Family Planning and Fertility in Bangladesh

In addition to further strengthening the family planning and reproductive health programme, the government should attach greater ptiority to enhancement of women's status, especially through increased female educational and employment activities

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Bangladesh has achieved a considerable increase in contraceptive use over the past decade, resulting in an appreciable decline in fertility. The programme efforts have been largely facilitated by major changes over the past two decades, both positive and negative. Positive changes include female education, female empowerment, female mobility and access to the media. Negative changes include increasing landlessness, and rising unemployment and underemployment. Also, other changes have taken place

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such as change in the family size norm and a decline in infant and child mortality (Caldwell and others, 1999). In addition, fertility decline is also due to other proximate determinants besides contraceptive use.

Bangladesh is the ninth most populous country in the world, with an estimated population of around 126 million people; except for some small island states, Bangladesh has the highest population density in the world (ESCAP, 1999).

Resource scarcity and subsistence-level economic conditions characterize the economy. Bangladesh is predominately dependent on land, with agriculture as its primary industry. Agriculture contributes about 32 per cent to GDP, with industry accounting for about 12 per cent (Government of Bangladesh, 1997a). Increasing population pressure on the land is continually decreasing the land-man ratio. The per hectare yield is among the lowest in the world (Khuda and others, 1991a).

Bangladesh is comparatively disadvantaged in terms of such key economic indicators as per capita income, i.e. US$ 240 (World Bank, 1997). The proportion living below the poverty line is quite high (78 per cent of the total population and 86 per cent of the rural population) (UNDP, 1994). Extremely low savings and investments characterize the Bangladesh economy.

The literacy rate of the population aged five years and older is 45 per cent: 48 per cent for males and 40 per cent for females (Khuda and others, 1991b). Although literacy continues to remain quite low in Bangladesh, it has shown some improvement over the years. Between 1973 and 1996, primary school enrohnent increased by 1.8 times for boys (rising from 5,060,000 to 9,113,000) and for girls by over 2.9 times (from 2,698,000 to 7,950,000). During the same period, secondary school enrolment increased by about 2.5 times for boys (from 1,343,000 to 3,277,000) and by over five times for girls (from 498,000 to 2,511,000). The school attendance rates of the population aged 5-24 years have increased between 1974 and 1991, with a considerable narrowing of gaps by gender (Khuda and others, 1991b).

There has been an increase in the number of females in the workforce, nationally as well as in rural areas. The garment industries employ over 1 million female workers, the majority of whom are unmarried. There is evidence of poverty-driven female employment, resulting from poor household economic conditions, high rates of female headship either *de jure* or *de facto* as a result of temporary male out-migration (Satilios-Rothschild and Mahmood, 1989) and higher incidence of female headship among the poor and landless households (BIDS, 1990; Rahman and Hossain, 1991). Rahman (1986) found that between 8 and 24 per cent of households send

women out in search of wage employment, and the proportion is much higher among poorer households: 50-77 per cent. The same study also found that there has been a rise in female employment since the mid-1970s and argued that the pressures of poverty may have been critical in sending women out in search of work.

Radio ownership has increased from less than 10 per cent in the early 1970s to around 32 per cent in 1997 (Mitra and others, 1997). Also, the number of daily newspapers increased from less than 100 in the early 1970s to 218, with gross circulation reaching about 2.2 million in 1996, although this is still low for a population of 126 million. In addition, access to television, although limited, has increased considerably even in the rural areas; moreover, there is some access to cable networks. The percentage of households with an electricity connection increased from 68 per cent in 1991 to 77 per cent in 1994 in urban areas and it doubled from 7 per cent to 14 per cent respectively in rural areas (Khuda and others, 1991b).

Life expectancy in Bangladesh continues to be quite low at 59 years. Although infant and childhood mortality have declined (the child mortality rate declined from 133 per thousand in 1994 to 116 per thousand in 1997, and the infant mortality rate declined from 87 per thousand in 1994 to 84 per thousand in 1997) (Mitra and others, 1997) they continue to be high owing to the relatively weak maternal and child health services, less than optimum birth spacing, and widespread malnutrition among children. According to the 1996/97 Bangladesh Demographic and Health Survey (BDHS), over half of the children aged 0-59 months show signs of chronic malnutrition or stunting and about one fifth are acutely malnourished (Mitra and others, 1997).

Objective, data and methodology

This article looks at the trends in contraceptive use and fertility levels in Bangladesh from 1975 to 1997. Also, it examines the major factors affecting contraceptive use and fertility.

National level data have been used for the 1975-1997 period. For the multivariate analysis of the determinants of contraceptive use and fertility decline, data from the 1993/94 and 1996/97 BDHS have been used.

The 1993/94 and 1996/97 BDHS employed a nationally representative, two-stage cluster sample design. In the 1993/94 and 1996197 BDHS, a total of 9,640 and 9,127 eligible women (ever-married and aged 10-49 years) respectively were interviewed. In this study, we have considered only currently married women of reproductive age: 8,842 and 8,306, respectively, from the 1993/94 and 1996/97 BDHS. Among these women, 7,510 and 6,995

respectively lived in rural areas, and 1,332 and 1,311 respectively lived in urban areas.

Two dependent variables are used: (a) current use of any contraception, and (b) children born during the three years prior to the BDHS surveys. Two categories are used for each of the two dependent variables: for the contraceptive use variable — current use of any family planning method and non-use of any method, and for the fertility change variable — no children born and one or more children born during the reference period (three years preceding the survey year, i.e. for the 1993/94 BDHS, the period is 1991-1993 and for the 1996/97 BDHS, it is 1994-1996). Logistic regression was used for each dichotomous dependent variable.

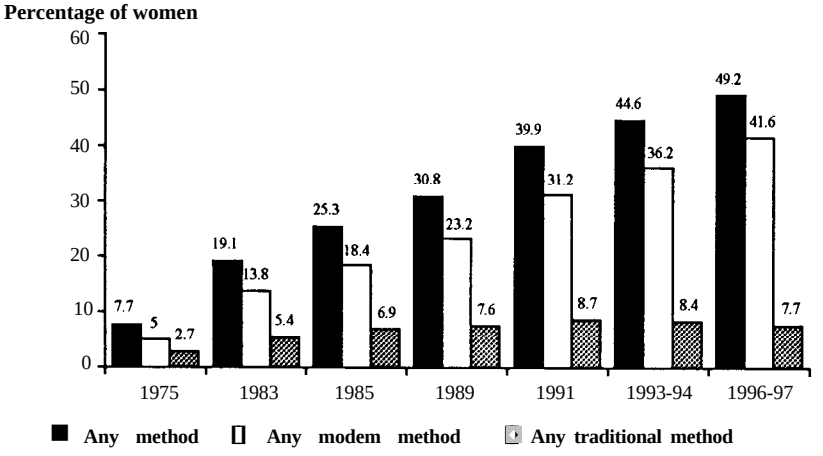
The independent variables included were the woman's age, number of children born before the reference period, desire for additional children, ever use of family planning (the dependant variable being fertility change), access to mass media, interspousal communication, mother's education, religion, employment status, possession of land, electricity connection, place of residence and geographic division.

Findings

The successive governments in Bangladesh have attached top priority to containing the rate of population growth and have strengthened and intensified family planning programme efforts (Khuda, 1984; Khuda and others, 1991b; 1992; 1993; 1994; 1997; 2000). Those efforts have resulted in almost universal awareness of at least one family planning method as well as increasingly positive attitudes towards contraception. Between 1975 and 1996/97, ever-use of any method of family planning increased five-fold, rising from 13.6 per cent to 69.2 per cent (Mitra and others 1997; Khuda and others, 1992). During the same period, the contraceptive prevalence rate (CPR) increased by over six times, rising from 7.7 per cent to 49.2 per cent (figure 1). The relative share of modern methods increased; however, the relative share of long-acting clinical methods declined. There are regional variations in contraceptive use, with Rajshahi and Khulna divisions having the highest prevalence and Chittagong and Sylhet divisions the lowest prevalence.

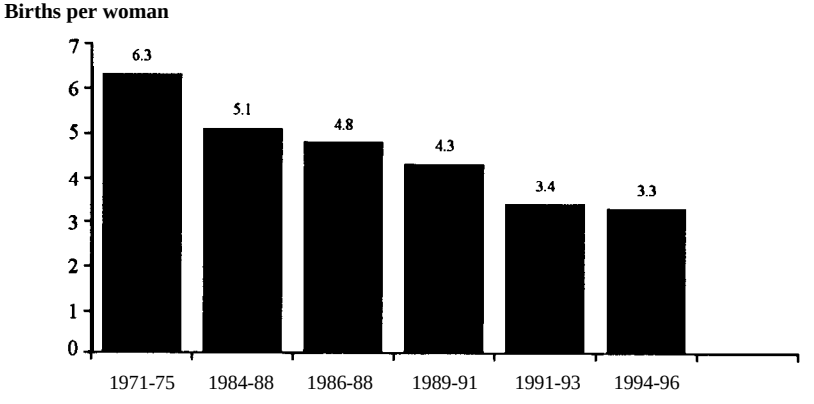
The sharp increase in contraceptive prevalence has led to an appreciable decline in fertility, with the total fertility rate (TFR) dropping by half, from 6.3 in the period 1971-1975 to about 3.3 in the period 1994-1996 (figure 2). Except for the 15-19 year age group, fertility declined substantially in all other age groups, especially among women aged 35 years and older (Mitra and others, 1997).

Figure 1. Trends in current use of family planning methods among currently married women aged 15-49 years in Bangladesh



Source: Bangladesh Demographic and Health Surveys in 1993/94 and 1996/97.

Figure 2. Trends in total fertility rates in Bangladesh, 1971-1996



Source: Bangladesh Demographic and Health Surveys in 1993/94 and 1996/97.

Tables 1 and 2 show the proportion of women currently using any contraceptive and women who did not give any birth during the reference period, by different background demographic and socio-economic characteristics, in the two surveys. The results are in the expected direction for most of the variables.

Tables 3 and 4 show the logistic regression estimates of odds ratios for the effects of selected background demographic and socio-economic characteristics of married women of reproductive age on current use of family planning methods and on fertility behaviour during the reference period respectively. Odds ratios are shown in place of regression co-efficients for the easy interpretation of results. A statistically significant odds ratio below 1.00 means a negative effect of an independent variable, while a statistically significant odds ratio above 1.00 means a positive effect. The results are in the expected direction for most variables.

The probability of contraceptive use rises significantly with age up to 39 years, and then declines. Also, the probability of contraceptive use rises with the number of children born before the reference period and declines with five or more children. The probability of contraceptive use is significantly higher among women who want no more children and those who want children after two years than those who want children within two years. Women having access to mass media have a statistically higher probability of contraceptive use than those without access. The probability of contraceptive use is significantly higher (over three times) among women reporting spousal communication than those reporting none. The probability of contraceptive use rises significantly with education. Clearly, those with schooling beyond the primary level have a higher probability of contraceptive use than those without. Indeed, the powerful effect of education on reproductive behaviour is undisputed. Data from the World Fertility Surveys and the Demographic and Health Surveys in Bangladesh and worldwide confirm the strong positive effect of education on reproductive behaviour (Schultz, 1994; World Bank, 1994). Similar evidence is also available from other studies (Cochrane, 1979; Caldwell, 1980; Jejeebhoy, 1992). Contraceptive use is higher among working women than among housewives. Working women are one third to one half more likely to be currently using contraceptives than housewives. The probability of contraceptive use is higher among non-Muslims than Muslims; among women belonging to households having electricity than those without; and among women living in urban areas compared with women living in rural areas. There appears to be little or no effect of landholding status on contraceptive use. The probability of contraceptive use is significantly higher in Rajshahi and Khulna divisions than in the other divisions of the country.

Table 1. Proportion of women currently using any contraceptive methods, by different characteristics, Bangladesh: 1993-1994 and 1996-1997

Variables	Bangladesh Demographic and Health Survey (BDHS)			
	1993/94 BDHS		1996/97 BDHS	
	Proportion of women	Number	Proportion of women	Number
Mother's age[a]				
< 25	34.0	(3,196)	38.8	(2,867)
5-29	52.6	(1,889)	52.7	(1,828)
30-39	59.1	(2,460)	62.8	(2,353)
40-49	44.0	(1,297)	45.9	(1,258)
Children born before reference period				
0	26.7	(1,968)	30.9	(1,788)
1-2	45.8	(2,650)	51.7	(2,593)
3-4	60.8	(1,959)	61.1	(1,970)
5+	51.8	(2,265)	52.9	(1,955)
Desire for more children				
Within 2 years	20.4	(1,478)	23.9	(1,343)
Later than 2 years	40.9	(1,535)	47.2	(1,431)
"Up to God"	13.5	(178)	12.3	(155)
Want no more	55.8	(5,651)	57.9	(5,377)
Access to mass media				
Has access	51.3	(4,011)	55.2	(4,126)
No access	42.4	(4,831)	44.3	(4,178)
Inter-spousal communication on family planing				
No communication	27.7	(2,729)	36.5	(4,395)
Has communication	54.8	(6,113)	64.6	(3,911)
Mother's education				
No education	42.5	(4,869)	45.6	(4,366)
Primary	47.2	(2,518)	52.2	(2,311)
Above primary	58.4	(1,455)	57.4	(1,629)
Religion				
Muslim	45.2	(7,716)	48.6	(7,359)
Non-Muslim	55.2	(1,126)	58.5	(947)
Employment status				
Housewife	44.6	(7,535)	46.3	(5,391)
Other than housewife	56.9	(1,305)	56.0	(2,907)
Possession of land				
No land	45.7	(3,748)	49.2	(3,477)
Has land	47.0	(5,094)	50.1	(4,810)
Electricity connection				
No electricity	44.5	7,074	47.6	(6,137)
Has electricity	54.0	(1,768)	56.2	(2,102)
Area				
Urban	54.4	(1,332)	60.6	(1,311)
Rural	45.0	(7,510)	47.7	(6,995)
Birth during the reference period				
No birth	51.4	(5,042)	55.4	(5,013)
Had birth	39.8	(3,800)	41.2	(3,293)
Division				
Barisal	48.3	(931)	50.4	(864)
Chittagong	30.2	(1,832)	39.0	(1,248)
Dhaka	44.9	(2,531)	50.8	(2,290)
Khulna	55.6	(1,166)	62.7	(985)
Rajshahi	55.3	(2,382)	59.5	(2,111)
Sylhet	—	—	21.3	(808)
Total		**(8,842)**		**(8,306)**

[a] For the 1993/94 BDHs, communication occurred during the year prior to the survey, for the 1996/97 BDHS, communication occurred during the three month prior to the survey.

Table 2. Proportion of women wbo bad no birth during the reference period, by different characteristics, Bangladesh: 1993/94 and 1996/97

Variables	Bangladesh Demographic and Health Survey (BDHS)			
	1993/94 BDHS		1996/97 BDHS	
	Proportion of women	Number	Proportion of women	Number
Mother's age				
< 25	41.0	(3,196)	40.8	(2,867)
25-29	48.8	(1,889)	51.4	(1,828)
30-39	68.2	(2,460)	73.2	(2,353)
40-49	87.4	(1,297)	94.0	(1,258)
Children born before reference period				
0	44.1	(1,968)	45.1	(1,788)
1-2	46.0	(2,650)	50.0	(2,593)
3-4	64.7	(1,959)	69.8	(1,970)
5+	74.4	(2,265)	78.5	(1,955)
Desire for more children				
Within 2 years	30.9	(1,478)	29.2	(1,343)
Later than 2 years	68.9	(1,535)	67.4	(1,431)
"Up to God"	53.9	(178)	57.4	(155)
Want no more	38.8	(5,651)	34.4	(5,377)
Access to mass media				
Has access	54.2	(4,831)	57.1	(4,178)
No access	60.4	(4,011)	63.6	(4,126)
Inter-spousal communication on family planning				
No communication	67.5	(2,729)	67.0	(4,395)
Has communication	52.4	(6,113)	52.9	(3,911)
Mother's education				
No education	56.7	(4,869)	58.6	(4,366)
Primary	56.6	(2,518)	60.9	(2,311)
Above primary	58.8	(1,455)	64.3	(1,629)
Religion				
Muslim	56.5	(7,716)	59.3	(7,359)
Non-Muslim	60.4	(1,126)	68.3	(947)
Employment status				
Housewife	56.0	(7,535)	58.2	(5,391)
Other than housewife	63.1	(1,305)	64.3	(2,907)
Possession of land				
No land	54.9	(3,748)	57.8	(3,477)
Has land	58.6	(5,094)	62.3	(4,810)
Electricity connection				
No electricity	55.8	(7,074)	58.6	(6,137)
Has electricity	61.9	(1,768)	65.1	(2,102)
Area				
Urban	63.0	(1,332)	66.8	(1,311)
Rural	56.0	(7,510)	59.1	(6,995)
Ever use of family planning methods				
Not used	53.9	(2,826)	55.0	(2,291)
Used	58.5	(6,016)	62.4	(6,015)
Division				
Barisal	57.7	(931)	61.6	(864)
Chittagong	48.4	(1,832)	52.6	(1,248)
Dhaka	56.7	(2,531)	60.7	(2,290)
Khulna	63.2	(1,166)	68.3	(985)
Rajshahi	60.7	(2,382)	63.3	(2,111)
Sylhet	–	–	52.6	(808)
Total		(8,842)		(8,306)

Table 3. Logistic regression estimates of the odds ratios (exp[β]) of characteristics of married women of reproductive age who are currently using contraception in Bangladesh: 1993/94 and 1996/97

Characteristics	Bangladesh Demographic and Health Surveys (BDHS)	
	1993/94	1996/97
Age of women (in years)[a]		
< 25 (RC)	1.00	1.00
25-29	1.30[d]	1.13
30-39	1.56[d]	1.81[d]
40-49	0.99	1.10
Children born before reference period		
0 (RC)	1.00	1.00
1-2	1.86[d]	1.98[d]
3-4	3.00[d]	2.55[d]
5+	2.78[d]	2.27[d]
Desire for more children		
Within 2 years (RC)	1.00	1.00
Later than 2 years	2.61[d]	3.05[d]
"Up to God"	0.80	0.66
Want no more	3.15[d]	3.17[d]
Mass media		
No access (RC)	1.00	1.00
Has access	1.20[d]	1.24[d]
Inter-spousal communication on family pinning		
No communication (RC)	1.00	1.00
Has communication	3.42[d]	3.39[d]
Education		
No education (RC)	1.00	1.00
Primary	1.16[c]	1.35[d]
Above primary	1.99[d]	1.55[d]
Religion		
Muslim (RC)	1.00	1.00
Non-Muslim	1.41[d]	1.50[d]
Employment status		
Housewife (RC)	1.00	1.00
Other than housewife	1.45[d]	1.32[d]
Land		
No land (RC)	1.00	1.00
Has land	0.95	0.97
Electricity connection in household		
No electricity (RC)	1.00	1.00
Has electricity	1.12	1.15[b]
Area		
Rural (RC)	1.00	1.00
Urban	1.07	1.44[d]
Division		
Others (RC)	1.00	1.00
Rajshahi/Khulna	1.96[d]	2.13[d]
-2Log- likelihood	10,228[d]	9,460[d]
Number	8,840	8,212
df	19	19
Intercept:	-3.44[d]	-3.16[d]

[a] RC = Reference category; [b] $p < .05$; [c] $p < .01$; [d] $p < .001$

Table 4. Logistic regression estimates of the odds ratios (exp[β]) of characteristics of married women of reproductive age on the proportion who have not had any birth during the reference period, Bangladesh, 1993-1994 and 1996-1997

Characteristics	Bangladesh Demographic and Health Surveys (BDHS)	
	1993/94	1996/91
Age of women (in years)		
< 25 (RC)[a]		
25-29	1.33[d]	1.49[d]
30-39	3.06[d]	4.23[d]
40-49	11.42[d]	32.17[d]
Children born before reference period		
0 (RC)	1.00	1.00
1-2	1.01	1.00
3-4	1.72[d]	1.60[d]
5+	1.51[d]	1.24
Desire for more children		
Within 2 years (RC)	1.00	1.00
Later than 2 years	0.19[d]	0.20[d]
"Up to God"	0.35[d]	0.31[d]
Want no more	0.23[d]	0.24[d]
Mass media		
No access (RC)	1.00	1.00
Has access	1.37[d]	1.41[d]
Ever use		
Not used (RC)	1.00	1.00
Used	l.24[d]	1.33[d]
Education		
No education (RC)	1.00	1.00
Primary	1.12[b]	1.29[d]
Above primary	1.34[d]	1.61[d]
Religion		
Muslim (RC)	1.00	1.00
Non-Muslim	1.09	1.26[c]
Employment status		
Housewife (RC)	1.00	1.00
Other than housewife	1.32[d]	1.13[b]
Land		
No land (RC)	1.00	1.00
Has land	1.07	1.07
Electricity connection in household		
No electricity (RC)	1.00	1.00
Has electricity	1.02	1.07
Area		
Rural (RC)	1.00	1.00
Urban	1.28[c]	1.20[b]
Division		
Others (RC)	1.00	1.00
Rajshahi/Khulna	1.57[d]	1.64[d]
-2Log- likelihood	10,264[d]	8,892[d]
Number	8,840	8,212
df	19	19
Intercept:	-0.02	-0.22[b]

[a] RC = Reference category; [b] p < .05; [c] p < .01; [d] P < .001

The probability of not having given birth during the reference period rises significantly with age and the number of children born before the reference period. It declines among women with live or more children, those wanting no more children, and those who want children after two years. There is a statistically higher probability of not having given birth during the reference period among women having access to mass media (37-41 per cent), among ever-users than never-users of family planning methods (24-33 per cent), among educated than non-educated women, i.e. those with schooling beyond the primary level have a 34-61 per cent higher probability of not having given birth during the three years prior to the surveys than those without schooling. It is also higher among working women than among housewives (13-32 per cent), among women living in urban than rural areas, and among women living in Rajshahi and Khulna divisions. Similarly, in terms of what has been observed with regard to contraceptive use, there is little or no effect of landholding status. Data (not presented here) show that findings for rural and urban Bangladesh are similar to those for the country as a whole.

Discussion

Bangladesh is one of the best and most recent examples of a country with a strong family planning programme effort, which has brought about a significant fertility decline. The programme efforts have been largely facilitated by major socio-economic changes. These include positive changes such as female education, female empowerment, female mobility and access to the media as well as negative changes such as increasing landlessness, and rising unemployment and underemployment. Also, other changes took place such as changes in the family size norm as well as declines in infant and child mortality.

The results of the analysis indicate that six factors largely account for the reproductive change in Bangladesh. These include interspousal communication on family planning, desire for children, women's education, women's employment status, access to mass media, and programme efforts.

Most local and foreign observers agree that during the past two decades women's status, in terms of education, employment, mobility and decision-making power, has undergone major changes. Also, there is evidence that such changes have contributed to increased contraceptive use and consequent fertility decline (Khuda and others, 1990; Khuda and Barkat, 1992). Ideational changes resulting from increased access to the media have fostered modern outlooks and attitudes, thereby lowering high-

fertility norms, even among the poor. Furthermore, landlessness and impoverishment have altered the economic value of children, especially sons.

Owing to the young age structure of the population, the future growth potential of the population is quite high. In the short run, even under the optimistic assumption of achieving replacement level fertility by the year 2005, there will be a net increase of 8.8 million people by June 2002, the end of the Fifth Plan period, over the 1997 population of 123.9 million. Indeed, in the long run, i.e. by the year 2020, there will be a net increase of over 42.7 million people. Such an increase in population size will have several adverse implications for the country's socio-economic development (Government of Bangladesh, 1997b).

There are clear policy and programmatic implications. Any further acceleration in contraceptive prevalence and fertility decline will require major efforts directed at improving women's status, increasing access to the media, and improving programme efforts in the low-performing divisions. The Government of Bangladesh should aim not only at consolidating the level of success it has already achieved in the family planning sector but also at further strengthening the programme by making family planning a part of the broader reproductive health service package. The programme should concentrate on other essential elements of reproductive health such as safe delivery and the prevention and management of reproductive tract infections and sexually transmitted diseases including HIV/AIDS, while working towards making the overall programme more cost-effective. Indeed, this is the new policy under the national programme — the Health and Population Sector Programme as well as the National Integrated Population and Health Programme (USAID, 1997; Government of Bangladesh, 1998). The Operations Research Project of ICDDR,B is currently engaged in a number of research activities aimed at operationalizing the delivery of the broader reproductive health service package in rural and urban areas of Bangladesh.

Nevertheless, while vigorously pursuing family planning programme efforts as part of the broader reproductive health package, the government should also attach greater priority to development in the social sector, including enhancement of women's status, especially through increased female educational and employment opportunities, and improved access to the media. Such investments, in addition to their direct benefits, would further accelerate the process of fertility decline in the country.

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