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Gender Bias of Government Agencies and NGOs in the Provision of Services to the Rural Poor in Bangladesh.

Abstract

Within Bangladesh there is evidence of gender discrimination which causes a lack of empowerment and poverty among women, particularly in rural areas. Thus, women in rural areas require improved service delivery with personal and customised services from the service providers (government and non-government organisations) of poverty alleviation programs to better combat poverty. To explore the differences in opinion between male and female beneficiaries in assessing the service delivery effectiveness of providers, the researcher has developed a multi-dimensional effectiveness scale. The methodology is based on primary data collected from 78 randomly chosen villages in Bangladesh. Significant differences of opinion between male and female beneficiaries have been identified. In most geographic areas, female beneficiaries reported a need for improvement across the entire scale of items measuring the effectiveness of service delivery. This suggests that they do not receive the same level of service as their male counterpart, a finding which carries the hallmarks of gender discrimination.

Keywords

Gender, Multi-dimensional scale, Poverty, Government, Non-Government Organizations, Bangladesh

Cover Page Footnote

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Introduction and Rationale of the Study

This paper offers a gender-based study on the perceptions of beneficiaries towards service delivery effectiveness of microcredit-driven government organisations (GO) and non-government organisations (NGOs). The findings of this study add to the existing literature as this paper will not only explore gender discrimination from a service-delivery perspective but also will identify specific service needs of men and women in credit-driven poverty reduction projects. It is hoped that effective delivery of these services can help the stated groups better utilise the borrowed money in order to accelerate poverty reduction rates.

There is evidence (Sen, 2001; Malhotra, et al., 2003; Kabeer, 2005) to suggest that gender discrimination is widespread in the developing countries, and this reduces empowerment and increases poverty among women in rural areas. Therefore, to better combat poverty, women require improved service delivery with personal and customised services from both GOs and NGOs. Existing literature¹ suggests that women's empowerment has five major components: women's sense of self-worth; their right to have and to determine choices; their right to have access to opportunities and resources; their right to have the power to control their own lives, both within and outside the home; and their ability to influence the direction of social change to create a more just social and economic order, nationally and internationally. These findings are in line with the suggestions offered by Sen (1985, 1999) who advocated that the basic purpose of development was to increase people's own choices for leading their lives. The choices and the 'functionings' in Sen's approach can create 'capabilities' and the actual levels of achievement can accelerate poverty reduction rates. The 'capabilities' and 'functionings' can be achieved by increasingly empowering women. To eliminate gender inequality (or empower women), creating a supportive environment is necessary through the implementation of positive economic and social policies for the development of women to enable them to realise their full potential. Thus, the need for customised service is vital in utilising the credit. Service-need fulfilment will help women get the best possible return from their investment. However, this requires changing practices by active participation and involvement of both men and women in deciding their specific service needs from GOs and NGOs.

¹(Guidelines on Women's Empowerment UN Population Division, Department of Economic and Social Affairs, with support from the UN Population Fund (UNFPA), please also refer to, Islam and Rottach, 2010; Sanyal, 2009; Mayoux, 2006; Vidler, 2005; IFAD, 2000)

Many studies have examined different aspects of women empowerment. For example, Williamson (1983) and Jejeebhoy and Sathar (2001) studied women's empowerment in different countries with special emphasis on demographic determinants. Mahendra (2004) studied the impact of economic participation and health and education on empowerment. Some researchers attempted to measure women's empowerment with a variety of determinants (such as education, health care, voting, participation, food intake, etc.) and dimensions (especially economic, social, religious, etc.) by different methods and techniques (Amin et al., 1998; Kishore and Gupta, 2004; Kabeer, 2005; Klasen, 2006). Moreover, the World Economic Forum's Gender Gap Index (GGI) also used a broad range of dimensions and indicators (Lopez-Claros and Zahidi, 2005 and Klasen, 2006). Malhotra et al. (2003) provided six dimensions in which empowerment can be measured: economic, socio-cultural, familial-interpersonal, legal, political, and psychological. In general the research identifies that women may not be fully empowered in all areas of life (Malhotra et al., 2003; Hashemi et al., 1996).

As can be seen, existing works on women's empowerment mainly focus on exploring the economic, social, and political indicators such as education, employment, participation, voice-in-decision making, etc. (for more information, see for example the works of Kabeer, 2005; Schuler, 2006). In addition, existing works explored the role of microcredit in creating or changing economic and social capital for women in order to reduce gender inequality (see for example, Sanyal, 2009; Hashemi, Schuler and Riley, 1996). However, we believe, a potential source of gender inequality (as well as women's empowerment) can be due to discrimination in effective service delivery mechanism – an important yet unexplored issue in the existing literature. This paper intends to address this gap. Findings from this study, thus, provide an addition to the existing literature by exploring specific service needs of men and women. It is hoped that effective delivery of those services can help the groups better utilise the borrowed money and thus, result in better poverty reduction rates.

This paper addresses the important question: 'what are the determinants of effective service delivery in a microcredit-driven poverty reduction projects?' There is no such scale or determinants of effective service delivery available in the existing literature. Thus, to address the above stated question, the researcher first developed a multidimensional service delivery effectiveness scale to assess the effectiveness of GOs and NGOs in delivering services to the beneficiaries of the poverty reduction programs. Then by using the developed scale, the researcher examined the depth of gender discrimination in service delivery in rural Bangladesh. It is important to mention that the scale and its items measure the perceptions of male and female beneficiaries towards different dimensions of

effective service delivery by GOs and NGOs. In other words, the scale items capture how service delivery and the role of GOs and NGOs in the process are experienced by male and female recipients. This perspective offers insights into how beneficiaries themselves interpret effective service delivery process.

Case Study: Bangladesh

The poverty experience in Bangladesh is a good example of gender inequality resulting in the social exclusion of women, and therefore resulting in greater poverty. Statistical evidence suggests that women generally receive fewer household resources for their food, education, health, and clothing than men (Kabeer, 2012). Bangladesh is one of four least-positioned countries in the world where more girls die than boys before the age of five (BBS and UNICEF, 2003). A household survey by Bangladesh Bureau of Statistics (BBS) reported that in the rural areas, boys receive 172 percent more money than girls for their education, and rural women receive 27 percent less medical support than men (HIES-BBS, 2000). The daily wage of female labour is much lower² than that of males in Bangladesh. A logical question at this stage is: ‘who will initiate women’s strength-enhancing activities and how can they better combat poverty?’

The Government of Bangladesh (GOB) has been addressing women empowerment since its independence in 1971. Bangladesh is a member to the Nairobi Forward Looking Strategies (NFS) and the United Nations Convention on the Elimination of Discrimination Against Women (CEDAW). GOB has implemented free education for women up to undergraduate level. Special stipend programs are available for female students. GOB has enforced laws, such as the ‘Dowry Prohibition Act-1980’, ‘Acid Crime Prevention Act-2002’, ‘Speedy Trial Tribunal Act of 2002’, and ‘Muslim Marriage and Divorces Act 2005’ to protect women and to reduce child-marriage rate. The numbers of allotted seats for female parliament members and local female members at the union level have been increased. Despite all these efforts, GO agencies are criticised for a lack of projects on social mobilisation and empowerment building, poor coverage of programs, inadequate monitoring and supervision towards women. Thus, NGOs have come forward to fill these gaps in Bangladesh.

NGOs have been working along with GOB for poverty alleviation since 1972 and their main beneficiaries are women³. NGOs have rightly pointed out that the main

² In general, women get 21 percent lower wage than men and this rate is much higher in rural areas (Kapsos, 2008).

³ For instance, portion of female beneficiary in Grameen Bank and BRAC are 97 percent and 96 percent respectively.

obstacles to women's development are illiteracy, lack of income, absence of social agency, and lack of awareness about their rights in the society. Micro-credit has become a useful weapon to alleviate poverty among women. It is expected that the provision of capital to women will have an additional effect of improving households in terms of nutrition, health⁴, and education. In rural Bangladesh, NGO workers travel door-to-door to deliver credit to poor women as women usually stay at home due to cultural and religious constraints. However, two important issues need to be discussed. First, even though the loan is sanctioned in the name of women, it is mostly used by their husbands or male members of the family (Gupta, 1996). Second, NGOs totally neglect any capability-building of women, in particular making no provision for training or consultation on the effective use of the loan. Whereas, in India, Sanyal (2007) found that social agency of women (where a woman meets regularly with other women) has expanded women's 'mental capacities' (knowledge) and this improvement was reflected in their new attitudes and actions, thus improving associative effects to Sen's (2000) concept of capability.

In this paper, the researcher has explored whether the service providers (GOs and NGOs) formulate customised strategies for women to better combat poverty in a society that views women as less capable. We have explored the demand priorities of women from their own perspective because it is important to see how women view the provision of effective services in the poverty alleviation programs in Bangladesh. It is equally important to explore whether a significant difference in opinions exists between men and women in evaluating service delivery effectiveness of the participant organisations.

Developing an 'Effectiveness Scale'

Buchanan (1987) indicated that a service provider (GO or NGO) is effective if it is able to make a situation where people can get their desired services the way they like. In our case, we are conceptualising effectiveness from a service delivery perspective unlike the traditional focus on the profits of a firm. In analysing the effectiveness of GOs and NGOs' poverty alleviation programs, it is important to determine the extent to which they reach beneficiaries and reduce poverty. To be successful GOs and NGOs need to provide customised services, support income generation, deliver services on time, and mobilise women in social activities rather than measure profits made from the disbursement of micro-credit to the poor. Thus, for this study, effectiveness is defined as a comparison of what is

⁴ In last two decades the fertility rate in Bangladesh has declined to 3.0 from 6.1 is a major improvement to notice (World Human Development report, 2006).

expected by the beneficiaries (poor people) and what is actually performed by the participating organisations (GOs and NGO) in the poverty alleviation projects. The assessment is based on a few common aspects related to administration, management, service delivery process, skills of the workers, marketing process, interaction procedure, social mobilisation skills, etc.

As beneficiaries will be assessing the service delivery effectiveness of GOs and NGOs based on the factors stated above, a multidimensional scale was developed and validated. Construction of a unique scale for participant's effectiveness analysis is important for many other reasons. The available scale in marketing and management (termed as "Performance Scale") is quite different from the one the researcher developed. This is because the existing scales include the performance analysis of *for-profit* organisations. Participants (government and NGO) of the poverty alleviation programs are by definition *non-profit*. In addition, socio-economic conditions and characteristics of the respondents of 'Effectiveness Scale' (poor people), and 'Performance Scale' (all consumers) are quite diverse.

Dimension selection and item generation

There is considerable literature on performance measurement in for-profit organisations. Two popularly-used models are the Service Quality Model (SERVQUAL) and the Performance Only Index (SERVPERF). Even though these types of scale are not found in the development literature, Leonard and Marshal (1982) made several points for a successful poverty-oriented organisation and used the term 'linkages' to describe the positive aspects. These include:

- Representation (for example, formal and informal participation in planning and implementation);
- Technical and personal assistance (for instance in service training, management and program advice);
- Regulation and monitoring (such as audits, administering market price, registration of local organisations etc.); and
- Finance (such as credit, grants and savings).

Parasuraman et al. (1985) offer three main principles for ensuring quality services.

The **first principle** is making service quality a part of an employee's main responsibilities. This means that organisations need to understand the need for effective service delivery for their own growth and the betterment of the beneficiaries. This needs to be incorporated in the organisation's policies and regulations.

The **Second** is that effective service delivery effort should be in line with organisational credibility, trust, fairness, and welfare concerns. And in delivering better services, organisations need to focus on surrounding environmental changes. Moreover, this quality assurance process should be ongoing and subject to periodic survey.

The **Third** principle is that people (beneficiary and employee) involvement is a critical component.

Based on the literature⁵ and the discussion outlined above, the determinants of effective service delivery can be found from the expected interactions between beneficiaries, managers, and field workers, and from their individual roles in the whole delivery process. By considering the non-profit nature of poverty reduction projects and service delivery issues related to poverty, at the initial stage, the researcher generated 38 items which were grouped (hypothetically) into five dimensions as outlined below:

- (1) *credibility dimension*: the degree to which people can rely on the activities of the service provider. In this dimension items reflect issues such as timeliness, sincerity in operation, speed in the process, fairness in decision making, information sharing, etc.
- (2) *reactive factors*: the way service provider responds to the queries or problems of the beneficiaries. Thus, focus on items such as responsiveness of field workers and managers, worker's attitude with beneficiaries, feedback approach, technical support activities, etc.
- (3) *confidence dimension*: trustworthiness of the service recipients towards the organisation which is expressed through transparency in the transactions, professionalism, consultation and guiding ability, knowledge of the workers, problem solving capacity and sincerity, keeping promises, etc.
- (4) *empowering dimension*: the extent to which the service organisations are valuing the suggestions of the beneficiaries. Thus it is better to incorporate provider's attention towards an individual's welfare, worker's focus towards beneficiaries, sincerity of the providers in participatory process of the beneficiaries, caring attitudes, etc., and finally,

⁵ For details see, Khan, 2010; Van Niekerk, 1996 and Parasuraman, 1988.

- (5) *accessibility dimension*: the degree of communication facility between beneficiaries and participants of the project by including items related to location advantage, area covered, office hours, availability of the technology suggested by the providers, etc.

After the modification of the scale items through a five-person judgemental panel⁶, 26 items and five dimensions were retained for data collection.

A five-point Likert scale was incorporated to get the responses ranging from 1 (worst) to 5 (best) in the scale item.

Questionnaire preparation and data collection

As the researcher conducted the study in rural Bangladesh, a Bengali (local language) version of the questionnaire consisting of 26 items was developed from the original English version and tested for comparability iteratively. At the time of selecting the districts, it was carefully observed that the selected districts share common economic, social, and natural features such as the degree of poverty, presence of natural calamity (flood and drought), soil characteristics, occupation, agricultural labour size of the households, land holding pattern, tenancy pattern, percentage of agricultural farms in the areas, literacy rate, crude birth and death rate, per capita expenditure, gender disparity, population density, wage rate, time to travel from capital city, and agricultural productivity. A total of 562 questionnaires were completely filled in from 78 villages of eight districts. The districts were Lalmonirhat, Kurigram, Nilphamari, Gaibandha, Potuakhali, Barguna, Jhalokathi and Jessore. However, due to the filtering process, the total sample size was reduced to 366. Among these usable questionnaires, there were 186 (50.8%) male respondents and 180 (49.2%) female respondents. Multi-stage sample selection procedure, as shown in Figure1 was used in the study.

⁶ Following the methodology used by Shimp and Sharma, 1987

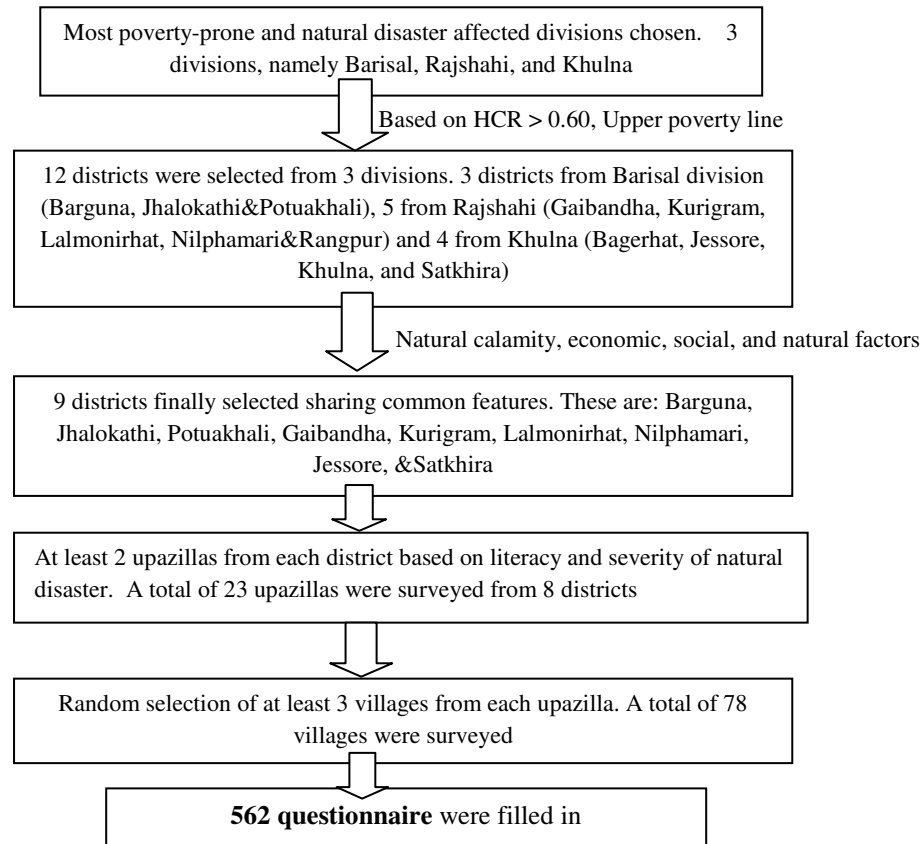


Figure 1: Sample selection and data collection procedure

(Note: upazillas are the lowest level of administrative government in Bangladesh, HCR stands for head count ratio).

Adapted from Chowdhury and Mukhopadhaya, 2011.

Before beginning the scale purification, the researcher conducted a measure of sample adequacy (MSA) test through *Kaiser-Mayer-Olkin* (KMO) statistics to examine the data appropriateness. KMO for 26 items was reported to be 0.963 and individual MSA for scale items ranges from 0.842 to 0.988, thus satisfying the requirement.

Scale purification

26 items with five factors were subject to common factor analysis. The author ran Exploratory Factor Analysis (EFA) to identify relevant and significant variables

(or items) under different theoretical dimensions. As our main intention was to reduce many variables to a more tractable number, we used *moderately strict* decision rule⁷ of deleting items having cross loading⁸ or a loading⁹ of less than 0.50 on any factor and having less communality value (less than 0.45). Five items were dropped in the initial purification process through factor analysis based on the deletion rule explained above. The result of this study also shows that the *eigenvalue* dropped below 1 (*Kaiser Criterion*) after incorporating 3 dimensions other than hypothesised 5 dimensions¹⁰.

In the next stage, confirmatory factor analysis (CFA) was conducted to confirm those structural relationships that were found in EFA. For this purpose, the same questionnaire was utilised on a new group of sample. Four new districts of Bangladesh - Barisal, Lakshmipur, Brahmanbaria, and Feni (all located in central Bangladesh and more poverty prone) were chosen for this. From these four districts 12 upazillas and 29 villages were surveyed. A total of 368 questionnaires were found to be appropriate for the CFA. On these 368 samples, 47.6 percent was male and 52.4 percent female. In the whole sample, 42.9 percent and 57.1 percent of the respondents were found to be the beneficiaries of GOs and NGOs respectively.

With the remaining 21 items (after dropping five items in the earlier stages), a step by step CFA was performed to get the well fitted scale. Items having loading value less than 0.50, high *modification index*¹¹ value and high *per change* value were dropped in those stages. Results of different stages of CFA are displayed in Table 1. Results show that with initial 21 items, the scale is of bad fit with below the standard Goodness of Fit (GOF) values. The scale has become a satisfactory fit with 14 items and two dimensions where our scale has better AIC and ECVI values compared to that of saturated model¹².

⁷ Similar rules were followed in Marketing literature by Shimp & Sharma, 1987; Bawa, 2004; in Psychology literature by MacCallum & Austin, 2000; Chan, Lee & Kubota, 2000; in Research methodology by Black et al., 2009.

⁸ Variable loads on multiple factors thus specifically represent no one. As these variables/items represent no single factor in a better way, they should be dropped from the study.

⁹ Factor loadings are the weights and correlations between each variable and the factor. The higher the load the more relevant in defining the factor's dimensionality.

¹⁰ Kaiser criterion suggests to retain those factors with eigenvalues equal or higher than 1.

¹¹ Large modification index (>3.84) suggests that a large improvement in model fit as measured by chi-square can be expected if a certain fixed parameter is freed.

¹² Saturated model is the probable best fitted model proposed by the software by using the available data. This is a competing model with the researchers' developed model. Better AIC and ECVI values than the saturated model are the indications of better fit.

Table 1: Comparative study of GOF values in different stages of scale refinement in CFA

GOF index	Preferred value	21 item scale	17-item scale (First stage refined)	15-item scale with new correlates	Finalised scale items (14 items & 2 dimension)
RMR	< 0.05	0.064	0.044	0.034	0.033
GFI	> 0.90	0.801	0.892	0.946	0.950
AGFI	> 0.90	0.753	0.858	0.925	0.931
PGFI	> 0.50	0.645	0.677	0.678	0.670
CFI	Close to 0.95	0.808	0.906	0.964	0.970
NFI	> 0.90	0.764	0.865	0.924	0.933
IFI	> 0.90	0.810	0.906	0.965	0.969
TLI	> 0.80	0.784	0.889	0.956	0.962
RMSEA	< or equal 0.05	0.093	0.073	0.047	0.044
PCLOSE	> 0.50	0.000	0.000	0.664	0.712
AIC	Lower than saturated model	862.286	416.766	222.86	194.117
		Bigger than saturated	Bigger than saturated	Lower than saturated	Lower than saturated
ECVI	Lower than saturated model	2.350	1.136	0.607	0.529
		Bigger than saturated	Bigger than saturated	Lower than saturated	Lower than saturated
HOELTER	> 200	105 & 112	153 & 166	258 & 283	272 & 301
Chi-square	Smaller the better	772.286	342.766	154.865	132.117
Total fit		Bad fit	Improved but bad fit	Major improvement	Best fit

Source: Adapted from Chowdhury and Mukhopadhaya, 2011.

Aggregate test and finalised scale

An aggregate test was performed by incorporating all data from two different sets. The result shows that the goodness of fit index is satisfactory ($RMR = 0.031$, $GFI = 0.964$, $AGFI = 0.949$, $CFI = 0.978$, $RMSEA = 0.049$, $PCLOSE = 0.610$ and $Hoelters$ are 373 & 413) along with no significantly large modification index value. This necessarily shows that the developed scale is robust in nature. The finalised 14-item Effectiveness Scale is shown in Table2 with their respective loadings.

Table 2: 14-item Effectiveness Scale

Item number	Scale Item	Loading in factor-1	Loading in factor-2
I1	Timeliness in loan disbursement/providing other services	0.70	
I2	If you had a problem, how sincerely the service provider resolved it	0.64	
I3	Regularity of information sharing through field workers	0.68	
I4	Fairness in decision making by the organisation	0.78	
I5	How sincerely the service provider keeps their promise	0.75	
I6	Quality maintenance of the service by the provider	0.77	
I7	How good are the workers in answering your queries quickly	0.76	
I8	Transparency in transaction process of the service provider	0.65	
I9	How good the organisation is in listening to any of your suggestion		0.67
I10	How helpful the service provider been in dealing with Other org.		0.62
I11	Attention of the service provider towards your welfare		0.70
I12	Attention of the workers towards beneficiaries		0.68
I13	Workers understanding of the individual beneficiary's need		0.77
I14	Service provider's location is convenient		0.68

Source: Adapted from Chowdhury and Mukhopadhaya, 2011.

Having the Effectiveness Scale developed, the researcher conducted three separate studies to assess reliability and construct validity of the 14-item scale. These studies were named as 'Northern study', 'Southern Study' and 'Central Areas Study'. Details of scale validation and reliability assessment are given in the appendix.

Exploring Gender Variation in Opinion Using 'Effectiveness Scale'

We then evaluated the scale items in identifying the variations in opinions between male and female beneficiaries of the poverty reduction programs. A deviating result on this issue has significant implications for the managers of government and NGOs in implementing poverty reduction programs. We proceeded with the following hypothesis:

H₁: Effectiveness scale items have significant positive and non-discriminatory relationship with gender issue. Or, in other words, male and female beneficiaries do not vary in their opinions on scale items.

To conduct the study we combined all data so far used in this scale development process. Thus, our sample size was 995 out of which 49.4 percent (492 samples) and 50.6 percent (503 samples) were GO and NGO beneficiaries respectively and 50.2 percent (500) and 49.8 percent (495) were female and male beneficiaries respectively.

We began with the results of two-group discriminant analysis which is shown in Table3.

Table 3: Discriminant analysis between GO-NGO beneficiaries in combined study

Items	Mean for beneficiary		Mean Difference	Willk's Lambda	F Value To enter	Sig.	Loading	Maldobis Min D Sq
	Male	Female						
I1	3.32	3.96	0.64	0.908	93.520	0.000	0.917	0.405
I2	3.38	3.97	0.59	0.919	81.539	0.000	0.795	0.353
I3	3.48	3.93	0.45	0.948	51.290	0.000	0.679	0.222
I4	3.50	3.90	0.4	0.960	38.797	0.000	0.637	0.168
I5	3.51	3.93	0.42	0.953	45.329	0.000	0.613	0.196
I6	3.46	3.89	0.43	0.952	46.495	0.000	0.610	0.201
I7	3.55	3.93	0.38	0.958	41.024	0.000	0.593	0.178
I8	3.61	3.92	0.31	0.976	22.736	0.000	0.573	0.098
I9	3.25	3.42	0.17	0.988	11.067	0.001	0.539	0.048
I10	3.21	3.45	0.24	0.980	19.369	0.000	0.513	0.084
I11	3.43	3.67	0.24	0.979	20.045	0.000	0.491	0.087
I12	3.38	3.78	0.4	0.954	45.221	0.000	0.405	0.196
I13	3.32	3.68	0.36	0.965	33.766	0.000	0.331	0.146
I14	3.21	3.51	0.3	0.982	17.207	0.000	0.246	0.074

Note: I1-I14 are the items of Effectiveness Scale as labelled in Table-2

Results show that there are five items (I1, I2, I3, I5 and I6) with large mean differences with I1 having the largest mean difference with 0.64. It can be seen that *F* values for these five variables are quite high as well having lower *Willk's Lambda* value. For example, item (I1) with highest mean value has largest *F* (93.520) and lowest *Willk's Lambda* (0.908), with a significance of 0.000. Significance below 0.10 depicts that there exists a high level of *multi-collinearity* between that variables with others. These tests indicate that the five scale items are also the variables with significant univariate differences between the opinions of male and female beneficiaries. This result is further supported by larger *Maldobis minimum D Square* values. For instance, I1 has higher mean and *F* value and thus, has higher *Maldobis* value too. Results also show that there is another item (I12) that has higher *Maldobis* value which is also supported by

higher F value (45.221) but which has a high *Willk's Lambda* value. However, this may not be a good candidate for a discriminating item at this stage. As step-wise estimation procedure was followed, we first considered adding item I1 (“Timeliness in loan disbursement/providing other services”) in the discriminant model because of its significant group differences. Results of other items not added in the discriminant model in the first stage are shown in Table4.

After entering I1 into the discriminant model, the researcher evaluated the remaining variables on the basis of their incremental discriminating ability. Results (see Table 4) show that there is a good change in the ranking of preferred variable as it can be seen that in Table 3, I2 was the next candidate for the discriminant model which now reported a significantly low value of F (4.431). On the other hand, I12 was in the less preferred part of the list according to Table5 which is now the best candidate to enter the model as it has the largest F value of 11.173 with lowest *Willk's Lambda* value of 0.898 and highest *Maldobis* value of 0.458. Other candidates of the model at this stage are I3, I6 and I14 (F values of 10.601, 8.598 and 7.220 respectively) which were in our primary list (Table4) as well.

Table 4: Variables not in the analysis after first stage discriminant method applied

Items	<i>Willk's Lambda</i>	F Value To enter	Tolerance	Minimum tolerance	<i>Maldobis</i> Min D Square
I2	0.904	4.431	0.368	0.368	0.426
I3	0.898	10.601	0.824	0.824	0.455
I4	0.905	3.851	0.794	0.794	0.423
I5	0.902	6.874	0.806	0.806	0.437
I6	0.900	8.598	0.827	0.827	0.446
I7	0.902	6.823	0.838	0.838	0.437
I8	0.907	1.465	0.862	0.862	0.412
I9	0.907	1.335	0.951	0.951	0.411
I10	0.905	3.440	0.932	0.932	0.421
I11	0.906	2.153	0.903	0.903	0.415
I12	0.898	11.173	0.873	0.873	0.458
I13	0.902	7.005	0.891	0.891	0.438
I14	0.901	7.220	0.980	0.980	0.439

Note: I1-I14 are the items of Effectiveness Scale as labelled in Table-2

Summary of the Step-wise Estimation Process: We then added I12 (Attention of the workers towards you) in the discriminant model and re-ran the analysis to see the discriminating values of excluded items. Then, item I3 (“Regularity of

information sharing through field workers”) was added to the discriminant model and we found that there was no significant discriminant items left based on F values, *Willk's Lambda*, *Madobis D* value and tolerance level (maximum F value is found to be 2.40 only). The summary of the final stage discriminant analysis is given in Table 5.

Table 5: Summary of discriminant analysis between GO and NGO beneficiaries

Items	Discriminant coefficient	Classification function coefficient		Loadings	Rank	Canonical correlation	Eigenvalue
		Male	Female				
I1	0.707	1.665	2.156	0.917	1		
I2	Nil	Nil	Nil	0.795	2		
I3	0.274	2.055	2.245	0.679	3		
I4	Nil	Nil	Nil	0.637	4		
I5	Nil	Nil	Nil	0.613	5		
I6	Nil	Nil	Nil	0.610	6		
I7	Nil	Nil	Nil	0.593	7	0.739	0.620
I8	Nil	Nil	Nil	0.573	8		
I9	Nil	Nil	Nil	0.539	9		
I10	Nil	Nil	Nil	0.513	10		
I11	Nil	Nil	Nil	0.491	11		
I12	0.294	2.451	2.655	0.405	12		
I13	Nil	Nil	Nil	0.331	13		
I14	Nil	Nil	Nil	0.246	14		

Note: Discriminant items are “Timeliness in loan disbursement/providing other services (I1), Regularity of information sharing through field workers (I3), and Attention of the workers towards you (I12)”

Our results reveal that that multi-collinearity is not present among the discriminant items as their *Willk's Lambda* values and F values are quite diverse from each other (See Table3 column5 and 6). We further observe that the individual standardised coefficient of each discriminant item (Column 2 of Table-5) has its unique impact on discriminant function. The most powerful discriminating item is I1 (timeliness in service delivery) followed by item-3 (importance of information sharing by field level workers). Finally, the canonical correlation value for the analysis is 0.739, that means, around 55 percent (Square of 0.759) of the variance in dependent variable can be accounted for by this model.

Combined Differences in Gender Variation of Opinions

It was found in the above analysis that opinions on the effectiveness scale varies between male and female beneficiaries in three items. Thus, we can derive a combined discriminant equation using these three items as:

$$DF_{\text{Male\&Female}} = -4.608 + 0.707 I_1 + 0.274 I_3 + 0.294 I_{12} \text{ ----- (1)}$$

This combined equation shows that the estimated coefficient value is maximum for item-1 (that means more emphasise should be put on, 'Timeliness in loan disbursement/providing other services') for both male and female beneficiaries followed by item-3, that is, 'regularity of information sharing with beneficiaries'. However, to be more precise, we needed to check the individual discriminant functions for male and female beneficiaries.

$$DF_{\text{Male}} = -11.162 + 1.67 I_1 + 2.05 I_3 + 2.45 I_{12} \text{ ---- (2)}$$

$$DF_{\text{Female}} = -14.379 + 2.15 I_1 + 2.25 I_3 + 2.65 I_{12} \text{ --- (3)}$$

As scores of the individual independent variables indicate more improvement on that item in question, we can now find the varied profiles between male and female beneficiaries based on effectiveness scale items. Considering the classification function coefficients (see equations 2 and 3) we can conclude that¹³:

- Female beneficiaries are more interested in seeing improvements in items I1 (Timeliness in loan disbursement/providing other services), I3 (Regularity in information sharing) and I12 (Attention of the workers towards beneficiaries)
- Male beneficiaries, on the other hand, need improvement in all these items but their preference is less (as their coefficient values are less than that of women) in all three aspects compared to those of female beneficiaries

One major finding from these equations is that if no changes (improvements) are made by the service providers, the relative negative impact will be higher for the

¹³ These statistically significant conclusions are made based on score of independent variables on individual service provider, higher mean value differences and larger standard deviations

female beneficiaries in all aspects. This indicates women are more deprived showing evidence of gender discrimination. Thus, our H_1 is rejected.

Among three items listed above, the highest gap between the opinions of male and female beneficiaries is in item 1 (coefficient gap of 0.48). This means women suffer more from the delay in service delivery. This problem is more evidenced in the case of getting services other than credit, such as family planning, maternal health care, sanitation, pure water facility, etc. This problem is less severe for male beneficiaries because they can travel long distance to meet the field workers anywhere. But female beneficiaries reported that they could not go outside due to the social and religious restriction. Thus, they have to wait for the workers for the desired services. Thus, for rapid improvement in living 'standards as well as converting the capabilities into 'functionings' (conversion factor), timeliness in service delivery is important to women. For instance, timely sanitation and maternal health care services can help women reduce morbidity. This results in more contribution in family works and income generation which ensure women's right to personal integrity. Our findings suggest that women are particularly disadvantaged in getting health-care services (including family planning) in an appropriate time frame.- This is evidence of gender discrimination. We believe everyone has the right to healthcare with timely services, which can help the conversion of capabilities into 'functionings' in achieving the highest level of physical, mental, and social wellbeing. Delay in service delivery by GO agencies is mainly due to bureaucratic red tape, whereas for NGOs this problem arises because the number of female beneficiaries becomes too large compared to the available number of field workers who can travel door-to-door.

As most poor beneficiaries are illiterate and illiteracy is higher amongst women than men, women require individual 'attention from the officials as well as field workers (I12)' to maximise output from the borrowed money. This is supported by the result (see equation 3) as we can see that this is the single largest item (coefficient value is 2.655) that female beneficiaries are emphasising the most. While serving female beneficiaries, it is important for the participants to ensure that individual attention to women will not only lead to their empowerment but will also help them convert their capabilities into 'functionings' to better combat poverty. There are many personal issues that female beneficiaries cannot discuss in group meetings, therefore, the need for customised attention is crucial for them. Many female beneficiaries appreciated working with female field workers with whom they could interact better. At the time of field survey, many female beneficiaries expressed a view that they had several ideas in mind in which they could invest their borrowed money. However, due to lack of personalised consultation and training, they were unable to convert their capabilities into

'functionings' in order to undertake those projects. It was also suggested that disadvantaged female beneficiaries, particularly disabled/less-able women, widows, aged, acid victims, and minors needed to be treated specially in regards to the charging of interest on borrowings.

Validation of the result: To validate the findings of the discriminant analysis and to examine its predictive accuracy, a holdout sample (which in our case comes from the original data) was been used and the results are shown in Table 6.

Table 6: Classification results between GO and NGO discriminant analysis

Gender	Predicted group members	
	Male	Female
Original data Male	62.1	37.9
	33.1	66.9
Female	62.1	37.9
	33.3	66.7

Our results show that 64.3 percent of the original group cases are correctly classified in the combined study and results for cross-validated sample is 64.2 percent. This signifies the internal and external validity with these classification accuracy and hit ratios.

Estimating Variations in Discriminant Items in Different Areas of Bangladesh

To check whether there is any variation in the opinions of male and female beneficiaries of different areas, we ran discriminant analysis on three other areas namely North area, South area, and Central area. The summary of the discriminant functions for these three areas are demonstrated below:

$$DF_{\text{North}} = -3.39 + 0.59 I_1 + 0.69 I_3 - 0.37 I_{14} \quad \text{----- (4)}$$

$$DF_{\text{NorthMale}} = -13.16 + 1.89 I_1 + 2.38 I_3 + 2.58 I_{14} \quad \text{----- (5)}$$

$$DF_{\text{NorthFemale}} = -15.78 + 2.35 I_1 + 2.92 I_3 + 2.29 I_{14} \quad \text{----- (6)}$$

$$DF_{\text{South}} = -4.84 + 0.65 I_7 + 0.69 I_9 \quad \text{----- (7)}$$

$$DF_{\text{SouthMale}} = -11.08 + 2.17 I_7 + 4.19 I_9 \quad \text{----- (8)}$$

$$DF_{\text{SouthFemale}} = -15.01 + 2.69 I_7 + 4.74 I_9 \quad \text{----- (9)}$$

$$DF_{\text{Central}} = -5.16 + 0.51 I_1 + 0.41 I_4 + 0.35 I_5 + 0.30 I_{12} \quad \text{----- (10)}$$

$$DF_{\text{CentralMale}} = -12.39 + 2.12 I_1 + 0.96 I_4 + 2.54 I_5 + 2.13 I_{12} \quad \text{----- (11)}$$

$$DF_{\text{CentralFemale}} = -17.06 + 2.58 I_1 + 1.33 I_4 + 2.86 I_5 + 2.39 I_{12} \quad \text{----- (12)}$$

One common finding from the above equations is that in all the areas, female beneficiaries are in need of more improvement in each and every item compared to male beneficiaries (see the coefficient values for male and female). This finding justifies the existence of gender discrimination in the service delivery process. Opinions on item-wise improvement expectation by the beneficiaries (based on individual discriminant equations of 5 to 12) of different regions are listed in Table 7.

Table 7: Area wise discriminating scale items for male and female beneficiaries

Area	Beneficiary	Item of the Effectiveness scale chosen for improvement
North	Female	Timeliness in loan disbursement/providing other services (I1) Regularity of information sharing through field workers (I3)
	Male	Location of the service provider is convenient (I14)
South	Female	How good are the workers in answering your queries quickly (I7) How good the organisation is in listening to any of your suggestion (I9)
	Male	None
Central	Female	Timeliness in loan disbursement/providing other services (I1) Fairness in decision making by the organisation (I4) How sincerely the service provider keeps their promise (I5) Attention of the workers towards you (I12)
	Male	None

Findings shown in Table 7 further indicate there are significant differences in the opinions of male and female beneficiaries. Thus, H_1 is rejected.

In Northern area, most important item pointed out by the female beneficiaries is ‘lack of regularity in information sharing with beneficiaries and incorporating their suggestions (I3)’ (it has the highest coefficient of 2.92 in equation 6 and equation 7 and has maximum coefficient gap of 0.54 between male and female). As male members spend a large portion of their day outside the home and they meet others at leisure time, they have better chance to be informed about new rules, regulations, or policies. But as women are mostly deprived of these meetings, special attempts should be taken to deliver timely information to women particularly regarding health, job, natural disasters, and education-related information. This attempt should be made since evidence suggests that access to

accurate and timely information by rural women can result in better awareness creation and participation (conversion factor) thus, enhanced economic and social development.

From the results of Southern part (see equation 8 and 9) it can be seen that 'service providers' intention to listen to beneficiaries (I9)' has the highest coefficients of 4.74 for female and 4.19 for male which are also the highest coefficient values among all the regional discriminant equations (equations 4 to 12). This means both male and female beneficiaries are deprived of participation in the decision making process. However, female beneficiaries believe that they are more isolated and discouraged from the decision making processes of service providers as the gap of coefficient values between male and female beneficiaries on this issue is the highest (0.55). This finding is also contradictory to a major goal of the NGOs towards 'women's empowerment'. Sanyal's (2007) study of women involved in micro-finance in India found that it was really not the money that was the source of the reversal of inequality, but the association (termed as 'associative mechanism of micro-credit') of women in a culture that was repressive towards them. Policy makers and regional managers of service provider should consider taking steps to involve female beneficiaries more in the development of the organisation by ensuring involvement in decision making especially through performance feedback (with complaint management and evaluation), project planning and operations, strategy making, and policy formulation. This is an important role the managers can play to get the opinions of female beneficiaries in designing customised services for them (helping women to convert their capabilities into 'functionings').

In the South region, even though both male and female beneficiaries noticed the lack of 'knowledge of the field workers in answering their queries (I7)', this complaint was higher from women (Coefficient values are 2.17 and 2.69 for male and female respectively), particularly from those who were receiving other special services (like family planning, immunisation, sanitation). This would suggest that beneficiaries require better assistance from workers. It should be remembered that due to the lesser mobility of women, they depend totally on field workers for any of their queries. Thus, their requirement for knowledgeable field workers is greater than that of male beneficiaries. Periodic training of officials and workers based on findings from nationwide (across areas) problems may assist policy makers to address this issue. Edwards (1989) reported that many projects in Zambia or Malawi suffered due to inadequate training of the field staff in project implementation and that this creates barriers to the empowerment of women (see also Edwards and Hulme, 1992).

A similar pattern of gender discrimination was found in the Central area too as the coefficient value for women in each and every discriminant item was larger than that of men (see equation 11, 12 and Table 7). It was found that 'issues related to promise keeping (I5)' was of highest priority in the Central area and as usual women required more improvement in this field (coefficient value is 2.54 for men and 2.86 for women). Many female beneficiaries reported that service providers did not keep their promise in delivering necessary services to them because they (women) had less power in raising their voice against the providers; field workers also knew that the female beneficiaries were psychologically weak as well. Moreover, female beneficiaries believed that they were given a loan not with an intention to make them economically well-off or to empower them but rather because it was easier to collect instalments from women rather than from men. The poor are bankable, but poor women are unfailingly more bankable.

Even though beneficiaries (in Central areas) believe that the service providers work for their wellbeing, woman beneficiaries always have questions (coefficient value is 0.96 for male and 1.33 for female) about the 'fairness' (I4) of GO agencies in choosing borrowers and approving loan. Most female beneficiaries noticed that GO agencies preferred to disburse loans to men and more solvent people. In addition, they reported the existence of a large scale corruption in the GO agencies in the loan approval process. Favouritism, bribery, pressure from the local elites and political leaders, and also pressure from fundamentalist groups were the main obstacles to women receiving loans from GO agencies. On the other hand, most male beneficiaries reported that it was hard for them to get loans as NGOs used to prefer women and GOs collateral. Thus, marginally poor males were in a disadvantaged position and believed that they were rejected by service providers. Male beneficiaries argued that the loan approval should be based on need not on gender issues or solvency status. It was reported during our research that the wives sometimes borrow money on behalf of male family members which means that women are being utilised as 'loan receiving agents'.

Since the results indicate that women are disadvantaged (see equations 3, 6, 9, 12 and their coefficient values), there needs to be more effort to overcome this disadvantage by understanding women and their customised needs; setting repayment schedules and interest rates in ways that maximise impact on income; the registration of assets purchased with loans in women's name or in joint names; the incorporating of strategies for women's graduation to larger loans, and multiple choice options for women including loans for new activities, such as health care, education of children, housing, etc. These actions should help women convert their capabilities into 'functionings'.

Conclusion and Recommendations

This study shows that gender discrimination is evidenced in the service delivery processes adopted in poverty alleviation programs in Bangladesh. Female beneficiaries are in a disadvantaged position not only for cultural or religious reasons but also due to less attention being paid to them by managers and field staff of GOs and NGOs. The following are noticeable findings supporting our argument:

1. As a whole (based on whole sample study) for three effective service delivery relevant items (timeliness in providing services to them, sharing information regularly and worker's help towards the beneficiaries), female beneficiaries are demanding improvement on the grounds that they are receiving lower standard services compared to male beneficiaries.
2. Similar results were observed in the case of region-specific studies. For instance, in the South and Central areas, improvement in all discriminating items was demanded by the female beneficiaries. In the North area, out of three discriminating items, improvement in two items was sought by female beneficiaries while males require improvement on the other. All these results support the evidence of gender discrimination regionally.

Our findings suggest the need for a cultural change in the microcredit delivery process with more emphasis given to the customised service delivery mechanism. A large scale credit disbursement may only result in a comparatively negligible change in the poverty reduction rate and women's empowerment unless required services are provided to borrowers, especially to women. Our findings indicate that as a disadvantaged segment of the population women need more customised policy formulation which is fair, attentive, timely and participative in nature. The following are recommendations based on the findings of the study:

1. In the North area, female beneficiaries are looking for further improvement in timeliness-in-service-delivery along with an improvement in the skills of field workers. Thus, special periodic training needs to be provided to the field workers so that they have better skills in dealing with the special needs of the borrowers. The efforts of field workers in other regions should be communicated to workers in order to establish a benchmark standard for the service delivery process.
2. In the South area more attention is required to address empowerment issues. It is particularly important to listen to and incorporate the

suggestions of beneficiaries in the decision making process of service providers. Conducting members meetings more frequently can be an effective strategy in this respect. In addition, it is important that managers of GOs and NGOs should meet borrowers in order to listen to their suggestions. Managers should discuss the interest rate setting process, instalment payment process, any new changes in the payment procedure, etc., with the credit recipients. Borrowers can exchange their views and opinions with the managers in those meetings. It would be more beneficial if representatives of borrowers are included in the decision making body of GOs and NGOs. This will not only ensure the grassroots level participation but also empower poor beneficiaries.

3. In the Central area, more focus is demanded on the items related to trustworthiness of the organisations, particularly fairness in the decision making process, keeping promises, and more attention of the workers towards the female beneficiaries. It is recommended that credit should be delivered based on need assessment not the gender of the recipient. Delivering credit to needy people (irrespective of gender) should be ensured to reduce poverty in the country.
4. It is strongly recommended that there is consultation before credit to beneficiaries is sanctioned. Potential borrowers must consult with the field workers and managers regarding their prospective projects before investing the money. Workers and managers should identify whether the proposed project is worth investing in or not. This will reduce the number of defaulters too.
5. Finally, GOs and NGOs should ensure better access for beneficiaries to all sorts of information including education, loans, health care, natural disasters, jobs, market, government, etc. We believe better access to information is the key to economic, social and political empowerment of the beneficiaries.

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Appendix

Validation of the scale and reliability assessment

As northern and southern parts of Bangladesh are most poverty prone, however due to different reasons (see Table-A1), we need to see whether same scale items are equally applicable to both areas or not. On the other hand, few districts were chosen from the central part of the country where the prevalence of poverty is comparatively less. Comparison with this area will further validate the strength of Effectiveness Scale. Sample characteristics of each study are shown in Table-A1.

Table A1: Sample characteristics for three studies

	Northern Study	Southern Study	Central areas
Districts covered	4	4	4
Reasons to be chosen	Lengthy drought in every year, absence of industries, backward infrastructure, low literacy, high unemployment	Very vulnerable to natural shocks like cyclone, tidal surge that creates more destitute	More poverty prone compared to other districts of the area and this is our hold out sample and chosen purposively
Sex			
Male	134 (48.2%)	158 (55.6%)	175 (47.6%)
Female	144 (51.8%)	126 (44.4%)	193 (52.4%)
Member of			
GO	126 (45.3%)	143 (50.4%)	158 (42.9%)
NGO	152 (54.7%)	141 (49.6%)	210 (57.1)
Age (Years)			
21-25	2 (0.7%)	0 (0%)	38 (10.3%)
26-30	67 (24.1%)	45 (15.8%)	98 (26.6%)
31-35	63 (22.7%)	71 (25%)	64 (17.4%)
36-40	44 (15.8%)	69 (24.3%)	78 (21.2%)
41-45	43 (15.5%)	44 (15.5%)	54 (14.7%)
46-50	55 (19.8%)	55 (19.4%)	33 (9%)
51-55	4 (1.4%)	0 (0%)	3 (0.8%)
56-60	0 (0%)	0 (0%)	0 (0%)
Total Sample	278	284	368

Effectiveness Scale's reliability and internal consistency is very high. Coefficient alpha for North, South and Central area are 0.918, 0.949 and 0.90 respectively

which guarantees that the developed scale can be further utilised for validation process.

We performed convergent validity of Effectiveness Scale in all three areas based on correlation value. Correlation based convergent validity was found in favour of Effectiveness Scale in all three areas. While testing discriminant validity, strong evidences were found to exist in the Effectiveness Scale in all three areas. To avoid repetition we will discuss the results of ‘Central area’ only. Our findings are presented in Table-A2 which supports the existence of convergent and discriminant validity in the Central area study.

Table A2: Evidence of convergent and discriminant validity in Central area study

	I1	I2	I3	I4	I5	I6	I7	I8	I9	I10	I11	I12	I13	I14
I1	1.00								0.28	0.16	0.17	0.14	0.11	0.12
I2	0.56	1.00							0.36	0.19	0.27	0.24	0.24	0.23
I3	0.57	0.56	1.00						0.33	0.19	0.22	0.22	0.19	0.26
I4	0.62	0.54	0.59	1.00					0.39	0.23	0.27	0.31	0.17	0.25
I5	0.63	0.64	0.61	0.58	1.00				0.32	0.21	0.26	0.23	0.18	0.27
I6	0.68	0.67	0.59	0.60	0.58	1.00			0.34	0.28	0.28	0.30	0.26	0.32
I7	0.68	0.56	0.59	0.57	0.68	0.60	1.00		0.34	0.32	0.32	0.24	0.30	0.33
I8	0.66	0.65	0.52	0.68	0.67	0.60	0.64	1.00	0.35	0.25	0.24	0.27	0.28	0.26
I9									1.00					
I10									0.56	1.00				
I11									0.55	0.53	1.00			
I12									0.61	0.33	0.50	1.00		
I13									0.42	0.66	0.46	0.57	1.00	
I14									0.54	0.57	0.46	0.52	0.63	1.00

Note: Pearson Correlations are significant at 0.01 level. I1, I2, I3 are the items as labelled in Table-2

In Table-A2, correlation values are shown for 14 scale items that we developed in the last section. Values below the diagonal show the correlation among the items of individual dimensions (I1-I8 for the first dimension and I9-I14 for the second dimension). Higher and significant values (most are above 0.52) of ‘r’ between the scale items and its construct show that there is convergent validity in the scale items in Effectiveness Scale in the case of both dimensions. Thus this scale is appropriate to express the message of individual items without any redundancy between dimensions. On the other hand, values above the diagonal show inter-dimension item’s correlation. However, to note that these values are quite low compared to the correlation values of convergent validity which support the evidence of discriminant validity in our 14-item Effectiveness scale for the Central area study and is a strong point in favour of Effectiveness Scale’s construct validity.

For nomological validity, we have checked whether the opinion of the beneficiaries in the Northern¹⁴ area varies with age groups or not. Multi-group discriminant analysis was performed to test the following hypothesis in three areas to support nomological validity of the scale items:

H₀: Score of the Effectiveness scale shows no significant differences among the opinions/items and beliefs of different age groups.

As shown in Table-A1, a total of 278 samples are there in this study with 9 different age groups ranging from 21-60+ years¹⁵. Result of the discriminant analysis on North area study is presented in Table-A3.

Table A3: Discriminant analysis on North Area study shows mean, Willk's Lambda and F values

Items	Mean value for different Age groups					Mean Difference Hi-Lo	Willk's Lambda	F Value	Sig.
	26-30 Yr	31-35 Yr	36-40 Yr	41-45 Yr	46-50 Yr				
I1	3.76	3.71	3.95	3.77	3.78	0.24	0.995	0.368	0.73
I2	3.84	3.83	3.86	3.72	3.71	0.15	0.996	0.277	0.78
I3	3.78	3.94	4.00	3.77	3.64	0.36	0.982	1.21	0.30
I4	3.76	4.00	3.91	3.84	3.55	0.45	0.975	1.72	0.15
I5	3.84	4.00	3.86	3.95	3.87	0.14	0.994	0.42	0.79
I6	3.81	3.84	3.91	3.91	3.93	0.12	0.997	0.187	0.84
I7	3.93	4.08	3.95	4.09	3.93	0.16	0.993	0.483	0.74
I8	3.87	4.11	4.25	3.88	3.87	0.38	0.980	1.33	0.25
I9	3.37	3.17	3.18	3.00	3.36	0.36	0.976	1.60	0.17
I10	3.60	3.54	3.61	3.35	3.65	0.30	0.986	0.940	0.44
I11	3.81	3.81	4.07	3.88	3.95	0.26	0.986	0.920	0.44
I12	3.93	3.89	3.93	3.84	3.89	0.09	0.999	0.083	0.78
I13	3.85	3.75	3.86	3.81	3.71	0.15	0.996	0.243	0.71
I14	3.88	3.95	4.00	3.84	3.73	0.27	0.992	0.520	0.72

Note: I1, I2, I3, I14 are the items as labelled in Table-2 of the main text.

Result shows that there are no significant differences in the mean values of scale score for different age groups even when highest and lowest mean values are considered. It can be seen that the pair wise difference in groups' mean values are much smaller. High *Willk's lambda* values with small but significant *F* values

¹⁴ We have conducted the nomological study on other areas as well. However, results of Northern area are used here and this area is chosen because most of the districts of this area have lowest human development indicators (for instance, lowest literacy rate) in Bangladesh.

¹⁵ However, we decided to drop samples from age groups 21-25, 51-55, 56-60 and 60+ because of insignificant size.

dictates that there is no item with significant uni-variate differences among different groups. All these findings are in favour of accepting H_0 . correlation value of the study. Canonical correlation for the study is 0.888 which means 78.85 percent (square of 0.888) of the total variation is explained by these variables. This higher explanatory power of the items, positive coefficients and better loading values demonstrate that H_0 is true indeed.