Poor Women's Participation in Income-generating Projects and Their Fertility Regulation in Rural Bangladesh: Evidence from a Recent Survey

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Ruhul Amin, A.U. Ahmed, Jamir Chowdhury, and M. Kabir

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Ruhul Amin is Principal Research Scientist, A.U. Ahmed is senior research scientist, and Jamir Chowdhury is research associate at the Institute for Urban Research, Morgan State University, Baltimore, U.S.A.; and M. Kabir is Professor of Statistics, Jahangirnagar University, Bangladesh,
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Ruhul Amin, A.U. Ahmed, and J. Chowdhury
Institute for Urban Research
Morgan State University
Baltimore, MD, U.S.A.
and
M. Kabir
Jahangirnagar University
Bangladesh

SUMMARY

The paper assesses the impact of poor women's participation in income-generating projects on their knowledge, attitude, and practice of family planning in rural Bangladesh. By analyzing a 1992 national level household sample survey data collected from the female recipients of collateral-free loans of three relatively large rural development agencies in Bangladesh--GB, BRAC, and BRDB--the present study shows that the participation in income-generating projects by poor rural women has led to increased level of contraceptive use and to decreased level of desire for additional children. These effects are much higher than those of the corresponding levels for Bangladesh as a whole, indicating both the additional effect of income generating projects as well as the effects of their population-education components. Implications of these findings for inducing further increase in contraceptive use in Bangladesh are discussed in the paper.

INTRODUCTION

Responding to the impetus provided by the 1974 World Population Conference in Bucharest for integrating population policies with development policy (United Nations, 1974) and its subsequent echoing in the International Conference on Population in Mexico City in 1984 (United Nations, 1984), a growing number of developing countries have emphasized the policy of integrating population and family planning program with overall development efforts. Nowhere is this integrated approach gaining more momentum than in Bangladesh, where an ever-growing number of governmental and non-governmental organizations (NGOs) have been encouraged to initiate program packages for a range of integrated services, including credit, skill training, family planning, primary health care, and nutritional services (Muhuri, 1985; Maloney and Ahmed, 1988; Rahman et al., 1990; Chowdhury, 1990; Mabud, 1992). Concerned about the other broader issues of poor women, such as high fertility, high infant mortality, and poor health, three relatively large poverty alleviation programs in rural Bangladesh--the Grameen Bank (GB), the Bangladesh Rural Advancement Committee (BRAC), and the Bangladesh Rural Development Board (BRDB)--have added population-education and promotion of primary health care components anchoring them with their income-generating programs, which are used as a catalyst in socio-economic development (Fuglesang and Chandler, 1988; BRDB, 1992; BRAC, 1992). Out of numerous NGOs and multi-sectoral programs currently providing a package of integrated services in income-generation, family planning, functional education, and other development assistances in rural Bangladesh, these three organizations stand out because they are reaching an unusually large number of poor women and are indirectly affecting large numbers through their impacts on policy and institutions.[1]

The three organizations under study here differ from each other both in form and origin. One is in the public sector (BRDB); another is an NGO (BRAC), and the third one (GB) is an independent poverty-focussed development bank , which offers a limited range of integrated services centered on credit (Chowdhury, 1990; Maloney and Ahmed, 1988). However, all three offer collateral-free loans to the poor women within the context of the mobilization of local level beneficiary groups or beneficiary co-operatives that may work as group pressure or group influence for loan recovery and/or beneficiary impact.

The success of all three programs in alleviating poverty and in improving socio-economic conditions of rural poor has been well-documented (Hossain, 1988; Fuglesang and Chandler, 1988; Chowdhury, 1990). However, what is sparse in the literature is systematic evidence, linking these rural income-generating programs to fertility behavior. The present study seeks to fill up this gap in knowledge by examining the impact of poor women's participation in income-generating projects on their reproductive behavior and attitude in rural Bangladesh.

Theoretical justifications for income-generating project having favorable demographic effects in helping to bring down fertility in the developing countries are many. First, the income-generating project, aside from creating a conditions of economic independence in females, can simultaneously relieve them of a condition of extreme social and psychological dependence derived from their physical and social isolation of the system of female seclusion in rural Bangladesh (Dixon, 1976). For example, an income-generating project, by opening opportunities for the exchange of ideas with others outside a woman's household could enable her to appraise and to exercise alternative independent choice regarding reproductive behavior. Second, it could also enable her to gain social support and social legitimation of any innovative reproductive

behavior that she is predisposed to undertake, but is dissuaded by the hostile pronatalist environment within and beyond her household. Third, the combination of peer-group support and group solidarity that the "package deal" of an income-generating project creates among its clients through group-formation and group interaction and other new institutional contexts could have antinatalist effects by altering their knowledge and attitude as well as their reproductive decision-making environment (McNicoll, 1980). The results could be a significant lowering of social and psychological costs of family planning with concomitant increase in fertility regulation.

INCOME-GENERATING PROJECTS OF GB, BRAC, AND BRDB

By the end of the 1980s, program to assist the poor through the provision of collateral-free loans has become quite popular among the donor and governmental organizations both within and outside Bangladesh. One of the reasons for this popularity can be traced to the experience of GB, which, more than any other organization, had first shown how remarkably the poor can be helped by providing them with credit for non-farm activities (Hossain, 1984). While the main goal of GB's poverty-alleviation through the provision of collateral-free loans to the poor women is to help them improve their earning and self-employment, other social and political goals, such as, promotion of primary health care and family planning, consciousness raising, leadership development, and functional education, are also simultaneously and interactively provided by them.

All three income-generating projects, under examination in the present study, have a population-education component designed to encourage reproductive behavior favorable to fertility regulation. They put major emphasis on population-education as additional goals with

economic ones, although some differences in the organization of the program exist among them. For instance, although like GB, BRDB gives importance to population-education and adult education with economic ones, its program activities are centered around the formation of Village Women's Co-operatives, modeled after Comilla Approach.[2] It, however, more explicitly provides its population-education and some limited services in family planning methods than that of GB and BRAC (BRDB, 1991; Mahmud, 1991). GB, on the other hand, adopts a banking approach to poverty-alleviation. It sets up a bank with a difference, a mobile bank, where the Bank workers go to their poor women clients in remote village areas to give them collateral-free loans within the context of beneficiary group formation and group accountability relationships for income-generation activities.[3] However, instead of confining itself to income-generating activities, GB also uses its credit activities as catalysts or entry points for many other social development goals, such as, population-education, basic education, and health and nutritional information. Finally, although program activities, such as, group formation, collateral-free credit, functional education, population-education, health education, and skill training are also provided by the BRAC, its provision of credit is sequenced after its awareness training and grassroots level conscientization efforts.[4]

From income-generation's perspective, all three programs--GB, BRAC, and BRDB--under examination here have been successful because loan-recovery rate is very high, ranging between 96.0 and 100.0 percent, thanks either to group responsibility and group pressure and/or grassroots mobilization efforts (Hossain, 1988; NGO Coalition, 1982; Chowdhury, 1989; BRAC, 1992; BRDB, 1992). Studies also showed that credit provision by these three organizations has been associated with productive self-employment, increase in income, accumulation of capital, and

meeting of basic needs of the poor loanees (Hossain, 1988; Chowdhury, 1990). Indeed, a variety of income-generating activities are undertaken by women loanees of these three organizations. A few examples are paddy husking, poultry raising, petty trading, pisciculture, animal husbandry, weaving, milch cows, goat-raising, and horticulture. In addition, other social development activities, such as, sanitation, health care, nutrition, functional education, population-education, and social reforms are also emphasized by all the three programs. Finally, the programs encourage groups to collect savings that can be utilized by individual members in time of crisis.

All-in-all, the female loan programs of GB, BRAC, and BRDB apply holistic approach in order to meet female participants' multiple needs. Income-generation together with population-education or family planning information and/or limited primary health care and family planning services are important elements in this holistic approach. The purpose of such population-education or family planning service is to encourage family planning among the loan recipients. Population-education or messages of family planning are routinely emphasized in regular group and center meetings, training workshops, and other group solidarity meetings by the program staffs in order to influence the individual calculus of demographic choices. The group pressure or group accountability that ensures a high loan recovery among the women is also likely to promote joint responsibility among them for other social goals, such as family planning or primary health care. This is further facilitated by the active promotion of these goals by the program staffs on whom they are dependent for loan approval and loan sanction and other benefits and privileges.[5].

A group of women who constitute a loan group are neighbors from the same village. They are likely to be aware of each other fertility and fertility decisions. To the extent these

face-to-face acquaintances are further consolidated by the group solidarity generated by a mutual security element of loan repayment and disbursement, it is likely to reinforce this primary group influence on fertility behavior (Freedman, 1979, 1987). Since the family planning is actively and routinely promoted in loan group meetings, loan workshops, and training sessions, the primary group influence may have been a critical mechanism in promoting fertility regulation among the loan recipients of GB, BRAC, and BRDB.

Clearly, the new institutional context of collateral-free credit provision, frequent group interaction, group mobilization, and distribution of scarce resources for self-reliant participatory efforts aimed at basic need satisfaction, and other conscientization efforts that these organizations bring in at the village level, are providing new institutional context for exerting social pressure. This type of social pressure cannot be duplicated by ordinary interaction among neighbors or by the disjointed efforts of various public sector employees. Moreover, this group pressure has an added implication in the context of the agreement among the group members, stipulating the penalty of disqualification from loan entitlement or expulsion from the loan group in the event of non-compliance with group objectives. All these show how the income-generating programs of GB, BRAC, and BRDB can create an institutional context that can bolster both the social power of primary group and social institution to bear on matters of fertility regulation or reproductive attitude and behavior.

Perhaps, the most important influence on women's fertility attitudes and behaviors is the group and center meetings, and training sessions in which both loan recipients and program staff openly exchange ideas. These meetings not only draw females out of the seclusion of the home to discard undesirable traditional attitudes and beliefs, as well as entrenched customs and

practices, but also are likely to break their cultural resistance to change by exposing them to new ideas, role models, and life-styles (Chowdhury, 1990; Fuglesang and Chandler, 1988). All these, again, show that the three programs are both creating a decision-making environment and array of incentives and disincentives that could have a dramatic effect on their client's fertility behavior and attitudes. Data collected from two different samples--one drawn from the female recipients of collateral-free loans of the GB, BRAC, and BRDB (experimental group) and another from a comparable group of non-recipients of any institutionally-based loan benefits in the corresponding neighboring areas--have been utilized to test the hypothesis that participation in income-generating activities by the rural poor women are likely to have favorable effects on their knowledge, attitude, and practice of family planning.

DATA AND MEASURES OF VARIABLES

The data for the present study come from a 1992 household sample survey of 2,285 female recipients of collateral-free loans from three relatively large rural development agencies in Bangladesh--GB, BRAC, and BRDB--and their 1,168 counterpart non-beneficiaries who were confined to domestic sphere without any recourse to outside home social interaction. The program beneficiaries were randomly selected from the rural areas covered by the loan programs of GB, BRAC, and BRDB. These samples were representative of the loanees as of December 31, 1990. The criteria for the selection of counterpart comparison group of non-beneficiaries were that they were residing in neighboring geographic areas with similar communication facilities and socio-economic characteristics, such as literacy rate, topography, access to electric power, and presence of other developmental programs. In addition, women with more than 0.5

acres of land were excluded from the comparison group. However, this matching may not have been uniformly attained because of differential criteria of loan disbursements followed by the three organizations under study. Thus, while the policy of not giving collateral-free loans to anybody with more than 0.5 acres of land is strictly followed by the GB and the BRAC, this policy is less strictly followed by the BRDB (Chowdhury, 1990). Consequently, inspite of the best intentions, BRDB may have been providing some collateral-free loans to the rich rather than to the poor and destitute, making them somewhat different from the rest of the sample. Nevertheless, a large number of collateral-free loan beneficiaries in each of these three organizations are poor women. Our experimental sample of program beneficiaries was selected from these poor women beneficiaries according to their duration of exposure to program activities. Since our interest was in reproductive history and contraceptive behavior, only married women within the reproductive age group of 14 and 49 were selected in our sample. Reproductive activity outside marriage is very rare in rural Bangladesh.

A three-stage stratified cluster sampling design was applied in the selection of the sample. At the first stage, branches of GB, program areas of BRAC, and Thanas (administrative sub-district) of BRDB, and Thanas of a comparison group were selected with a systematic sampling procedure (random start and fixed interval). At the second-stage, centers of GB branches, village-level organizations of BRAC's program areas, and unions (administrative areas below Thana level) of BRDB's program Thanas, and corresponding comparison areas were selected. At the final stage, women loanees and their counterpart non-loanees were selected.

After the random selection of each branch or area or Thana at the second stage, a sampling frames for the selection of ultimate sample of loanees and their counterpart non-loanees

were prepared by listing all loanees and households of comparison non-loanees. Eighty loanees from each selected branch or area or Thana and 60 non-loanees from each comparison area were randomly drawn following a systematic sampling procedure. A total of 3,453 women were selected and successfully interviewed, providing a group of respondents large enough to undertake sub-group or multivariate analyses with valid statistical tests.

The survey, which was funded by U.S.AID and conducted by ACPR, a private research firm in Bangladesh, collected detailed information on the respondents' socio-economic backgrounds, their income-generating activities, and their knowledge, attitudes, and practice of family planning.

Measures of Dependent Variables

Recent evidence showed that there has been a rapid increase in contraceptive use and desire for fertility control in Bangladesh (Amin et al., 1993). This was true in all socio-economic groups including the poor and assetless women. It has been suggested that part of this decline is due to population-education initiated by the various non-governmental organizations (NGOs) and income-generating projects (Cleland et al., 1993). But no evidence of the linkage between income-generating projects and recent increased contraceptive use is available. The present study analyzes contraceptive knowledge and use and desire for no more children. However, since current contraceptive use has more immediate relevance for fertility decline, it is the focus of present analysis. This has been done by modeling a dichotomous dependent variable, coded 1 if a couple is currently using contraceptives and zero otherwise. Contraceptive use includes all contraceptive methods--temporary, permanent, male, and female.

Measures of Independent Variables

To assess the net effect of our independent variable of interest--the participation in income-generating activities--on our dependent variable of interest, contraceptive use, we have controlled for various socio-economic and demographic background variables of the respondents that may confound the results of the analyses. These variables are number of living children, years of schooling, age, ownership of assets, and husband's occupation. Other variables, such as size of farm land, proportion of children died, or per capita income of the household members, were excluded from the multivariate analysis because their relationship with contraceptive use was either ambiguous or insignificant.

Estimation Techniques

Since our dependent variables are dichotomous, logistic regression is applied in the multivariate analyses (Morgan and Teachman, 1988; Swafford, 1980). Here, I report parameters from logistic equation in the form:

$$LOG(P/1-P)=A+\Sigma(B_k*X_k),$$

where P is the probability that a woman has contracepted. P/1-P is the odds that a women has contracepted, X_k represents the explanatory variables used in the equation. B_k represents the effects parameters associated with the explanatory variables, and A is the constant term. In order to facilitate the interpretation of results, I present the antilogs of the coefficients, which can be interpreted as the amount by which the odds are multiplied for each unit change in the explanatory variable (Morgan and Teachman 1988). In addition, one can calculate the percentage

change in the odds associated with each unit change in the explanatory variable by subtracting 1 from the multiplicative coefficient and multiplying by 100.

RESULTS

Characteristics of the Sample

Table 1 shows some of the socio-economic and demographic characteristics of the beneficiaries of the GB, BRAC, BRDB, and their comparable non-beneficiaries in our sample. Although the beneficiaries of GB and BRAC and the comparison non-beneficiaries in the sample are from the poor socio-economic strata of rural Bangladesh, the same cannot be said of the BRDB's beneficiaries in the sample. For instance, the average size of land possessed by the beneficiaries of BRDB was about 112 decimals, compared to about 55 or less for the other groups. Similarly, schooling, educational level, per capita income, and household assets were higher for the BRDB's beneficiaries. This is consistent with the hypothesis that the BRDB's loan program provides more loans to the rich than to the poor and the destitutes. This is not unexpected given the public sector character of BRDB and its wider coverage with the attendant constraints of administering any vastly expanded program. Consequently, it is no surprise that the beneficiaries of GB and BRAC mostly belonged to their target group of women, owning no more than 50 decimals of land, while a substantial number of the beneficiaries of the BRDB belonged to the non-target group of women, owning land in excess of 50 decimals. Nevertheless, with average land size of about one acre (100 decimals) and average per capita income of $162, our BRDB's female beneficiaries cannot be described as rich and should be at best treated as persons of below average economic status because of their lower farm size and lower per capita

(Table 1 to be positioned about here)

Table 1: Descriptive statistics for currently married women from the four sub-samples of the Female Self-Employment Study in Rural Bangladesh.

Variables	GB Loanees N = 773	BRAC Loanees N = 762	BRDB Loanees N = 750	Non-Loanees N = 1168
Percent of respondents ever attended school	28.1	25.2	54.4	22.7
Mean years of schooling of husbands	1.7	1.5	2.0	1.4
Mean age at first marriage	14.3	13.9	14.7	14.4
Mean age of respondents	31.2	31.4	33.0	28.2
Proportion of children dead[a]	0.154	0.188	0.131	0.211
Mean number of children ever born	3.9	4.1	3.9	3.3
Mean months of membership in loan organizations	51.2	48.7	89.4	NA
Average size of land in decimals	33.2	55.2	111.7	40.7
Average number of assets owned	3.0	2.8	3.8	2.1
Last year's per capita income of the household	$156	$115	$162	$96
Percent husbands in non-agricultural job	77.1	81.2	73.5	80.7

[a]Average of the proportion of children died after birth for the age -groups: 15-19, 20-24, 25-29, 30-34, 35-37, 40-44, and 45-49.

Source: The Survey of Economic and Demographic Impact of Poor Women's Self-Employment in Rural Bangladesh, 1992.

income compared to about 2 acres average farm size and about $200 per capita income for Bangladesh as a whole (BBS, 1986). The predominance of the non-agricultural occupation among the husbands of the respondents is also consistent with other studies that showed that nearly 78 percent of new job entrants in recent times, particularly among rural poor, found employment in the non-agricultural sectors of the rural economy (BBS, 1986).

Table 1 shows that child survival rates among the program beneficiaries were higher among the program beneficiaries with the sub-sample from the BRDB leading the group. While part of the higher survival rate of the beneficiaries of the BRDB was consistent with their higher socio-economic status compared to the rest of the sample, the consistently higher survival rates of all sub-samples of the beneficiaries compared to non-beneficiaries may reflect the former's higher health care utilization as well as higher fertility regulation, which might have improved their child survival prospects (Bongaarts, 1987). In the same vein, the higher per capita income of the beneficiaries compared to non-beneficiaries in the table may reflect the former's additional income generated by their participation in the income-generating projects.

Income-generating Projects and Family Planning Knowledge, Attitude, and Practice

Table 2 shows that contraceptive use, knowledge of contraceptive methods and their sources, and the desire for no more children were higher among the beneficiaries of income-generating projects compared to non-beneficiaries. For instance, 60.3 percent, 58.2 percent, and 68.1 percent of the beneficiaries of GB, BRAC, and BRDB, respectively, who were exposed to their population-education, were current users of contraceptives compared to about 38.0 percent of the non-beneficiaries. While these rates of the beneficiaries were much

higher than those of the non-beneficiaries, the rate of the latter was slightly less than that of the national contraceptive prevalence rate of about 40.0 percent (Amin et al., 1993). This is consistent with our hypothesis since the population-education components and other socio-economic improvement efforts for the beneficiaries might have increased their level of demand for contraceptive use over and above its existing demand in the general population of rural Bangladesh. On the other hand, since the non-beneficiaries were not exposed to the additional demand-generation program of the income-generating projects, their contraceptive use rate is likely to have been close to the general rural women of Bangladesh. Similar pattern was also observed in the desire for no more children, in which, 83.3 percent, 78.3 percent, and 84.4 percent of the beneficiaries of GB, BRC, and BRDB, respectively, who were exposed to the programs' population-education and other socio-economic components, were desiring no more children compared to 63.2 percent of the non-beneficiaries. This higher desire for no more children among program beneficiaries compared to non-beneficiaries were more marked among the low-parity women. This may, again, suggest that the income-generating projects led to an increased level of demand by complementing and amplifying the existing motivation and supply efforts of the usual national family planning program. Earlier studies also revealed positive effect of income-generating project on women's contraceptive use (Mahmud, 1991; Muhuri, 1985).

(Table 2 to be positioned about here)

Table 2 further shows that the income-generating projects led to an increase in contraceptive use irrespective of their population-education components. Fifty-three point eight percent, 59.5 percent, and 59.1 percent of the beneficiaries of GB, BRAC, and BRDB, respectively, who did not participate in their population-education components, were current users

Table 2: **Various measures of knowledge, attitude, and practice of family planning among currently married female loanees by loan-sponsoring organizations and exposure to population-education in rural Bangladesh, 1992.**

Measures	Loan-sponsoring Organizations						
	GB N = 733		BRAC N = 762		BRDB N = 750		Non-Member N = 1168
	Exposed to Population -Education	Not exposed to Population -Education	Exposed to Population -Education	Not exposed to Population -Education	Exposed to Population -Education	Not exposed to Population -Education	
Percent current users	60.3	53.8	58.2	59.5	68.1	59.1	38.4
Percent desiring no more children	83.3	76.9	78.3	85.3	84.4	86.9	63.2
Percent with ≤3 children, desiring no more children	74.1	66.7	66.1	69.4	75.9	76.4	49.4
Percent with >3 children, desiring no more children	97.9	a	96.2	100.0	98.3	97.8	96.7
Average number of known methods	4.5	3.2	4.6	4.5	4.7	4.1	3.7
Average number of known modern methods	4.2	3.1	4.4	4.3	4.5	4.0	3.6
Average number of known supply source	6.8	6.1	6.8	6.3	7.0	6.8	6.1

[a] ≤5 respondents.

Source: The Survey of Economic and Demographic Impact of Poor Women's Self-Employment in Rural Bangladesh, 1992.

of contraceptives compared to 38.4 percent of the non-beneficiaries. Similar difference is also evident in the desire for no more children. These differences suggest that the income-generating projects have had an independent effect on the demand for fertility regulation and contraceptive use over and above the effect of population-education activities. Finally, about three or more average number of known contraceptive methods and about six or more average number of known contraceptives supply sources among both program beneficiaries and non-beneficiaries are consistent with other studies revealing the universal awareness of contraceptive methods and supply sources in rural Bangladesh (Huq and Cleland, 1990; Mitra and Associates, 1992).

Multivariate Analysis

So far our univariate and bivariate analyses show that income-generating project have had positive effect on contraceptive use in rural Bangladesh. However, since effect of the income-generating projects on contraceptive use can be confounded with other socio-economic and demographic variables of the respondents, we have made additional analysis of it by logistic regression models.

Results of the logistic regression models testing the effects of income-generating projects on contraceptive use are shown in Table 3. These models test the effects of participation in the loan programs of the income-generating projects, times loans received, duration of participation in the loan program, and participation in their population-education components on contraceptive use after controlling for the socio-economic and demographic background variables of the respondents. Model II shows that the participation in the loan programs had a strong positive effect on contraceptive use and that this positive effect increased with the increase in the duration of membership in the loan-giving organizations. Model IV shows that this positive effect also

increased with the increase in the number of times loan received. Finally, models, I, II, and V show that the participation in the education component of the income-generating projects led to increased contraceptive use over and above the effect of the participation in the income-generating projects.

(Table 3 to be positioned about here)

The positive effects of income-generating project and its population-education component on contraceptive use is much stronger and significant than the no significant or weak effect of other socio-economic variables, such as the women's education, husband's education, or possession of modern consumer items. While part of this weak relationship between contraceptive use and socio-economic variables, after the control of age and parity effects, could be explained by the homogeneous socio-economic characteristics of the respondents, most of whom belonged to low-income groups, their much higher rate of contraceptive use compared to that of the general women population of Bangladesh (Amin et al., 1993) suggests the predominant effect of income-generating projects on increased contraceptive use. The latter shows that active and participatory rural income-generating program geared towards rural poor women could be a faster way of inducing fertility decline than the usual process of socio-economic development. Participation in income-generating activities outside the traditional household activities represents a revolutionary step for these poor women; it may help them not only in their survival struggle in the deteriorating poverty situation of Bangladesh, but may also change their attitudes toward themselves, thanks to projects' conscientization efforts. Perhaps, most important, as mentioned earlier, it creates co-operative peer group support and solidarity relationship among members, which offer a genuine alternative to traditional social and

Table 3. **Logistic regression estimates of the influence of participation in income-generating projects (IGP) on odds of current contraceptive use of currently married women.**

	Models				
	I	II	III	IV	V
Indicators:					
Duration of Membership in IGP					
Non-IGs	a	a	a		
1-36 months	1.10	1.37*	1.71***		
36+	1.47	1.97***	2.38***		
Times Loan Received:					
Non-IGPs	a			a	
1-3	1.33			1.91***	
3+	1.64			2.66***	
Participation in Population Education:					
Non-IGPs	a	a			a
Not-participated	.83	.86			1.28
Participated	1.18	1.29			1.88***
Controls:					
Age	1.02**	1.02**	1.02**	1.02**	1.03***
Age at marriage	1.03	1.03	1.04	1.04	1.03
Living children	1.11***	1.11***	1.11***	1.10***	1.11***
Wife's education	1.04	1.03	1.03	1.06	1.07
Husband's education	1.01	1.03	1.01	1.01	1.01
Husband's occupation	1.01	.95	.94	.94	.95
Possession of modern items	1.06	1.06*	1.06*	1.07**	1.09***
Model X^2	273.0	268.8	261.6	261.5	234.6
Df	14	11	9	9	9

*P<.05; **P<.01; ***P<.001.

[a]Reference category: those who are not in the income-generating projects (IGPs).

psychological dependence deriving from their physical and social isolation in the home. In contrast, the lower contraceptive use among the non-beneficiaries reflected the inadequacy of impersonal or centralized national mass family planning program to create the kinds of primary group pressure or primary group solidarity to bear on the individual village women to crystallize their demand for fertility regulation. Nor do they have in their possession any economic incentives, solidified by group-collateral, which act as powerful inducements for active program participation and maintenance of strict self-discipline for loan entitlement and loan repayment, which may have favorable residual effects on the reproductive behavior.

DISCUSSION

The importance of altering reproductive attitudes and practices by generating changes in the socio-economic and institutional conditions of rural villages or by integrating population policy with development policies at the local level have been emphasized in the literature (Dixon, 1976; McNicoll, 1980; Demeny, 1992, 1975). But the evidence of altering reproductive behavior by generating institutional-organization changes at the community-level are rare. Yet such evidence is critically needed to change hard core residues of attitudes and behaviors that may have been operating as major obstacles to further fertility decline and improvement in health care utilization in the developing countries after the satisfaction of some initial latent demand (Birdsall, 1989). This is likely to be particularly true in Bangladesh where a high-quality and effective contraceptive service model of the ICDDR,B's experimental project area stalled after its transfer to a wider extension area with a contraceptive prevalence rate close to that of the national average (Duza, 1990). The result is the prospective of continuing rapid demographic

growth in a deteriorating poverty situation that can have serious adverse consequences both in terms of human welfare and decreases in the value of labor (NAS, 1986; Demeny, 1986).

By providing a mechanism of drawing poor women out of their traditional female confinement within the households and by providing a changed social organizational set up capable of producing opportunities for female self-employment or female income-generating activities, the three organizations under study here have created a new institutional contexts of augmenting and crystallizing demand for fertility regulations that seem to have led to increased contraceptive use and to decreased family size desire. These effects were much higher than what have been achieved by the existing national family planning program of Bangladesh (Amin et al., 1993), indicating both the additional effect of income-generating projects as well as the effects of their population-education components. This is surprising because these poor beneficiaries were likely to have been in more disadvantaged positions than the general population, not only in terms of access to contraceptive service, but also in terms of exposure to modern influences, such as modern education or mass media. Apparently, their disadvantaged socio-economic positions have been more than compensated by the opportunities and exposures provided by their participation in income-generating projects with the population-education components. There are several mechanisms through which the income-generating projects may have produced these effects. First, small group meetings-based population-education components of the income-generating projects may have helped by providing face-to-face information about the need, means, and sources of supply of fertility regulation to an essentially captive audience. Second, by taking care of the basic economic survival needs of the poor women, the income-generating projects may have gained legitimacy and trust among their clients. This may

have made the staffs of the income-generating projects more credible motivators than the usual health or family planning motivators. Third, the requirement of group-formation and group-solidarity among the loan beneficiaries prior to loan sanction and loan disbursement creates a primary group relationships among members. The formation of these powerful primary groups, whose purpose is to work as group-collateral for loan recovery, may also have been working as group pressures for conforming to the group's newly proclaimed and often repeated small family size norm. The possibility that additional children by a member will reduce a member's ability to repay loans, for which the group is jointly liable,may reinforce the group influence on fertility regulation. Finally, conscientization efforts of the income-generating projects, such as functional education,skill trainings, or leadership training may indirectly influence fertility regulation by changing their clients' ideas and perspectives.

The findings of the present study are consistent with the notion that a holistic approach of income-generation, fertility control, and social development that reduces social and economic isolation of rural women by linking them to some kind of community or peer group support outside their immediate family circles are likely to have facilitating effect on fertility control (Dixon, 1976). The poor beneficiaries' dire economic survival needs, in the context of their deteriorating economic conditions in rural Bangladesh, vis-a-vis, their growing relative deprivation, may have driven them to join neighbors and strangers outside their immediate families in organizing self-reliant income-generating projects. But as our analyses have shown, this may not only raise the standard of living of the most disadvantaged sections of rural poor, but also have provided a context of emergence of structured community groups outside their immediate families that has a strong positive effect on fertility regulation. This effectiveness of

the income-generating projects had nothing to do with public or non-public sectors dichotomy. The income-generating projects that specially targeted poor women, irrespective of their sponsorship by public, NGO, or special banking sectors, seemed to have achieved fertility regulation effect, although public sponsorship has some slippage in reaching the poor.

What is important from the policy point-of-view is that the income-generating projects have achieved this remarkable success among a population that have been bypassed by the conventional development programs and that this has been achieved by a self-sustaining and self-generating approach of recoupable and recycling loan programs. This self-sustaining approach of joint rural development and population control would not only solve the problems of financing and supporting huge infrastructures and supply logistics of growing number of contraceptive users of the South Asian regions, but would also raise the standard of living of the large populations who are close to or below subsistence level of living. For years, policy planners, development specialists, and donor agencies have been looking for a self-reliant rural development strategy that would not only improve the existing living conditions of a very large number of rural people but also to stem the growth rate in rural population with persisting decline in the ratio of population to land, (Friedmann, 1981; Korten, 1991; Ridker, 1976; Demeny, 1992). The self-sustaining and self-reliant income-generating project based on collateral-free recoupable loan program with critical component of participatory group formation and population education, which was indigeneously devised and experimented by the GB of Bangladesh, seems to have become an effective way of achieving these twin objectives of improving the standard of living of the rural people and reducing their fertility. This fertility regulation effect of the income-generating projects has happened despite the fact that population-education component was only

one of their marginal ones without any provision of actual delivery of family planning services. This suggests that the fertility reducing effect of income-generating projects can be made more effective by including a viable service delivery component of family planning to their existing population-education component.

It was more than a decade ago that Demney (1975) stressed the need of inducing institutional-organizational change in rural Bangladesh that would enhance the capacity of small communities to recognize and solve population problems. The same theme was reaffirmed by Arthur and McNicoll (1978) in an essay on population and development in Bangladesh, emphasizing local institutional change needed to redirect individual demographic and socio-economic goals towards a socially desirable end. The present study shows that such institutional changes have begun to emerge in rural Bangladesh not as an over arching and centrally administered public health or family planning program, but as a byproduct of decentralized and community-based poverty-alleviation strategies based on the principles of learning process, local participation, and development of local human resources and local leadership that are able to articulate the common interest of the villagers in bringing demographic growth to a halt, and to generate enough incentives and co-operation needed to translate this recognition into effective action. In Demeny's words (1975):

> "The issue is not to deploy twice as many village-level health workers to speed community improvements through family planning, neither is it to supply a multi-purpose worker to each village to be a spokesman of 'integrated development'. First and foremost, it is the promotion and acceptance of an indigenous political-economic leadership in the 65,000 villages of Bangladesh--a leadership that understands the need for the potential of self-help and self-reliance in creating a better life for the members of the community."

In designing and implementing poverty alleviation strategies in rural Bangladesh, GB, BRAC, and BRDB seemed to have helped the emergence of such a self-reliant village leadership. It is important, in this concluding statement to re-emphasize the focus of the income-generating projects, which is a decentralized design of generating local-level participatory process aimed at solving the multiple problems of rural people. In this design, the villagers are not seen merely as 'clients' whose well-being deserve attention, but also as 'agents of changes' whose actions can transform village life. There is a need and scope to strengthen this participatory process in rural Bangladesh by vigorous and inspired encouragement and support from the national and international agencies, fostering and assisting rural development along such a line.

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NOTES

1. Many NGOs and other agencies, both within Bangladesh and throughout the rest of the world, have adopted GB's approach of forming five-person or similar credit group replicating GB's collateral-free loan strategy for poverty alleviation. This strategy has proven to be effective not only in loan recovery and loan recycling, but also in improving household output, income, and consumption (Hossain, 1988, 1984; Chowdhury, 1990; Fuglesang and Chandler, 1988). The result is the increasing acceptance of a self-sustaining and self-generating poverty alleviation strategy that is reaching beneficiaries in the thousands. Many NGOs in Bangladesh that have included income-generation as one of their program agendas are following in the footsteps of GB's group-formation-based revolving loan program (Maloney and Ahmed, 1988). By the mid 1980s, GB's own credit program for the poor in Bangladesh has covered six percent of the villages in Bangladesh and has a plan of covering much larger areas of Bangladesh in the decade of the 1990s. A similar plan of expansion has been set forth for the credit program of BRAC, which has its own banking system for providing and managing credit to the poor and the destitute (Korten, 1991).

2. Comilla Approach is the evolution of a community development strategy that was initiated as early as 1956 at the Bangladesh Academy of Rural Development (BARD). It is an integrated rural development with its cooperatives and a two-tier organizational structure. The goals of the approach were to promote agricultural production, income-generating activities through provision of credit and technical input, training, and extension services. Inspite of good intentions, the comilla Approach bypassed the poor and benefited the rich and the hope of "trickle down of benefits" was not realized.

Subsequently, under BRDB, the approach has undergone several changes in which a program of collateral-free loans to poor women was introduced under the Village Women's Program, in which provision of population-education and some family planning supplies became explicit components of the program package. By 1990, since its inception in 1975, the program has been extended to 100 sub-districts out of the total of 493 sub-districts of Bangladesh. All women beneficiaries included in the present study are from this Village Women's Program of BRDB.

3. The group is the key unit in the GB's credit program. Its formation is the first necessary step to receive credit. This group usually consists of five like-minded people, males and females, separately. The groups are organized into Centers, each with its elected chairman and secretary. No members in a group can get another loan if any member defaults or its performance and repayment schedules are not well maintained. This process is a kind of social collateral in which group solidarity and group accountability relationship act as deterrence against defaulters.

4. The term, "Conscientization efforts" convey the social mobilization components of the core credit program. Although, now-a-days, increasing emphasis is put on social components, these remain essentially subsidiary to the main objective of raising incomes and self-employment through provision of credit. Activities that are included under the conscientization efforts are functional education, preventive health, family planning, sanitation, nutrition, and promoting social reforms such as elimination of dowry.

5. With their superior resources, such as credit resources, technical staffs, physical assets, GB, BRAC, and BRDB have become a new power elite in the villages. The desire to get

credit for individual economic improvement leads a villager to join their loan groups. But once a village woman joins a loan group, she not only gets credits, but also many other benefits, such as training, medicine, or other inputs, be it cash or kind. Moreover, formation of groups enables the rural poor women to transform their individual-weakness into collective strength and thus gaining some collective power and prestige. For instance, the rural poor use the name of BRAC as a local word, displaying proudly the fact that "I am a BRAC target man" (Chowdhury, 1990).

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