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Article

Fertility decline and women's status- the role of non-government organizations (NGOs) in Bangladesh: A micro data analysis

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In the last two decades, Bangladesh has achieved considerable fertility decline despite pervasive poverty and under development. Unfortunately, recent statistics suggest that despite continued increase in contraceptive use, the fertility decline has stalled. Thus Bangladesh becomes an interesting case study for exploring the question of what factors are necessary to bring about further fertility decline. In this paper an attempt will be made to highlight women's status, non-governmental organizations (NGOs) and some demographic factors, which are affecting the decline in fertility. It is found that the desire for an additional child is lower among working women, who have a number of living children above 2 and are involved in micro-credit related NGOs. The interesting finding of this paper is to micro-credit organization such as BRAC and GB that are more effective in reducing fertility. But we found evidence that they fail to empower the women with respect to decision-making power but successful to raise their status by increasing mobility. This study will help policy makers to take the initiative for further fertility decline in the country.

Key words: Fertility, women's status, micro-credit NGOs, micro-data, logistic regression, Bangladesh.

INTRODUCTION

Much attention has been paid to the status of women as an important determinant of fertility in developing countries, with emphasis on the importance of employment and education as measures to 'empower' them in society. In Bangladesh too, their status in society was traditionally very low, and the need to help them improve their social status has been well recognized. Yet, progress made so far is very limited. Women's education and labour force participation have increased in the past decade or so, but their literacy levels still remain low. However, it is interesting to note that Bangladesh saw a substantial decline in total fertility rate from 6.3% in 1975 to 3.3% in 2000 despite pervasive poverty and underdevelopment, although recent statistics suggest that the fertility decline has stalled (BDHS, 2000). It is therefore likely, as we have suggested that non-governmental organizations such as the Bangladesh Rural Advancement Committee (BRAC) and Grameen Bank (GB) played an important role in this respect (Goni, 2008). Their activities, although their aim was an economic one, resulted in raising rural women's awareness in socio-medical as well as economic matters. And it is likely that this effect was strongest in the 1980s when much enthusiasm was felt among NGO activists. Those NGOs, especially BRAC and GB provide women with micro-finance through village organizations, providing different levels of loans to different group members. Group formation is organized initially to increase savings and to raise women's awareness in economic, social, and family issues. Later, collateral-free

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credit is provided to group members for various income-generating activities (BRAC report, 2005). Access to credit helps them to generate self-employment, which will enhance their earnings, lead to empowerment, and increase mobility, decision-making power and greater control over their lives. Besides micro-credit activities, most NGOs are working to improve health and education and trying to develop a new lifestyle among rural women (Goni, 2008).

This paper hypothesizes that involvement in GOs/NGOs raised women's status, which eventually led to a reduction in fertility, and also argues that this effect can be identified even if controlling for the effects of employment and education. Further hypothesized is that micro-credit organizations such as BRAC and GB were more effective in reducing fertility than those aiming at public health and women's welfare. This is the major aim of this paper.

More specifically, we would like to show, by making use of micro data from the 1999-2000 Bangladesh Demographic and Health Survey (BDHS), how various measures of women's status are explained by demographic, social and economic variables, including involvement in GO and NGO activities and also try to show what extent these status variables as well as the NGO variables exert an effect on fertility decision-making. In this respect, it is worth noting that Balk (1994) addressed these questions by using questionnaire surveys taken in one part of rural Bangladesh. She divided the concept into four categories: mobility, leniency, authority and attitude; and explored the relationships with social and economic factors and with fertility that is, total number of children ever born. Her findings are; first, that not all the four measures of status exhibit a significant impact on fertility-the performance of the authority and attitude measures are rather weak and; second, that while the effect of the mobility and leniency measures of status is significant, the role of education and other explanatory variables tends to be small to moderate. This is undoubtedly an important contribution to our understanding of the relationship between the status of women and fertility. However, there remain a few problems. One is that her data come from just one set of sub-district level surveys. Another is the choice of the dependent variable. She used the total number of children ever born, but given the findings that the decline in fertility during the past decades is likely to have been a consequence of "stopping" behaviour, the most appropriate variable is whether one wants to have an additional child or not (Goni, 2008).

Finally and most importantly, we believe we should examine explicitly how women's involvement in NGO activities transmit an impact on the status of women and, hence, on fertility decline. The NGO variables are believed to have positive interactions with some of the aspects of women's status and negatively on fertility decision.

POPULATION AND FERTILITY DATA

This paper utilizes mainly the 1999-2000 Bangladesh Demographic and Health Survey (BDHS) based on a national representative, two-stage sample that was selected from the master sample maintained by the Bangladesh Bureau of Statistics (BBS) for the implementation of surveys before the 2001 census. The 1999-2000 BDHS collected information on a respondent's background characteristics (age, residence, education, religion, etc.), employment history and occupation, contraceptive use history, marriage, mobility, decision-making power, GO and NGO involvement and fertility preferences. The master sample consists of 500 primary sampling units (PSUs) with PSUs in each stratum except for the urban strata of the Barisal and Sylhet divisions. In the rural areas, the primary sampling unit was the *mauza*, while in urban areas it was the *mahalla*. Mitra and associates conducted a household listing operation in all the sample points from September to December 1999. A total of 10, 268 households were selected for the sample of which 9,854 were successfully interviewed. Among the 10,855 eligible women, interviews were completed for 10,544 (97%) of them, with 9,720 being currently married women. But our analysis covers only 9,450 married women who were able to bear children. Women who were described by the respondents themselves as infecund, divorced or widowed are not included in the analyses.

In BDHS, currently married women were asked, "would you like to have another child(ren) or would you prefer not have any more children?" Interviewers were instructed to use the words in parenthesis depending on whether the respondent had children or not. Pregnant respondents were asked if they wanted another child then asked how long they would like to wait before the birth of the next child. Almost 52% of currently married women aged 10-49 in Bangladesh said that they wanted no more children and an additional 7% had been sterilized. 37% of women wanted to have a child at some time in the future. However the vast majority of these women answered that they would like to wait two or more years before having their next birth (Table 1). The desire for additional children declined noticeably in Bangladesh over the past decade. In 1991, 45% of married women with two children wanted to have another child in the future (Mitra et al., 1983; 1984); in the 1999-2000 BDHS survey, the proportion was only 30%. Conversely, the percentage of women with two children who wanted no more children or who had been sterilized rose from 48% in 1991 to 66% in 1999-2000. There was little change in overall fertility preference since 1996-1997, with the proportion of women who either wanted no more children

Table 1. Percentage distribution of currently married women aged 10-49 who wants more children, Bangladesh 1999-2000.

Desire for children	No. of respondents	Percentage
Wants another child	3596	37.0
Wants no more child	5735	59.0
Undecided, infecund	389	4.0
Total	9720	100

or who had been sterilized increasing from 58 to 59%. For our analysis, we divided the stated data into two categories; women who wanted another child and the other are those who did not want another child.

MATERIALS AND METHODS

In this section, we first examine the determinants of fertility preference as revealed in the answer to the question if one wants another child, and then turn to the determinant, women's status. In this study, although most of the independent or explanatory variables are quantitative, for the purpose of comparison we convert them into qualitative variables of '1' and '0'. The independent variables include the woman's age group (10-14, 15-19, 20-24, 25-29, 30-39 and 40-49), number of living children (0, 1, 2, 3, 4, and 5+), administrative division, employment status (employed and not employed), occupational status (agriculture, non-agriculture, working for cash only and working for kind only), educational status (educated and non-educated), religion (Muslim, Hindu, Christian and others), involvement in GOs (BRDB) and NGOs (Grameen Bank, BRAC, Mothers club/Mothers' association and others), no involvement, and her husband's occupational status (agriculture and non-agriculture) and educational status (educated and non-educated). Table 2 shows percentage distributions of categories used as explanatory variables in this study.

Table 2 illustrates, first, that as many as 17% of the respondents had a baby below age 20, while 15% have five or more children and such teenage pregnancy is particularly marked in Rajshahi division. Secondly, more than one quarter (27%) still had more than three children at the time of survey. Thirdly, 59% of the respondents are educated, which is a little lower than that for their husband (63%), while the women's involvement in non-agricultural occupation (9%) is much lower than that for their husband (45%). A close scrutiny of the data reveals that the proportion of women educated is low in Rajshahi and Sylhet divisions, while the proportion of those having a non-agricultural occupation is very low in the latter division. Fourthly, the general level of involvement in GOs and NGOs is not very high; but there are some noticeable differences among the organizations. The percentage is higher for micro-credit organizations; 7% for BRAC and 6% for GB. But it is only 1% for the GO of BRDB and also for Mothers' Club. Fifthly, there is some regional concentration of those particular NGOs. Both BRAC and GB are, while much less active in Chittagong Division in which the minority tribal people are numerous, very likely to find membership of women's in Rajshahi Division where marriage is early, female enrollment levels are low and their husbands' involvement in non-agricultural activity is low. Generally, since inter-correlation between the explanatory variables is not high, it is safe to assume that the problem of multicolinearity will not be serious when regression analysis is conducted.

Given these descriptive statistics of the explanatory variables, which are likely to affect fertility decisions, logistic regression analysis may be conducted. The logistic regression model has become the standard method of analyzing data in which the dependency of a binary response variable is tested on a number of explanatory variables. A response (dependent) variable is binary. In our analysis, it can take "1" or "0" depending on whether or not a respondent (married women in the age group 10-49) belongs to a specific category. Variables of this type are often called binary or dichotomous variables. The SPSS for windows version 11.5 is utilized for the logistic regression analysis.

RESULTS

NGOs and fertility decline

GOs and NGOs are widespread in Bangladesh. In this study, a total of 2,397 respondents are involved in different GOs and NGOs and out of them 1,720 respondents (72%) do not demand any more children. This proportion is the highest in BRAC (21%) followed by GB (18%). For measuring the association between fertility preference and involvement in different NGOs we would like to use the following hypothesis.

H_0: There is no association between fertility preference and involvement in NGOs
H_1: There is some association between the two attributes.

To test the hypothesis we construct the following 2 × 2 contingency table (Table 3). Through $\chi 2$ as well as Mantel-Hansel tests for Table 3, it is observed that there is significant association between fertility preference and involvement in GOs and NGOs, and the direction of the association is negative. Here we pay particular attention to BRAC, GB and other organizations. Their coefficients are negative, which suggests that those NGOs are instrumental in reducing fertility.

However, we need to check if this association holds even when married women's background characteristics are controlled. Thus, logistic regression analysis is conducted with membership of individual NGOs included (Table 4). The results show that religion has a significant relevance to demography. Muslim communities consistently show higher fertility than many other non-Muslim communities: the desire for another child among Hindu women is 76% and for Christian women is 46%

Table 2. Descriptive statistics concerning the independent variables

Variables	Percentage
Age	
10-14	1.7
15-19	14.8
20-24	19.0
25-29	20.0
30-39	28.6
40-49	15.8
No. of living children	
0	11.9
1	20.4
2	23.1
3	17.9
4	11.7
5+	15.0
Respondent's education	58.8
No education	41.2
Respondent currently employed	18.9
Not employed	81.1
Non-agricultural occupation	8.9
Agricultural occupation	91.1
Works for cash	67.7
Works for kind	32.3
Husband's education	62.5
No education	37.5
Husband's non-agricultural	44.9
Agricultural	55.1
Belongs to BRAC	7.0
Belongs to Grameen bank	5.9
Belongs to BRDB	1.3
Belongs to Mother's club	0.5
Belongs to other NGOs	10.7
None of GOs and NGOs	74.5
Muslim Religion	86.2
Hindu religion	1.5
Christian religion	11.8
Others Religion	0.4
Rajshahi	20.3
Khulna	17.6
Barisal	9.4
Chittagong	18.3
Sylhet	10.2
Dhaka	24.2

less than Muslim women. The effect of women's age is also to important. Married women under age 30 are more likely want additional children and those above age 30 are less likely to want additional children. The desire for an additional child also varies with the number of existing children. The odd ratios indicate that women having no children and having one child only are 47 and 10 times respectively, more likely to want an additional child than women already having two children. On the other hand, women having three, four, five and more are 66, 89 and 95% less likely to want an additional child. In other words, it implies that women's desire for "stopping" is dependent on parity and becomes apparent after having two children. This is a significant result since it is a result obtained by controlling for women's other characteristics and factors that are likely to affect their fertility decisions.

Among other variables, education, employment, non-agricultural occupation, cash earnings are proven to have been all important in reducing fertility. For example, the desire for another child among working women is 22% less than that of non-working women. For individual administrative divisions, the regression coefficients corresponding to the Chittagong and Sylhet divisions are positive but for the Rajshahi, Khulna and Barisal divisions, the coefficients are negative in sign and statistically significant except for Barisal division. The odd ratio indicates that the demand for additional children among women under Chittagong and Sylhet divisions is 2 times higher than that of Dhaka division. On the contrary, women in the Khulna, Rajshahi and Barisal divisions are 33, 7 and 6% less than that of Dhaka division. There are Rajshahi and Khulna divisions having the highest and Chittagong and Sylhet divisions the lowest prevalence. That is from the data of BDHS 2000: the percentage of women currently using contraceptive methods for Dhaka, Chittagong, Rajshahi, Khulna, Barisal and Sylhet divisions are 54, 44, 59, 64, 59 and 34% respectively. It is also evident from the data that the percentage of working women is significantly lower in Chittagong and Sylhet divisions as compared with Rajshahi and Khulna divisions, while contraceptive use is generally higher among working women than among non-working women (Mitra and Associates, 2000). This result is consistent with this study.

However, the most important of all results (Table 4) exhibits the effects of various GO and NGOs. Both GO (government-run BRDB) and some NGOs exert an impact; of the latter, the most significant are BRAC and GB, two micro-credit organizations, while Mother's club and 'other' organizations do not show a significant effect. Although the level of significance is not high for BRDB, BRAC and GB, this should be considered important because the results are those obtained by controlling for education and employment, two of the most frequently mentioned determinants of fertility decline, and for many other explanatory variables, and also because organization for women and health did not exhibit any statistically significant effect on fertility preference. Judging from the level of significance and coefficient size (Table 4) and share of membership (Table 2), we may

Table 3. 2 × 2 Contingency tables.

Attributes		Fertility preference		Total	χ2 (M-H)
		No	Yes		
Belongs to GB	No	5494	3390	8884	34.92*
	Yes	419	147	566	
Total		5913	3537	9450	
Belongs to BRAC	No	5425	3358	8783	35.78*
	Yes	491	176	667	
Total		5735	3767	9450	
Belongs to BRDB	No	5822	3505	9327	7.54**
	Yes	93	30	123	
Total		5915	3535	9450	
Belongs to MC	No	5889	3533	9422	0.82
	Yes	19	9	28	
Total		5908	3542	9450	
Belongs to others organization	No	5220	3217	8437	18.38*
	Yes	698	315	1013	
Total		5918	3532	9450	

"*" Significant at p<0.001, '**' Significant at P<0.01. Sources: Goni, 2008.

conclude that BRAC was somewhat more effective than the other two organizations, and that among the two; GB's performance had a little larger impact than government-run BRDB. Therefore, the regression results seem to suggest that women who are involved in NGOs had a stronger desire to reduce the family size by "stopping" and this desire is not less even if women are involved in NGOs engaged in income generating activities activities and not working in the health sector.

On the status of women

Now we address the next question of whether or not this was because NGOs raised the status of women. Women's status is determined in relation to men's and also to other women's, and as such is deeply rooted in culture, religious beliefs, traditions and economic environments. In other words, the concept is multifaceted so that it is not easy to capture it with a single measure (Balk, 1994; Hari, 1991). It is for this reason that despite increasing attention to the concept of women's status in the recent literature of fertility decline, the meaning of the concept has remained unclear. Among the terms used in the social demographic literature are not only "status of women" (Dixon, 1978), but also "women's autonomy" (Dyson and Moor, 1983). To measure women's status/autonomy more directly, the BDHS (2000) survey asked about women's roles in household decision making and their freedom of movement. Such information provides an insight into women's control over their environment and their attitudes towards gender roles, both of which are relevant to understanding of women's demographic and health behaviors. Education, employment status and control over earnings are some of the means by which women gain status/autonomy, and constitute important aspects of their empowerment.

In this paper, we introduce an unconventional new variable, involvement in activities of GOs (BRDB) and NGOs (such as BRAC, GB, Mother's club, etc.) as a crucial factor, which may increase women's status. Also included are variables that measure women's status directly: residence, employment, education, religion, freedom of movement, decision-making power etc., since the BDHS data allow us to measure women mobility and decision-making power in her household. Two questions are selected for each, with which we can explore the relationships between women's status and NGO involvement.

The respondents are currently married women. Their responses to the two groups of questions are summarized in Tables 5 and 6. The questions in Table 5 are concerned with their mobility. Only 14% of the women say that they can go alone or can go outside the village

Table 4. Logistic regression explaining whether women wanted another child, by background characteristics of married women, Bangladesh: BDHS, 1999-2000.

Selected characteristics	Regression coefficient	Odd Ratio (OR)
Age		
10-14 (25-29 r)	0.248**	1.28
15-19	0.157 **	1.17
20-24	0.145***	1.16
30-39	-0.045 ***	0.96
40-49	-0.072***	0.93
Number of living children		
0 (Exactly 2 r)	3.854 *	47.16
1	2.387*	10.88
3	-1.066*	0.34
4	-2.218*	0.11
5+	-3.036*	0.05
Educational status		
Respondent education (No education r)	-0.224 *	0.80
Employment status		
Employed (Not employed r)	-0.253**	0.78
Occupational status		
Non-agriculture (Agriculture r)	-0.114 ***	0.89
Earns for cash only (Kind only r)	-0.016****	0.98
Husband education (No education r)	-0.214**	0.81
Husband non-agriculture occupation (Agriculture occupation r)	-0.175*	0.84
Religion		
Hinduism (Islam r)	-1.411*	0.24
Christianity	-0.624 *	0.54
Others	-0.129	0.88
Geographical region (Division)		
Rajshahi (Dhaka r)	-0.066****	0.93
Chittagong	0.801 *	2.23
Khulna	-0.257 *	0.77
Barisal	- 0.057	0.94
Sylhet	0.719*	2.05
Involvement in GO and NGO activities		
BRDB (No involvement r)	-0.019****	0.98
BRAC	-0.242 ***	0.76
Grameen bank	-0.021 ****	0.97
Mothers club	-0.210	0.81
Others	- 0.033	0.97
Intercept	-0.576 *	
-2loglikelihood	6834.539	
N	9450	
Df	29	

r = Reference category, '*' Significant at P<0.001, '**' Significant at P<0.01, '***' Significant at P<0.05, Significant at P<0.10. Notes: Not employed = housewife/housework. Agriculture = Own land, rental land and other's land worker/ cultivator. Non-agriculture= Professional, technical, clerical and managerial occupations.

Table 5. Percent of distribution of currently married women's response to mobility from the women's status survey of BDHS in 1999-2000.

	Respondent alone	With children/husband	Others relative	Never
Can you go outside the residence/ Village/city?	14.2	46.0	31.3	8.4
Can you go health center/hospital?	26.0	45.8	9.4	19.6

Row totals add to 100%; n = 9,450. Responded alone are only considered in the analysis.

Table 6. Percent of distribution of currently married women's response to decision-making from the women's status survey of BDHS in 1999-2000.

	Respondent alone	Husband only	With husband jointly	Someone else	With someone else jointly
Visit to parents, friends or relatives	12.1	31.6	41.2	7.5	8.2
What food should be cooked	65.5	4.6	11.6	9.3	9.0

Row totals add to 100%; n = 9,450. Responded alone are only considered in the analysis.

Table 7. Women's mobility status and fertility Preference from BDHS 1999-2000.

	Fertility preference		
Can go outside the residence/ village/city	**No**	**Yes**	**Total**
Women's can go alone	1103(83.50)	218(16.50)	1321
Women's can go with children/husband	3125(71.44)	1249(28.55)	4374
With others relative	1288(43.54)	1670(56.45)	2958
Never	402(50.44)	395(49.56)	797
Total	5918	3532	9450
Can go health center/hospital	**No**	**Yes**	**Total**
Women's can go alone	1755(72.64)	661(27.35)	2416
Women's can go with children/husband	2806(64.88)	1519(35.12)	4325
With others relative	412(46.40)	476(53.60)	888
Never	945(51.89)	876(48.11)	1821
Total	5918	3532	9450

Notes: Percentage of the women's within bracketed.

or city, while 26% can go alone to the hospital or health center. In Table 5, aspects of women's decision-making are measured by two separate questions. As expected, women in Bangladesh are most likely to participate in the decision about what food should be cooked: 65% of women make this decision on their own and only 12% can decide on their own with respect to visiting their parents, friends or relatives. These indices represent four dimensions of women's status that are conceptually and statistically distinct with each other as there are no intra-indices correlations (Appendix B.1).

Tables 7 and 8 shows the relationship among four indices to fertility preferences (if one wants another child or not). As shown in Table 7, among women who can go outside the village/city alone, 83.5% did not want an additional child, while only 16.5% wanted an additional child. Similar results are also found about women's decision-making status. 74% of women who can visit parents/friends alone did not want an additional child. In the case of what food should be cooked, it was 70%. Therefore, Tables 7 and 8 seem to suggest that the women who were more mobile and having a better decision-making status was less likely to want additional children.

Demographic variables

However, if this supposition holds, we have to control for the effects of other factors. Thus, the determinants of these four status dimensions are explored through multiple

Table 8. Women's decision-making status and fertility Preference from BDHS 1999-2000.

	Fertility preference		
Visit to parents, friends or relatives	**No**	**Yes**	**Total**
Can visit alone	796(74.18)	277(25.82)	1073
Husband only	1919(64.20)	1070(35.80)	2989
With husband jointly	2715(69.79)	1175(30.21)	3890
Someone else	190(26.57)	525(73.43)	715
With someone else jointly	298(38.06)	485(61.94)	783
Total	5918	3532	9450
What food should be cooked	**No**	**Yes**	**Total**
Can decide alone	4348(70.28)	1839(29.72)	6187
Husband only	286(65.59)	150(34.40)	436
With husband jointly	741(67.49)	357(32.51)	1098
Someone else	209(23.80)	669(76.20)	878
With someone else jointly	334(39.25)	517(60.75)	851
Total	5918	3532	9450

logistic regression. Many of the independent variables are those commonly used as background characteristics of women. These include age, education, religion, region, employment status and GO and NGO involvement. Tables 9 and 10 below suggest that there is no clear pattern on the various facets of women's status. Older women are more mobile than younger women. It is positively related with women's movement outside village/city. A similar, though weaker, age pattern is seen with respect to women's decision-making concerning visit to parents, friends or relatives. An opposite pattern is found for visit to health center or hospital: older women are less likely to go to health center than younger women. Similarly, the relationship between age and women's decision about food is weak. But the women who have 0 and 1 children are less likely to mobile and decision making power and who have 4 and 5+ children are likely to be more mobile and to have more decision-making power than those who have two children.

Socio-demographic/economic variables

The socio-demographic/economic determinants show that women's education, the variable most commonly used as a proxy for women's status, is positively and significantly correlated with all indices of women's status except food cooking decision. Employed women are more likely to get higher mobility and decision-making power than non-employed women. And women who are engaged in non-agriculture and earn cash seem to have more mobility but less household decision-making power. This is very important but on the face of it, a little puzzling. A similarly puzzling pattern is also observed for the women's husband who has a non-agriculture occupation. However, this may well be a fair reflection of present-day Bangladesh's socio-culture.

Often differences in women's status have been attributed to broad socio-cultural variables such as religion, and region of residence. Non-Muslim women are more likely to have higher mobility and decision-making power than Muslim women. On the other hand, the status of women is quite unclear according to the administrative divisions. Except Khulna division the results are not as we expected. It is notable that the Khulna division has the highest literacy rate than Dhaka and others divisions. Sylhet division is religiously conservative than others (Biswas, 2004). Literacy rate is lower in Rajshahi, Chittagong and Sylhet division than Dhaka division. The status of residence in the conservative Sylhet division is lower than that of women in the highest literacy rate (liberal) region like Khulna and Dhaka divisions. Involvement in GOs and NGOs

As shown in Tables 9 and 10, women's involvement in those activities exerted positive impact on women's mobility and, to a much lesser extent, on decision-making power. As for mobility, it is clear that both BRDB and BRAC-GB have an expected sign (for both Models 1 and 2) and the relationship is particularly significant for hospital visits (Model 2) in the case of BRDB and GB, while Mothers' Club's impact proves to be very weak. On the other hand, the results for decision-making power are mixed. For cooking (Model 3), all organizations exhibit a positive effect, but in the case of visits to parents etc. (Model 4) the coefficient has either a wrong sign or an insignificant value. It is probably safe, therefore, to

Table 9. Determinants of the mobility measures of women's status: logistic regression coefficient estimates of characteristics of married women in Bangladesh: BDHS 1999-2000.

Characteristics	Mobility indices			
	Model 1 (Outside village)		Model 2 (Hospital visits)	
Demographic variables	**Coefficient**	**OR**	**Coefficient**	**OR**
Age				
10-14 (25-29 [r])	-0.185	0.83	-0.227	0.78
15-19	0.054	1.06	-0.098	0.91
20-24	- 0.002	0.99	-0.071	0.93
30-39	0.050****	1.05	-0.057	0.95
40-49	0.103 ****	1.11	-0.177***	0.84
Number of living children				
0	-0.030	0.93	-0.877*	0.42
1	0.148	1.16	-0.221**	0.80
3	0.076	1.08	0.109	1.12
4	0.395*	1.49	0.131****	1.14
5+	0.171***	1.19	-0.034	0.97
Socio-demographic/economic variables				
Respondent's education (No education [r])	0.160 **	1.17	0.181 *	1.20
Respondent's employment status				
Employed (Not employed [r])	0.638 *	1.89	0.428 *	1.54
Non-agriculture work (Agric work [r])	0.339 *	1.40	0.407 *	1.50
Works for cash (Kind [r])	0.030 **	1.03	0.070 **	1.07
Husband's status				
Education (No education [r])	0.020	1.02	0.103****	1.11
Non-agriculture work (Agriculture work [r])	0.066	1.07	0.375 *	1.46
Socio-cultural variables				
Religion				
Hindu (Muslim [r])	1.010 *	2.74	1.105 *	2.87
Christian	0.123	1.13	0.087	1.09
Others	1.084 **	2.99	0.656 ****	1.93
Geographic region				
Rajshahi (Dhaka [r])	-0.085	0.92	-0.23 **	0.78
Chittagong	0.029	1.03	-0.099	0.91
Khulna	0.339 *	1.40	0.001	1.01
Barisal	-0.202	0.82	-0.233 ***	0.79
Sylhet	-0.044	0.96	-0.193 ***	0.82
Involvement in GO and NGO activities				
BRDB (No involvement [r])	0.282****	1.33	0.790*	2.20
BRAC	0.182 ***	1.21	0.113 ***	1.12
Grameen Bank	0.109***	1.12	0.245 **	1.28
Mother's club	0.188	1.21	-0.395	0.67
Others organization	0.360 *	1.43	0.252 *	1.29
Intercept	-2.45 *		-1.34 *	
-2log likelihood	7360.152		10166.31	
N	9450		9450	
df	29		29	

r = Reference category, '*' Significant at P<0.001, '**' Significant at P<0.01, '***' Significant at P<0.05 ****Significant at P<0.10. Notes: Model 1 for respondent can go alone outside village/city; Model 2 for respondent can go alone to health center/ hospital; Education means at least primary education; Not employed = housewife/house worker. Agriculture = Own land, rental land and other's land worker/ cultivator. Non-agriculture= Professional, technical, clerical and managerial occupations.

Table 10. Determinants of the decision-making measures of women's status: logistic regression estimates of characteristics of married women in Bangladesh: BDHS 1999-2000.

Selected characteristics	Decision-making indices			
	Model 3 (Cooking)		Model 4 (Visit to relatives)	
	Coefficient	OR	Coefficient	OR
Demographic variables				
Age				
10-14 (25-29 [r])	-0.043	0.96	0.149	1.14
15-19	-0.111	0.90	-0.011	0.99
20-24	-0.009	0.99	0.097	1.10
30-39	-0.029	0.97	0.082	1.09
40-49	-0.075	0.93	-0.013	0.99
Number of living children				
0	-1.28[*]	0.28	-1.119[*]	0.33
1	-.608[*]	0.544	-0.300[**]	0.74
3	0.320[*]	1.38	-0.115	1.12
4	0.334[*]	1.40	0.163	1.17
5+	0.450[*]	1.57	0.166[****]	1.18
Socio Demographic/economic Variables				
Respondent's Education (No education [r])	0.082[****]	1.09	0.208 [**]	1.23
Respondent's employment status				
Employed (Not employed [r])	0.338 [*]	1.40	0.444 [*]	1.56
Non-agriculture work (Agric work [r])	-0.084	0.92	-0.034	0.97
Works for cash (Kind [r])	-0.041	0.96	0.174 [**]	1.19
Husband's status				
Education (No education [r])	-0.196 [*]	0.82	0.218 [**]	1.24
Non-agriculture work (Agriculture work [r])	0.076	1.08	0.070	1.07
Socio Cultural Variables				
Religion				
Hindu (Muslim [r])	0.531[****]	1.70	-0.066	0.94
Christian	0.031	1.03	-0.144	0.87
Others	-0.470	0.63	0.605	1.83
Geographic region				
Rajshahi (Dhaka [r])	-0.103	0.90	-0.514 [*]	0.60
Chittagong	-0.191 [**]	0.83	0.374 [*]	1.45
Khulna	-0.331 [*]	0.72	0.213 [***]	1.24
Barisal	-0.791 [*]	0.45	-0.032	0.96
Sylhet	-0.257 [**]	0.77	0.207[****]	1.23
Involvement in GO and NGO activities				
BRDB (No involvement [r])	0.169[****]	1.18	-0.139	0.87
BRAC	0.104 [***]	1.11	-0.199	0.82
Grameen Bank	0.047[***]	1.24	-0.362[***]	0.69
Mother's club	0.95 [****]	2.59	0.473	1.60
Others organization	0.096 [***]	1.10	-0.111	0.89
Intercept	1.037 [*]		-2.53 [*]	
-2log likelihood	11290.078		6424.567	
N	9450		9450	
df	29		29	

r = Reference category, '*' Significant at P<0.001, '**' Significant at P<0.01, '***' Significant at P<0.05.[*]Significant at P<0.10. Notes: Model 3 for respondent what food should cook; Model 4 for respondent can visits parents, friends or relatives.

conclude that women's involvement in GO and NGO activities did raise their status by increasing mobility, but not necessarily by increasing their decision-making power, and that BRAC and GB, and to a lesser extent BRDB, were more effective in this respect but the Mothers' Club little bit weak in this respect.

Women who are involved in BRAC showed higher mobility, and reduced economic dependence on their husband and other male kin. The members who had at least 48 months involvement with BRAC were significantly empowered (Islam, 1998; Husain, 1998).

BRAC's other development activities include free informal education (set up in 1985, about 49,000 schools in 2004, accounting for 11% of the total primary school in Bangladesh) and health and medical facilities for low-income people in rural areas. Under the essential health care program, with the help of Shashtho Shebikas (Health Volunteers) and Shastho Kormis (Health Workers) immunization coverage of the population is 80% (BRAC, 2005). The program also provides services to pregnant women with respect to their health and nutritional statuses, and to the community's needs, with particular focus on BRAC members, all of which are addressed through education on family life, contraception,and awareness of HIV/AIDS. Therefore, through the BRAC women obtain education and financial independence, and they come forward to learn about family planning. They, thus, become determined to have fewer children. GB has introduced higher education loans for all students from Grameen families who can enter into the higher educational institutions (medical schools, engineering, universities etc.). Students are held responsible to repay the loans when they start earning. Half of the numbers of scholarships are reserved for female students. They believe that education leads to much better jobs and then much better income. BRAC is directly involved in education and health sectors, while GB is indirectly involved in education sectors. BRAC is directly working in family planning sectors, while the GB concentration economic and financial sectors.

CONCLUSION AND IMPLICATIONS

The purpose of this paper has been to show how NGO activities changed fertility and women's status. The results presented above have confirmed that women's involvement in NGOs exerted a curbing effect on their desire for additional children. And it was micro-credit organizations such as BRAC and GB, not organizations for women and health like Mothers' Club that were most effective in reducing fertility. It is not unlikely that this was because NGOs helped women to raise their status in society, but on the other hand, there is no direct evidence that they could successfully raised the women's decision-making power in the household.

These points have some implications, as it is not easy for the government to take a direct measure to reduce the nation's fertility, nor to increase the employment of women except in the state sector. First, the finding that micro-credit NGOs are most successful is suggestive because it indicates that mere preaching or education on family planning cannot succeed. Second, it suggests that any social programme, which can motivate women to take action, will eventually raise their social awareness and enlarge their perspectives. In the case of BRAC and Grameen Bank, it was undoubtedly an economic motivation that has encouraged women to join, but it is very likely that it changed the women's awareness and eventually led to the reduction in the number of children they had. Third, this may not imply that NGOs can change everything. Indeed, it is likely that they failed to empower the women with respect to decision-making power in the household. Yet, fourthly, if further progress be made on this aspect, then we would be able to expect further progress in reducing Bangladesh's fertility.

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Appendix B.1: To test the possibility of the four indices represents largely different aspects of women's status (other than comparing their determinants in table 4.5 and 4.6), the table below is an intra-indices correlation coefficient matrix. While all the correlation coefficients are positive and significant, none of the correlations exceed 0.32. Although there is some random variation in these indices, these low correlations coefficient are taken to confirm successful measurement of largely distinct dimensions of women's status.

Appendix Table B.1. Pearson's correlation coefficients for the indices of women's status.

		(1)	(2)	(3)	(4)
1	Can go outside village/City	1.00			
2	Can go health center/hospital	0.32	1.00		
3	What food should be cook	0.03	0.05	1.00	
4	Visits family, friends or relatives	0.10	0.12	0.18	1.00

Notes: All the correlation is significant at the 0.01 level (in a two tailed test).