Comment

A Re-examination of Fertility Transition in Pakistan[*]

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Pakistan is passing through an early stage of fertility transition. The slow-paced transition has been analysed in an earlier study done by Sathar and Casterline (1998), which concludes that the increase in the levels of prevalence has accelerated the fertility transition in Pakistan and as a consequence marital fertility has declined. However, this claim is not supported by the relevant statistics. A re-examination reveals that the effect of contraception is the lowest in the decline of fertility. The rise in marriages and breastfeeding has played a significant inhibiting role in the decline of fertility and marital fertility has remained constant. The structural adjustment programme (SAP), initiated in late 1980s, has led to more poverty and the proportion of never-married has increased in Pakistan as revealed by the Population Census 1998. Labour force participation by the females increased in the post-SAP period. The new economic situation appears to be indirectly responsible for the decline of fertility, and it appears to be consistent with the Malthusian macro theory of fertility.

INTRODUCTION

Fertility transition is a transformation from a natural fertility regime to a regulated one depending upon the rate of decline in the total fertility rate (TFR). The pace of this transition in Pakistan has been very slow despite the fact that a family planning programme was put in operation about 35 years ago to bring about a rapid decline in fertility levels. The TFR remained constant through early 1960s to late 1970s [Farouqui and Farooq (1971); Population Planning Council (1976)]. However, a slight decline in TFR was revealed in the Pakistan Contraceptive Prevalence Survey 1984-85 [Population Welfare Division (1986)], where it shifted from the level of 6.3 to a new level of 6.0. The onset of fertility transition has since been observed in the succeeding surveys, which show very slow progress.

The problem of slow transition mostly relating to supply side, if viewed at aggregate level, encompassed the entire social sector including the family planning programme. The presumed latent demand for fertility regulation was not crystallised through a strategic implementation of the population policy. The unmet need repeatedly

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revealed in the previous population surveys remains an unassailable task for the management. The sustained level of widespread contraceptive knowledge, unmet need, and the decline in fertility aspirations have not capitalised to a level where a rapid pace in fertility transition towards a regulated reproductive behaviour can be envisioned in the near future. Many surveys have indicated that the use of contraception has largely been for the limiting purposes among the high parity women, indicating that the programme, after many years of operation, remained at the infancy stage for a longer duration than the other Asian programmes of similar age. The programme success can be gauged by the amount to which it increasingly covers women who are at their prime reproductive age and use methods for parity-specific restraint on fertility.

The slow-paced fertility transition was analysed by Sathar and Casterline (1998) arguing that "The decline is gentle but nevertheless represents a genuine break from the past, most notably because of the increasing use of modern contraception for the purpose of limiting family size". The finding of the study that the increase in contraceptive use led to the decline in marital fertility ("This rise in [the] proportion of married women using contraception is the most compelling evidence that marital fertility is declining") was not supported by the data in that study. This unsubstantiated result does not hold when analysed using the same data set. In the analysis, Sathar and Casterline (1998) argued that "All demographic analyses point to a decline in fertility in the 1990s". However, a plausible explanation for the significance of the period of 1990s in the decline of fertility was not offered, one that would be consistent with the macroeconomic theory of fertility. These three weak areas of the study, namely, dominant role of contraception in fertility transition, decline in marital fertility, and the significance of the period of the 1990s, are being re-examined here partially with the help of the Proximate Determinants of Fertility Model developed by Bongaarts. [Bongaarts (1978).]

The TFR is a standard measure of fertility and is heavily influenced by the proximate determinants that keep changing as time progresses, and produce varied degrees of influence on TFR that remain concealed if fertility transition is viewed simply by levels of TFR alone. The TFR is heavily influenced by the changes in the timing of births in a population even if completed fertility remains the same and, therefore, is not used as an indicator for completed fertility.

Although one may observe an increase in the prevalence rate, it cannot be concluded that it will produce a proportional decline in fertility unless controlled for other proximate determinants, especially when the prevalence levels remain low with a declining trend in the breastfeeding levels in Pakistan.

The experience with the World Fertility Survey-75 (WFS) led Bongaarts to redefine fertility transition in terms of the levels of TFR ranging downwards from 6.0 and over to 3.0 and less into four phases, each one delineated by compatible levels of proximate determinants that would transform the transition from a natural fertility level to a regulated one distinctly marked by higher prevalence levels [Bongaarts (1984)].

When viewed within the framework of Bongaarts' transition model, the slow-paced fertility transition in Pakistan has been passing through the earlier stage of transition phase one if looks at it by the prevalence level, and in phase two if evaluated at the level of TFR, where the registered decline in TFR may not produce a similar proportion of downwards trend in marital fertility due to the momentum effect of fertility-enhancing factors flowing in from the natural fertility regime. This is probably the reason why fertility, when observed through the TMFR, does not show a concurrent decline apparently witnessed in the TFR.

The objective of this paper is to analyse the dynamics of the proximate determinants which were considered mainly responsible for a 15 percent observed decline in the TFR during more than one generation long period, and to quantify the amount of family planning programme contribution in this decline. The aggregate measurement of the family planning programme contribution will include both programme and non-programme efforts. Moreover, the prevalence rate of 24 percent, which includes traditional methods, was used in the calculations. The benefit of the inflated programme effect will not be netted out in this paper.

The secondary sources of data from various previous surveys [Population Planning Council (1976); NIPS (1992); NIPS and LSHTM (1998)] have been utilised in this paper. The data collection methodologies for the surveys are explained in the first reports of the respective surveys.

ESTIMATION OF FERTILITY DECLINE

The observed decline in fertility was registered as only 14 to 15 percent from the 1975 to 1996 (Table 1). The age-specific decline witnessed in the first two age groups of 15–24 appears to be related more to rising age at marriage than to a deliberate control of fertility for spacing purposes. There appeared to be a gradual decline in fertility between the age groups of 25–39 years. There is almost non-existent

Table 1

Percentage Change in Age-specific Fertility Rates in Pakistan: 1975–84

Age Group	PFS-75[1]	PDHS-91[2]	PFFPS-96[3]	%Δ DHS-PFS	%Δ PFFPS-PFS
15–19	131	84	83	−35.878	−36.641
20–24	275	230	249	−16.364	−9.44
25–29	315	268	278	−14.921	−11.746
30–34	259	229	215	−11.583	−16.988
35–39	188	147	148	−21.809	−21.277
40–44	77	73	75	−5.195	−2.597
45–49	11	40	24	263.636	118.182
TFR	6.3	5.4	5.36	−14.286	−14.921

Source: PPCP[1] (1976), Table 3.7, NIPS[2] (1992), Table 4.3, NIPS and LSHTM[3] (1998), Table 6.4b .

decline in fertility for the age group of 40–44, and interestingly an increase in the last age with a varying degree of magnitude both in the Pakistan Demographic and Health Survey (PDHS) 1990-91 and the Pakistan Fertility and Family Planning Survey (PFFPS) 1996-97 surveys. Similar findings were also reached when fertility trends were analysed using parity progression ratios (PRR) in a cohort analysis which concluded that "there is also a substantial proportion of women who have not participated in the fertility transition, so that the higher parities continue to be sustained at a high level". [Blacker and Hakim (1999).]

The total decline in TFR from the period between PFS-75 and DHS-91 appeared to be 14 and 15 percent when estimated in between PFS-75 and PFFPS-97. The decline in the TFR is also estimated through the changes in proximate determinants using the Jain and Adlakha (1982) method to indirectly judge the consistency level between observed and derived change in the TFR. The indirect estimates of the change in fertility appear to be very close to the observed change in fertility (Table 2).

The inhibiting effect of non-marriages increased over time, whereas the index of breastfeeding shows an opposite effect from the PFS-1975 to the PFFPS-1997 and lost its inhibiting effect over time. Despite the declining trend in breastfeeding, it still exerted the same level of effect as compared to the effect of non-marriages. The inhibiting effect of contraception increased over time, but not to the level observed for the other factors (Table 2).

However, there appears to be a slight over-estimation in the measurement of the magnitude of fertility decline as compared to the observed decline that ranges in between 14 and 15 percent. The overestimate of change in fertility in between 15 and 19 percent decline is indicative that there was more than 10 percent of decline in breastfeeding levels during the two time-periods. [Appendix Table A1]. [Jain and Adlakha (1982)].

Table 2

Estimates of Ratio Indexes of Proximate Determinants of Fertility: 1975–97

Indexes	PFS	DHS	PFFPS	Ratio Index PFS/DHS	Ratio Index PFS/PFFPS
Non-marriages C_m	0.788	0.682	0.678	0.865	0.860
Contraception C_c	0.955	0.891	0.783	0.933	0.820
Lactational Infecundibility C_i	0.593	0.625	0.677	1.054	1.142
Total	0.446	0.380	0.359	0.851	0.805

INHIBITING EFFECT OF PROXIMATE DETERMINANTS

The observed fertility levels found in the three previous surveys are adjusted with the total fecundity which provided the number of births prevented per woman, and are prorated according to the indices derived through the Bongaart's method to study the individual effect of each proximate determinant in the reduction of births. The total fecundity level used in the paper is 14.5 as established by the previous research. [Sathar (1984)].

The impact of the rise in age of marriage played an important role and its effect increased from 29 percent to 38 percent by the year 1996 and decreased by almost 3 births. The effect of contraception in the decline of natural fertility also increased from a mere 6 percent in 1975 to 24 percent in the year 1996, or it increased from the reduction of half a birth to two births by the year 1996. (Table 3.) However, the effect of decline in breastfeeding levels contributed to a decline of fertility with a declining trend in its inhibiting effect, with a decrease from 65 percent in 1975 to 38 percent in the year 1996, or from the reduction of 5 births in 1975 to 3 births in 1996. The continuous decline in breastfeeding[1] implies the need for higher levels of prevalence to compensate for the loss in inhibiting effect due to declining trends in breastfeeding.

However, the effect of contraception appeared to be the lowest in the decline of fertility when compared to the effect of other proximate determinants, and this result is opposite to the one given in an earlier study (Table 3). [Sathar and Casterline (1998).]

FERTILITY TRANSITION AND MARITAL FERTILITY

At the early stage of fertility transition, as is the case in Pakistan, the decline in TMFR is preceded by the decline in TFR. However, decline in TFR cannot be equated for a proportional decline in natural TMFR unless the prevalence levels rise well above the other lingering natural fertility-related neutralising effects. Bongaarts observed from the experience of World Fertility Survey (WFS) participating countries that marital fertility declines very slightly during the initial phase of fertility transition [Bongaarts (1984)]. On the other hand, research findings from India suggests that "time series data also suggest that as use spreads within the population, it may initially be accompanied by a constant or even increasing natural marital fertility. Not possibly

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[1]The mean duration of breastfeeding reported in the PFFPS-96 was higher than the levels found in the PFS-75 and a different methodology was used as against that in the previous surveys. However, the mean duration of 22.5 months of breastfeeding revealed in the PFPPS-96 appears to be on the higher side when compared to a declining trend indicated from the levels found in the previous two surveys, the PFS-75 and the DHS-91 (Table 8). The estimate of mean duration included those children who were ever-breastfed but did not include those children who were never-breastfed, and this drawback was removed from the new estimate of the mean duration. For further details, refer to Sara Miller, "Trends in Breastfeeding in a Dozen Developing Countries", *International Family Planning Perspectives*, 12:3 (September, 1986). Moreover, the estimate contained a methodological drawback of not being compatible with the similar estimates obtained from the previous surveys. [PFFPS Report (1998)].

Table 3

Contribution of Proximate Determinants in Reduction of Births
Per Woman in Pakistan, 1975–1996

Proximate Determinants	PFS-75			DHS-91			PFFPS-97		
	Index	Absolute Change in TF	Relative Change	Index	Absolute Change in TF	Relative Change	Index	Absolute Change in TF	Relative Change
Non-marriages	0.788	2.421	29.524	0.682	3.60	39.56	0.678	3.471	37.976
Lactational Infecundibility	0.593	5.311	64.768	0.625	4.42	48.57	0.677	3.484	38.118
Contraception	0.955	0.468	5.707	0.891	1.08	11.87	0.783	2.185	23.906
Total (TF-TFR)	8.2	8.2	100.00	9.1	9.1	100.00	9.14	9.14	100.00

until 50 percent or more of women aged 35–44 are controlling fertility does observed marital fertility decline". [Srinivasan, Jejeebhoy, Easterlin and Crimmins (1984)].

Because of this drawback of the stubborn nature of MTFR at the initial stage of transition, marital fertility is not regarded as a good indicator of the stage of a phase in fertility transition [Srinivasan, Jejeebhoy, Easterlin and Crimmins (1984)]. The estimates of MTFR suggest that marital fertility in Pakistan has remained well above 7.00 and the observed fluctuations in the estimates across the surveys are probably a result of the sampling errors.

The estimate of reported MTFR in the first report of the PFFPS-96 was 7.6 but no age-specific marital fertility breakup was given in the final report. The estimate of MTFR was calculated again by inflating it with the proportion of currently married women reported in Table 5.3a. [PFFPS Final Report (1998)].[2] The MTFR estimate of 7.9 from the PFFPS-96 survey depicted a constant level of natural marital fertility that is theoretically and empirically consistent with the experience of other countries (Table 4). The finding of Sathar and Casterline (1998), that decline in marital fertility has begun in Pakistan, is not supported by the data. It is very surprising to note that the finding on decline in marital fertility in Sathar and Casterline (1998) paper was not based on any empirical evidence on the levels of MTFR in Pakistan from different surveys.

Table 4

Age-specific Marital Fertility Rates in Pakistan, 1963–96

Age Group	PGE 1963 LR[3]	PGS 1968-71	NIS-1969	PFS-75	PCPS-85	PDHS-91	PFFPS-96
15–19	367	187	251	264	272	346	323
20–24	276	275	310	355	334	386	430
25–29	306	284	335	362	289	322	328
30–34	295	265	294	286	260	248	229
35–39	199	213	174	221	232	159	158
40–44	90	138	90	104	141	75	82
45–49	51	105	5	9	89	44	26
MTFR	7.9	7.34	7.3	8.0	8.1	7.9	7.9

Source: Alam (1984), Table 5.3, PWD (1986), Table V.2, NIPS (1992), NIPS and LSHTM (1998).

[2]The age-specific marital fertility rates were calculated by inflating the age-specific fertility rates g(a) by the proportion of currently-married women. The age-specific marital fertility for the first group g(15–19) was estimated as 0.75 g(20–24). The TMFR appeared to be 7.9, slightly higher than the figure of 7.6 reported in the first report. The MTFR figure in the survey was reported but no age break-up was given. [PFFPS Report (1998), Tables 5.3a and 6.4b].

[3]The Population Growth Estimation (PGE) Experiment contained a dual record type capturing of the vital events in a longitudinal registration (TMFR 7.9) and cross-sectional surveys from 1962-65. The Chandra-Deming theoretical estimate (TMFR 10.2) was also calculated through a matching of events by application of the probability theory. The average of the longitudinal registration and Chandra-Deming method revealed the TFR figure of 9.1.

The levels of contraceptive use at the later age groups, especially at 35 and onwards, were not sufficient to produce an impact on marital fertility (Table 5). The desired fertility transition witnessed in TFR would reflect through the MTFR when higher levels of parity-specific use of modern methods are reached in Pakistan.

Table 5

Age-specific Prevalence Levels in Pakistan: 1985–1996

Age Group	PCPS-85	PDHS-91	PFFPS-96
15–19	1.4	2.6	6.2
20–24	4.4	6.3	9.9
25–29	7.8	9.6	21.0
30–34	11.9	13.4	30.6
35–39	12.4	20.4	33.8
40–44	12.2	15.8	35.4
45–49	13.1	11.8	27.5
Total	9.1	11.8	23.9

Source: NIPS (1992) Table 5.5, and NIPS and LSHTM (1998) Table 7.8a.

SOCIOECONOMIC CONDITIONS IN 1990s

The Government policies relating to social sector and overall restructuring of the economy were initiated during the fiscal year 1987-88 with the introduction of an economic austerity strategy which is being implemented through Structural Adjustment Programme (SAP).[4] This has resulted in increased poverty levels both in urban and rural areas, produced a high unemployment rate as a result of privatisation of the economy, downsizing in the banking sector and other labour-intensive projects, and reduction in remittances, coupled with a high inflation rate that surfaced in early 1990s and virtually slowed down the entire economy [Mahmood (1998)]. The experience of Pakistan and other countries with SAP suggests that "structural adjustment programmes in some countries in terms of better growth performance and improved balance-of-payments position…have been politically unpopular because they result in aggravation of inequalities in society, enhance unemployment and disproportionately hurt the lower and middle-income groups" [Khan (2000)].

[4]The Structural Adjustment Programme (SAP), suggested jointly by the World Bank and the International Monetary Fund to Pakistan, that was started from the fiscal year 1987-88 meant that the country's economic performance would be evaluated on the basis four components which included the rate of real Gross Domestic Product (GDP) growth, the ratio of domestic savings to GDP, the ratio of domestic investments to GDP, and the ratio of exports to GDP. There were five basic conditionalities which were attached to the SAP that included the abolition or liberalisation of foreign exchange and import controls, devaluation of the currency, a strong anti-inflation programme by controlling wage and salary increases, dismantling of price controls, greater opening up of the economy to international commerce, and privatisation of the public sector. For details, refer to Khan (2000).

According to recent estimates, poverty has risen by 88 percent since 1987-88, raising the number of poverty-stricken people from 17.8 million in 1987-88 to 43.9 in 1998-99 [*Economic Survey* (2000)]. The slow-down of economy during these years produced shocks at the household level by altering the available household resources through relative changes in income and the price of goods and services that the household consumed. The economic restructuring, therefore, altered the cost structure of the household as a result of market responses, which also affected, among other costs, the cost of raising children both in terms of direct cost and opportunity cost of time to women.

It has been observed that the delay in marriages does not show any differentials by education: "It is hard to conclude using cross-sectional data that rise in age at marriage is caused by pursuit of educational opportunities particularly because it is occurring even among uneducated people" [Sathar and Kiani (1998)]. The differentiating factor appears to be that economic hardship ensued with the SAP and influenced the marriage rate downwards, where the normal effect of socioeconomic variables disappeared among all the population strata.

The neighbouring Sri Lanka underwent a similar demographic situation in the 1970s to that which Pakistan appears to have been experiencing since early 1990s. Economic hardships influence demographic variables, as has been pointed out by De Silva (1990): "Marriages were delayed as a result of economic hardship or increased mortality to the mid-1970s, but once the overall economy improved after 1977, more marriages took place". Namboodri (1983) observed that, initially, it was the rising age at marriage that caused the total fertility rate (TFR) to fall. The rising trend in marriage age in Sri Lanka stalled in the latter half of the 1970s and at about the same time the TFR levelled off and even began to show signs of going up.

It was found that the proportion of females remaining single at age groups 15–19 and 20–24 rose from 45 to 79 percent and from 18 to 39 percent, respectively, from 1951 to 1998 (Table 6). The proportion of persons remaining single revealed changes for men except for the age group of 15–19. Sathar and Kiani (1998) observed that females were experiencing more changes in marriage patterns than men. This new pattern of delay in the onset of reproduction is a result of the prevailing economic conditions that have led to unemployment coupled by increasing inflation rates. This is consistent with the theoretical work of Malthus who proposed the homeostasis hypothesis, that the reproduction responded positively when there were increases in real wages, which promote marriage rates and fertility and a decline in mortality. Economic prosperity historically influences marriage patterns and fertility if family planning is not widely practised, as is the case in Pakistan.

Table 6

Percentage of Males and Females by Age who Never Married:
Census 1981 and 1998

Age Group	Male		Female	
	1981	1998	1981	1998
15–19	92.36	93.87	70.56	79.37
20–24	64.40	69.95	28.22	38.63
25–29	31.15	37.13	8.71	14.77
30–34	13.80	16.09	3.89	7.24
35–39	6.19	8.07	1.72	4.35
40–44	4.39	5.37	1.60	3.65
45–49	2.48	3.76	0.99	2.47

Source: Sathar and Kiani (1998), Table 1.

Simmons, while describing the Malthusian theory of fertility, states it even more directly: "When the economic conditions of young unmarried individuals are favourable, they marry relatively early, and the fertility is high. When economic conditions are less advantageous, the age at marriage rises and fertility declines". [Simmons (1985).]

Another factor to be considered is that female labour force participation increased in Pakistan after the introduction of the SAP. (Table 7). The economic

Table 7

Age-specific Refined Labour Force Participation Rates in
Pakistan, by Sex: 1984-85 to 1996-97

Age Group	1984-85		1994-95		1996-97	
	Male	Female	Male	Female	Male	Female
10–14	34.8	6.6	16.5	5.8	17.2	7.6
15–19	65.5	8.5	51.1	9.6	52.9	13.1
20–24	89.9	8.7	85.5	11.7	85.1	15.1
25–34	98.6	10.4	97.2	12.8	97.3	13.8
35–44	99.0	11.2	97.9	15.7	98.5	16.7
45–54	98.7	10.3	96.9	14.8	96.4	17.6
55–64	94.8	5.7	15.2	91.5	85.1	17.3
65 +	67.1	4.0	9.2	62.6	53.4	10.4
Total	77.1	8.7	69.1	11.4	70.0	13.6

Source: *Labour Force Surveys* 1984-85, 1994-95, and 1996-97.

restructuring may modify capacity of labour force absorption by sex in various industries of the economy, and has an impact on the opportunity cost of women's time for the bearing and rearing of children. One of the major indicators of women's economic status is the female labour force participation. During the restructuring of the economy, which emphasises on privatisation and downsizing, men tended to lose jobs and more women were likely to go to the labour market to make up for the lost household income [Encarnacion (1974)].

The past research, using data from PFS-75, PLM-81, and afterwards, has explored the complex inverse relationship between female labour force participation and fertility. This debate has largely remained inconclusive due to lack of appropriate information that could be linked to the wage and non-wage labour force participation and fertility, including also the relationship between the labour force participation and fertility and the employment experience of women before and after marriage.

In the case of Pakistan, female employment as measured by the simple indicator of having worked or not worked before the survey proved to be a very significant determinant of recent fertility levels [Rodriguez and Cleland (1981)]. The new trend in labour force participation probably depicts the worsening situation of the economy, by creating employment that probably hurt relatively more males while opening up opportunities for females to look for a job. This scenario reveals a trend of closure of the job opportunities rather than growth for both the sexes in Pakistan until the year 1995. The reported unemployment rate among the females was 17 percent in the year 1996, which was indicative of the fact that the economy was not able to create jobs especially for females [Appendix Table A 2]. [*Labour Force Survey* (1996-97)].

The economic shock in the shape of the Structural Adjustment Programme (SAP) produced an impact at the household level. The data from Census-1998 and the surveys have pointed towards changes in marriage rates, fertility, and use of contraception. Economic hardships slowed down the marriage rates as revealed in the reported increased number of never-married persons by gender, place of residence, and level of education. The increased poverty level resulted in the rise of the cost of children. The sustained decline in fertility, threefold increase in contraception use by men, and choice of the most effective contraceptive methods which provided longer duration of protection against pregnancy are indicative of a changed approach towards the reproductive process. The combined effect of the economic factors may produce a major impact on the fertility level in Pakistan.

It was expected that after the downturn of the economy, women and children, the particularly vulnerable section of the society, would suffer the most to bear the fallout of economic hardships. As the census data point to an improvement in the survivorship of females, and other data sources also confirm an increase in female

life expectancy and increased female level of labour force participation, these changes are indicative of the fact that the reversed economic situation probably helped females in terms of the rise in their economic status and empowerment at the household level decision-making. However, these demographic effects appear to be provisional, and the real effects may further deepen, as the economy has not yet recovered from the state of recession.

CONCLUSION

The onset of fertility transition, which apparently was witnessed in the year 1984, appears continuous in the surveys that followed afterwards. The reported decline in TFR was approximately 15 percent until the year 1996 in comparison to the fertility levels revealed in 1975. The decomposition of proximate determinants reveals that fertility decline occurred largely on account of the rise in age at marriage and also due to the decline in breastfeeding. The research finding of Sathar and Casterline (1998), that contraception played a significant role in the fertility transition in Pakistan, is not supported by the data. The contribution of contraception was found to be the lowest in the decline of fertility. The mean duration of breastfeeding levels declined by three months in 1996 from the levels revealed in 1991. The declining effect of breastfeeding was most probably due to the reported rising female education, which increased fivefold over the levels found in the 1981 Census [The Mahbubul Haq Human Development Centre (2000)]. The other factor responsible for the decline in breastfeeding, as suggested by the research findings elsewhere [Jain and Bongaarts (1981)], is the process of urbanisation, which increased from 28.1 to 32.5 percent—an upwards change in urbanisation by 16 percent from the levels found in the Population Census, 1981. The slight overestimation of indirect change in fertility over the observed one is further evidence that breastfeeding declined was more than 10 percent in magnitude than the levels found in 1991.

The transition witnessed in the TFR did not start in the MTFR and it remained constant between 1991 and 1997; thus the claim for marital decline by Sathar and Casterline (1998) does not hold. It will take a higher level of prevalence for the transition to shift towards a regulated fertility after a visible decline takes place in marital fertility, as has been demonstrated in the research done by Bongaarts (1984).

The use of contraceptives increased twofold mostly in the 1990s, from 12 percent in 1990 to almost 24 percent in 1996. The increase in the proportion of never-married also went up during the intercensal period without the influence of socio-economic factors, as revealed in the Population Census, 1998. The focal point of the 1990s in the fertility transition indicates a major influencing factor in operation, the Structural Adjustment Programme, which was introduced in Pakistan in the late 1980s and had wide-ranging social and demographic effects. It caused an increase in the poverty levels both in the urban and the rural areas of the country, rise

in unemployment due to privatisation of the economy, downsizing in banking and in other large labour-intensive projects, coupled with a decline in remittances and increasing levels of inflation during the 1990s. The real income of households apparently was affected as the poverty levels have been increasing since 1987-88.

The poverty-inducing adverse effects of the Structural Adjustment Programme are probably responsible for a change in demographic parameters, especially of the marriage rates, which influenced a decline in fertility while contraceptive prevalence levels remained almost constant. This is theoretically consistent with the macro theory of fertility. There is historically consistent proof, ranging from Malthus to Neo-Malthusian schools of thought, that the economic conditions influenced the marriage rates heavily. The apparent decline in fertility in Pakistan was largely due to the rise in the age at marriage. However, this rise appears to be transitory. Once the economic conditions improve and prosperity returns, there is a likelihood that the effect of marriages on fertility transition may show an opposite trend if the desired fertility transition is not witnessed in marital fertility.

Improvement in the quality of service delivery in family planning clinics, restructuring of the decision-making process which is responsive to the local marketing needs, and training and motivation of the personnel appear to be the factors that need to strengthened to arrest the effects of economy-led positive demographic benefits in the fertility transition.

Appendices

Appendix Table A 1

Mean Duration of Breast-feeding in Pakistan,1975–97

	PFS-75	DHS-91	PFFPS-1996-97
Mean Duration (Months)	21.92	20.0	17.1

Source: Shah (1984), Table A1; Sathar and Ahmed (1992), Table 7.8; PFFPS (1996-97).

Appendix Table A 2

Unemployment Rates in Pakistan: Labour Force Surveys 1990–1997

Year	Total	Male	Female
1990-91	6.28	4.54	16.83
1991-92	5.85	4.27	14.23
1992-93	4.28	3.38	8.67
1993-94	4.84	3.89	10.03
1994-95	5.37	4.10	13.67
1996-97	6.1	4.2	16.8

Source: FBS (1998).

REFERENCES

Alam, Iqbal (1984) Fertility Levels and Trends in Pakistan. In Iqbal Alam, and Betzy Dinesene (eds) *Fertility in Pakistan: A Review of Findings from the Pakistan Fertility Survey*. Voorburg, Netherlands: International Statistical Institute.

Blacker, John, and A. Hakim (1999) Fertility and Mortality in Pakistan: New Evidence from 1996-97. *Pakistan Fertility and Family Planning Survey*. National Institute of Population Studies, Islamabad.

Bongaarts, John (1978) A Framework for Analysing the Proximate Determinants of Fertility. *Population and Development Review* 4:1 105–132.

Bongaarts, John (1984) The Fertility Inhibiting Effects of Intermediate Fertility Variables. *Studies in Family Planning* 13:6/7.

Bongaarts, John, and Robert G. Potter (1983) An Aggregate Fertility Model in Fertility, Biology and Behaviour: An Analysis of Proximate Determinants. New York: Academic Press.

De Silva, W. (1990) Age at Marriage in Sri Lanka: Stabilising or Declining? *Journal of Biological Science* 22:4 395–404.

Encarnacion, J. (1974) Fertility and Labour Force Participation: Philippines 1968. *The Philippine Review of Economics and Business* 11: 2.

Farouqui, M. N. I., and G. M. Farooq (1971) Final Report of the Population Growth Experiment, 1962-1965. Pakistan Institute of Development Economics, Dacca.

Federal Bureau of Statistics (FBS) (1998) *Labour Force Surveys 1990-97*. Statistics Division, Government of Pakistan, Islamabad.

Jain, Anurudh K., and Arjun L. Adlakha (1982) Preliminary Estimates of Fertility Decline in India During the 1970s. *Population and Development Review* 8:3 589–606.

Jain, Anurudh K., and John Bongaarts (1981) Breastfeeding: Patterns, Correlates, and Fertility Effects. *Studies in Family Planning* 12: 3.

Khan, A. A. (2000) Structural Adjustment Programmes: Nature and Impact. The International News, Business and Finance, Rawalpindi-Islamabad, Pakistan, August 28.

Mahmood, Zafar (1998) A Social Strategy for Pakistan. Pakistan Institute of Development Economics, Islamabad. (Research Report No. 163.)

Namboodri, K. *et al.* (1983) Case Studies of the Determinants of Fertility Decline in and Sri Lanka. Washington, D. C. (World Bank Report No. 3.)

National Institute of Population Studies (NIPS) (1992) *Pakistan Demographic and Health Survey 1990-91*. National Institute of Population Studies, Pakistan, and IRD/Macro International Inc. Columbia, Maryland, USA.

National Institute of Population Studies (NIPS) and London School of Hygiene and Tropical Medicine (LSHTM) (1998). Pakistan Fertility and Family Planning Survey 1996-97 (PFFPS) Main Report, Islamabad.

Pakistan, Government of (2000) *Economic Survey 1999-2000*. Ministry of Finance, Islamabad.

Population Census Organisation (1999) Provisional Results of Fifth Population and Housing Census, March, 1998. Islamabad.

Population Planning Council of Pakistan (PPCP) (1976) Pakistan Fertility Survey: First Report. Population Division, Islamabad, Government of Pakistan.

Population Welfare Division (PWD) (1986) *Pakistan Contraceptive Prevalence Survey 1984-85*. Islamabad, Government of Pakistan.

Rodriguez, German, and John Cleland (1981) Socio-economic Determinants of Marital Fertility of Twenty Countries. In *World Fertility Survey Conference 1980: Record of Proceedings.* Vol. 2. Voorburg: Netherlands, International Statistical Institute.

Sathar, Zeba (1984) Intervening Variables. In Iqbal Alam, and Betzy Dinesene (eds) (1984) *Fertility in Pakistan: A Review of Findings from the Pakistan Fertility Survey.* Voorburg: Netherlands. International Statistical Institute.

Sathar, Zeba, and John Casterline (1998) The Onset of Fertility Transition in Pakistan. *Population and Development Review* 24:4 773–796.

Sathar, Zeba, and M. F. Kiani (1998) Some Consequences of Rising Age at Marriage in Pakistan. *The Pakistan Development Review* 37:4 541–556.

Sathar, Zeba, and T. Ahmed (1992) Proximate Determinants of Fertility. In National Institute of Population Studies (NIPS) and London School of Hygiene and Tropical Medicine (LSHTM) (1998). Pakistan Fertility and Family Planning Survey 1996-97 (PFFPS) Main Report, Islamabad.

Shah, Iqbal (1984) Socio-economic Differentials in Breastfeeding. In *Fertility in Pakistan: A Review of Findings from the Pakistan Fertility Survey*. Voorburg: Netherlands, International Statistical Institute.

Simmons, George B. (1985) Theories of Fertility. In Ghazi M. Farooq and George B. Simmons (eds.) *Fertility in Developing Countries: An Economic Perspective on Research and Policy Issues*. London: The Macmillan Press.

Srinivasan, K., Shireen Jejeebhoy, Richard Easterlin, and Eileen Crimmins (1984) Factors Affecting Fertility Control in India: A Cross Sectional Study. *Population and Development Review* 10: 2 273–298.

The Mahbubul Haq Human Development Centre (2000) *Human Development in South Asia 2000*. Islamabad: Oxford University Press.