels among the selected countries are function of female literacy.

IV. IMPACT OF FEMALE LITERACY ON CONTRACEPTIVE USE AND FERTILITY

First the relationship between the variables is illustrated through scatter grams presented in Figure I. Each straight line is fitted by using the equation:

$$\hat{y} = a + bx$$





In this equation \hat{y} is a computed value of the dependent variable y ; a is y intercept; b is slope of the regression line; and x is a given value of the independent variable which is a female literacy in this case. The values of the variables involved are presented in Table 2 and the results of the statistical analysis are presented in Table 3. The scatter gram A indicates a positive relationship between the level of literacy of females (the independent variable), and the use rate of contraceptive methods (dependent variable). Similarly scatter gram B shows positive relationship between the percent of female literacy of male literacy and the use of contraceptive method. This means that as female literacy increases and the percentage of the female literacy of the male literacy increases, the use of contraceptive method also increases.

The relationship between female literacy and fertility is illustrated by scatter grams C and D. As expected the relationship is negative i.e. as female literacy increases the TFR as well as the CBR decreases.

Each straight line in the scatter diagrams is based on the linear regression equation and describes the relationship between the variables. Once it is done, the closeness of the correlation that exists between the variables is statistically measured by using Pearson Product - Moment Correlation Coefficient:

$$r = \frac{(\sum xy/N) - M_x.M_y}{SD_x.SD_y}$$

Where, r is the correlation coefficient; N is the number of paired indicators of countries; xy is the sum of the product of each countries pairs of indicators; M_x is the mean of the x values; M_y is the mean of the y values; SD_x is the standard deviation of the x values; and SD_y is the standard deviation of the y values.

In addition, Spearman's Rank Correlation Coefficient:

$$r_s = 1 - \frac{6 \sum D^2}{N(N^2-1)}$$

is also computed for the same pairs of indicators to measure the monotonic relationship and to see how close are the two coefficients. In the Spearman's formula r_s is the correlation coefficient, D_i is the difference between the two ranks assigned to the two indicators of each country; the 6 is a constant; and N is the number of pairs of countries. Both techniques being used are simple and measure linear relationship between the pair of variables.

TABLE 2

POPULATION OF 1994, LITERACY RATES OF FEMALES 15-24 YEARS, CURRENT PREVALENCE RATES OF CONTRACEPTIVE USE, LITERACY OF FEMALES AS PERCENTAGE OF MALES, TOTAL FERTILITY RATES, CRUDE BIRTH RATES, CRUDE DEATH RATES AND GROWTH RATES OF SELECTED ISLAMIC COUNTRIES AND PAKISTAN

	Popu- lation 1994 (Million)	Literacy (1980-89)	CPR (1985-92)	Literacy of Females as % of Males (1992)	TFR	CBR	CDR	GR
					----- 1993-94			
Indonesia	199.7	82	50	85	2.8	24	8	1.6
Tunisia	8.7	63	50	76	3.3	25	6	1.9
Malaysia	19.5	83	48	80	3.5	28	5	2.3
Turkey	64.9	75	63	79	3.5	29	7	1.9
Bangladesh	116.6	27	40	47	3.9	31	11	1.8
Egypt	58.9	38	46	54	3.9	30	8	2.1
Morocco	28.6	40	42	62	4.0	30	7	2.3*
Iran	61.2	42	31	66	5.0	35	7	2.6
Pakistan	126.1	25	22	45	5.4	34	7	2.7

Source: Table 1, For Population and CDR [23] and [29]. For Literacy of all countries [4,pp.144-147].

* Programme restarted in 1989 and Growth Rate is declining fast.

CPR: Contraceptive Prevalence Rate percent of currently married woman 15-49 years

CBR: Crude Birth Rate per 1000 population

TFR: Total Fertility Rate per woman

CDR: Crude Death Rate per 1000 population

GR: Growth Rate percent

IV.1 Literacy and CPR

First, the relationship of female literacy is examined with CPR. The null hypothesis is that there is no relationship between female literacy and contraceptive use. The observed value of $r = 0.74145$ and of $r_s = 0.75417$. Both these correlation coefficients indicate a positive relationship and both are significant at 0.05 level.

The nul hypothesis is therefore rejected. In other words, as the female literacy rate increases the use of contraceptive methods also increases.

The relationship between the percentage of female literacy of male literacy and the CPR shows that as the percentage of female literacy of the male literacy increases, lower is the gap between the two genders and higher is the use of contraceptive methods. The value of r is = 0.70462 and that of r_s = 0.77917. Both these values of correlation coefficient are significant at 0.05 level.

TABLE 3
SUMMARY RESULTS OF REGRESSION AND CORRELATION ANALYSIS

1. Literacy of Females 15-24 years x CPR		2. Literacy of Female as % of Males x CPR	
Constant	23.54566	Constant	6.67972
Std Err of Y Est	8.50370	Std Err of Y Est	8.99251
R Squared	0.54974	R Squared	0.49649
No. of Observations	9	No. of Observations	9
Degrees of Freedom	7	Degree of Freedom	7
X Coefficient (s)	0.37913	X Coefficient(s)	0.55872
Std Err of Coef.	0.12969	Std Err of Coef.	0.21267
r	0.74145	r	0.70462
rs	0.75417	rs	0.77917

3. Literacy of Females 15-24 years x TFR		4. Literacy of Females 15-24 years x CBR	
Constant	5.32227	Constant	35.69178
Std Err of Y Est	0.57693	Std Err of Y Est	2.62141
R Squared	0.56494	R Squared	0.54715
No. of Observations	9	No. of Observations	9
Degrees of Freedom	7	Degree of Freedom	7
X Coefficient (s)	-0.02653	X Coefficient(s)	-0.11627
Std Err of Coef.	0.00880	Std Err of Coef.	0.03998
r	0.75163	r	0.73970
rs	0.75000	rs	0.74583

Source: Table 2.

IV.2 Literacy and Fertility Rates

The relationship of literacy rates and the total fertility rates as expected, is negative. It indicates that r = 0.75163 and r_s = 0.75000. Both these correlation

coefficients are significant at 0.01 and 0.05 levels respectively. In other words, as literacy rate of females increases TFR decreases.

Similarly the relationship of literacy and crude birth rate (CBR) is negative. The value of coefficient of correlation: $r = 0.73970$ and $r_s = 0.74583$. Both coefficients are significant at 0.01 and 0.05 levels respectively.

IV.3 Comment

The regression or correlation analysis of nine Islamic Countries indicates that there is a significant statistical relationship of female literacy rate with dependent variables of CPR, TFR and CBR. The relationship is close as well as logical.

V. CONCLUDING REMARKS

The analysis indicates that all selected Islamic countries have made progress in the use of contraceptive methods and in lowering the level of fertility or birth rates to a varying degree. In the descriptive analysis, it is identified that the progress made by the selected Islamic countries is associated with the strong political support, comprehensive coverage of the population by the programme, intensive involvement and ownership of the health sector in the delivery of family planning services and supplies and improvement in the female literacy.

Further statistical analysis has shown that other things being equal, a significant role is played by the variation in the female literacy in explaining the variation in the successes which the countries have achieved. All countries have made more progress in this respect than Pakistan which has the lowest female literacy as well as contraceptive prevalence rates and highest total fertility rate, crude birth rate and the rate of natural increase.

In a recent article, it is argued that "the impact of Islam on reproductive choice is largely a function of the political context in which gender issues are defined" [8,p.41]. But the present analysis reveals that irrespective of political context (of Islamic countries), it is the female literacy rate which varies from country to country and influences the dependent family planning and demographic variables.

The new programme for family planning and primary health care, which is being launched by the Ministry of Health in Pakistan is a step in the right direction.

It is eliciting the active involvement of the health sector which was urgently needed but this link was hitherto missing as just asking the Ministry of Health to cooperate was not sufficient to activate their participation until they were given the ownership and full responsibility of the programme. The experience in selected Islamic countries, and for example, in Iran in which primary health care programmes and health outlets offer family planning, shows encouraging results. This approach in Iran is successful not only in achieving rapid progress in family planning in a short period of time since 1989 but is also reducing infant and maternal mortality [8,p.48].

Pakistan in introducing the new programme in the Ministry of Health has an advantage of having a large infrastructure of Rural Health Centres and Basic Health Units in the rural areas which at present is more or less dormant, especially so far as provision of family planning is concerned. It is expected that with the advent of the family planning programme of the Ministry of Health these centres would be activated. With growing communication and transportation facilities, accessibility to these centres is improving. To ensure that these centres are properly staffed it should be made compulsory for the new graduate (MBBS) doctors and LHVs to at least begin their career by working at these centres for at least three years. Currently the Association of Physicians and Surgeons is considering to introduce training courses in family planning in the MBBS and LHVs curricula.

If this programme of the Ministry of Health is efficiently administrated and managed, it has the advantage of not only providing the family planning services but also of taking care of side effects and other health problems including those relating to infant, child and maternal mortality by reducing high-risk births and providing better quality reproductive health services. Besides, strengthening this programme would enable the country of achieving the target specified by the 1994 ICPD of making "accessible through the primary health-care system, reproductive health as soon as possible and no later than 2015" and "integrating reproductive health services, including maternal and child health and family planning services" [26,p.44, 57].

Regarding the female literacy, its importance has been shown by the analysis and has also been recognized in the Social Action Programme [25,pp.11-13]. This programme has a major focus on the primary education which is the basic need of the people and must be met. This focus is genuinely expressed. But to achieve

sustained development, to maintain the shape of education pyramid and to achieve prompt benefits, it seems important to give consideration to proportionate increase in secondary, tertiary and higher education.

The ensuing benefits of this recommendation include: reduction in gender disparity which has increased successively with higher grades; reduction in the incidence of early age of marriage and maternal and child mortality; improvement in knowledge, attitude and practice of family planning to enable women to achieve their ideal family size; and improving female employment in teaching and other more productive jobs to promote female integration into the stream of development process.

This suggestion is consistent with the 1994 ICPD recommendation to the countries that the potential of women should be improved through education, skill development and employment to eliminate poverty, illiteracy and ill health among females [26,p.26].

In the context of population growth, the 1994 ICPD recommended to countries that they should take effective measures to achieve demographic transition in their respective socio-economic context [26,p.36]. Where does Pakistan stand in this context?

In the first census undertaken on 28 February 1951, the population of Pakistan was reported at 33.8 million. The fourth census undertaken on first March 1981 showed that it had grown by two and half times in a period of three decades to 84.3 million. The medium variant of projection reveals that in mid 1990, the estimated population of the country increased to 112.3 million and the estimate for mid-1995 is 129.8 million i.e. about four times of the 1951 figure. The medium variant further reveals that with the assumption of declining growth rate from 2.9 percent during 1990-95 to 1.9 percent per annum in 2015-2020, it would reach the 229.0 million mark and would be almost seven times the 1951 figure. At that time the TFR would be 3.2 i.e. on the average a woman would have more than one child for achieving the replacement level fertility [16,p.18-22].

However, the low variant (which is not so far the target of any programme) demonstrates that with more efforts, consideration might be given to achieving the

In this context, looking at the situation with regard to family planning facilities provided in the PWP vis-a-vis the programmes of selected Islamic countries (Table 4), it appears that the over all reported ratio of married women of reproductive age per family planning facility is 2610 for Pakistan which is the highest among all selected countries. The lower ratios may have played a positive role in the higher progress made by the selected countries but the impact of other factors already mentioned also contributed to the success of their programmes. The facilities situation given in Table 4 pertains to the past. However, if the more recent and future facilities which are being arranged under the recent programme of the Ministry of Health are included, the over all family planning facilities situation would appear to be more favourable.

TABLE 5
PERCENTAGE OF FAMILY PLANNING EXPENDITURE BY PROGRAMME FUNCTIONS,
SELECTED ISLAMIC COUNTRIES AND PAKISTAN

Name of Country	Year	Percentage Distribution of F.P. Expenditure						Total
		Contraceptive Services	Information Education	Research Evaluation	Personnel Training	Administration	Other	
Indonesia	1992-93	22	20	8	16	30	4	100
Tunisia	1989	64	11	11	13	0	0	100
Malaysia	1989	14	2	3	1	80	0	100
Turkey	1992	0	36	5	35	24	0	100
Bangladesh	1989	22	46	4	4	24	0	100
Egypt	--	--	--	--	--	--	--	--
Morocco	--	--	--	--	--	--	--	--
Iran	--	--	--	--	--	--	--	--
Pakistan	1991-92	16	2	2	3	53	24	100

Source: [28, Table 24].

replacement level of TFR of 2.1 per woman and a rate of growth of 1.2 percent per annum by 2015-2020. But even then the population by 2020 would cross the 200.0 million mark which means almost six times the 1951 figure.

It should be pointed out that even if the low variant of projection and replacement level of fertility are achieved by 2020, and this assumption of replacement level of TFR remaining constant in the subsequent future, the population would continue to increase, because of the built in momentum, for another period of 46 years and would grow to 263.3 million by 2066 i.e. almost eight times the 1951 population of 33.8 million [27]. It is pointed out in this context that realizing the low variant of the projection by achieving the replacement level of fertility by 2015-2020 may seem to be a difficult task but is not impossible to achieve if more efforts are made.

TABLE 4

FACILITIES SPECIFICALLY ALLOCATED FOR FAMILY PLANNING SERVICES
SELECTED ISLAMIC COUNTRIES AND PAKISTAN

Name of Country	Year	Total Facilities	Hospitals	Clinics	Health Centres	Community Posts	Mobile Teams	Research Training	Other	MWRA Per Service Points
Indonesia	1990	77367	522	10088	3918	62000	828	11	0	427
Tunisia	1992	1133	130	47	886	--	69	1	--	962
Malaysia	1990	3186	--	--	--	--	--	--	--	769
Turkey	1991	3530	181	178	3108	--	--	--	63	2524
Bangladesh	1992	41131	64	540	4500	36000	--	27	--	513
Egypt	1991	3607	--	--	--	--	--	--	--	2184
Morocco	1989	2333	91	96	2100	--	45	1	--	1438
Iran	1990	12777	--	--	--	--	--	--	--	671
Pakistan	1993	7027	--	1290	4032	1560	130	15	--	2610

Source: [28, Table 29].

MWRA : Married Women of Reproductive Age

Another issue noted from Table 5 is the percentage distribution of the expenditure on various aspects of family planning. In Pakistan while the expenditure on administration is the highest (53 percent) after Malaysia, the expenditure on information and education, research and evaluation and personnel training has been the lowest. In the category of 'Other' Pakistan spends 24 percent of the total expenditure, which is the highest among the countries being compared, Indonesia spends 4 percent and other countries have no expenditure in 'Other' category. There may be a difference in the criteria used in the classification of expenditure on family planning of each country, but in view of the magnitude of the difference in the distribution, the pattern of expenditure in Pakistan may be reviewed.

In view of these issues and demographic prospects, there is a need for more serious thinking and planning, not only about the growth of population and the PWP, but also about the closely related problems such as utilization of resources, food production, industrialization, urbanization, employment, poverty, environment, unrest, ethnic conflicts and host of other related problems and development issues.

For achieving completion of the demographic transition (as recommended by the 1994 ICPD), achieving the replacement level of fertility and stable population, Pakistan has a long way to go. It would, therefore, be judicious to review the family planning programmes in the context of anticipated demographic developments. At present three types of programmes are in operation in the country i.e. the programme of Ministry of Population Welfare, the Programme of Ministry of Health and the Programmes of non-governmental organizations (NGOs).

The need of the hour is that all these programmes should be closely supervised and monitored by teams of predominantly female supervisors to be specifically appointed and trained to undertake participative supervision. Second, each component of each programme should be evaluated periodically and promptly. Third, National Institute of Population Studies (NIPS) should be strengthened to undertake independent evaluation of these programmes. Fourth, the Ministry of education may also consider to make arrangements for the supervision, monitoring and evaluation of the quantitative and qualitative aspects of literacy and education programmes.

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**AGE AND SOCIAL STATUS AT MARRIAGE:
A COMPARATIVE STUDY OF KARACHI, 1961-64, 1980 AND 1985**

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In 1965 samples of marriage registrations for the period 1961-64 were gathered in three different socioeconomic areas in Karachi, upper, middle and lower income. That study showed Muslim families higher age at marriage than specified by minimum marriage age law, 16 years for female and 18 for male. It also demonstrated that the higher the socioeconomic status of women (and men) the higher the age at first marriage. A replication of this study was done in 1981, using 1980 data in an effort to determine what changes, if any, had occurred in the intervening period. There was increase in age at marriage among women in all three socioeconomic areas, but smaller increase among men. Other variables, such as the amount of mehr committed in marriage contracts, were also examined.

A follow-up study in the same three socioeconomic areas for the year 1985 showed a continued increase in the age at marriage for women in all three subsamples, a slight increase in age at first marriage for men in subsamples A and B, but no significant change for men in subsample C. On the other hand, there has been a change in the attitude of families in the arrangements and commitments made for mehr, in the marriage contract.

INTRODUCTION

With the mounting concern about the rapidly expanding populations of many developing nations of the world, studies of age at marriage have become increasingly important to researchers and national planners. It has been amply demonstrated that there is an inverse relationship between age at marriage and the total fertility rate of a nation (the total number of children born to a woman by age 50) [1]. The singulate mean age at marriage in 1954 was as low as 16.9 years and it increased to 18.2 years in 1961, the level of fertility remained high. Since early marriage offers greater exposure to pregnancy than delayed marriage, a nation's fertility level has considerable significance. This study, besides introduction, consists of six sections namely cultural factors affecting nuptiality, levels and trends of age at

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first marriage, methodology used in collecting data from Nikha-namas (marriage contracts) in three localities of Karachi, data analysis based on Nikha-namas, Mehr or Dower and its analysis from the collected data and conclusions. Demographic situation being a component of the introduction is portrayed first in the following paragraphs.

Since nuptiality is, among others, one of the major determinants of fertility and hence of population growth, it would be appropriate to describe briefly the population growth situation in Pakistan. Pakistan's population at the time of Independence in August 1947 was around 32.5 million [2] which, according to the population censuses, increased to 33.74 million in 1951, 42.88 million in 1961, 65.31 million in 1972 and 84.25 million in 1981 [2].

The growth potential of the population could be seen from the fact that during the period 1947-51 the annual growth rate of Pakistan's population was only 1.8 percent. This growth rate increased to 2.4 percent by 1961, to 3.6 percent by 1972 and to 3.1 percent by 1981. The population almost doubled from 1961 to 1981 [2]. Although there is a dearth of data on migration but there is some scattered evidence that there was element of net immigration from the neighbouring countries which kept the rate of growth on the high side.

On the other hand the population of Karachi, the largest major city, grew from 1951 to 1961 at an annual growth rate of 5.6 percent and its population increased from 1.1 million in 1951 to 1.9 million in 1961. The subsequent censuses showed that its population grew to 3.5 million by 1972 and 5.2 million by 1981 [2,P.17]. The population of Karachi continued to grow at a high rate and the current rate of 4.76 percent per annum includes the impact of net immigration. The sex ratio in Karachi which was 132 in 1961 dropped to 124 in 1972 and to 119 in 1981[3]. This is due to families joining male members who migrated first and improvement of health of females.

Since one of the age-old responsibilities of parents is to arrange marriages of their children in their own lifetime, it would behoove parents to arrange the marriages of their children at the earliest possible time even though the wedding and consummation of the marriage in some cases might not take place for some time after the marriage arrangements are religiously solemnized. Now that life

expectancy at birth has reached around 60 years [4,P.36] and increasing trend of female education in Karachi, perhaps there is a lower perceived need for parents to arrange the marriage of a daughter who is still in her early teens, and this offers another reason for the increase in the age at marriage, which will be demonstrated later.

As in most Asian countries, the urbanization of Pakistan's population has proceeded at a rapid pace since independence. This is due to the urban-ward tendency of migrants. The urban population of Pakistan in 1951 was only about six million i.e. 17.8 percent of the total population. This has increased more than four fold to around 23.8 million in 1981 being 28.3 percent of the total population of the country. Although the urban population growth rate appears to be somewhat declining during the last three decades yet this may be an artifact of the changing urban definition in the censuses and the increasing base population [2,P.13].

CULTURAL FACTORS

Marriage in a Muslim society is considered to be the joining of two families and a possible extension of the biraderi, or extended kin group. Although the consent of the principals is required by religious law, their wishes may not necessarily be considered strictly. In spite of the fact that each principal has the right of veto power, it may in fact seldom be exercised, because to do so would mean challenging the prerogatives and authority of one's parents.

It is well known that most agricultural societies have traditionally valued male over female children, because the former are considered to be more productive and are also more valued as future heirs of the agricultural enterprise. Not only is Pakistani society highly patriarchal, but patrilineal and patrilocal. Furthermore, passing land ownership to a woman although admissible under, religious law may not take place.

According to Shariat (Islamic) law, a daughter inherits a one-half share of her parents' estate, while a son inherits a full share. It is also felt that the dowry that accompanies a daughter in an arranged marriage represents, in many respects, her share of the family inheritance. For this reason, it is not unusual for a daughter to be denied her inheritance by her brothers. It is assumed that a single woman will be cared for by her brothers if her father is deceased, or by her husband if she is

married. Perhaps the major reason for this arrangement is that a woman's welfare is considered to be the responsibility of the nearest male relative. A girl continues to live in her father's house or brother's house until her marriage, or, in the event of her own failed marriage, separation, divorce, or even widowhood, she would very likely return to her father's or brother's house or even an uncle's house. A widow with grown up children would likely to live with her sons.

In urban areas, some girls, because of the limited number of employment opportunities available to women, particularly in purdah observing families². There may be a desire to marry them off at the earliest possible age.

According to Islamic law and custom all Muslims are expected, if not required, to marry. [5,IV,4]. According to the 1981 Census, in the age cohort 20-24, 73.5 percent of all women were married, and for the survivors in the age cohort 50-54, 97.8 percent were married at least once [6].

Another cultural factor which contributes to the desire for an early marriage for women is the concept of Izzat, or family honour. Since most marriages are arranged by the families of the principals, the burden of maintaining the family's honour rests with the women. The men of the family might be considered the protectors, if not the "enforcers" of the normative behavior of married as well as unmarried women.

Cousin marriage is the preferred form of family formation among Muslims, although the practice appears to be declining. Karachi, as the major commercial and industrial centre of the nation, attracted large number of Muslim immigrants from India following the independence in 1947 (and this trend has continued more or less). It may be that the migration of millions of Muslims from their homes in India disturbed and helped break up the kin ties of families in long established communities in India. The need to find suitable mates from families of non-relatives may well have delayed marriages for both men and women as a result of immigration.

AGE AT FIRST MARRIAGE

In 1959, the Muslim Family Laws Ordinance was passed, which became effective on July 1, 1961 [7]. This Ordinance called for the registration of all

marriages, and since a Nikahnama³, or marriage contract, is required for all Muslim marriages, these are usually registered in the local office where the bride resides, although occasionally it is registered with the bridegroom's local office. Before the 1961 Ordinance was passed, there was no centralized system for the registration of marriages, nor was registration required. Among other requirements, the new Ordinance sets the minimum age at marriage at 16 years for females and 18 years for males.

The analysis of 1961 census showed for West Pakistan that in the female age group 10-14, the proportion of married girls was as much as 10.4 percent. This proportion rose to 52.8 percent in the age group 15-19. In the age group 20-24, as many as 86.2 percent of the females were married. The high proportions of married males and females in the 1961 census was due to general under statement of ages [8,PP.26-84]. This is further authenticated by Sadiq [9] who found the mean age at marriage in West Pakistan in 1961 to be 23.5 for males and 17.6 for females, while the Population Growth Estimation Experiment of 1964 [9] showed 24.7 years for males and 19.1 for females. Afzal [10] showed the average age at marriage in Karachi was 24.6 years for males and 18.7 for females in 1962, and 25.4 years for males and 19.0 years for females in 1965. Also, among minorities, "Christians and Parsees", in Karachi, age at marriage was 26.7 for males and 22.8 for females, respectively. Using data from 94 Union Councils in Karachi in 1965, Sadiq [9] found the mean age at marriage to be 25.7 years for males and 19.2 years for females.

Sadiq's 1965 study also found that there had been a steady increase in age at marriage in Karachi for both males and females from 1931 through the 1961 censuses.

	<u>Male</u>	<u>Female</u>
1931	21.6	15.5
1951	24.8	16.9
1961	25.5	18.2

On the other hand, Karim [11], by computing the Singulate Mean Age at Marriage of women (SMAM) for all Pakistan from 1921 through 1972 offers the following:

<u>Year</u>	<u>SMAM</u> <u>Women</u>
1921	15.8
1931	15.7
1941	16.4
1951	17.9
1961	17.6
1968	19.6
1972	20.0

According to the National Impact Survey taken in 1968-69, the mean age at first marriage for females was 16.0, while the urban-rural rates were 16.2 and 15.9 years respectively. It has been demonstrated that the later the age at marriage the fewer will be the live births to women aged 40-49 as shown by Karim [1] in his study of urban communities in Pakistan, 1968-69.

**AGE AT MARRIAGE AND MEAN NUMBER OF
TOTAL LIVE BIRTHS TO WOMEN 40-49**

All ages at marriage	7.1
16 or less	7.4
17-18	6.5
19 or more	5.9

In 1980 it was estimated that the mean age at first marriage by current age for all ever married women and having a current age of 15 years or more was 16.2 for the 45-49 age cohort, and 17.0 for the age cohort 15-19. This showed a fairly steady increase in age at first marriage from the oldest to the youngest cohort [12].

Based on the Pakistan Fertility Survey (PFS) of 1974-75, Booth and Alam [13] found urban and rural age at marriage for women to be 20.1 and 18.7 years respectively. Concerning the quality of the data, there may be a tendency on the part of PFS respondents to under report their ages [13]. The same comment can be made about other sources of data quoted in this paper. Sadiq [9] states that age at marriage for both sexes is higher in cities and differences between cities are due to education.

METHODOLOGY

In the earlier study [3], three different socioeconomic areas in the city of Karachi were chosen: an upper income, a middle income and a low income. These areas were defined by the size of the house-plots, and other criteria which characterized high, medium and low rent districts. These were the Pakistan Cooperative Housing Society (PECHS), Pir Ilahi Bux, or P.I.B. Colony, Lalukhet and more recently renamed Liaqatabad, respectively. In that study a total sample of the marriage registrations for the three and a half year period beginning July 1, 1961 through 1964 was taken from the Union Council offices of those areas where marriage contracts are registered. These totaled 1, 333 (Table 1) with an average of about 31.5 marriages per month.

In an effort to determine the degree of change in age at marriage since 1961-64 in Karachi in the same sample areas, a total sample was taken for the year 1980 which totaled 810, (Table 1) for an average of 67.5 marriages per month. The total for the 1985 sample was 1, 713 (Table 1) for an average of 142 per month, a reflection of the large population increase in this area. The considerable increase in the average monthly rate of marriages can probably be explained by the increase in the city's population from 1.9 million as reported in the 1961 census [8], compared to 5.2 million as reported in the 1981 census [6], and an estimated 7 million in 1987. Upper, middle and lower class samples are labeled A, B and C, respectively, and are the source of all the tables which follow. Of all registrants recorded in the 1985 samples, 94 percent were new (married) registrants whereas the remaining were divorced and widowed [Table 2].

DATA ANALYSIS

Since there was a tradition of early marriage for women in the past, it was felt that not all parents would abide by the newly instituted law and would, indeed

seek to evade it by representing their underage daughters as 16 years of age in order to legally marry them⁴. If that were the case, then "heaping" would have resulted in the 16 year category, with a resulting decline in the 17 year old cohort. But this was not found to be the case. In the 1961-64 study no case was found where 15 or under was listed as the girl's age at marriage, although one was found in the 1980 sample, and one in the 1985 sample⁵.

TABLE 1
NUMBER OF MARRIAGE CONTRACTS BY SAMPLES:
KARACHI 1961-64, 1980 AND 1985

Subsample	1961-64	1980	1985
Total	1,333	810	1,713
A (Upper)	478	246	176
B (Middle)	366	201	300
C (Lower)	489	363	1,237

TABLE 2
MARITAL STATUS DISTRIBUTION OF WOMEN REGISTRANTS
BY SUBSAMPLE: KARACHI 1985

Status At Registration	Total Number	%	Upper Number	A %	Middle Number	B %	Lower Number	C %
Newly Married	1609	93.9	168	95.5	282	94.0	1159	93.7
Divorced	58	3.4	7	3.9	10	3.4	41	3.4
Widowed	46	2.7	1	0.6	8	2.6	37	2.7
Total	1713	100.0	176	100.0	300	100.0	1237	100.0

TABLE 3
PERCENTAGE OF FEMALES MARRIED AT AGE 16 AND 17 YEARS
IN EACH SUBSAMPLE: KARACHI 1961-64,
1980 AND 1985

Subsample/Age at Marriage	1961-64	1980	1985
Sample A			
16	4.2	2.4	2.2
17	10.2	2.8	2.2
Sample B			
16	13.7	6.5	1.6
17	13.7	11.4	6.6
Sample C			
16	20.9	8.3	4.2
17	22.1	9.4	7.8

TABLE 4
PERCENTAGE OF FEMALES MARRIED IN AGE COHORT 15-19
IN EACH SUBSAMPLE: KARACHI 1961-64,
1980 AND 1985

Subsample	1961-64	1980	1985
A (Upper)	33.6 (478)	19.0 (246)	16.9 (176)
B (Middle)	57.7 (366)	52.2 (201)	46.8 (300)
C (Lower)	77.0 (489)	61.2 (363)	56.4 (1237)
Total	57.0 (1333)	46.1 (810)	50.7 (1713)

Table 3 shows a dramatic decline in the female age at marriage in the 16 and 17 year cohorts in all three subsamples, while Table 4 reveals a sharp decline in the percentage of married females in the 15-19 cohort in the age at marriage in subsample A and C, but a smaller decline in subsample B which is a middle class subsample.

TABLE 5
PERCENTAGE OF FEMALES MARRIED IN EACH SUBSAMPLE
BY AGE 21: KARACHI 1961-64, 1980 AND 1985

Subsample	1961-64	1980	1985
A (Upper)	57.7	43.0	38.0
B (Middle)	75.0	72.4	64.2
C (Lower)	86.0	78.7	76.0
Total	73.6	66.1	70.0

From Table 5 it is seen that there were significant declines in the percentage of females who had married by age 21. The most significant declines are seen in subsamples A and C - especially the former. Although the total percentage does not reflect the same decline *per se*. This is because of the very large increase in the number of refugee registrants in the C subsample.

From table 6 it is noted that, according to 1981 population census, in the 20-24 age cohort 73.5 percent of the females had married at least once, while their older sisters in the 25-29 cohort, 91.3 percent had married at least once. It is of interest to note the extremely low divorce rates in all age cohorts, in a society where divorce is relatively easy to obtain.

TABLE 6

PERCENTAGE DISTRIBUTION OF POPULATION 15 YEARS AND OVER BY AGE, SEX AND MARITAL STATUS: PAKISTAN, 1981 CENSUS

Age group (in years)	Sex	Never Married	Married	Widowed	Divorced
Pakistan (all ages)	Both Sexes	25.1	68.8	5.8	0.3
All ages (15 & Over)	M	31.4	65.1	3.0	0.5
	F	17.8	72.8	9.0	0.4
15-19	M	92.5	7.3	0.1	--
	F	70.6	29.0	0.2	0.1
20-24	M	64.6	34.7	0.5	0.2
	F	26.5	72.4	0.7	0.4
25-29	M	31.2	67.8	0.8	0.2
	F	8.7	89.6	1.2	0.5
30-34	M	13.8	84.5	1.4	0.3
	F	3.9	93.4	2.2	0.5
35-39	M	6.2	91.6	2.0	0.2
	F	1.7	94.7	3.2	0.4
40-44	M	4.5	92.6	2.7	0.2
	F	1.6	92.1	5.9	0.4
45-49	M	2.5	94.0	3.3	0.2
	F	1.0	89.9	8.7	0.4
50-54	M	3.0	92.0	4.8	0.2
	F	2.2	80.0	17.4	0.4
55-59	M	1.7	92.5	5.6	0.2
	F	1.0	80.6	18.2	0.2
60 & Over	M	2.6	85.5	11.7	0.2
	F	2.6	49.6	47.5	0.3

Source: [6]

Age differentials between the sexes at age of marriage probably have considerable socioeconomic implications in all societies, but as a single group, cities in developing countries have much higher differentials between the sexes [15] than do western societies, which usually show an approximate differential of two years between the sexes⁶.

TABLE 7

MEAN AGE AND MEAN AGE DIFFERENTIALS BETWEEN MALE AND FEMALE
MARRIAGE REGISTRANTS BY SUBSAMPLE: KARACHI, 1961-64,
1980 AND 1985

Sex	Total			Sample A			Sample B			Sample C		
	1961-64	1980	1985	1961-64	1980	1985	1961-64	1980	1985	1961-64	1980	1985
Male	26.8	27.0	26.0	27.9	28.6	29.6	27.2	26.9	26.6	25.3	26.0	25.5
Female	20.2	20.8	20.7	21.7	22.8	23.3	19.9	20.5	20.5	18.8	19.7	20.2
Differential	6.6	6.2	5.3	6.2	5.8	6.3	7.3	6.4	6.1	7.4	6.3	5.3

From Table 7 it is noted that the total sample showed a slight increase in age at marriage for males from 26.8 to 27.0 for the 1961-64 and 1980 samples, but a decline in the 1985 total sample to 26.0. For the total female sample there was an increase from 20.2 in the 1961-64 sample to 20.8 in 1980 and 20.7 in the 1985 sample.

Sample A showed a decline from 6.2 to 5.8 years, but a rise to 6.3 in age differential between the sexes. On the other hand, sample B showed a steady decline from 7.3 to 6.4 and to 6.1 in 1961-64, 1980 and 1985, respectively, and sample C also showed a steady decline from 7.4 to 6.3 to 5.3 for the years 1961-64, 1980 and 1985, respectively.

Karim [11] suggests that "The economic perspective leads to the prediction that high-educated males will marry earlier than low-educated males, with the opposite prediction for females." Their results appear to confirm the prediction for females, but the data available did not permit them to "examine education's effect on male marriage timing" [11]. From this study, if one can consider socioeconomic status as synonymous with higher educational achievement, then it would appear that the males living in the highest socioeconomic area show the latest mean age at marriage, with the middle and lower classes following in that order. In fact, the mean age for males in sample A has actually risen from 27.9 to 28.9 to 29.6 for the years 1961-64, 1980, and 1985 respectively. For the middle income sample B there

has been a slight decline over the same period, while in sample C the low income area, there has been no significant change. It should be pointed out that an increasing number of middle and upper class women are continuing their education in the universities and professional schools⁷.

Some of the reasons for the "delay" in marriage for males in Pakistani society are undoubtedly founded in economic necessity as perceived by the families of the young men. It must be remembered that a marriage contract is a religious requirement, and that the commitment of mehr (dower), which serves as a bridal gift may take time to accumulate, but it is likely that career development may also be the pertinent reason. Mehr is an integral part of the nikahnama (marriage contract), and can be paid in a variety of ways, as will be discussed below. Another thought that has been contributed to the discussion of this topic in the past concerns the sex ratio in Pakistan.

As indicated earlier in this paper, the sex ratio for the nation as a whole dropped from 114.9 in 1972 to 110.4 for males for every 100 females in the 1981 census, while in Karachi, the ratio dropped to 119 in the 1981 census from 132 in 1961, and 124 in the 1972 census. Various reasons are usually offered for these relatively high figures, including underreporting of females. However, there is no hard evidence to support this commonly held assumption.

To the knowledge of these writers, the reasons for the relatively high differentials in age at marriage of the sexes have not been fully explored. However, this tradition is almost universal in most societies of the world. This is generally due to the need for the male to use the additional years to complete his education and /or to establish himself in whatever vocational choice he has made. It is interesting to note, however, that in the age differentials in the 3 samples examined in this study, the mean age at marriage for women in all the subsamples has increased, while among the men, with the exception of the middle class subsample, the mean age at marriage is also increasing, although not at the same rate. It is the rising age at marriage for women, that is more important in terms of fertility studies while there appears to be little evidence in the literature or need to support further exploration of the issue of the age differential between the sexes in this paper.

In terms of the relative ages between the sexes at the time of marriage, there appears to have been very little change of any significance in the intervening period among the 3 samples. As can be seen from Table 8 the preference for males older than females at the time of marriage continues. Perhaps one of the contributing factors to the large differential in age at marriage between the sexes is the need for the male to accumulate sufficient resources to pay for the dowry required in all Muslim marriages, or at least to have established himself in his chosen vocation so that the bride's family can feel assured that their daughter will be cared for in terms of their own socioeconomic status.

While there is a great disparity in the sex ratio in a society, the choices are limited in terms of family formation. Historically, Mormons justified polygamy on the basis of a temporary shortage of males of marriageable age, although the practice continued after the sexes achieved a relative degree of balance. In Muslim societies, and especially in Pakistan, as was noted above, the relative shortage of females continues to tip the balance in favor of women since they are in relative short supply during the years when the bulk of marriages occur. Perhaps this is a contributing factor to the delay in marriage for males. But more important is the need for the male to achieve his place in the occupational order so that his career prospects are undoubtedly better in his middle 20's than they would be a few years earlier.

TABLE 8

PERCENT RELATIVE AGES OF MALE AND FEMALE MARRIAGE REGISTRANTS
FOR EACH SUBSAMPLE: KARACHI 1961-64, 1980 AND 1985

Relative	Total			Sample A			Sample B			Sample C		
	1961-64	1980	1985	1961-64	1980	1985	1961-64	1980	1985	1961-64	1980	1985
Ages												
Male Older	97.0	97.1	97.1	93.5	94.7	95.4	99.1	97.5	94.6	98.7	98.4	97.9
Same age	1.5	1.2	1.5	2.9	2.4	2.3	0.6	1.0	3.4	0.8	0.5	1.0
Female Older	1.5	1.7	1.4	3.6	2.9	2.3	0.3	1.5	2.0	0.5	1.1	1.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Certainly the bride's family is concerned for the welfare of their daughter, and this must rank as the major reason for the delay in marriage for males and the most important contributing factor in the differentials in age at marriage between the sexes.

MEHR AND DOWER

Every Muslim marriage is legitimized with the aid of a nikahnama, or marriage contract between the principals. On occasion, the services of a matchmaker may be used, but this is infrequently found. Marriage in Islam is sacrosanct and a contract between the two individuals which also strengthens relations between the two families. Mehr is an integral part of the nikahnama, and is the sum of money the bridegroom has agreed to pay the bride by one of the options described below. It is a bridal gift.

The payment of mehr can take one of several forms, depending on what the parties have agreed to and is entered in the nikahnama. The smallest amount permitted under the Islamic tradition is 32 rupees. This amount used to be substantial but due to devaluation of rupee, its purchasing power has drastically been reduced and at present it is equivalent to about \$1.08 in terms of contemporary exchange rate. This sum is used not only by bridegrooms of some low income families, but also by those of well-to-do families as symbolic of their dedication to the Islamic tradition. In general, the current practice is to commit larger sums depending on the status of the bridegrooms.

The various options for the payment of mehr by the husband to his wife may be any of the following:

1. Prompt: The entire sum must be paid at the time of the marriage ceremony. However, according to Mahmood [7], prompt mehr is payable on demand any time after the contract of the marriage is signed.
2. Deferred: The sum agreed to will be paid by the husband to his wife in case of separation or divorce.
3. Part Prompt, Part Deferred: Part of the sum must be paid at the time of marriage, and part of it is deferred.
4. On Demand: The wife can impose a demand on her husband for the total sum at any time.

This arrangement, with its implied threat, is not widely used and is probably designed to assure the bride of some element of hidden power on a continuing basis[16].

When mehr is paid at the time of marriage, it becomes the bride's personal property and might be considered her insurance against the day when she might be

confronted with a separation or divorce, or even widowhood, although in the latter case she would also share in her husband's estate. The wife is free to return her mehr to her husband at any time should she feel so inclined.

Deferred mehr must be paid in case of separation or divorce. Should the wife predecease her husband, then it becomes a part of her estate to be inherited by her children. Should the husband predecease the wife, the widow has first claim on his estate for any unpaid part of the mehr. Part Prompt and Part Deferred is self explanatory, but on demand mehr can be demanded by the wife at any time. After a marriage has been consummated the amount of mehr can be reduced by the wife and even cancelled if she so chooses⁸. However, in the last case should the wife seek a divorce and it is found that she has agreed to forego her mehr, the court will inquire whether any undue pressure has been brought to bear upon her. Congenial marriages, of course, present no problem, but it must be remembered that the labour force participation rate for women in Pakistan is very low, which means that the degree of economic independence found among women in the West does not apply in Pakistan⁹.

Mention should also be made of Jahez, or dowry, which, in the usual sense constitutes gifts to the bride from her family. These are usually in the form of clothes and jewelry, depending on the economic status of the family, but may also include property¹⁰. It is also fairly common to find that the bride's family will contribute a complete outfit of clothing to the bridegroom. For some years the government has been trying to set a limit for expenditures by families on gifts, dowry and the cost of wedding, since the well-to-do could afford to make large expenditures, while some middle income families might find it difficult to do so. Low income families might find it a real burden to marry off their daughters and frequently feel forced to borrow money at excessive rates of interest to meet their perceived obligations.

In an effort to reduce this "evil" of excessive expenditure on weddings, the government in 1967 passed the Act which was later repealed and supplemented by the Dowry and Bridal Gifts (Restriction) Act of 1976 [17]. The first act prohibited the display of dowry at weddings and also declared that the dowry was the exclusive property of the bride, while the 1976 Act placed limits of Rs. 5,000/(\$ 300) on the value of the dowry, and a similar limit on gifts to the bridegroom, since families

usually exchange gifts. Since the festivities accompanying a wedding may go on for three days, a limit of Rs. 2,500/ was placed on actual wedding expenditures by each of the families of the principals [17]. These limits are considered unrealistically low by middle and upper class families, since many people do not seem to strictly adhere to the limits set by the law¹¹.

In discussing the sums committed for mehr by the bridegroom, it should be kept in mind that although the rupee was worth \$0.20 in 1961-64, it was devalued in 1972 to \$0.10. More recently, it was devalued again to \$0.06, so that the sums committed for mehr have taken on different values in the 1980 sample, as well as the 1985 sample, undoubtedly because of inflation, when compared to the 1961-64 sample¹².

From Table 9 we see that over the years, from 1961-64 to 1985, the amount of mehr committed in subsample A has more than doubled; the amount in subsample B has increased by about 50 percent, while the amount in subsample C has tripled. Undoubtedly, persistent inflation has been a contributing factor.

When we examine the conditions of mehr that the principals have agreed to, regrettably, the data for 1985 are not available, but if we refer to the earlier study, we find a most significant shift in the "prompt" category (Table 10). There is an important increase in the 1980 total sample over that of 1961-64 from 10.7 to 28.4 percent, and very important increases in all three socioeconomic classes from 16.3 to 37.1; 6.6 to 25.4 and 8.4 to 24.1 percent, respectively, while in the "Deferred" category there appears to have been a downward shift in the total samples from 53.8 to 28.8 percent, which helps compensate for upward shift in the "Prompt" category. The three subsamples in the deferred category showed reductions of 43.7 to 32.5; 65.3 to 31.9; and 55.0 to 24.7 percent in the upper, middle and lower classes, respectively. The "Part Prompt/Part Deferred" option showed an increase in the total samples from 24.8 to 36.4 percent, with important increases in the middle and lower class subsamples of 16.1 to 40.3 percent and 26.8 to 40.5 percent respectively, but none in the upper class subsample. The "On Demand" category showed small reductions in the total sample, as well as in the upper and middle classes, but not in the lower class.

TABLE 9

MEAN AMOUNT OF MEHR IN RUPEES COMMITTED IN EACH SAMPLE: KARACHI 1961-64, 1980 AND 1985

Sample	1961-64	1980	1985
Total	9,137	13,683	12,711
Sample A	11,137	23,207	28,089
Sample B	8,158	11,463	12,722
Sample C	3,324	8,505	10,520

TABLE 10

CONDITIONS OF MEHR PAYMENT IN EACH SUBSAMPLE: KARACHI, 1961-64 AND 1980

Mehr Payment	Total		Sample A		Sample B		Sample C	
	1961-64	1980	1961-64	1980	1961-64	1980	1961-64	1980
	%	%	%	%	%	%	%	%
Prompt	10.7	28.4	16.3	37.1	6.6	25.4	8.4	24.1
Deferred	53.8	28.8	43.7	32.5	65.3	31.9	55.0	24.7
Part prompt, part deferred	24.8	36.4	29.5	27.1	16.1	40.3	26.8	40.5
On demand	10.7	6.2	10.5	2.8	12.0	2.4	9.8	10.7
Details missing	0.0	0.1	0.0	0.4	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

One can only speculate on the causes of the very significant shifts in attitudes toward the commitment of mehr on the part of the families that are represented in this study and its importance in arranging marriages for their daughters, since it is the daughter's welfare that is involved in negotiating the amount of mehr.

In addition to the information on the amounts of mehr and the conditions of payment of mehr found in every nikahnama, other conditions may be entered in the contract by either of the principals, or their families. Although not frequently found, in the 1980 sample 16 of the 810 marriage contracts showed a variety of conditions

that had been set down. Among them were eight instances where the bride would have the "unconditional right of divorce," which meant that the wife would keep whatever mehr had been agreed to. Another condition set down was that the "husband would not take a second wife," or, "husband will be responsible for the three young brothers and sister of the wife until their adulthood." Or, (should there be a separation or divorce) "the house will belong to the wife".

Although the 16 cases represent only two percent of the total, all of them show concern on the part of the parents for the future welfare of the bride. In addition, there were 28 cases where special conditions specified that in case of a separation the husband was committed to pay anywhere from Rs 100/ to Rs.1,000/ per month to his wife. This would be in addition to the amount of mehr written into the nikahnama. For these and other reasons cousin marriage, which has always been an important aspect of family formation among Muslim societies, continues to be a preferred arrangement. Such marriages seem to offer greater assurance that the girl will be well treated. The psychic support offered by both families, should not be under-estimated in its importance in building and maintaining family cohesion¹³.

CONCLUSION

Pakistan did experience in the past moderately early marriage of females. The 1951 census data showed that mean age at marriage was 23.4 years for males and 16.9 years for females which increased to 25.3 years for males and 20.7 years for females by 1984-1985 [2,P.96]. All these values are higher than the legal minimum age at marriage of 18 years for males and 16 years for females. In Karachi also the same pattern of delaying marriage, has been observed. The data from the 1961-64 study show no females under age 16 whose marriage was registered in the three sample areas in Karachi, the 1980 sample shows only one such case, and the 1985 sample shows none. An effort has been made in this study to determine whether, and to what degree, there has been a change in the age at marriage for both females and males in the intervening period mentioned above in Karachi. Also, whether other cultural factors such as the amount of mehr pledged in the marriage contract has indicated any change, or might be a contributing factor in such a change.

From the information gleaned from the nikahnamas of the three socioeconomic areas described above in Karachi in both 1980 and 1985, it is evident that there has been an appreciable rise in the age at marriage among the female

registrants, during that period. Over the three time periods, 1961-64, 1980 and 1985, there has been a significant rise in the age at marriage for females in subsample A (upper class area) from 21.7, to 22.8 to 23.3, respectively; from 19.9 to 20.5 for both 1980 and 1985 and an increase from 18.8 to 19.7 to 20.2 respectively in subsample C (lower class area).

NOTES

1. The unusually high sex ratio is a reflection of the many male migrants from rural areas and abroad who sought and found employment in the last three decades in Karachi, the major commercial and industrial city of the nation. After settling in the city, many brought their families and have become permanent residents. This has helped reduce the high sex ratio. Another factor which has contributed to the decline in the high sex ratio from previous years in the country as a whole is the "overseas workers," those who have taken employment abroad.

2. *Purdah*, refers to a social practice found in traditional Muslim families which call for the segregation of the sexes whenever possible in public situations, and in private with the exemption of close relatives. Its most overt manifestation on the part of the women is the wearing of the burqa or veil, in public. This practice is however, on the decrease.

3. The nikahnama is a written marriage contract signed by the principals and the witnesses to the ceremony, which is required in Muslim marriages. It includes such information as the names, addresses, ages of the principals, the amount of mehr pledged by the bridegroom, and any additional conditions that the principals agree to. One copy of the nikahnama goes to each of the principals, and two go to the local Union Council for registration purposes.

4. Since reliability of data is always of concern, especially where illiteracy among the female (and male) population is high, it should be noted that the 1980 data gathered in Karachi can be assumed to be quite reliable. For example, each nikahnama must be signed by the principals, and where a thumb-mark is submitted

for a signature, it can be safely assumed that the principal is illiterate. In the 810 nikahnamas that make up the 1980 data, it was found that 38 females, (or almost 5 percent) and 24 males, or about 3 percent, used thumb-marks in place of signatures, signifying that they approved of the contents of the nikahnama they were "signing".

5. Although marriage for a girl under 16 is considered illegal, as long as no action is taken against the family, the marriage stands as valid. Also, the district boundaries of the 1961-64 samples remain unchanged in the 1980 sample.

6. In Hausa community in Nigeria, for example, which is largely Muslim, the age differential at marriage is six years. [15]

7. For example, in 1979-80, 18.2 percent of the enrollment in the professional schools and 26.8 percent of the enrollment in the universities (graduate programs) in Pakistan were women (Nasra Shah, Pakistani Women, A Socio-economic and Demographic Profile, Honolulu, East-West Population Institute, 1983, see also, Sabeeha Hafeez, Metropolitan Women in Pakistan, Karachi, Royal Book Co., 1981, Introduction).

8. "And give the women (on marriage) their mehr as a free gift but if they, of their own good pleasure remit any part of it to you, take it and enjoy it with right good cheer" [5, Sura iv,u,p.179].

9. Labour force participation rates for women in Pakistan vary widely, depending on the definition used. The Pakistan Fertility Survey of 1974-75 [18] showed 9.7 percent of Pakistani women participating in the labour force. From the same survey we find that 5.2 percent of all women worked before marriage, while in urban areas 22.5 percent of currently married women ever worked.

10. For example, Rauf's study [19] in a Punjabi village points out the difficulty women face in the matter of inheritance - especially of land. Fifty-two percent of the male respondents stated that their sisters received no part of their inheritance, 31 percent claimed they had, while 17 percent responded their parents were still alive, or that there was little to share. The same respondents stated that 43 percent of their wives did not receive their patrimony, 21 percent claimed they did, while 36 percent stated their parents were still alive or that there was little to share.

11. Parents of both the bride and bridegroom must submit a list to the Registrar of all gifts given and received as part of the dowry or other presents to both principals. The parents must also submit a list of expenditures incurred for the wedding within a week of the marriage. These must also be furnished to the Registrar [17].
12. Although the rate of inflation on a year-to-year basis has varied between 1964 and 1980, a conservative figure of a 15 percent annual increase is considered reasonable. (Personal communication from Dr. M. Mahmood Awan).
13. For an extended discussion of cousin marriage in Pakistan, see Korson [20].

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KUWAIT MORTALITY EXPERIENCE VIS-A-VIS WEST AND SOUTH MODEL LIFE TABLES

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This study investigates the development related to mortality level in Kuwait by decomposing the improvement in life expectancy across various age groups and compares Kuwait mortality experience with relevant model life tables. Vital records cover mortality experience in Kuwait for the years 1965 and 1985. It is confirmed that changes in age pattern of mortality in Kuwait are similar to those of the west and south model life tables. In particular, reductions in death rates for ages below five years are the most contributor to the increase in the temporary life expectancies over the period 1965 to 1985. The pattern of mortality change among females is more similar to the West tables than the South; while the pattern of change for males is similar to the South tables.

INTRODUCTION AND OBJECTIVE

Mortality situation among the developing countries at the beginning of the 20th century including Kuwait is unknown except that mortality was very high before the 1940s. The decline in mortality among the developing world has occurred very rapidly, especially after the Second World War, and it is documented in the work of many scholars including the United Nations [1,pp.108-151].

In this note attempt is made to analyse life expectancy changes over the period 1965 to 1985 in terms of changes in age-specific mortality rates, and to compare the contribution made by various age-specific mortality rates to life expectancy in Kuwait with other populations as embodied in model life tables [2]. This note presents the magnitude of mortality decline in Kuwait as compared to that of other populations that share the same mortality levels.

METHODOLOGY AND DATA

In this analysis Arriaga's "discrete method" is used. The discrete method explains changes in life expectancy produced by changes in age specific mortality.

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The basic assumption of the method is that improvements in life expectancy is contributed by changes in age-specific mortality levels to the overall improvement in life expectancy. Changes in life expectancy at any given ages or Arriagas' temporary life expectancy between birth and any given age (say age 65) is the sum of contribution made by various changes in age-specific mortality to the total change in temporary life expectancy [3,pp.83-96].

Beside estimating the contribution of a change in mortality at each age group to the total change in life expectancy, the method analyzes and decomposes the difference in any two life expectancies according to the difference in mortality at a particular age group. Any mortality change at any age group will affect the life expectancy level. Changes in age-specific mortality rates have two kind of effects. First, called exclusive effect which is due to changes in mortality at a particular age group. Exclusive effect is of two types: direct and indirect. The direct effect reflects changes in mortality rates in a particular age group which will result in additional number of years of life lived in that age group. Whereas even if mortality did not change in other age groups, life expectancy would change because the number of years lived, reaching the start of the second age group will have changed. This reflects the indirect effect. Second, the interaction effect which results from the interaction between the exclusive effect of each age group and the overall effects (Arriaga, 1984). For each age group, the contribution to the life expectancy difference and/or change is assumed to be equal to the expected number of additional years that would be lived by a new-born owing to the change in age-specific mortality rates.

The equation for measuring the temporary life expectancy is as follows [3,pp.88-90].

$${}_i e_x = (T_x - T_{x+i}) / l_x \quad (1)$$

While the direct effect is estimated by:

$${}_i DE_x = (l_x^t / l_a^t) \times ({}_i e_x^{t+n} - {}_i e_x^t) \quad (2)$$

and the indirect effect is measured as:

$${}_i IE_x = (l_x^t / l_a^t) \times {}_i CS_x \times e_{x+i}^t \quad (3)$$

Where

$${}_iCS_x = l_x^t \times ((1^{t+n}_{x+i} / 1^{t+n}_x) - 1^t_{x+i}) \quad (4)$$

and finally the interaction effect is measured as:

$${}_iI_x = {}_iOE_x - {}_iIE_x \quad (5)$$

Where:

$${}_iOE_x = (1 / 1_a^t) \times {}_iCS_x \times e_x^{t+n} + 1 \quad (6)$$

Data on Kuwait mortality experience for the period is taken from vital statistics published by the Central Statistical Office which provide the basis for the preparation of life tables for Kuwaitis and non-Kuwaitis [4], [5] and [6]. Whereas, the experience of these countries is expressed by model life tables from West and South which have the same life expectancies as Kuwaitis. All life tables are constructed through using "Micro-Computer Version of Computer Programs for Demographic Analysis (MCPA)" developed by the American Bureau of the Census [7].

RESULTS

Changes in temporary life expectancy from birth to age 65 from 1965 to 1985 for Kuwaitis and non-Kuwaitis males and females, and gains in temporary life expectancy taken from the West and South model life tables for corresponding levels of the expectation of life at birth are presented in table 1. Kuwaiti females reported 56.4 life years to be lived between birth and age 65, their average increased to 61.5 years in 1985. This reflects an addition of 5.14 years to their temporary life expectancy over the period 1965-85. Whereas Kuwaiti males averaged 55.9 years to be lived between birth and age 65. Their temporary life expectancy increased to 59.6 in 1985 representing a total gain of 4.82 years over the period 1965-85.

Compared with non-Kuwaitis females whose temporary life expectancy was 59.4 in 1965 and increased to 62.3 in 1985 representing a gain of more years (2.92); while non-Kuwaiti males gained 2.66 years over the same period. Therefore, it is clear that Kuwaitis and non-Kuwaitis females experienced higher improvement in their mortality level compared to males. Furthermore, Kuwaitis experienced a significant improvement in their mortality level expressed by higher gain in temporary life expectancy compared with non-Kuwaitis.

The West model life table temporary life expectancies were higher in 1965 compared with those of Kuwait; however, reported gains in temporary life expectancies between 1965-85 were greater in Kuwait. On the other hand, the south model life table temporary life expectancy in 1965 was lower than that of Kuwaitis, and it was higher compared with non-Kuwaitis; yet gains reported by the south in temporary life expectancies during the period 1965-85 were lower compared with the gains reported by both Kuwaitis and non-Kuwaitis. Therefore, reported improvement in temporary life expectancies among the population of Kuwait is greater than that embodied in either the West and South model tables.

Decomposition of the increase in temporary life expectancy from birth to age 65 for Kuwaiti females and males from 1965 to 1985, according to changes in age-specific mortality rates, is presented in table 2. Nearly 58 percent of the increase in temporary life expectancy 5.1 years -- among Kuwaitis females is attributed by reductions in mortality rates below age 5. Another 30 percent is explained by reductions in mortality rate among the age group 15-44. While, among Kuwaiti males, the share attributed by reductions in death rates below age 5 reached 71 percent which is more than that of females, and 19 percent is contributed by reductions in male mortality rates in age group 15-44.

Decomposition of temporary life expectancy improvement attributed by various age specific mortality rates for West and South model life tables are presented in table 3 and table 4 respectively. Comparison in mortality experience between the Kuwaiti population segments with model life tables reveals the following: Kuwaiti females gain in temporary life expectancy due to improvement in death rates below age 5 is found to be intermediate between those of the West and South tables; while the contribution of the reductions in death rates of the age groups 5-14 and 45 and over are lower in Kuwait than those found in either table. As measured by the index of dissimilarity, the pattern of mortality improvement demonstrated by the West table is closer to Kuwaiti females pattern than the South tables (13.7 percent versus 18.3 percent). On the other hand, for males neither model life table captures the large share of improvement due to reduction in mortality below age five years. As measured by the index of dissimilarity, the South pattern is closer to that of Kuwaiti males than the West pattern (19.1 percent versus 33.8 percent).

The contribution of mortality change in various age groups to the total change in temporary life expectancy of non-Kuwaiti females and males over the period 1965 to 1985 is described in table 5. Compared with native Kuwaitis of corresponding sexes, reduction in mortality below age five years accounted for a smaller gain in temporary life expectancy and larger in age 45 and more. Among non-Kuwaiti females mortality decline under age five accounted for 50 percent and 57 percent in the case of males, whereas changes in mortality rates between ages 15-64 of non-Kuwaitis accounted for 40 percent of females and 36 percent in the case of males.

Comparison of life expectancy gains contributed by mortality decline in various age groups between non-Kuwaitis females and model life tables values of females of the West model life tables presented in table, matches more closely than other comparison. The indices of dissimilarity are 22.5 in case of females and 20.6 in case of males. Similarly the comparison of non-Kuwaitis with South model (Table 7) reveals an index of 31.8 for females and 10.8 for males. However, comparison of non-Kuwaiti female values with those of the South table given in table 7, disclose a much larger difference due to higher reduction in mortality below age five shown by the latter.

As measured by the index of dissimilarity, the West table for females is a better match than the South (23 percent versus 32 percent), but neither tables describes the decomposition for non-Kuwaiti females very well. For males, on the other hand, the decomposition in the South table is very close to the observed pattern of mortality change while the West pattern provides a poorer fit. The index of dissimilarity for the South table 10.8 percent and for the West is 20/6 percent.

In sum, the decomposition of the effects of reductions in age specific death rates of females on temporary life expectancy for both Kuwaitis and Non-Kuwaitis females is better described by the West tables than the South, while the south tables better describe the patterns of males. However, neither tables is a close match for either Kuwaiti males and non-Kuwaiti females. Neither increase in temporary life expectancy due to reduction in death rates below age five years for Kuwaiti males nor the improvement in age group 45 and over for non-Kuwaiti is observed in either set of model life tables.

CONCLUSION AND SUMMARY

Kuwaiti's mortality experience, analysed by the age structure of the decline, was compared with that embodied in the West and South model life tables. Decomposition of changes in temporary life expectancy from birth to age 65 for Kuwaitis and non-Kuwaitis due to reductions in age specific death rates from 1965 to 1985 reveals that a large (50 percent or more) gains in life expectancy were due to reductions in mortality below age five years. Indeed, for Kuwaitis males, over 70 percent of the gain was attributed to declines in death rates below age five years. Comparison of the age decomposition of temporary life expectancy for the population of Kuwait with patterns embodied in West and South model life tables having the same life expectancy over the period revealed that the pattern of mortality change among females is more similar to the West model life tables than the South, while the opposite is true for males. Neither set is very similar to patterns of mortality change experienced by Kuwaiti males or non-Kuwaitis females.

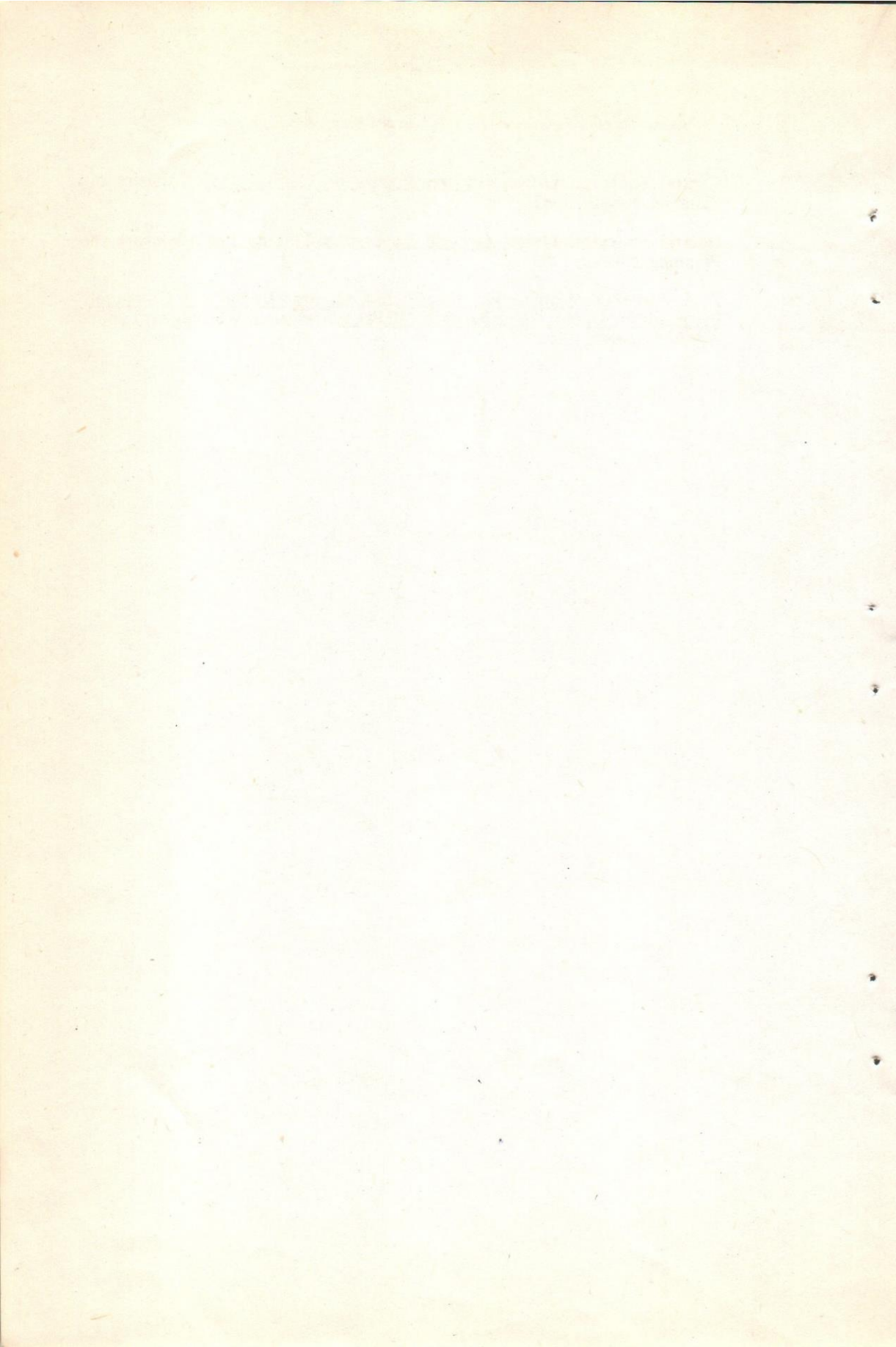
The comparison of decomposition of the temporary life expectancy increase of Kuwait and of West and south life tables showed that mortality decline in age group 0-4 is the most important contributor to the increase in temporary life expectancy, with some variation in the percentage distribution, in both life tables and Kuwait. Therefore, it is confirmed that changes in age pattern of mortality in Kuwait are broadly similar to those shown by the West and South model life tables, particular reductions in death rate for ages below five year are the most contributor to the increase in the temporary life expectancy over the period 1965 to 1985.

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RESEARCH NOTES AND COMMENTS

A NOTE ON POPULATION GROWTH RATE IN PAKISTAN

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It is pertinent to mention that under the rules of business, the official rate of growth of population which is acceptable to the Government and international agencies is calculated by the Census Organization of the country. However, in the absence of census data, it is difficult to work out an acceptable growth rate based on sample surveys due to inherent variation. Normally, the official rate of growth of population is based on the population enumerated in the two censuses. For example, the last two censuses were undertaken in the country in 1972 and 1981, and the rate of growth was calculated as shown in the ensuing para.

1. Population enumerated in the census taken on first March 1981 was = 84.3 million. Population enumerated in the census taken on 16 September 1972 was = 65.3 million. The time difference between the two censuses is = 8.459 years.

$$\text{Rate of Growth} = \text{Log} \left(\frac{84.3}{65.3} \right) / t (8.459 \text{ years} = 3.1 \text{ percent per annum})$$

2. For the period after first March 1981, the census which was due on first March 1991 has been postponed and therefore the official rate of growth cannot be calculated by this method for the period beyond 1981.
3. There is another method of computing growth rate after 1981 for one or more years. For example, if it is desired to compute the rate of growth for 1985, the following equation can be used:

$$P_t = P_o + B - D + I_m - E_m$$

Where, P_t is population for the terminal year, P_o is the population for the initial year, B is the number of births, D is the number of deaths, I_m is the number of Immigrants, E_m is the number of emigrants.

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4. The by product of this equation can be added to the P_0 which is the enumerated population for 1981 and the rate of growth can be obtained. This method cannot be applied as the official registration of births, deaths, immigration and outmigration (which system was introduced in the area constituting Pakistan in 1873) is highly under reported and has not been developed so far.
5. Another method is to obtain the rate of natural increase i.e. birth rate (-) death rate, from a sample survey. Data on international migration are not easy to get from such surveys and therefore rate of growth is obtained without taking account of the immigration and emigration across the boundaries of the country.
6. In the absence of any systematic and continuous efforts, the country is suffering from the lack of reliable data to provide official and reliable growth rate or rate of natural increase, birth rate and death rate. Due to this situation, several national and international agencies have made different estimates of these parameters.
7. The censuses, since the country was redivided into provinces in 1971, have been suffering due to over-enumeration. The 1972 and 1981 censuses were over enumerated as is shown by the exorbitant intercensal rates of growth of some districts, and due to the same problem the 1991 census had to be postponed. In the mean time, the intercensal rate of growth for 1972-81 of 3.1 percent continued for use for various purposes.
8. However, in order to determine the current rate of growth for research and academic purposes, National Institute of Population Studies re-examined the rate of growth for the period 1972-81 and it found that between 1972 and 1981 there was an element of over enumeration and net immigration into the country of the magnitude shown in the ensuing para.
9. The intercensal growth rate of population based on 1972-81 censuses was 3.1 percent per annum. This intercensal growth rate was affected by the enumeration of immigrants who were estimated by the Census Organization to be 4 million during the period 1971-81. The fear is that several of 1.7 - 2.5 million Pakistanis living abroad (estimated by the Census Organization) might have been reported by their families as living in Pakistan. On the basis of defacto population of 1981, the

intercensal growth rate of population for the period 1972-81 comes out to be around 2.85 percent whereas on de jure population basis it was estimated as 3.06 percent. On the other hand if the net immigration to Pakistan is excluded, the rate of natural growth is also about 2.85 percent per annum for the intercensal period 1972-81.

10. A question arises, how far the rate of growth of 3.1 percent was genuine? In order to deal with this question, a more detailed Table A based on censuses and surveys undertaken and estimates made for the area which is Pakistan is enclosed.

11. This table first shows growth rates obtained on the basis of censuses for the period before the independence (1901-1941). The growth rates during this period varied and increased from 0.6 percent per annum for 1901-1911 to 1.1 percent per annum for 1931-1941. These were the days when the death rates, due to various diseases and other calamities, were very high

12. The rates of growth based on population censuses increased from 1.8 for 1941-51 to 3.7 for 1961-72 and to 3.1 percent for 1972-81. It appears that according to the censuses the rate of growth has been accelerating with the exception of the intercensal period 1972-81 during which it showed a decline. One reason for this is that the rate of growth for 1961-1972 was inflated more than the rate of growth for 1972-1981

13. In section III of the table CBRs, CDRs and rates of natural growth (rates of growth) obtained from several demographic surveys have been presented from 1962 to 1991.

14. The two series of the surveys (cross sectional and longitudinal surveys) undertaken during 1962 to 1965 reveal rates of growth varying from 1.8 percent to 2.9 percent and 2.5 to 2.8 percent. These surveys were undertaken jointly by Pakistan Institute of Development Economics (PIDE) and Federal Bureau of Statistics (then Central Statistical Office).

15. Another series of surveys was undertaken by the Federal Bureau of Statistics called Population Growth Survey (PGS) during 1968-1971. This series provided a range of natural growth rates between 2.5 percent and 2.8 percent.

16. In section IV of the table growth rates which are based on adjustment of mainly the numerators are presented. The ranges of growth rates thus obtained are higher than the rates obtained from the unadjusted vital rates. It is noted that all rates of natural increase based on adjusted data are 3 percent or higher.

17. More controversy was created by the PDS (Pakistan Demographic Survey) rates for the period 1984-1987 which provided a constant CBR of 43.3 for 1984, 43.3 for 1985, 43.3 for 1986 and exactly the same 43.3 for 1987. Then there is a sudden drop from 43.3 to 40.5 from 1987 to 1988. It may be mentioned that the data on fertility and other characteristics were obtained by male interviewers and while producing adjusted rates only the numerators were adjusted (upward) and not the denominators which made these rates artificial.

18. An examination of sections I, II and III of Table A would show that not a single unadjusted survey data produced a rate of growth of more than 2.9 percent in the past. It appears that whenever it was found that a survey had produced a rate of growth of less than 3 percent, it was less likely to be acceptable.

19. In view of the uncertainty and the fact that demographic parameters could not be static for a period of two decades during which at least the Population Welfare Programme and NGOs activities of family planning were continuing, the Planning Division held a few meetings of experts to discuss the population parameters and preparation of the population projection. These meetings were followed by the Inter-Ministerial Meeting which was held on 28th September 1992 under the chairmanship of Secretary of Planning and Development Division. After thorough scrutiny, the committee decided to use the following parameters for the base year 1992-93 of the Eighth Five Year Plan:

- a. Crude birth rate (CBR) of 39 per thousand;
- b. Crude death rate (CDR) of 10 per thousand;
- c. Rate of natural increase of 2.9 percent;
- d. The level expected of CBR, CDR and Growth Rate in the terminal year of the Eighth Plan (1998) would be: 36.0 per thousand, 9.0 per thousand and 2.7 percent respectively.

20. The Inter-Ministerial Committee agreeing to assume a rate of natural growth of 2.9 percent per annum (a crude birth rate of 39 per thousand (-) a crude death rate of 10 per thousand) for the base year 1992-93, fixed a target that the level of 2.9 percent per annum would reduce to 2.7 percent by the end of the Eighth Plan in 1998. However, the Ministry of Population Welfare argued that they would be able to reduce the growth rate to 2.6 percent per annum by the end of Eighth Plan in 1998. Thus two variants of projection were prepared by the NIPS, one for the Planning and Development Division and another for Population Welfare Programme.

21. Since the Government is giving open support to the family planning, primary health care, education and literacy and status of women through the Population Welfare Programme, Social Action Programme, Ministry of Health Programme and the programmes of NGOs along with the strategy of improving efficiency and coverage, it is highly likely that the rate of growth of 2.7 or 2.6 may be achieved by the end of Eighth Five Year Plan in 1998.

22. The National Institute of Population Studies undertook a cross-sectional survey of 12 large clusters having about 70,000 population and spread in the four provinces. It showed that in 1993-94 the crude birth rate was 34 per thousand, crude death rate was 7 per thousand and the rate of natural growth was 2.7 percent per annum. This is also verified by the figure of rate of growth (2.8 percent) shown in the 1994 data sheet of the United Nations but they have shown higher birth and death rates of Pakistan.

23. A comparison with Bangladesh, Indonesia and India and eight Islamic countries is shown in table B (enclosed) which reveals that Pakistan has the highest fertility rate and the lowest rate of contraceptive prevalence and the lowest indicator of literacy of females. As such Pakistan has still a long way to catch up with these and many other developing countries of the world in reducing the rate of population growth.

24. The current population growth rate of Pakistan estimated by the National Institute of Population Studies at 2.7 percent per annum from the cross-sectional surveys is 50 percent higher than that of Bangladesh, 69 percent higher than that of Indonesia and 42 percent higher than that of India. Similarly, the rate of contraceptive use of 22 percent obtained from the cross-sectional surveys of Pakistan is 82 percent lower than that of Bangladesh, 127 percent lower than that of Indonesia and 95 percent lower than that of India. Besides, the singulate mean age at marriage of females which influences the fertility rate and hence the rate of growth of population, increased from 16.9 years in 1951 to 22.7 years in 1993.

25. The National Institute of Population Studies is of the view that the rate of growth of 2.9 percent per annum, assumed by the Inter-Ministerial Committee for the period 1992-93 is logical. Besides, in view of the recent developments, the evidence is that it is declining and is expected to decrease to 2.6 percent per annum by the year 1998.

TABLE A

CRUDE BIRTH AND DEATH RATES, RATES OF GROWTH OR NATURAL INCREASE OBTAINED THROUGH VARIOUS SOURCES IN PAKISTAN, 1962-1991

I.	Rates of Growth Based on Census Taken Before Independence (% per annum)			
	1901-1911	0.6		
	1911-1921	0.7		
	1921-1931	0.9		
	1931-1941	1.1		
II.	Rates of Growth Based on Census Taken After Independence (% per annum)			
	1941-1951	1.8		
	1951-1961	2.4		
	1961-1972	3.7		
	1972-1981	3.1		
III.	Direct Estimates from Surveys			
a.	Conducted Jointly by Central Statistical Office and Pakistan Institute of Development Economics.			
	Survey	Crude Birth Rate	Crude Death Rate	Rate of Natural Growth
	PGE(CS) 1962	37.1	12.0-19.0	2.5-1.8
	1963	38.4	11.0	2.7
	1964	42.0	13.0	2.9
	1962-64	39.2	11.0	2.8
	1965	36.5	9.0	2.8
	PGE(LR) 1962	41.9	17.0	2.5
	1963	42.2	16.0	2.6
	1964	40.5	15.0	2.6
	1962-64	42.5	15.0	2.8
	1965	38.8	12.0	2.7

b. Population Growth Surveys Conducted by the Federal Bureau of Statistics

Survey	Crude Birth Rate	Crude Death Rate	Rate of Natural Growth
PGS 1968	36.8	12.0	2.5
1969	38.1	11.5	2.7
1971	38.4	10.6	2.8
1968-71	37.8	11.4	2.6

IV. Adjusted Growth Rates

Survey	Crude Birth Rate	Crude Death Rate	Rate of Natural Growth
CD 1962	51.7	19.0	3.3
1963	52.7	19.0	3.4
1964	55.0	20.0	3.5
1962-64	53.2	18.0	3.5
1965	49.4	16.0	3.3
PGS 1976	42.8	11.5	3.1
1977	40.6	10.7	3.0
1978	40.9	10.0	3.1
1976-78	41.4	10.5	3.1
1979	41.6	9.6	3.2
PDS 1984	43.3	11.8	3.2
1985	43.3	11.5	3.2
1986	43.3	10.1	3.3
1987	43.3	10.5	3.3
1988	40.5	10.8	3.0
1990	41.0	11.0	3.0
1991	39.5	9.8	3.0

Note: PGE(CS) Pakistan Growth Estimation (Cross Sectional Survey)
 PGE(LR) Pakistan Growth Estimation (Longitudinal Survey)
 PGS Pakistan Growth Survey
 PDS Pakistan Demographic Survey
 CD Chandra - Deming Estimates

Source: [1,pp.45-89].

TABLE B

POPULATION OF 1994, LITERACY RATES OF FEMALES 15-24 YEARS, CURRENT PREVALENCE RATES OF CONTRACEPTIVE USE, TOTAL FERTILITY RATES, CRUDE BIRTH RATES, CRUDE DEATH RATES AND GROWTH RATES OF SELECTED ISLAMIC COUNTRIES AND PAKISTAN

	Popu- lation 1994 (Million)	Literacy (1980-89)	CPR (1985-92)	TFR	CBR	CDR	GR
				----- 1993-94			
Indonesia	199.7	82	50	2.8	24	8	1.6
Tunisia	8.7	63	50	3.3	25	6	1.9
Malaysia	19.5	83	48	3.5	28	5	2.3
Turkey	64.9	75	63	3.5	29	7	1.9
Bangladesh	116.6	27	40	3.9	31	11	1.8
Egypt	58.9	38	46	3.9	30	8	2.1
Morocco	28.6	40	42	4.0	30	7	2.3
Iran	61.2	42	31	5.0	35	7	2.6*
Pakistan	126.1	25	22	5.4	34	7	2.7

* Programme restarted in 1989 and Growth Rate is declining fast.

CPR: Contraceptive Prevalence Rate percent of currently married woman 15-49 years

TFR: Total Fertility Rate per woman

CDR: Crude Death Rate per 1000 population

CBR: Crude Birth Rate per 1000 population

GR: Growth Rate percent

Source: For TFR, CBR and Annual Rates of Growth of Indonesia, Malaysia and Bangladesh [2], For Iran [3], For Turkey, Egypt, Morocco and Tunisia [4, pp.174-175] and [5] and For Pakistan [6, p.46]. For CPR of all countries except Iran and Pakistan [4, pp.174-175], For Iran [7, p.69] and For Pakistan [6, p.85]. For Literacy of all countries [4, pp.144-145]. For Population and CDR [3] and [5].

INTERNATIONAL COMPARISON OF SOME DEMOGRAPHIC AND SOCIO-ECONOMIC INDICATORS

Indicators	Pakistan (PFPI)	Bangladesh	Indonesia	India
RNI	2.7	1.8	1.6	1.9
CBR	34	31	24	29
CDR	7	11	8	10
IMR	71	83	56	84
TFR	5.4	3.9	2.8	3.7
CPR	22	40	50	43
GNP (pc) US\$	400	220	610	330
Real GDP((pc)PPPS). 1970		1160	2730	1150

Source: [2], [4] and [6].

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SURVEY OF POPULATION AND FAMILY PLANNING INDICATORS, 1993

SUMMARY AND CONCLUSIONS

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The study shows that the climate and environment for family planning is undergoing a change. This statement is based on some of the major findings of the study carried out to evaluate the population welfare programme.

The study shown important achievements and impact of the Population Welfare Programme:

- a. The awareness of family planning and specific contraceptive methods among currently married women 15-49 years of age has increased significantly from 62 percent in 1984/85 to 82 percent in 1993/94.
- b. The current use of contraceptive methods in the country has increased from 6.7 percent in 1984/85, to 12 percent in 1990/91 and to 22 percent of currently married women in 15-49 years of age. This is an appreciable improvement. These results have been verified from more than one study.
- c. The current use rate in urban areas is 41 percent and 13 percent in rural areas.
- d. Among the urban users, 78 percent women are using modern contraceptive methods and 22 percent are using traditional methods. Among the rural users, 85 percent are using modern contraceptive methods and 15 percent are using traditional methods.

Another recent finding is the current use rate of currently married women 15-49 years of age by their status of wanting more children. Of all the currently married women 15-49 years of age, 39 percent wanted more children, 50 percent wanted no more children and 11 percent were not sure whether they wanted or not. There were 9.2 percent users among those who wanted more children and 35 percent among those who wanted no more children. There were 7.2 percent users among those who were not sure whether they wanted more children or not.

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Of all the current users, 84 percent were users of programme methods and 16 percent were users of traditional methods. As reported, the major source of services and supplies for the urban users of programme methods was hospitals (37 percent), followed by drug stores (34 percent), family welfare centres (16 percent), family welfare workers (5 percent), and miscellaneous and others (7 percent). For the rural respondents the sources were, hospital (60 percent), drug stores (12.5 percent), family welfare centres (12 percent), and miscellaneous (6 percent), rural and basic health centres (5 percent), family welfare workers (3 percent) and MCH centres (2.5 percent).

The survey shows that the ever use of contraceptive method among all currently married women 15-49 years of age was 30 percent, among urban it was 54 percent and among rural it was 18 percent. This is a significant progress since the past surveys were undertaken.

However, it is worth mentioning that of all the users (currently married women 15-49 years of age) 54 percent had 4 or less children and 46 percent had 5 or more children.

Recent trends in family planning indicators are shown in table-1

TABLE 1

i. Knowledge and Awareness of Any Contraceptive Method of Currently Married Women 15 to 49 Years of Age

Source		
1993 PFPI	=	82 %
1990/91 PDHS	=	78 %
1984/85 PCPS	=	62 %

ii. Ever Use of Contraceptives by Currently Married Women 15 to 49 Years of Age

Source	Pakistan	Urban	Rural
1993 PFPI	29.5	54.1	17.9
1990/91 PDHS	20.0	--	--
1984/85 PCPS	11.8	--	--
1974/75 PFS	10.5	--	--

iii. Current Use of Contraceptives by Currently Married Women 15 to 49 Years of Age

Source	Pakistan	Urban Rural	
1993 PFPI	21.9	40.8	12.8
1990/91 PDHS	11.9	25.7	5.8
1984/85 PCPS	6.7	--	--
1974/75 PFS	5.4		

iv. Source of Supplies and Services of Current Users of Programme Methods, 1993 PFPI

Source	Pakistan	Urban Rural	
Hospital	46.7	37.3	59.7
MCH Centre	1.8	1.2	2.5
RH Centre	1.9	1.4	2.7
BH Unit	1.8	1.9	1.8
FW Centre	14.2	15.8	12.1
Drug Store	25.2	34.4	12.5
Other	3.9	2.7	5.7
Total No.	1553	902	651

The increased use of contraceptive methods and other indicators have important impact on population growth rate and its components, which were assumed for the base year 1992-93 of the Eighth Five Year Plan.

- a. The crude birth rate (CBR) has been reduced from 39 in 1992-93 to 34 per thousand population.
- b. The crude death rate has been reduced from 10 to 7 per 1000 population.
- c. The growth rate (rate of natural increase) of population has decreased from 2.9 to 2.7 percent per annum.
- d. The infant mortality rate (deaths under one year of age) has decreased from 86 to 71 per 1000 births.

In addition, the impact on other population parameters are worth noting.

- a. The mean number of children ever born to currently married women 15-49 years of age has decreased from 4.3 in 1984/85 to 3.9 at present.
- b. The mean number of living children born to currently married women 15-49 years of age has decreased from 3.5 to 3.4. This reduction also indicates improvement in the survival of children.

The rate of natural increase (or rate of growth) obtained from the current study is 2.7 percent per annum. In this context it may be pointed out that this rate for 1992-93, which was the base year for the Eighth Five Plan, was estimated at 2.9 percent per annum. In view of the increased coverage of population by the Population Welfare Programme and progress in reducing the vital rates, it appears that the rate of growth of 2.7 percent is plausible. This is supported by more than one study.

It is observed that the total fertility rate (TFR) of Pakistan is 5.4, for urban areas it is 4.7 and for rural it is 5.8 per woman. The TFR of 5.4 estimated for Pakistan is much higher as compared to the TFR of 3.3 for the world, 1.8 for more developed regions, 3.7 for less developed and 4.4 for less developed regions excluding China. According to the 1984/85 survey the TFR was 6.0 which has decreased to 5.4.

It is observed that the proportion of children 0-14 years of age has declined from 44.5 percent in 1981 to 42.6 percent in 1993 which is a reflection of the decline in the level of fertility.

The percentage of females in age groups 15-19 years who were never married increased from 70.6 percent in 1981 to 74.3 percent in 1984-85, to 78.1 percent in 1990-91 and to 84.8 percent in 1993. This progressive increase is an indication of social change that the age at marriage of women has increased and is another demographic evidence supporting the decline in the level of fertility.

The analysis shows that those currently married women 15-49 years of age who had no education had borne more children than those who were educated. As education level increased, the use of contraception level increased and the number of children born alive decreased. The literates had 3.1 children born alive as compared to 4.2 of illiterates. Thus education is an important variable for achieving reduction in the level of fertility.

The education and literacy of husband also show a pattern which is similar to the currently married women 15-49 years of age, but the indicators are milder. This indicates that female literacy and education is more important for influencing the level of fertility.

Some of the recent trends of population indicators are shown in table 2:

TABLE 2

i. Age Structure: Children Under 15 Years of Age

Source	=	
1993 PFPI	=	42.6 %
1981 Census	=	44.5 %

ii. Singulate Mean Age at Marriage in Years

Source	Male	Female
1993 PFPI	27.0	22.7
1990/91 PDHS	26.3	21.6
1984/85 PCPS	25.3	20.7
1981 Census	25.0	20.7
1972 Census	24.9	19.8
1961 Census	23.6	18.1
1951 Census	22.3	16.9

iii. Mean Age at Marriage in Years of Currently Married Women 15 To 49 Years of Age

Source	Pakistan	Urban	Rural
1993 PFPI	18.5	19.3	18.1
19984/85 PCPS	17.4	17.6	17.3

iv. Total Fertility Rate Per Woman of Reproductive Age

Source	Pakistan	Urban	Rural
1993 PFPI	5.4	4.7	5.8
1990/91 PDHS	5.4	4.9	5.6
1984/85 PCPS	6.0	5.7	6.1
1974/75 PFS	6.3	--	--

v. Marital Total Fertility Rate Per Married Woman 15 to 49 Years of Age

1993 PFPI	7.7
1984/85 PCPS	8.1
1974/75 PFS	8.0

vi. **Summary of Demographic Indicators 1993 PFPI**

Indicators	Magnitude
Crude Birth Rate Per 1000 Population	34.00
Crude Death Rate Per 1000 Population	7.00
Rate of Natural Increase Per 100 Population	2.70
Infant Mortality Rate Per 1000 Births	71.00
Mean Number of Children Ever Born	3.90
Mean Number of Living Children	3.41
Total Fertility Rate Per Woman	5.38
Gross Reproduction Rate Per Woman	2.62
Marital Total Fertility Rate Per Married Woman	7.25
Marital Gross Reproduction Rate Per Married Woman	3.53
Singulate Mean Age at Marriage of Males in Years	27.00
Singulate Mean Age at Marriage of Females in Years	22.70
Mean Age at Marriage of Females in Years	19.04

The results presented in respect of family planning and population indicators support each other and are mutually consistent. The main factors which contributed to the progress include the expansion of rural coverage and the employment of the female village based family planning workers are employed.

TABLE 3

International Comparison of Some Demographic and Socio-economic Indicators

Indicators	Pakistan (PFPI)	Bangladesh	Indonesia	India
RNI	2.7	1.8	1.6	1.9
CBR	34	31	24	29
CDR	7	11	8	10
IMR	71	83	56	84
TFR	5.4	3.9	2.8	3.7
CPR	22	40	50	43
GNP (pc)US\$	400	220	610	330
Real GDP((pc)PPP\$) 1970		1160	2730	1150

Sources of Indicators: 1 to 5 except Pakistan; 1994 ESCAP Population Data Sheet; 6 to 8 Human Development Report 1994

Decrease in the proportion of population under 15 years of age, increase in the singulate mean age at marriage, decrease in the infant mortality rate, decrease

in the level of total fertility rate, increase in the percentage of knowledge and awareness, increase in the ever use and current use of contraceptive methods are all mutually consistent. Crude death rate of 6.4 which appeared to be on the low side was raised to 7 on the basis of the second round of the survey undertaken in 1994.

Compared with selected countries of Bangladesh, Indonesia and India, the rate of natural increase, crude birth rate and total fertility rate in Pakistan are significantly higher and contraceptive prevalence rate of 22 percent is significantly lower than these countries. As such Pakistan has a long way to go to catch up with these and other developing countries in Asia.

The population and family planning indicators produced by the 1993 PCPS have been verified further by the preliminary results of 1994 round of survey for which the data are under process.

RECOMMENDATIONS

A few recommendations for the improvement of the programme are made.

1. The analysis has shown the importance of education and literacy of couples but female education and literacy are more strongly associated with progress in population and family planning indicators. It is therefore recommended that female education must receive high priority.
2. While the knowledge and awareness about family planning has increased to 82 percent, the current use rate in 1993 was only 22 percent. Thus there is a large gap which should be reduced by improving and providing family planning services at the door-steps of clients.
3. One of the major factor discouraging the prospective users of contraceptives is the fear of side effects of modern methods. The fear about side-effects is disseminated by a small number of users who experience side effects. It is therefore recommended that follow up of the acceptors, and prompt treatment of those who experience side effects should be an integral part of the programme.
4. The increasing use of withdrawal, especially by urban respondents indicates that due to side effects of modern methods more and more couples are shifting to

traditional contraceptive methods which are less effective. It is recommended that special arrangements should be made at the outlets for counselling the clients and selection of appropriate contraceptive methods accompanied by follow up and prompt treatment, if necessary.

5. It is observed that vasectomy is hardly being used as males are afraid of this operation, although it is very simple and safer than the tubligation or the tubactomy. It is recommended that IEC and motivational techniques should be used to inform males that it is a simple operation. Also clinical facilities for such operations, should be provided in selected district and tehsil hospitals and rural health centres to start with.

6. While the Population Welfare Programme has been and is propagating for small family norm, the research shows that the ideal number of children which people suggest in the country is still about four and the desired number of children is even higher. This delimma should be resolved through more and unambiguous emphasis in the IEC campaign on the ideal and desired number of children a couple should have.

7. It is observed that at least 50 percent of currently married women of reproductive age, do not want any more children and 65 percent of them do not use any contraceptive. It is, therefore, recommended that these women should be motivated to become users. If all these women become current users, the level of total fertility would decline further and the replacement level which is the goal of many developing countries including Pakistan will be achieved sooner.

8. A large percentage of women believe, that so long they are breastfeeding they are safe from the risk of pregnancy. It is recommended that through the IEC campaign this myth should be cleared and women should be informed about the insusceptibility and safe period.

9. The research undertaken so far including PFPI indicates very clearly that as the level of education increases, knowledge about family planning increases, contraceptive practice increases and fertility level decreases. It is also revealed that illiterate women have more children ever born than literate women. It is, therefore, recommended that special counselling should be provided to women who have low education or those who are illiterate.

NON-USERS AND UNMET NEED FOR CONTRACEPTION: Study of Punjab Province

SUMMARY OF FINDINGS AND RECOMMENDATIONS

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The National Institute of Population Studies (NIPS) conducted a national study "Pakistan Demographic and Health Survey (PDHS)" in 1990/1991. During 1993 NIPS undertook a follow-up study of those currently married women 15-49 years of age in Punjab province who reported in the 1990/91 survey that they were non-users of family planning.

In the follow-up 844 non-users women were found and reinterviewed. Also interviewed were 164 currently married women in the reproductive ages who were not interviewed in the 1990/91 survey but were found in the follow-up households in the (1993 survey).

The 1993 survey has shown that the knowledge level of any contraceptive method in Punjab has increased from 80 percent in 1990/91 to 94 percent in 1993. This among other factors shows the impact of 1990/91 PDHS and the Population Welfare Programme which also seems to have made a progress in the area of Information, Education and Communication (IEC). Efforts in this direction should continue to provide more detailed information so that clients can make more prudent decision and independent choice of contraceptive method.

The study also shows that ever use and current use of family planning methods among follow-up and newly found women have increased from those observed for all eligible women in Punjab the 1990/91 PDHS. The ever use of contraception increased from 28.3 percent of all eligible women of Punjab in 1990/91 to 30.5 percent for the follow up women and this rate among the newly found women was 31.7 percent. The current use rate of non-users followed-up women was 18 percent and of newly found women was 21 percent.

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Although significant number of 1990/91 non-users became users by 1993, there is some indication that some non-users in the PDHS were actually users but they were shy to admit this at that time, especially those who were users of traditional methods.

The 1993 survey showed that 12 percent of followed-up women and 16 percent of newly found women were pregnant. The reinterviews and interviews revealed that 40 percent of the pregnancies of followed-up women and 16 percent pregnancies of newly found women were unwanted and unplanned. These are high proportions and could have been reduced or avoided if proper information and services were made available to them at their door steps. Those women who are not well-informed or are ill-informed about the side effects, fear the use of modern contraceptions and become pregnant against their will.

In the previous studies religion has often been cited as the major reason for non-use of contraception. Although the proportion of women citing religion as one of the reasons for non-use, has declined comparatively in this study, yet it still is a significant factor. One religion based argument is that, if a woman profusely bleeds for more than usual number of days due to contraceptive use, she may not be able to say her prayers for an extended period of time. This knowledge or experience results in non-use of contraceptions. In other words, religious fear also, at least partly arises from the side effects. Continued efforts must be made to provide wider choice of methods, information on methods available, use of methods, potential side effects, services available and correct position of the religion on family planning.

There is an urgent need for the dissemination of correct and complete information about the impact of breastfeeding on the risk of pregnancy among the women. This should be done by the family planning workers and traditional birth attendants through inter-personal contact. The average duration of breast feeding according to the 1990/91 PDHS survey was 20 months, the concept of full breast feeding and the period of insusceptibility are not clear to most of the women.

The knowledge about any contraceptive method has increased significantly but about each contraceptive method and its availability. While efforts towards improving the knowledge about each family planning method should continue,

provision of more information, particularly, about the source of supply is urgently needed.

It is interesting as well as surprising to note that 51 percent of the non-users followed-up women and 44 percent of newly found women either wanted no more pregnancies or births or wanted to space their pregnancies but they were not using any contraception.

The need is urgent for the dissemination of the complete information about the sources from which contraceptive methods and services can be obtained in each community. Display of the family planning board is not enough as most of the women are illiterate or they do not go around. The programme should ensure that the effective out-reach approach and interpersonal contacts are extended to all prospective clients in each community and services are made available at the door steps of the clients to the extent possible.

Women also fear if they use the contraceptives secretly, and if their husbands find it out, they will be embarrassed. Women with weak intention about use of contraceptives are easily discouraged by the fear of social disapproval. This points to the urgent need for devising a strategy for educating the husbands and also the in-laws. A survey of male attitude and motivation towards family planning has been undertaken by the NIPS and data are being processed.

In the cultural settings of the country, there is a shyness and even husband and wife do not communicate with each other about family planning. This is at least partly due to the illiteracy and lack of adequate education. Special assistance must be provided to illiterate and low educated couples.

Some respondents complained that contraceptive methods were not available. They would have used the contraceptive methods if they were available. Family Welfare Centres (FWCs) have so far been the major source of supply of contraceptive methods. Also these outlets are far and few in number, specially in rural areas and it is disappointing as well as frustrating for the clients, if these centers are unable to provide desired family planning services and supplies.

Provision of efficient family planning services and supplies to the full satisfaction of all the clients at all the FWCs and other family planning outlets must be ensured to enhance the coverage to those whose needs and demands are not being met. Each outlet must have at least six months supply of the contraceptive methods.

Some women give poor health as reason for non-use. In some cases poor health could be a genuine reason for using the contraception to avoid pregnancy and risk of mortality. These women deserve special attention and provided with adequate information for obtaining medical treatment and appropriate contraceptive method if necessary.

The failure of contraceptive methods is often the outcome of improper application of contraceptive methods and insufficient knowledge about their use. If a woman is not made aware of pros and cons of the consequences of contraceptive methods before using, her experience may have negative impact on the programme. Particularly in the rural settings women often talk more to each other about such matters as side effects or failure of contraceptive methods. Thus the family welfare providers must be careful and vigilant about such incidents and they should advise clients to use low-failure methods.

Some women also reported that contraceptive methods were expensive and they also mentioned to the interviewers that some family planning workers sell contraceptive methods at a higher price than is authorized for which providers argue that their pay was very meagre. This matter deserves serious consideration of the policy makers and planners. Providing free accessibility to contraception or at the proper price and improving the quality of services are among the pre-requisites for the successful implementations of population welfare programme.

Although traditional methods are not as effective as the modern methods, these are being used for two main reasons, fear of side effects and perhaps due to the belief that modern methods are not allowed by the religion. In such cases, special education and communication should be provided for shifting the couples to safer and high-continuation methods.

As the use of contraception increases which is very likely, more and more complaints about side effects are expected to emerge. Continuous follow-up, immediate treatment of side effects and promotion of effective contraception to *reduce failure rate along* with continuous and relevant information messages must accompany the efficient service delivery programme.

Some women who were experiencing postpartum amenorrhoea or infertility, are also in urgent need of information and may require treatment. Still another group stated that they had miscarriages or had tumor or were using TAVEEZ (amulet) from PIR (spiritual healer). This group is also in need of more information about the treatment and effective contraceptive methods.

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THE EVALUATION OF THE MOBILE SERVICE UNITS OF THE PWP IN PAKISTAN

EXECUTIVE SUMMARY

TAUSEEF AHMAD*

Mobile service units were introduced in the Population Welfare Programme in the Seventh Five Year Plan (1988-93) to provide family planning service along with general health services to rural population, especially to women living in remote areas. Each MSU is located at tehsil/taluka level and is staffed by a field medical officer (FMO) or a senior field technical officer (FTO), one Aya and a driver. In January 1994, there were 130 MSUs located in the four provinces of the country: NWFP 19, Punjab 70, Sindh 34 and Balochistan 7.

EXPERIENCES OF MSUS

Over the years, the Ministry of Population Welfare found serious achievement gap relative to its set targets. The National Institute of Population Studies (NIPS) was requested by the Ministry of Population Welfare to undertake evaluation study of MSUs to examine whether the conceptual functions of the mobile service have been adequately translated into the practice of service delivery; and to identify shortfalls and weaknesses that hindered its effective implementation.

THE EVALUATIVE STUDY

The study was undertaken by NIPS in May 1994 based on a sample of 31 mobile service units distributed in various provinces as follows: Punjab 17, Sindh 8, NWFP 4, and Balochistan 2. The field work consisted of interviewing the district population officer, the MSU incharge and the driver, the village contact person, and 10 randomly selected FP clients from MSU records. The MSU performance was acquired from its files and registers. The field work was supervised by NIPS research staff while interviews with FP clients were undertaken by locally hired and trained female interviewers. Since the MSUs were randomly selected, the results are presented as percent of all MSUs in Pakistan.

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The findings of the study are:

1. Sixteen percent of MSUs were found to be non-functional at the time of survey.
2. One-third of registered FP clients were found to be fictitious.
3. Forty-five percent of MSU incharge were found to be doctors and 37 percent to be Field Technical Officers.
4. Eighteen percent of MSUs were being run by FWWs, who were officiating incharge of the MSUs and were also responsible for family welfare centres.
5. About 32 percent of all MSUs reported to have received their vehicles at least a year after they were established. Twenty nine percent MSU vehicles were reported not to be suitable for the terrain.
6. Six percent MSUs reported that they never received their own vehicle.
7. Thirty-six percent of MSUs reported having problems with their vehicle: 16 percent received vehicle on village tour days only, 10 percent MSU vehicles were broken down while another 10 percent MSU vehicles were with other departments.
8. The MSUs are located at tehsil offices while the vehicle log books are maintained at the district offices. The MSU drivers have no knowledge about these log books. Moreover, the log books were completed by a clerk in accordance with the village tour schedule and not by actual mileage done by the MSUs.
9. Forty percent of MSUs reported to have either a broken or a missing equipment necessary to deliver quality service.
10. About 63 percent of MSUs reported to be working without 19 or more essential medicines.

11. Sixty one percent MSUs reported to have experienced serious shortage of at least one contraceptive method during the six months period prior to the survey. The method that was often short was IUD followed by injectables.
12. More than a third (35 percent) MSU's records were incomplete while 29 percent MSU registers had no to date information about their activities.
13. On average, MSUs were organising only 5 camps per month as against 15-20 per month.
14. On average, sixteen FP clients were registered per camp by MSUs.
15. Three-quarters (73 percent) of all registered FP clients were recorded as new clients.
16. The distance covered by MSUs to serve rural communities varied between 4-203 kilometers. On average, a MSU travelled about 25 kilometers (one way) to serve a community.
17. Mean number of births averted over a six month period by sampled MSUs was 30.3. The performance of FMOs and FTOs was comparatively more than those of officiating FWWs which was very poor. The average performance of MSUs from Balochistan and NWFP was much better than that of MSUs in Punjab. The average birth aversion reported by Punjab MSUs was about 27 over a period of six months.
18. Taking account of the fictitious registered entries, the evaluation team estimated that on the whole the MSU component was underutilized by 78 percent in terms of services to FP clientele and about 71 percent in terms of birth aversion target they were expected to achieve.
19. The cost estimates excluding fictitious clients based on total expenditure incurred in 1993-94 by the Ministry of Population Welfare on the MSU component, was Rs. 332 per FP client and the total cost per birth aversion was estimated at Rs. 5,653, which is very high for any service delivery component.

20. Work performance of MSUs was explored in detail for the month of January 1994. Thirty-five percent of all MSUs reported no work done in January 1994. Fifty five percent of MSUs reported non-availability of vehicle and absence of staff as the reasons for not being able to serve at all in January 1995.
21. About 29 percent MSUs were found to have one or more staff on leave for more than 15 days during the four months prior to the survey. Most absenteeism existed in Punjab.
22. Poor planning of village tours was also found as a major reason for MSU under-utilisation. On average, a MSU planned to organise only 5-6 camps per month as against 15 required of them. Therefore, one may conclude poor planning of village tours closely associated with low MSU performance.
23. Misuse of MSU vehicle also emerged as a major factor inhibiting MSU performance. About 21 percent MSU vehicles were reported to have been used for personal purposes but recorded as official business.
24. Morale of MSU staff was found to be low. This was indicated by 79 percent of FMOs who reported that the way they were being treated was below the status of a doctor. This excluded lack of adequate supplies, absence of support staff, strict limitation of POL and vehicle repairs, etc. as reasons for their dissatisfaction to work with MSUs. While 36 percent FTOs reported that their promotions to Grade 16 as promised in the PC-I have not been made and shortage in supplies was another reason for their low morale. Delayed receipt of salary by about 16-19 percent MSUs during three months prior to survey was also an important factor contributing to their lower morale.
25. Poor quality of supervision emerged as the most important factor leading to poor MSU performance. Although, more than 80 percent of MSUs incharge and DPWOs reported visiting MSU offices and organising monthly meetings but the existence of poor record maintenance, long term absenteeism, frequent shortage of contraceptives and that of medicines, poor planning for camps, low morale among MSU staff indicate careless monitoring and ineffective supervision of MSU activities.

26. Each MSU also provided supervisory services and technical backup, on average, to 3 family welfare centres per month in its jurisdiction.

The findings presented below are derived from MSU's FP client interviews.

27. For service delivery, a local house in the community was used to gather clients and dispense various family planning methods and deliver health services.

28. The MSUs provided IUD, injectables and pills as the major contraceptives to its clients. Condoms were also distributed.

29. The MSU also arranged to provide transport for clients seeking contraceptive surgery by taking them to the nearest RHS centres.

30. On the whole, the survey team found that the clients being served by MSUs were of the target population. A large majority of clients had poor background and resided in mud houses. Average age of FP clients was 32 years who also reported to have had five live births, on average, since marriage.

31. The MSU clients reported that MSU visits were irregular. Therefore, most clients were not sure about its arrival date and time.

32. More than two-thirds of MSU clients were found to know more than three methods. The most common method ever used by MSU clients was reported to be IUD followed by injectables.

33. Among the current family planning clients, IUD, injectables and sterilisation emerged to be most prominent methods. The average duration of use of the current method was found to be about 8 months. There were only 13 percent MSU clients who had dropped out. Desire for another birth or the side effects of contraceptives were the major reason for such drop-out cases.

34. The MSUs followed an integrated approach by offering family planning and health services to rural women and children. This integrated approach attracts clients in villages served by MSUs.

35. The evaluation team found that the MSUs have increased the programme coverage of rural areas which henceforth was only 5 percent. Most of the local population was satisfied rather happy to have such service provided to them. The people specially women appreciated the availability of contraceptive supplies and medicines at their door steps.

36. The introduction of MSU is improving the image of the PWP about its family planning services and supplies among rural women. Due to the absence of supportive IEC activities, this image would yet be strengthened. Most women see MSU as a provider of health services than of FP service delivery.

RECOMMENDATIONS

The study team has formulated the following recommendations to improve the working of the mobile service units.

1. No new MSUs should be added to the field unless the current MSUs exhibit improved efficiency within a few years.

2. Poor monitoring and ineffective supervision system needs to be revitalised. The evaluation team suggests two clients register system- one to be maintained by the village contact person and the other with the MSU incharge. The district and divisional monitoring tiers must monitor MSU work at village level to up-root fictitious entries and increase implementation effectiveness. Client verification and regular MSU monitoring is needed to overcome implementation inefficiencies.

3. The planning of village tours also needs over hauling. The evaluation team suggests that each MSU should cover at least 16 villages each month and as such 35-40 communities in a 10 week period. The village based family planning workers (VBFPWs) and village health workers (VHWs) should be made close associates of the MSUs for fuller and effective implementation of the programme, especially in follow-up visits and building rapport with clients. The strengthening of follow up visits is essential to reduce the drop out cases and for treatment of side effects.

4. Each MSU should have a vehicle devoted to its work. These MSU vehicles should not be permitted to be used by the staff of district office or any other person for any purposes.

5. The existing MSU vehicles (Suzuki and Toyota pickups) should be replaced by fully equipped Ambulance type vehicles. Most of the existing ones are completing five years of service and should be replaced by new one in a phased manner. This type of vehicle is expected to reduce the misuse and improve the efficiency to some extent.

6. It is highly recommended that all MSUs should be staffed by fully trained incharge. The experience of side effects has been found repeatedly as the major source of disinformation among people. Moreover, double charge to FWWs should be eliminated so that they should serve only one outlet.

7. In order to provide backup to the programme and make it more efficient and regular, it is recommended that leave reserves should be provided in the component to replace the temporary absence of MSU staff. Staff absenteeism must be severely curbed. Additional support staff is also recommended to undertake office responsibilities and assist in the field to gather clients, and motivate them.

8. For building the morale of MSU staff, appropriate measures should be taken to eliminate staff grievances. To make MSU service attractive, it is necessary to make salary structures at par with that of health department. Currently the salary of doctors in the family planning programme is lower than doctors serving in the health department.

BOOK REVIEW

MIGRATION, POPULATION STRUCTURE, AND REDISTRIBUTION POLICIES

Edited by
Calvin Goldscheider
Brown University
Westview Press, USA 1992
pp.322.

"Migration, Population Structure and Redistribution Policies" edited by Calvin Goldscheider examines migration patterns and their implications for population policy and structure, as presented in the broad context of population and development.

The book under review consists of series of essays specially prepared for this volume. These essays represent the contribution of former students of Sidney Goldstein at Brown University. Each of the contributors is an expert in the field. They come from a diverse set of societies and from a variety of cultural and intellectual origins.

The book is divided into three parts. The first part explores internal migration patterns in industrialized nations, social and geographic mobility, circulation migration and environmental trauma, and assimilation of internal migrants. This part consists of five different essays. The first essay deals with Metropolitan Migration in comparative perspective among industrial nations. The author of this essay, William H. Frey tries to identify and disentangle some common patterns and examines their differences, by compiling age sex disaggregated migration data for 81 comparably defined metropolitan areas in 14 developed countries of North America, Europe, Japan and New Zealand.

Anthony C. Masi in his essay "Migration and Job Mobility", Sally E. Findley in his essay "Circulation as a Drought-coping Strategy in Rural Mali" and Rong Ma in his essay "Town Residents and Rural-Town Migration in Inner Mongolia, People's Republic of China" have made a significant contribution to the

contemporary understanding of the powerful role of migration. The author's careful and painstaking work is adorable as the migration data compiled and descriptive statistics are prepared for different societies.

In the essay "Ethnic Inequality and Social Structural Assimilation: The Xinjiang Autonomous Region of China" Ji Ping examines the impact of socioeconomic status on the assimilation of Han and Uygur groups in a Multiethnic region of China by utilizing the specially collected survey data. The author assesses the interrelations between a migrant majority - the Han people - and the indigenous minority group - the Uygur people in Xinjiang Uygur Autonomous Region of China. By looking at friendship patterns, political organizations, and a multidimensional index of assimilation, he shows the importance of language and cultural assimilation in shaping the social assimilation of these groups, resulting in greater equality. The analysis shows that despite vast differences between the migration patterns in China and United States and critical differences in whether the minority or the majority are those that are moving, there are some similarities as well.

The second part of the book deals with the International Migration and Redistribution Policies. This part is subdivided into five essays contributed by B. Linday Lowell, Mahgoub El-Tigani Mahmoud, Robert E Mazur, George Martine and Johj J. Macisco, Jr.

In his essay "Circular Mobility, Migrant Communities and Policy Redistributions: Unauthorized flows from Mexico" Lindsay Lowell examines Mexican migration by utilizing data from three sources: legal flows, net-migration to the resident unauthorized stock and apprehension data as a loose indicator of more circular flows. He analysis the unauthorized flows from Mexico to the United States and Places the analysis of these flows in their historical, community, and geopolitical contexts, linking community types and mobility to employment patterns.

The author points out that the explosive agri-industrial base of California's economy channeled unauthorized Mexican workers into the low skilled, urban labour market and created strong incentives for settlement through the 1970s and 1980s. He suspects that given the differential employment opportunities, the regulation of circular movements from Mexico to the United States will remain problematic.

In the essay "Sudanes Emigration to Saudi Arabia" author deals with the issues how policies do and do not get implemented and the costs in the country of origin of brain and labour drain. He highlights the role played by the government and other agencies in implementing the policies to minimize the cost.

George Martine in his essay "Population Redistribution and State Policies: A Brazilian Perspective" examines the evolution of population redistribution policies in Brazil and analyses internal migration between the 1930s and 1980s. He reviews what the goals of redistribution policies have been and whether they are effective and more often than not, why they were not effective. The author argues convincingly that implicit rather than explicit policies have had the greatest effects on internal migration, particularly the unintended consequences of the modernization of agriculture.

John J. Macisco, Jr. in the essay "Internal Migration: Issues and Research Needs" reviews the international migration and the research that is needed to address the complexities involved. He outlines broad global perspectives on international migration, looking at stock and flows as well as the migration process. In this context he identifies the economic, educational, and political institutions involved in international migrations as well as the important role of kinship. He also reviews the consequences of international migration on both sending and receiving countries, and calls attention to the human issues that are too often neglected in demographic analysis.

The last part of the book under review deals with some of the structural and compositional issues that emerge from an examination of population and development processes. Implications of both Internal and International migration patterns for the overall structure of populations are covered in the analysis of demographic development of Soviet nationalities, community responses to deindustrialization in the United States, and population aging in Japan.

In the essay "The Demographic Development of the Soviet Nationalities: Post Mortem" W. Ward Kingkade reviews systematically the ethnic composition of the Soviet Union from the 1920s through the end of the 1980s, assessing the relative distribution, concentration, and segregation of nationality groups in the former

USSR. The author reviews the ethnic changes in mortality, fertility, and intermarriage beyond the geography and redistribution issues.

Redistribution of population is a major consequence of migration. Craig R. Humphrey, in his essay "A Regional Shift in Population: Explaining Post World War 11 Trends and Projections Influencing in Industrial Belt of the U.S." examines redistribution process for the United States with particular attention to the devolution of industrial belt. He systematically reviews three paradigms to explain the regional shift: the human ecology perspective, the state based model, and the neo-Marxian frame work. His laid down framework that are in turn, important and helpful in understanding population distribution in third world countries.

Population aging has become an important issue in Japan and this process is causing young labour shortage, sluggish economic growth and higher tax burdens to support social services for both the past and future changes in the aging of the population and identifies the underlying demographic factors that have been and are likely to continue to be important in shaping Japan's age patterns. The essay "Population Aging in Japan" deals with the issues why is the speed of population aging so rapid in Japan? What have been the causes for such a rapid population aging in Japan? The author emphasizes on the importance of declining mortality levels, placing their analysis in the demographic-economic context of scarce resources, the cultural values of Confucianism, and marriage patterns. Thus the decompositional calculations for Japan have shown that the effect of mortality is larger than that of fertility in certain period of time. The author suspect that Japan's experience in population aging may foreshadow the pattern that will characterize other countries in future.

The book is a collection of very good research essays from authors of divergent societies. The book is easily understandable. Overall it is an appreciable effort in identifying varieties of issues relating to Internal and International Migration, Population Structure and Redistribution Policies.

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THE CHANGING PAKISTAN SOCIETY

Sabeeha Hafeez,
Royal Book Company,
Karachi, 1991,
pp.334, Price Rs. 350.00

"The Changing Pakistan Society" by Sabeeha Hafeez consists of a series of essays on a wide range of divergent trends and changes in the Pakistan society, experienced due to both internal as well as exogenous forces.

As the name of the book refers, it deals with various societal problems relating to career planning processes, trade unions, drug addiction, illiteracy and freedom of women. The book is divided into two parts. The first part contains essays dealing with theoretical and methodological issues whereby the author studies the increasing stratification of Pakistani society and the rise of sociology as an independent discipline.

Sabeeha starts off by following a chronological approach to see how since independence the Pakistani Society has been undergoing into various classes and groups. The author finds roots of this stratification in an inherent sense of deprivation and large power gap in almost every field in 1947. The first decade saw the political scene worsening due to vested interests among the power ranks. No heed was paid to social sector provisions, education, health, etc. Next to follow was the economic development under Ayub era (1959-69) The Yahya regime (1969-71) introduced a few labour reforms and allowed students participation in selection and promotion of teachers which further promoted power aspirations among the deprived classes. Bhutto's radical reforms facilitated labour rights, provided educational allowances for workers's children in addition to medical funds. Zia followed in with export of manpower without assets distribution and paying little attention to the education sector.

In simple, Sabeeha states that throughout all these years Pakistani public tried to run through two mutually exclusive paths to move upward. The one was investment in education while the other being instant accumulation of wealth through all sorts of means. Thus competition for gains in wealth and income was

enhanced at the expense of under-utilization of education, particularly in rural and urban slum areas.

This lead to rise of corruption and lack of sincerity to the cause. It is in this pretext that adequate and legitimate compliance with rules is missing in most of our organizations. Either the organizations do not follow the rules or in most cases the public do not have enough knowledge of these. Rules are used to control, command and punish the personnel and thus enforce behavioural formalization. Unfortunately, in Pakistan centralisation in decision making inhibited awareness and significance of rules among middle and lower ranks.

The author emphasises the need of empirical social research of Pakistani norms and values in order to understand the changing trends in the society. Norms reflect the direction and substance of change and provide identity to the social system. Little or no work seems to have been done so far on Pakistan's social norms. Norms are basic in constraining implementation of various development policies and plans. Sabeeha tries to define and measure both questions and the process of development in terms of an index based on Social cultural norms conducive to development (SCNCD). This, she believes would provide measure of gap between plans and implementation and help identifying mechanism for removing it.

In the essay on "Sociology as an independent discipline," Sabeeha feels that its mere introduction at Masters level or as an academic course does not serve the purpose unless professionalism is injected in it. The author then goes on to demonstrate the application of multiple methodologies of data collection, observations, survey and content analysis, etc. in research of divergent problems like career planning, trade unions' delimitas, sex role images in the text books prescribed for adult literates. The essay is a useful model for research scholars in Pakistan.

Sabeeha then moves onto the second part of the book where she discusses the current problems and challenges faced by the Pakistani society and suggests alternatives to solve these. The first essay signifies the important role of social scientists in the Muslim society in order to assess the prevailing misunderstandings about Islam and to correct them. There is a need to collect ideas and hypotheses developed by Muslim philosophers systematically in order to chalk out an effective

strategy of implementing Islam and answering questions like; what is the best strategy to teach Islamic values through government or voluntarily or through institutions such as the family. The author emphasises the need to introduce the study of folklore in order to balance the society and achieve social control through reduction of generation gap.

In the next essay, Sabeeha deals with an exclusive and most dreadful of all threats to the future of Pakistan i.e. drug addiction. The author shows her dissatisfaction over the prevalent method to cure i.e. punishment. The need to escape from worries or anxiety, or physical exhaustion, are the main reasons why people from urban slums start indulging on drug use. The addicts should therefore, be given affection, respect and care rather than being imprisoned. At all levels of society i.e. from mohallah to homes, drug addicts must be dealt with delicacy whereby personal values of the addict should be rehabilitated. "Counselling" and "assurance" is the only way out. In addition, the environment of slums should be improved through a collaborated effort of policy makers and the voluntary leaders. An incentive for people working selflessly for their mohallahs should be devised, which is to give right to speak and recognition of their suggestions by implementing their recommendations.

In the next essay the author identifies child labour as another threat to development. Under the law, children under 14 are not allowed to work while there is no permission to employ teenagers between 14-17 years. But no legal prohibitive provisions exist and there is evidence that employers exploit children in the name of apprenticeship. Children definitely contribute to production but do not enjoy their legitimate rights as employees. One way is to deliver education but some children are forced to do jobs after school. Education is an alternative to child labour which will be effective only when parents and children are provided incentives to convince them that education can deliver the good for them. Recreational facilities like boy scouts, girl-guides, youth hostels and sports clubs should be enhanced without any fees etc. from the poor. To curb exploitation in apprenticeship, trade unions with grants-in-aid by the government and funds from the philanthropists, may install plants such as bakeries and garments factories, where children would be paid fixed remunerations for working.

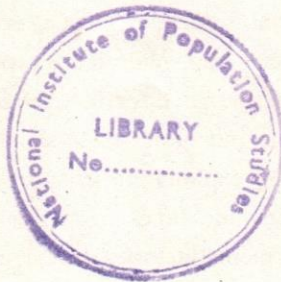
Book Review

Finally the author calls for an intense need for a women's university. But there is need to make practical exercises a compulsory part of course syllabi, i.e. courses that should bring women in direct contact with the working world. The author suggests a three point agenda which calls for encouragement, participation of women in competitive sports and establishment of women's studies centres by the existing universities, in order to hasten an environment for an independent women university. Women's rights and privileges as granted by our religion must be understood and studied in order to plan a much free and useful role for the society.

Sabeeha acknowledges that the goal of Islam is universal human brotherhood, which does not exclude and must include the goal of universal sisterhood. In this pretext the author stops women from demanding rights from men and emphasises scholarship and research to change the interpretation of the structure of Quranic Knowledge from Women's point of view. "Our rights are given to us by God, and not by men", states Sabeeha while she stresses the need of tolerance and understanding between the men and the womenfolk. This she recommends should be the premise of the women's movement in Pakistan.

The book, thus, covers a variety of issues and societal problems and is easily readable as written in a very simple language. However, undue length of sentences at times irritates the reader. The author discusses a variety of divergent issues whereby some of them are discussed in detail while others very briefly. There is an evident dearth of balance as each essay discusses an independent subject however the author maintains the theme of the book: Society's constant grapple with change both at the individual and collective level.

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Nawazish Ali Asim
Technical Editor

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