

## **Poor Women's Participation in Credit-based Self-employment: The Impact on their Empowerment, Fertility, Contraceptive Use, and Fertility Desire in Rural Bangladesh**

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By analysing 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 had been associated with their increased level of contraceptive use, decreased level of fertility, elevated level of desire for no more children, and enhanced level of empowerment. Some of these effects were much higher than those of the corresponding levels for Bangladesh as a whole, indicating the possible additional effect of income-generating projects as well as the effects of their population-education components. The implications of these findings for an integrated development strategy in Bangladesh are discussed.

### **INTRODUCTION**

Cognisant of the notion that the problems of population growth are inextricably linked with poverty, unemployment, diseases, hunger, malnutrition, and environmental degradation, a growing number of policy-makers and development planners are emphasising the policy of integrating population and family planning programmes with other economic-oriented and welfare-oriented social mobilisation efforts. [See Caldwell and Caldwell (1993); Cernea (1992); Demeny (1992); Dixon (1976) and United Nations (1984)]. The proponents of this integrated approach

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argue that progress in any one of these areas may not only lead to an advance in the others but can also create noticeable improvements in the participants' lives and communities, sometimes producing a self-sustaining momentum of socio-economic change and development. [See Cernea (1992) and Serageldin (1993)]. On the other hand, it is posited that disparate and disconnected efforts in health, education, rural development, or family planning projects, may not only lead to uneven developments, jeopardising their effectiveness, but that they can also fail to take advantage of certain "win-win" strategies that can be harnessed to reinforce each other. [See Mink (1993) and Serageldin (1993)]. Premised on the notion that the poor women's multi-faceted problems are interrelated and better taken care of in an integrated way rather than in isolation from each other, a growing number of governmental and non-governmental organisations (NGOs) in Bangladesh have incorporated women's empowerment, health, education, and family planning services in their poverty alleviation strategies. [See Chowdhury (1990); Mabud (1992); Maloney and Ahmed (1988); Muhuri (1985) and Rahman *et al.* (1990)]. Out of numerous NGOs and governmental programmes incorporating such strategies, three—the Grameen Bank (GB), the Bangladesh Rural Advancement Committee (BRAC), and the Bangladesh Rural Development Board (BRDB)—stand out because of their direct coverage of an unusually large number of poor women, and indirect coverage of still larger numbers through their impact on policies and institutions. Concerned about the broader issues of poverty and underdevelopment, these three organisations have added population-education, primary health care, and consciousness-raising to their credit programme for the self-employment of the poor women [See Fuglesang and Chandler (1988)]. Some programme effects of these three organisations are the subject of the present study.

The three organisations under study here differ from each other 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-focused development bank, which offers a limited range of integrated services centred on credit [See Chowdhury (1990) and Maloney and Ahmed (1988)]. However, all three offer collateral-free loans to the poor women within the context of the mobilisation 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 programmes in alleviating poverty and in improving economic conditions of the rural poor has been well-documented [See Chowdhury (1990) and Hossain (1988)]. However, what is sparse in the literature is systematic evidence linking these rural income-generating programmes to fertility, fertility behaviour, and empowerment of poor women. 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 empowerment, fertility, and fertility desire in

rural Bangladesh.

Theoretical justifications for income-generating projects that are having a favourable demographic effect in helping bring down poor women's fertility in the developing countries are many. First, an income-generating project, aside from creating conditions of economic independence among females can simultaneously relieve them of a condition of extreme social and psychological dependence derived from their physical and social isolation in the system of female seclusion in rural Bangladesh [See Dixon (1976)]. Second, it could enable them to gain social support and social legitimisation of any innovative social and reproductive behaviour that they are predisposed to undertake but are dissuaded by the hostile pro-natalist environment as well as their powerlessness within and beyond their households. 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, group interaction, and other new institutional contexts could have anti-natalist and anti-dependency effects by altering their knowledge and attitude as well as their household and reproductive decision-making environment [See McNicoll (1980)]. The results could be a significant lowering of social and psychological costs of family planning with a concomitant increase in fertility regulation.

### **INCOME-GENERATING PROJECTS OF GB, BRAC, AND BRDB**

By the end of the 1980s, the programmes to assist the poor through the provision of collateral-free loans had become quite popular among the donor and governmental organisations 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 organisation, had first shown how remarkably the poor can be helped if they are provided with collateral-free credit for non-farm activities.<sup>1</sup> Although the initial goal of GB's poverty alleviation strategy through the provision of collateral-free credit to the poor women was to help them improve their earnings and self-employment,

<sup>1</sup> See Hossain 1984. Many NGOs and other agencies, both within Bangladesh and throughout the rest of the world, have adopted GB's approach of forming a five-person or similar credit group replicating GB's collateral-free loan strategy for poverty alleviation. This strategy has proved to be effective not only in loan recovery and loan recycling, but also in improving household output, income, and consumption [Chowdhury (1990); Fuglesang and Chandler (1988); Hossain (1984, 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 programme agendas are following in the footsteps of GB's group-formation-based revolving-loan programme [Maloney and Ahmed (1988)]. By the mid-1980s, GB's own credit programme for the poor in Bangladesh 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 programme of BRAC, which has its own banking system for providing and managing credit to the poor and the destitute [Korten (1991)].

other social and welfare goals, such as promotion of primary health care and family planning, consciousness-raising, leadership development, and functional education, were subsequently added to provide services in all the areas in an integrated and participatory way [See Fuglesang and Chandler (1988)].

All three income-generating projects under examination in the present study have the population-education and social mobilisation components, which are designed to encourage reproductive behaviour favourable to fertility regulation as well as women's independence in household decision-making. They all put a major emphasis on population-education as additional goals, along with the economic ones, although some differences in the organisation of the programme exist among them. For instance, although like GB, BRDB gives importance to population-education and adult education as to economic goals, its programme activities are centred around the formation of Village Women's Co-operatives, modelled after the Comilla Approach.<sup>2</sup> BRDB, however, more explicitly provides population-education and also more limited services in family planning methods than those of GB and BRAC [See BRDB (1991) and 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.<sup>3</sup> 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 programme activities, such as group formation, collateral-free credit, functional education, population-education, health education,

<sup>2</sup>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 organisational structure. The goals of the approach were to promote agricultural production, income-generating activities through the provision of credit and technical input, training, and extension services. In spite of good intentions, the Comilla Approach bypassed the poor and benefited the rich, and the hope of "trickle-down of benefits" was not realised. Subsequently, under BRDB, the approach has undergone several changes, in which a programme of collateral-free loans to poor women was introduced under the Village Women's Programme, in which the provision of population-education and some family planning supplies became explicit components of its programme package. By 1990, after its inception in 1975, the programme 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 Programme of BRDB.

<sup>3</sup>The Group is the key unit in the GB's credit programme. 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 organised into Centres, each with its elected chairman and secretary. No member is 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.

and skill training, are also provided by the BRAC, its provision of credit is sequenced after its awareness training and grassroots level conscientisation efforts.<sup>4</sup>

From the perspective of income-generation, all three programmes—GB, BRAC, and BRDB—being examined here have been successful because the loan-recovery rate is very high, ranging between 96.0 and 100.0 percent, thanks either to group responsibility and group pressure or and grassroots mobilisation efforts common to all of them, [See Chowdhury (1990); Hossain (1988) and NGO Coalition (1982)]. Studies have also shown that credit provision by these three organisations has been associated with productive self-employment, increase in income, accumulation of capital, and the meeting of basic needs of the poor borrowers [See Chowdhury (1990) and Hossain (1988)]. Indeed, a variety of income-generating activities are undertaken by women borrowers of these three organisations. 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 emphasised by all three programmes. Finally, the programmes encourage groups to collect savings that can be utilised by individual members in times of crisis.

All in all, the female loan programmes of GB, BRAC, and BRDB apply a holistic approach in order to meet the female participants' multiple needs. Income-generation together with human resource development, consciousness-raising, population-education or family planning information and/or limited primary health-care and family planning services are important elements of this holistic approach. The purpose of such social mobilisation efforts, population-education, or family planning service is to encourage independent decision-making and family planning among the loan recipients. Consciousness-raising, population-education, or messages of family planning are routinely emphasised in regular group and centre meetings, training workshops, and other group solidarity meetings by the programme staff in order to influence the individual calculus of household decision-making and 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 the latter goals by the programme staff, on whom they are dependent for loan approval and loan sanction, and other benefits

<sup>4</sup>The term "Conscientisation efforts" conveys the social mobilisation components of the core credit programme. Although, now-a-days, an increasing emphasis is put on social components, these remain essentially subsidiary to the main objective of raising incomes and self-employment through the provision of credit. Activities that are included under the conscientisation efforts are functional education, preventive health, family planning, sanitation, nutrition, and promoting social reforms such as elimination of dowry.

and privileges.<sup>5</sup>

Women who constitute a loan group are neighbours from the same village. They are likely to be aware of each other's 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 behaviour and independent decision-making [See Freedman (1979, 1987)]. Since 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 the collateral-free credit provision, frequent group interaction, group mobilisation, and distribution of scarce resources for self-reliant participatory efforts aimed at basic-need satisfaction, as well as other conscientisation efforts that these organisations bring in at the village level, are providing a new institutional context for exerting social pressure. This type of social pressure cannot be duplicated by ordinary interaction among neighbours or by the disjointed efforts of various centralised 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 programmes 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 independent decision-making fertility, fertility regulation, or reproductive attitude and behaviour.

Perhaps, the most important influence on women's fertility attitudes and behaviours or their autonomy is the group and centre meetings and training sessions in which both loan recipients and programme 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 [See Chowdhury (1990); Fuglesang and Chandler (1988) and McKee (1989)]. All these, again, show that the three

<sup>5</sup>With their superior resources, such as credit resources, technical staff, and 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 credit but also many other benefits, such as training, medicine, and other inputs, be they in cash or in kind. Moreover, formation of groups enables the rural poor women to transform their individual-weakness into collective strength and thus gain 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).]

programmes are both creating a decision-making environment and an array of incentives and disincentives that could have a dramatic effect on their clients' fertility, fertility behaviour, and independent decision-making. 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 neighbouring areas—have been utilised to test the hypothesis that participation in income-generating activities by the rural poor women is likely to have a favourable effect on their independent household decision-makings as well as fertility and fertility behaviour.

### DATA AND MEASURES OF VARIABLES

The data for the present study come from a 1992 household sample survey of 2,277 currently married female recipients of collateral-free loans from three relatively large rural development agencies in Bangladesh—GB, BRAC, and BRDB—and their 1,166 counterpart non-beneficiaries who were confined to the domestic sphere without any recourse to outside-home social interaction. The programme beneficiaries were randomly selected from the rural areas covered by the loan programmes of GB, BRAC, and BRDB. The samples were representative of the borrowers as of December 31, 1990. The criteria for the selection of counterpart comparison group of non-beneficiaries were that they were residing in neighbouring geographical areas with similar communication facilities and socio-economic characteristics, such as literacy rate, topography, access to electric power, and presence of other development programmes. 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 organisations 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 [See Chowdhury (1990)]. Consequently, in spite of the best intentions, BRDB may have been providing some collateral-free loans to the rich rather than to the poor and the 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 organisations are poor women. Our experimental sample of programme beneficiaries was selected from these poor women beneficiaries. Since our interest was in reproductive history and contraceptive behaviour, 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, a random sample of the branches of GB, programme

areas of BRAC, and *Thanas* (administrative sub-district) of BRDB, and their corresponding comparison groups were selected with a systematic sampling procedure (random start and fixed interval). At the second-stage, all households in each selected branch areas of GB, programme areas of BRAC, *Thana* areas of BRDB, and areas of the comparison groups were identified, and a specific number of households of beneficiaries and non-beneficiaries was randomly selected to be part of the eligible beneficiary and non-beneficiary samples.

Finally, members of the selected household were enumerated to identify any woman who was eligible for the survey. Eighty eligible borrowers from each selected branch or area or *Thana* and 60 eligible non-borrowers from each corresponding comparison area were randomly drawn following a systematic sampling procedure. A total of 3,453 women were selected and successfully interviewed. This number was, however, not based on their proportion in the rural poor women of Bangladesh because the relative proportions of beneficiaries, *vis-à-vis* non-beneficiaries, were not known. For the same reason, in the analyses of data, the sample cannot be weighted. Nevertheless, it can be assumed that a fairly large number of currently married poor women, who are served by the major poverty alleviation programmes, reside in rural Bangladesh.

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 participation in income-generating activities and household decision-makings, their physical mobility within and beyond their own villages, their fertility, 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 [See Amin *et al.* (1993)]. This was true in all socio-economic groups including the poor and the assetless women. It has been suggested that part of this decline is due to population-education initiated by the various non-governmental organisations (NGOs) and income-generating projects [See Cleland *et al.* (1993)]. But no evidence of the linkage between income-generating projects and the recently increased contraceptive use on a national level or regional level is available. Similarly, no large-scale survey data are available to examine if the consciousness-raising efforts of income-generating projects or their social mobilisation efforts have empowered the poor women by increasing their independence in household decision-making and physical mobility within and beyond their own villages. Considering these gaps in knowledge, the present study seeks to examine the impact of poor women's participation in income-generating projects on their fertility, contraceptive use, desire for no more children, and



empowerment. Female empowerment has been analysed here not only because of its importance in itself in any development intervention, but also because of its facilitating effect in some demographic events [See Caldwell and Caldwell (1993)]. Consequently, female status or empowerment has been analysed as dependent variables, and has also been used as independent or intervening variables in the analysis of fertility and fertility behaviour.

### **Measures of Independent Variables**

To assess the net effect of our independent variable of interest—the participation in income-generating activities—on our dependent variables of interest—women's empowerment, fertility, contraceptive use, and fertility desire—we have controlled for various socio-economic and demographic background variables of the respondents as well as the intensity of participation in the income-generating projects that may confound the results of the analyses. The intensity of participation has been measured by the number of times loan received as well as membership in the credit organisation. Other variables are the age of the respondent, annual household income, respondent's education, education of respondent's husband, respondent's age at first marriage, ownership of land, agricultural occupation of respondent's husband, times loan received, and utilisation of loan monies by the respondent herself. Still other variables, such as size of farm-land, duration of loan membership, or number of modern items owned were excluded from the multivariate analysis because their relationships with these dependent variables were either ambiguous or insignificant.

### **Estimation Techniques**

In the analysis of our continuous dependent variables, we used Ordinary Least Square (OLS) regression. On the other hand, for dichotomous dependent variables, we used logistic regression [See Morgan and Teachman (1988) and Swafford (1980)]. Below are the reported parameters from logistic equation in the form:

$$\text{LOG}(P/(1 - P)) = A + \sum(B_k * X_k),$$

where  $P$  is the probability that a woman has contracepted,  $P/(1 - P)$  is the odds that a woman 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, we 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 [See 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 co-efficient and multiplying by 100.

## RESULTS

### **Characteristics of the Women Beneficiaries of GB, BRAC, and BRDB, and their Counterpart Non-beneficiaries**

Table 1 presents the socio-economic, demographic, and other characteristics of women by their beneficiary status. Data on these characteristics seem to suggest that the beneficiaries were relatively ahead of non-beneficiaries in age, income, socio-economic status, reproductive innovation, movement outside home, and participation in household- and individual-decision-making. As expected, overall, income and socio-economic status of both the beneficiaries and non-beneficiaries were rather low. With the exception of slightly more children ever born, which was reflective of their higher average age, the beneficiaries were more likely to be currently non-pregnant, current users of contraceptives, and desirers of no more children than the non-beneficiaries. Similarly, both the proportion of children dead and the total marital fertility rate were lower among the beneficiaries than among non-beneficiaries. These seemed to have been true both among the younger couples and the older couples. Similarly, in educational attainment, in educational aspiration for their children, in household income, in individual freedom to take household decisions, in going outside own household compound and village, and in participating in various social, economical, and recreational activities on their own cognisances, the beneficiaries were ahead of the non-beneficiaries, although somewhat less so in talking to unknown persons or in participating in the decision-making about children's education. The last two exceptions are consistent with the corresponding persistence of the pervasiveness of sex segregation and widespread prevalence of the idea of desirability of children's education in Bangladesh because of the latter's importance as a new vehicle of social mobility and increased social status [See Jansen (1990)].

The higher average age of beneficiaries might have resulted from the fact that some respondents were selected from a pool of women who had been members of GB, BRAC, and BRDB for some time (e.g., more than 2 years), whereas the respondents in the non-beneficiary group were not selected on the basis of a similar criterion. Similarly, the higher socio-economic status of the beneficiaries of the present credit programmes might have been due to the selectivity of the women who were initially better off educationally and financially than the typical landless or the poor women and, therefore, were more accustomed to joining income-generating organisations. Past studies have shown some instances of credit programmes not reaching their intended target groups of the poor and the disadvantaged, particularly those of

Table 1

*Characteristics of the Current Married Women Beneficiaries and Non-beneficiaries of Income-generating Projects, by their Age Groups, in Rural Bangladesh, 1992*

Characteristics	Beneficiary Status					
	Beneficiaries' Age Groups			Non-beneficiaries' Age Groups		
	All	Under 31	31-49	All	Under 31	31-49
Average annual household income (Taka) <sup>a</sup>	33614	31319	35659	18686	18001	19839
Average education of mothers	4.5	4.6	4.4	3.9	4.0	3.8
Average education of fathers	3.3	3.3	3.3	1.8	1.7	1.9
Average modern items owned	3.2	3.1	3.3	2.1	2.1	2.2
Average number of children ever born	4.1	2.7	5.3	3.7	2.5	5.4
Average age of respondents	31.6	25.2	37.9	30.4	23.7	37.1
Age of first marriage	14.3	14.4	14.1	14.4	14.6	14.1
% currently using contraceptives	61.4	55.0	67.0	38.6	32.0	49.3
Proportion of children dead <sup>b</sup>	0.15	0.11	0.19	0.20	0.17	0.24
% desiring no more children	82.6	67.7	95.9	63.1	46.3	91.5
Total or age-specific fertility rates <sup>c</sup>	4.68	3.98	1.30	5.03	4.10	1.88
% currently not pregnant	95.0	91.8	97.9	87.9	83.7	94.9
% allowed to visit relatives on own decision	55.6	54.6	56.6	51.5	53.0	48.8
% allowed to travel alone outside their own villages	57.1	58.4	56.0	42.6	38.8	49.1
% visit health centre alone	78.0	78.5	77.6	53.1	49.7	58.8
% allowed to go shopping alone	31.8	32.7	31.0	18.7	18.3	19.4

Continued-

Table 1—(Continued)

Characteristics	Beneficiary Status					
	Beneficiaries' Age Groups			Non-beneficiaries' Age Groups		
	All	Under 31	31–49	All	Under 31	31–49
% allowed to talk to unknown persons	88.4	88.6	88.2	82.8	81.4	85.3
% participate in the purchase of household items either alone or jointly with husband	69.6	69.8	69.4	57.4	57.8	56.7
% participate in health-related decisions either alone or jointly with husband	76.8	76.4	77.1	65.7	64.5	67.7
% participate in the decision about children's education either alone or jointly with husband	94.1	94.5	93.7	91.7	91.1	92.6
% participate in family planning decision either alone or jointly with husband	77.3	77.9	76.7	70.9	70.4	71.9
% allowed to go to cinema alone	21.8	22.3	21.4	8.6	8.2	9.2
% allowed to go to mothers' club meeting alone	95.5	96.6	94.5	54.6	52.5	58.3
% allowed to attend political meeting alone	41.6	41.9	41.4	28.3	26.9	30.6
% wanting above primary-level education of sons	91.9	91.0	92.7	79.2	80.2	77.4
% wanting above primary-level education of daughters	64.7	63.2	66.0	39.0	38.1	40.6
N	2277 <sup>d</sup>	1073	1204	1166 <sup>d</sup>	732	434

Source: Data from the Survey of Economic and Demographic Impact of Poor Women's Self-employment in Rural Bangladesh, 1992. Baltimore, MD, USA: Institute for Urban Research, Morgan State University.

<sup>a</sup> Assuming an average household size of 5, this comes out to be a per capita income of about Taka 6,723. This is equivalent to US \$ 172 at the exchange rate (about Taka 39 = one dollar), which is below US \$ 200 per capita income for Bangladesh as a whole.

<sup>b</sup> Average of all age groups.

<sup>c</sup> Average of 1992, 1991, 1990.

<sup>d</sup> Cases with missing values are excluded from the analysis.

the BRDB, that might explain their higher socio-economic status as compared with the non-beneficiaries [See Asplund and Vylder (1979) and Jansen (1990)].

Regarding the differences in decision-making indicators and the demographic characteristics between the beneficiaries and the non-beneficiaries in Table 1, part of them could be due to the effect of income-generating projects and part could be the result of the selectivity effect of joining the latter by women of outgoing natures. However, the effect of the participation in the income-generating projects on either the decision-making or demographic characteristics of the respondents is likely to be reflected in their intensity of exposure to the former. Hence, we next examine some indicators of household decision-making and demographic characteristics of the respondents by this intensity of exposure (as measured by times loan received) to income-generating projects.

### **Characteristics of the Women by the Number of Times they Received Loans**

Table 2 shows the distribution of some demographic variables and other characteristics of our respondents by the number of times they received loans from the income-generating programmes of GB, BRAC, and BRDB. Since the non-beneficiaries were not exposed to these income-generating programmes, their intensity of exposure is treated as zero.

Data in Table 2 indicate that contraceptive use, fertility decline, desire for no more children, and child survival tended to increase with the intensity of exposure to income-generating activities, with the exception of children ever born. Again, the exception with children ever born might be due to the fact that the contraceptive use, being a recent phenomenon, was not in use long enough to have the fertility depressing effect as measured by the former. Similarly, with the increase in the number of loans, there seemed to have been an increase in household income, in the participation of household decision-making, in physical mobility outside the home, in talking to unknown persons, in purchasing household items, in participating in health-related decisions, and in going alone to mothers' clubs or political meetings. Overall, those with some exposure to income-generating projects were ahead in demographic restraints and "empowerment" than those with no exposure. Given that our data are cross-sectional, it is difficult to determine whether these results were the consequences of both decision-making characteristics and fertility-related variables as being common products of participation in income-generating projects, or because of the fact that the women of independent decision-making nature were attracted by the latter. For this reason, in our survey, we collected information on the respondents' contraceptive status both before and after participation in the income-generating projects of GB, BRAC, and BRDB. This enabled us to control for the possibility of selection bias since we could examine whether or not the

Table 2  
*Demographic and Decision-making Characteristics by the  
 Number of Times Loan Received from the Income-generating  
 Projects in Rural Bangladesh, 1992*

Characteristics	Non-beneficiaries	Beneficiaries	
		Times Loans Received	
		≤ 2	3 +
Average annual household income	18686	31241	36189
Average number of children ever born	3.7	4.1	4.2
Average age of respondents	30.4	31.7	32.5
Age of first marriage	14.4	14.2	14.3
% currently using contraceptives	38.4	57.7	65.3
Proportion of children dead <sup>a</sup>	0.200	0.160	0.158
% desiring no more children	63.1	79.1	86.4
Total fertility rate <sup>b</sup>	5.03	4.54	5.02
% currently not pregnant	87.9	94.3	95.8
% allowed to travel alone outside their own villages	42.6	52.2	62.5
% visit health centre alone	53.1	75.6	80.6
% allowed to go shopping alone	18.7	25.2	28.9
% allowed to talk to unknown persons	82.7	87.0	89.9
% participate in the purchase of household items either alone or jointly with husband	57.4	71.1	67.9
% participate in health-related decision either alone or jointly with husband	65.7	73.6	80.2
% participate in the decision about children's education either alone or jointly with husband	91.7	93.2	95.0
% participate in family planning decision either alone or jointly with husband	70.9	74.7	80.1
% allowed to go to cinema alone	8.6	20.2	23.6
% allowed to go to mothers' club meeting alone	54.6	93.2	98.0
% allowed to attend political meeting alone	28.3	35.1	48.7
% wanting above primary-level education of sons	79.2	91.6	92.1
% wanting above primary-level education of daughters	39.0	64.4	65.0
N	1166	1185	1092

Source: The Survey of Economic and Demographic Impact of Poor Women's Self-employment in Rural Bangladesh, 1992. Baltimore, MD, USA: Institute for Urban Research, Morgan State University.

<sup>a</sup> Average of all age groups.

<sup>b</sup> Average of 1992, 1991, 1990.

contraceptive use increased after joining a credit programme. However, since income, "empowerment", and demographic restraints were positively associated with women's participation in income-generating projects, their mutually reinforcing effects might have strengthened both the economic security and the larger welfare of the poor women.

**"Empowerment" Impact of Poor Women's Participation in the Credit Programme**

Table 3 shows the results of our Least Square Regression analysis for assessing the impact of poor women's participation in the credit programme on their empowerment. Three separate indices of women's empowerment—physical mobility index, authority index, and aspiration index—have been constructed from the corresponding three separate sets of questions. Detailed explanations of the procedures

Table 3

*A Comparison of the Determinants of the Three Measures of Women's Status: Standardised  $\beta$  Coefficients (OLS)*

	Mobility	Authority	Aspiration
Age	.034**	.023**	0.67***
Highest (educational) class passed by mother.	176***	0.26	.264***
Highest (educational) class passed by husband	.008	.032	.234***
Household income	-.045***	-.026	.073***
Age at first marriage	.041**	.044**	.067**
Ownership of land	-.029**	-.060**	.043**
Husband's agricultural occupation	-0.77***	-.018	-.005
Membership in credit organisation	.155***	.082***	.062**
Times loan received	.116***	.072***	.103***
Utilisation of loan by the respondent herself	.090***	.096***	.040**
Adjusted $R^2$	.133	.048	.297
F-statistic	53.80**	18.28***	146.59***

Source: The Survey of Economic and Demographic Impact of Poor Women's Self-employment in Rural Bangladesh, 1992. Baltimore, MD, USA: Institute for Urban Research, Morgan State University.  
\*p < .10, \*\*p < .05, \*\*\*p < .01.

that have been applied in constructing these indices are given in Appendix A.

Correlations among the three indices were examined to ensure their distinctiveness from one another. Similarly, Cronbach's  $\alpha$ -coefficients were used to measure the "reliability" or internal cohesion of these indices. All measures, except the one that relates to authority, would be viewed as reliable. The one on authority represents the most complex bundle, which is why its reliability may have been somewhat less than that of the other two indices.<sup>6</sup>

The questions that have been used to create the physical mobility index in Table 3 represent the freedom to move alone in public places. Traditionally, women in Bangladesh have been confined within the four walls of household, because of the practice of *purdah*, which secludes and protects women in order to uphold standards of modesty and morality. Only in recent time, either due to modern influence or due to opportunities, created mostly by GB, BRAC, and BRDB for participation in income-generating activities outside home, they have started to move about in public. This exposure to outside world is likely to increase their self-confidence and self-reliance, enhancing their empowerment. The questions that have been used to construct the authority index represent women's (self-reported) decision-making power over some important aspects of their family life. Again, traditionally, under patriarchy, the decision-making power within families has been in the hands of men, making women powerless and dependent on men [See Cain *et al.* (1979)]. Only under modern influence and exposure to outside world in the course of participation in extra-familial income-generating activities, they have started some participation in household decision-making. The aspiration index questions in Table 3 reflect a women's aspiration for social mobility through son's and daughter's education. This index is distinguished from the other two in that it does not measure reported behaviour.

The factors differentiating the three empowerment dimensions are shown in Table 3. Descriptive statistics of the variables used in the Least Square Regression are shown in Appendix A. In Table 3, each index of empowerment is taken as a dependent variable. Many of the independent variables are those which have been used earlier as indirect or proxy measures for the status of women, because of the absence of any direct information [See Balk (1994); Amin *et al.* (1994)]. These include age at marriage, wife's education, husband's education, and membership in a credit organisation. We assume that most of these proxies are the causes rather than the effects of women's empowerment. This can be particularly true in the case of education, and age at marriage in our present individual level analysis, since women do not make their own decisions about these items, and, therefore, the

<sup>6</sup>Only reliability, as opposed to validity, can be assessed statistically. The former concerns how stable and replicable a composite index is at measurement, and the latter concerns how well the index represents the concept of being measured [Greene and Carmines (1979); Carmines and Zeller (1979)].



appropriate causal direction to be considered is from these determinants to empowerment. This may be problematic in the case of membership in a credit organisation, in which the causal direction may work in both directions. Nevertheless, membership in a credit organisation can lead to women's empowerment, which, in turn, can indirectly influence fertility.

Data in Table 3 show that age positively affected all three facets of women's empowerment. Older women were likely to have more freedom for physical mobility, more decision-making authority, and more aspiration for children's higher-level education. On the other hand, while husband's and mother's education increased all three indices of women's empowerment, ownership of land and household income significantly decreased the physical mobility index. Of course, the effect of education and household income on children's educational aspiration was significantly positive. Women who married later were significantly more likely to be physically mobile, more likely to significantly possess decision-making authority, and more likely to significantly aspire for higher education of children. While both ownership of land and agricultural occupation were negatively associated with the mobility and authority indices, ownership of land was positively associated with the educational aspiration index. Educational aspiration index was also positively associated with household income, although the latter's relationship with the physical mobility and the authority indices was negative, but statistically insignificant in the case of the authority index. Finally, the utilisation of loans by a respondent and the times loan received from income-generating projects were positively associated with all three facets of women's empowerment. These findings suggest that the differentiation of our different facets of women's empowerment are differentially influenced by our independent variables.

Adjusted  $R^2$  at the bottom part of Table 3 shows that the proportion of variation explained in the three indices considerably differ from one another. Thus, while only 4.8 percent of variation in the authority index is explained by our independent variables, much higher percentages, 13.3 percent and 29.7 percent, are explained in the mobility index and in the educational aspiration index, respectively.

Overall, it seems that an increase in economic status, as reflected in household income or ownership of land, decreased women's empowerment by imposing more restrictions on women's physical movement outside home and in household decision-making. On the other hand, the utilisation of loan monies by the respondents, the number of times loan received from the credit programmes, female education, and an increase in age at marriage significantly led to their higher empowerment in terms of our three indices.

Next, we examine the effect of our various background socio-economic variables and indices of women's empowerment on recent fertility, contraceptive use, and desire for no more children. Since the latter variables are dichotomous, we have

used logistic regression models in their analysis.

### **Multivariate Analysis in Recent Fertility, Contraceptive Use, and Desire for No More Children**

The results of our analyses of recent fertility, contraceptive use, and desire for no more children by logistic regression models are presented in Table 4. Our logistic regression models tested the effects of membership in a credit organisation, household income, use of contraceptive before joining the credit programme, indices of women's empowerment, and other socio-economic and demographic variables. Each of the dependent variables—current use of contraceptives, desire for no more children, and occurrence of live births in the last five years preceding the dates of interviews—is treated as a dichotomy (yes=1, no=0) in our logistic analyses. On the other hand, educational level, household income, age at first marriage, times loan received, and empowerment indices are treated as continuous variables. Again, utilisation of loan monies by the respondent herself, household ownership of land, husband's agricultural occupation, membership in a credit organisation, and contraceptive use before joining the credit programme are treated as dichotomous independent variables (yes=1, no=0). Procedures followed in the construction of empowerment indices—the authority index, the mobility index, and the aspiration index—have been explained in Appendix A.

The results of the analyses from these logistic models corresponding to the three dependent variables—recent fertility, contraceptive use, and desire for no more children—are presented in Table 4. Table 4 shows that the membership in a credit organisation and the mobility index had a significant positive effect on contraceptive use and desire for no more children, and a negative effect on recent fertility. Membership in a credit organisation had a strong positive effect on contraceptive use even after the control of the incidence of contraceptive use before joining the credit programme. Other variables that seemed to have had some significant negative effect on recent fertility were the aspiration index, mother's education, and ownership of land. Finally, while contraceptive use before joining the credit programme had an obvious strong positive effect on current contraceptive use and desire for no more children, the age at marriage and the aspiration index had unexpected negative effect on the latter. The latter anomaly may be explained by the fact that the women with delayed marriage or women with vicarious aspiration through children might have wanted additional children to fill up the gap between their desired and actual number of children.

### **DISCUSSION**

A number of observations can be made about the above results of the analy-

Table 4

*Logistic Regression Estimates (Odds Ratios) of the Effect of Poor Women's Participation in Credit-based Programmes on their Fertility, Contraceptive Use, and Desire for No More Children, Rural Bangladesh, 1992*

Predictors	Recent Fertility	Contraceptive Use	Desire for No More Children
Age	.951***	1.015***	1.261***
Highest (educational) class passed by mother	.967***	1.017	.963
Highest (educational) class passed by husband	1.013*	.988	1.017
Household income	1.000	1.000	1.000
Utilisation of loan by the respondent	.839**	1.157	.930
Age at first marriage	1.004	1.029	.874***
Ownership of land	.992	.944	.884
Husband's agricultural occupation	.925	1.038	.853
Membership in credit organisation	.612**	2.17*	2.888**
Times loan received from income-generating project	.995**	.996	1.002
Authority index	1.012	.975	1.064
Mobility index	.968*	1.136***	1.135***
Aspiration index	.797***	.969	.668***
Contraceptive use before joining NGO	.758***	6.297***	2.908***
- 2 log likelihood Chi-square	15114.01	3946.54	2337.31

Source: The Survey of Economic and Demographic Impact of Poor Women's Self-employment in Rural Bangladesh, 1992. Baltimore, MD, USA: Institute for Urban Research, Morgan State University.

\*p < .10, \*\*p < .05, \*\*\*p < .01.

ses of women's empowerment, fertility, contraceptive use, and fertility desire in rural Bangladesh. First, the positive effect of membership in a credit organisation, the times loan received from income-generating projects, and the utilisation of loan by the respondent on all of our three facets of women's empowerment indicates the important role that any community-based credit programme for the poor women can play in promoting women's empowerment in rural Bangladesh. Second, the positive effect of female education and age at marriage on women's empowerment indicates the important role that the former can play in any policy reform aimed at increased female education and elevated age at marriage for the girls. But the negative effect of household income and ownership of land on the mobility or the authority index indicates the decreased female empowerment among women of higher income groups because of the higher restrictions they impose on their women's physical movements outside home or in women's participation in household decision-making. Thus, the restriction on women's physical movement may stem from the higher economic groups' attempt to acquire additional prestige attached to *purdah* or female seclusion in rural Bangladesh. Similarly, the decrease in women's household decision-making among the higher income group may arise from the latter's higher resources, which are in the control of male members under the strong patriarchal system of rural Bangladesh. On the other hand, because of sheer family survival needs, poor women of lower income groups have to go outside home to work, and, therefore, are economically more valuable to the family relative to the men in the household. The same economic worth may give the poor women more power over household decision-making. The policy implication of this finding is that income-generating activities should not be geared only towards poorer women, but also towards the employment of wealthier women, which would reduce the disparity between them and their husbands. Third, the positive effect of membership in a credit organisation on contraceptive use and desire for no more children, and its negative effect on recent fertility even after the control of the incidence of contraceptive use before joining the credit programme, indicates the important role that the former can directly play in any rapid fertility transition in Bangladesh over and above its indirect effect through women's empowerment.

Indeed, by providing a mechanism of drawing poor women out of their traditional female seclusion within household through credit-based self-employment, the three organisations—GB, BRAC, and BRDB—might have created a new institutional context for augmenting and crystallising women's empowerment and demand for fertility regulation, leading to an increased contraceptive use, reduced fertility, decreased family-size desire, and enhanced empowerment for women. Some of these effects were higher than those that have been achieved by the existing national programme of Bangladesh [See Amin *et al.* (1993)], indicating the possible additional effect of the credit-programmes on fertility and fertility regulation. This

happened despite the fact that no conditions or coercive measures were adopted by the credit programmes to induce fertility regulation among the beneficiaries. Other than their population or family planning education, no family planning services or supplies were provided by the credit programmes. 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 services, but also in terms of exposure to modern influences, such as modern education or mass media. Apparently, their disadvantaged socio-economic positions may have been more than compensated for by the opportunities and exposure provided by their participation in the credit-programmes 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 needs, 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 motivator than the usual health or family planning motivator. Third, the requirement of group-formation and group-solidarity among the loan beneficiaries prior to loan sanction and loan disbursement, which is a must in the credit programmes, might have created 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 pressure 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, "conscientisation" efforts of the income-generating projects, such as functional education, skill training, or leadership training may indirectly influence fertility regulation by changing their clients' decision-making power, ideas, and perspectives.

The findings of the present study are consistent with the notion that a holistic approach to income-generation, fertility control, and social mobilisation, which 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 a facilitating effect on fertility control [See Dixon (1976)]. The poor beneficiaries' dire economic survival needs, in the context of their deteriorating economic conditions in rural Bangladesh, *vis-à-vis* their growing relative deprivation, may have driven them to join neighbours and strangers outside their immediate families in organising self-reliant income-generating projects. But as our analyses

have shown, this may not only raise the empowerment of the most disadvantaged sections of the rural poor but may also provide a context for the emergence of structured community groups outside their immediate families; and that has a positive impact on a range of development results from women's increased roles in household decision-making to lowered fertility.

What is important from the policy point-of-view is that the credit-based income-generating projects have achieved this remarkable success among a population that has been bypassed by the conventional development programmes, and that this has been achieved by a self-sustaining and self-generating approach of recoupable and recycling loan programmes. This self-sustaining economic- and welfare-oriented approach may not only reverse the downward spiral of worsening poverty, but may also improve access to education, health, and family planning, as well as generating the mutually reinforcing "win-win" strategies [See Friedmann (1981); Korten (1991); Mink (1993); Ridker (1976)]. These strategies—collateral-free recoupable loan programme, participatory group formation, consciousness-raising, skill training, and population education, which have been indigenously devised and experimented by the GB and BRAC of Bangladesh—seem to have the potentials of dealing not only with the empowerment of the poor and the disadvantaged but also with their demographic restraints. There is a need to disseminate these strategies throughout Bangladesh and the rest of the developing countries in order to make better progress in conquering poverty, hunger, disease, demographic pressure, and gender inequality.

## *Appendix*

### APPENDIX A

The three indices of physical mobility, authority, and aspiration are constructed from the answers to various survey questions on women's empowerment. These questions are as follows:

(a) The physical mobility index was constructed from the answers to the following questions: (i) if travel alone in the village; (ii) if travel outside own village; (iii) if go to cinema alone; (iv) if go to club alone; (v) if attend political meeting alone; (vi) if go to health centre alone; and (vii) if go for shopping alone. Since these questions have different importance in measuring a woman's mobility, different values were assigned them, but we restricted their hypothetical ranges from 0 to 1. For example, answers to the question about "Travel alone outside of the village" are much more prominent in measuring a woman's mobility than answers to the question about "Travel alone in the village". As a result, the former are assigned the following values: 'Yes' 1 and 'No' 0, while the latter are assigned different values: 'Yes' 0.5 and 'No' 0. This rule of emphasising different impor-

tance in measuring the mobility index is also applied to other responses.

(b) The authority index was based on the answers to the following questions, as to who decides on them, respondent herself, her husband, or jointly: (i) family planning adoption, (ii) children's education, (iii) purchase of a household item (iv) health-related issues. Although responses in this index also ranged from 0 to 1, as those in the mobility index, they had three possible choices to answer each of the four questions: respondent, husband, and jointly by husband and wife. The value assigned to the joint decision falls between the value of a woman's own decision and that of her husband. All responses of the husband's decision alone are given value 0. However, similar to the construction of the mobility index, we give different values to a woman's decision and a joint husband-wife decision in different questions, on the consideration that the same value assigned to different questions would not be equal relative to the importance of each response in measuring the authority. For instance, the response category wife was given the following values for the corresponding decision-making areas: 1 for family planning, 0.8 for children's education, 0.6 for buying things for household, and 0.4 for health. These differential values are consistent with differential social constraints in rural Bangladesh against women's empowerment in these areas.

(c) The aspiration index is constructed by including responses to two questions about a woman's attitude to her children's education: (i) educational level desired for sons, and (ii) educational level desired for daughters. Analogously to the authority index, we used more expansive ranges to measure the women's aspiration. There are five possible answers to each of these questions. Response 'None' to question "What level of education does your child should have?" is given value 0 for both son and daughter. However, since son's education and daughter's education have different meaning in rural Bangladesh, they have been given differential values for the other categories of responses. That is, if the response is secondary education, the response to "daughter's education" is given more value than the response to "son's education". Thus, the following values are given to other response categories of son's education: primary = 0.1, secondary = 0.2, higher-secondary = 0.4, degree = 0.8, other = 0.8. The corresponding values for daughter are: primary = 0.2, secondary = 0.4, higher-secondary = 0.8, degree = 1, other = 1. The lower values for son's education as compared with the daughter's are warranted due to the fact that it is more in line with the village norm favouring more male education than female education, and, therefore, require more empowerment to aspire for higher education for the latter.

The values for the questions in each index are summed up and standardised. For the mobility index, the minimum value is 0 and the maximum value is 4.4; and for the authority and aspiration indices, the minimum values are 0 and the maximum values are 2.80 and 1.80, respectively.

The values and means and standard deviations of these indices, as well as other variable used in this study, are shown in Table A1. All three indices represent largely different aspects of women's status. This can be seen in Pearson's correlation matrix in Table A2. All the relationships in the Table are positive and significant, and none of the coefficients of these three indices exceeds 0.2, which indicates that the three indices are independent in measuring distinct dimensions of women's status.

Table A1

*Variable Name, Minimum, Maximum, Means, and Standard Deviations*

Variable	Minimum	Maximum	Mean	Standard Deviation
Age	14	19	30.62	8.15
Wife's highest (educational) class passed	0	14	4.38	2.52
Husband's highest (educational) class passed	0	16	2.77	3.78
Age at first marriage	0	45	14.33	1.82
Ownership of land	0	1	0.60	0.49
Husband's agricultural occupation	0	1	0.22	0.41
Loan utilised by the respondent	0	1	.11	0.32
Times loan received	0	14	1.99	2.15
Membership in credit organisation	0	1	0.66	0.47
Mobility	0	4.40	2.15	1.26
Authority	0	2.80	1.74	0.62
Aspiration	0	1.80	0.84	0.48
Household income	35	767896	28587	32726
Contraceptive use before joining the credit organisation	0	1	.52	0.50

N = 3454.



Table A2

*Pearson's Correlation Coefficients for the Constructed Indices of Women's Status*

	Mobility	Authority	Aspiration
Mobility	1.00		
Authority	0.20**	1.00	
Aspiration	0.16**	0.12**	1.00

\*\*p &lt; .01.

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