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Returns to Agricultural Microcredit: Quasi-experimental Evidence from Bangladesh[1]

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Using nationally representative household survey and utilising suitable quantitative tools, this study provides evidence in favour of the positive effect of participation in a credit programme on agricultural production. Our estimates suggest that credit had significant contribution towards household crop production–in comparison to an otherwise similar household without credit. Credit recipient households were found to produce significantly greater amount of agricultural commodities.

Keywords: Agricultural Microcredit, Household Income and Expenditure Survey, Bangladesh
JEL Classification: D24, G21, R20

I. INTRODUCTION

In the context of least developed countries, lack of access to financial services is often argued to have constrained poor individuals from utilising their economic potentials. There is no denying the fact that lack of credit acts as one of the crucial impediments to employment generation, savings mobilisation, investment activities, consumption smoothing, etc. of the rural poor in particular. It is also argued that credit helps the farmers to invest in modern methods of cultivation and

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aids them in terms of better cultivation practices, marketing, storage, etc. For the developing countries like Bangladesh, credit markets are often underdeveloped both in terms of coverage and size of loan, which has forced the credit-constrained households to avail credit from informal sources at high rate of interest and also with unfavourable terms and conditions.

Against this backdrop, this paper attempts to understand the importance of credit in facilitating agricultural production of the recipients which will help to formulate appropriate policies for fulfilling the requirement of credit for the rural credit constraint households and farmers.

The paper is organised as follows. Section II highlights the key literature on this issue. To complement this review, section III describes some recent private and public credit programmes that were operationalised in the country. While section IV describes the data and the methods used in the analysis, section V presents relevant empirical analysis in relation to the relationship between agricultural production and credit in Bangladesh. Finally, section VI concludes with some pertinent policy implications of the research.

II. LITERATURE REVIEW

Although most of the literature on credit primarily focuses on disentangling the relationship of credit with poverty, food security and women empowerment, there are a number of studies concentrating on agricultural production. Saha and Dutta (1971) in this context showed that adequate supply of credit positively influenced growth of agricultural output and farm income in many countries. However, the small and marginal farmers who constitute approximately 80 per cent of the farming population of Bangladesh do not receive adequate agricultural credit from formal sector and the credit allocated to the agricultural sector by formal institutions falls far short of actual requirements (Census of Agriculture 1996). A long standing hypothesis has been that despite their higher profitability in relation to traditional crop varieties, inadequate access to credit is the main constraint to the adoption of high yielding varieties (HYVs). A study conducted by Rashid *et al.* (2002) re-examined the issue in the context of a specially designed group based lending programme for small farmers of Bangladesh. They classified this group of farmers as the one who neither had access to formal credit nor qualify as members of micro-credit organisations. Using Heckman's two-step method, the authors found that credit limit from the lending programmes and informal sources acted as major determinants of small farmers' choices between HYV and traditional varieties.

Khan (1999) attempted to quantify institutional credit requirement among small and marginal farmers of Bangladesh and inferred that this group of farmers required cash to purchase improved agricultural inputs, such as HYV seeds, fertilisers and pesticides, and also to afford expenses related to irrigation. They also required institutional support for investing in irrigation pump, different farming equipment, drought animal, etc. The study concluded that with the advancement of technology and increased commercialisation of agriculture, credit requirement of these farmers had become more compelling. Several studies including those of Elias (1988), Rahman (1990) and Haq (1993) concluded that with the introduction of technological innovation in agriculture, requirement for bank finance has grown, especially in crop sector. Given the fact that HYV technology in agriculture is capital-intensive by nature, these studies recommended that a wide ranging network of credit programmes could help the farmers to reap benefits from this technology. These studies have also found that once new production techniques have been established, agricultural credit has the potential to remove many of the technological constraints faced by the small farmers. For example, extensive use of fertiliser to enhance production is a common characteristic of cultivating HYV crops. Therefore, farmers cultivating HYV crops require formal/informal financing to cover cost of chemical fertilisers and in such cases the small farmers may not be able to afford such cost.

Using household data of Bangladesh, Barkat *et al.* (2010) found that as high as 58 per cent farmers covered by their survey used credit for buying fertiliser, 27 per cent for procuring seeds, 38 per cent for paying wage labourers, 11 per cent for the use of tractors and 13 per cent for the cost of power tiller. Therefore, their analysis revealed the crucial role of credit in food production, particularly in procuring fertiliser. In terms of choice of crop, credit also played a determining role and the survey found that as high as 66 per cent of farmers utilised credit for cultivating Boro paddy, whereas about 12 per cent used it for the production of Aman paddy.

In the absence of well-developed financial system, although informal credit market has served a large number of clients in many of the developing countries, in most of the cases it has remained unorganised and fragmented in nature and has allegedly played an exploitative role (Rahman 1996). In the context of Bangladesh, Khanam (1989) inferred that credit from informal sources did not help the farmers in the preferred manner since informal credit was not adequate in terms of loan size and was only available at high interest rates. In this context, with the help of Bangladeshi data, Titumir *et al.* (2005) showed that small farmers depended on informal sources for credit. In this context, they found that

lack of access to complex bank channels and MFIs enforced the tenants and small farmers to depend on monopolistic moneylenders who insisted on tied credit- marketing contracts.

For the last two decades or so, the gap in credit supplied by formal financial institutions has partially been filled by semi-formal/quasi-formal institutions. There exists a vast body of literature analysing the effect of such a source of credit on the socio-economic status of households. Banik (1993) noted that most of the activities of Grameen Bank of Bangladesh (GB) were of "point-input continuous-output type," where the key to success of GB was argued to be the system of weekly repayment of loans. In contrast, agricultural operations are of "point-input point-output type" and cannot be made to yield continuous income generation. Finan *et al.* (2005) examined the pattern of use of credit and its role in the livelihood strategies of the recipients in the North-Western and South-Eastern regions of Bangladesh. Their analysis focused on the issues like changing incidence of loan over time, reason for borrowing of the households, as well as the ways indebtedness might affect the range of livelihood outcomes.

While explaining on the importance of public financial institutions such as nationalised commercial banks (NCBs) in strengthening agricultural credit programmes in Bangladesh, Ahmad and Ahmed (1982) emphasized the importance of increasing institutional credit flows to agriculture. Several separate surveys, including those of Rahman (1972), Akhunji (1982) and World Bank (1986), had evaluated the relative performance of institutional credit agencies in meeting the credit need of farmers. These studies noted a sharp increase in agricultural credit requirements between the pre-independence and post-independence periods, with a much larger proportion of agricultural credit requirement being met by institutional sources throughout the 1970s. However, they observed a proportionate decline of such trend over time, with agricultural credit constituting a much smaller component of total institutional credit. Hossain (1977) in an earlier study observed that 17 per cent of small farmers in Bangladesh had access to institutional loans and received 28 per cent of the total credit advanced to agriculture sector. In contrast, 61 per cent of large farmers received loans, amounting to 67 per cent of total agricultural credit.

To facilitate the adoption of modern technology for small farms with low capital bases, prior to the 1990s, the Government of Bangladesh (GoB) had adopted several policy instruments like ceilings on agricultural lending by different banks, ceilings on lending to farm households of different sizes, specifying lending targets and guidelines, fixing ceilings on lending rates, etc. (Ahmed and Kennedy 1994). They showed that regulated credit policy with

credit ceiling and credit restriction to crop production impeded the small farms to generate adequate income to repay loans after meeting food and non-food consumption requirements. Based on their analysis, they concluded that government's focus on loans for crop production alone was not ideal for promoting growth and welfare of small-farm households. Instead, they argued in favour of credit deregulation for better welfare outcome.

Assuming that lending to agriculture sector expedites agricultural production, the GoB has carried out subsidised agricultural or rural credit programme through specialised banks like Bangladesh Agricultural Bank (BKB) and Rajshahi Krishi Unnayan Bank (RAKUB). However, the subsidised credit programmes were argued to be unsustainable due to high default rates, poor performance of specialised banks along with the allocation of credit to wealthiest borrowers (Rahman, Leo and Cheng 2011).

On the basis of above discussion, we can therefore conclude that the existing literature could not come to a consensus regarding the role of credit in food production. Against this backdrop, the present paper, with the help of a nationally representative survey, finds a compelling relationship between credit and food production and advocates in favour of greater access to credit for the pertinent marginal community for enhancing food production.

III. A COMPARATIVE ANALYSIS OF AGRICULTURAL CREDIT PROGRAMMES

This section outlines a review of the selected Agricultural Credit Programmes (ACPs), which is expected to display a comparative analysis of the credit intervention from both supply and demand side and also discusses the views from the demand side where access, availability and adequacy of the agricultural credit remain the focus of the review.

The special credit programme of Bangladesh Bank (BB)–Bangladesh Rural Advancement Committee (BRAC) is exclusively aimed at the sharecroppers, whereas other ACPs of the formal institutions are partially targeted towards the farmers. Even the specialised agricultural banks (i.e., BKB and RAKUB) maintain some non-agricultural advances in their loan portfolios. GB provides much more agricultural loan (around 45 per cent of their loan portfolio) than the largest public commercial Bank, Sonali Bank Limited (SBL) (around 5 per cent of their loan portfolio). The scheduled private commercial banks operate agricultural credit programmes as well but those lending schemes constitute an insignificant share of their own loan portfolios.

A portion of agricultural credit is often found to be channeled into some other investment and consumption expenditure; while a portion of credit adopted formally for other purpose is also invested in agricultural spending. The latter is predominantly found in the case of NGO credit, which is taken for non-farm activity but is used in farm, especially crop activity.

Nearly two-thirds of the total agricultural credit of the nationalised specialised banks (NSBs) is earmarked for crop financing–the crop sub-sector occupies 60 per cent of the lending budget of BKB and RAKUB. Other ACPs of the formal institutions are also predominantly targeted towards crop financing. GB, BRAC and other NGO credit, however, deals agricultural credit in a different manner. As crop financing yields return after a certain period of time (at least after two and a half months, the minimum harvest requirement months of any usual crop), weekly instalment based NGO credit schemes are not suitable for such purpose, unless the recipient has alternative income stream to pay the instalment on a regular basis.

In the case of crop credit, the farmers who have comfortable access to formal credit prefer the credit of NCB or NSB rather than that of private commercial banks or NGOs. Here, the former sources have the opportunity of flexible instalment payment, whereas the latter sources have lower credit ceiling with stringent instalment payment.

GB credit like other NGO credit is relatively easier to access and is not strict in terms of collateral. Most of the formal credit schemes, however, require formal security like that of landed property, and therefore are inaccessible to most of the marginal and poor farmers including the sharecroppers.

Sharecroppers have been the explicit target group of ACPs of BKB and SBL. But these institutions have not been able to meet the existing demand, which has given rise to the special credit programme of BB-BRAC. The farmers who are cultivating crop throughout the year can have loan from the Revolving Crop Credit Programme (RCCP) of RAKUB. But the marginal and poor farmers, having a small plot of land or having no cultivable land but renting in some other small plot under sharecropping contract, usually cannot cultivate throughout the year due to input constraints. In most of the cases, they cannot avail the credit of RAKUB and other ACPs.

However, if the marginal farm households have alternative income sources to finance the weekly instalments of NGOs or cooperatives, they tend to take the loan from there and use in agriculture. Loan size of SBL (amount needed for cultivation of maximum 5 acres of land) seems to have served the purposes more

than the credit programme of BB-BRAC (fixed in between Tk.7,000 and Tk.30, 000) or that of RAKUB. The recipients are found to go for simultaneous credit from more than one source to meet their demand for financing the farm expenditure as solitary source sometimes remains inadequate.

There is no discrepancy in the interest rate charged for the crop loan schemes of BKB, RAKUB and SBL. However, a customer gets the opportunity of 1 percentage rate from the RCCP of RAKUB. Following the agro-loan programme (policy) of Bangladesh Bank, these ACPs also maintain the option to provide credit at subsidised rate (2 per cent) to encourage cultivation of some special crops.

Timely sanction of credit and hassle free advance is considered to be more important to the farmer than lower interest rate or any waiver on interest. In the case of approaching credit from public institutions, the potential recipient has to undergo unofficial transaction cost like bribe or has to spend more time due to bureaucratic procedure.

IV. DATA AND METHODOLOGY

4.1 Source of Data

The study is primarily based on Household Income and Expenditure Survey 2010 (HIES 2010), which is a nationally representative household survey of 12,240 households drawn from 612 Primary Sampling Units (PSUs). Since we are primarily concerned with the agricultural microfinance market, we consider the sample of landless and small farmers (land ownership less than 150 decimals). HIES covers a wide range of questions including household's income, expenditure, consumption, savings, education, employment, health status, infrastructure facilities, etc. In addition to these information, it has separate section on credit (section 8, part D) and agricultural enterprise (section 7). Information gathered through the responses on these questions were utilised in our research to understand the link between credit and agricultural production.

4.2 Key Methodology used in the Analysis[2]

To address the issue of potential endogeneity in microcredit take-up (through self-selection and/or selective programme placement), we adopt the two-stage least squares (2SLS) approach using the instrument "average distance to the MFIs within 10 km (normalised by the no. of operating MFI branches)." This

[2]The entire methodology is discussed in the main research report.

instrument, as a proxy for geographical accessibility of microfinance, is expected to correlate negatively with actual microcredit take-up (higher distance signifies lower accessibility). On the other hand, we argue that, conditional on microcredit take-up, this variable has no bearing on crop production since this is more of a "macro"-variable and, hence, should be potentially uncorrelated with household level idiosyncrasies (thereby, satisfying the so-called "exclusion restriction").

Explicitly, we estimate the following model:

$y_i = \alpha + \beta c_i + x\delta + u_i$ (1^{st} stage)

$c_i = \gamma + \theta z_i + x\mu + v_i$ (2^{nd} stage)

Here, y_i the crop production of the i-th household, c_i represents microcredit take-up (or the microloan size), z_i is the instrument and **x** is a vector of household controls. β is the coefficient of interest.

V. EMPIRICAL FINDINGS

5.1 Rural Credit Market Structure-Analysis from HIES

In terms of the overall market structure of credit, if we analyse the sources, we observe formal sources as well as microfinance institutions playing leading roles. This distribution is shown in Figure 1, which reveals that BKB along with other formal public financial institutions fulfills around one-fourth of agricultural credit demand. Informal sources supply 8 per cent of agricultural credit, whereas microfinance institutions serve as the key source.

Figure 1: **Market Composition for Agricultural Credit**

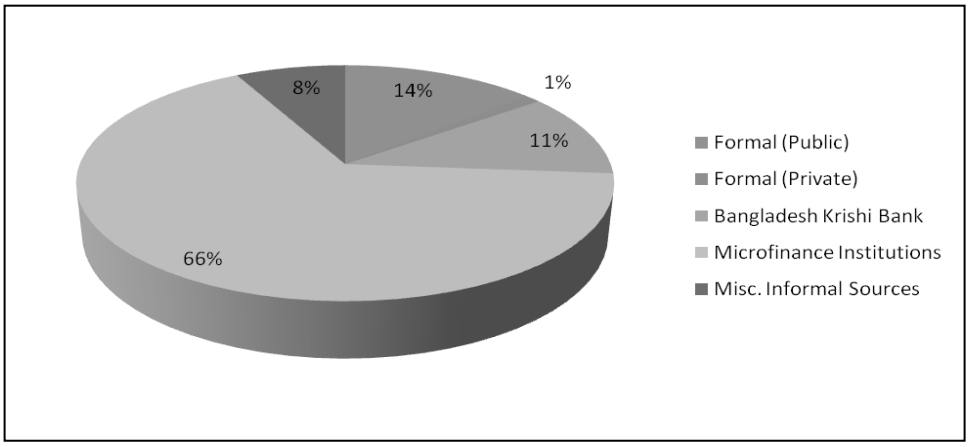

Table I shows few interesting features of agriculture credit as revealed by HIES. On an average, households borrow 30,210 taka, where the borrowing from formal sources is the highest, 41,000 taka on average. In terms of interest rate, formal sector charges relatively low interest rate, around 14 per cent per year, whereas the interest rate charged by the MFIs is 15.4 per cent per year. In the case of informal sources, when positive interest is charged, the rate is quite high, around 21 per cent. However, there are some fortunate respondents who had taken loan at zero interest rate (5.7 per cent of respondents)–this is mainly the loan taken from friends or relatives. In terms of repayment period, formal sector appeared to be relatively flexible with longest repayment period on average. As for the amount borrowed, when the respondents were asked whether they wanted to borrow more, around 29 per cent responded positively with the highest response found among the micro-borrowers.

TABLE I

LOAN CHARACTERISTICS BY SOURCE

Loan attributes	Formal Borrowers		Informal Borrowers								Micro-Borrowers		All	
			Positive Monthly Interest Rate			*Positive Yearly Interest Rate*			*Zero Monthly & Yearly Interest*					
	Mean	Med	Mean	Med		Mean	Med		Mean	Med	Mean	Med	Mean	Med
Amount borrowed (in '000 Tk)	41.00	12.00	33.38	12.00		55.83	15.00		74.20	15.5	18.91	10.00	30.21	10.00
Repayment period (in months)	16.19	12.00	11.22	12.00		14.68	12.00		9.90	12.0	13.91	12.00	14.40	12.00
Interest rate (monthly)	1.16	0.00	7.46	6.00		-	-		-	-	1.35	0.00	1.32	0.00
Interest rate (yearly)	13.69	12.50	-	-		21.22	16.00		-	-	15.40	15.00	14.25	13.00
Whether wanted to borrow more (dummy)	28.00	-	20.00	-		20.00	-		10.00	-	32.00	-	29.00	-
Amount one wanted to borrow in excess (in '000 Tk)	20.90	0.00	3.03	0.00		9.63	0.00		24.40	0.00	9.45	0.00	13.25	0.00

Source: HIES 2010.

Annual informal interest rate of 21 per cent also points to another observation that the real term interest rate in Bangladesh is even lower than the real term interest rate of credit card in the United States. For instance, in the United States, interest rates on credit card on nominal terms are about 20 per cent or 17-18 per cent in real terms (after subtracting 3- 4 per cent annual rate of inflation). Whereas in Bangladesh a 21 per cent informal interest rate is just about 14 per cent in real terms (after deducting 6 per cent inflation rate), lower than US credit card rates. Thus, the interest rates (i.e. even informal one) do not seem high and hence demand for further rate reduction may not be justifiable.

5.2 Credit and Agricultural Production: Evidences from HIES

Key statistics of crop production are shown in Table II. It was found that there was no significant difference between the households who availed microcredit and those who did not. Table II also shows that, in terms of microloan quintiles, there was no visible difference. Around 35 per cent households were found to be literate in the HIES survey with a greater proportion of literates in the 3rd micro loan size quintile. In terms of the gender of household head, there was, however, interesting differences–for households without microcredit take-up, female household heads were more prominent. Around 39 per cent households reported to have access to electricity. Those without microloans tended to have slightly higher access than those with microloans. In terms of land holdings, households with no microloans owned more land compared to those with microloans (0.43 acre compared to 0.37 acre, respectively).

As discussed, the estimation of agriculture production regression with access to credit as an explanatory variable can suffer from endogeneity problems. In order to control endogeneity, this paper used instrumental variable approach where the instrument was average distance of the household to the MFIs within 10 kilometres. The average value of the instrument across HIES survey households was found to be 0.36 kilometre with those households without microloan take- up being situated further away than those with microloan take-up.

TABLE II
SUMMARY STATISTICS BY MICROBORROWER GROUPS AND MICROLOAN SIZES

Variables	Mean [SD]					
	Microcredit Take-up		Microloan Size Quintiles			Total
	No	Yes	First	Second	Third	
Household size	4.823 [1.836]	4.792 [1.790]	4.662 [1.840]	4.644 [1.665]	5.071 [1.806]	4.792 [1.790]
Whether HH head is female (dummy)	0.072 [0.259]	0.026 [0.160]	0.029 [0.168]	0.044 [0.207]	0.009 [0.094]	0.026 [0.160]
Whether HH head is literate (dummy)	0.385 [0.487]	0.357 [0.480]	0.331 [0.472]	0.322 [0.470]	0.416 [0.495]	0.357 [0.480]
Total cultivable land owned (decimals)	42.692 [42.639]	36.579 [41.807]	38.065 [40.979]	37.711 [44.083]	33.85 [41.193]	36.579 [41.807]
Access to electricity (dummy)	0.419 [0.493]	0.386 [0.488]	0.374 [0.486]	0.389 [0.490]	0.398 [0.492]	0.386 [0.488]
Instrument						
Average distance to the MFIs within 10 km [normalised by no of MFI branches]	0.52 [1.023]	0.359 [0.614]	0.443 [0.826]	0.295 [0.227]	0.304 [0.497]	0.359 [0.614]

Source: HIES 2010.

In order to understand the relationship between credit and agricultural production, in Regression 1, Table III, "total crop production in 1,000 taka" was regressed on a dummy variable of whether household took microcredit. Regression 4 used a number of controls along with the microloan dummy e.g., household size, gender of household head (dummy), whether household head is literate, total cultivable land of the household and access to electricity (dummy). Here, crop production is represented by the total money value of different types of crop production converted in thousand taka. Our estimates showed that availability of microloan has positive and significant impact on household crop production.

Table III shows estimates of 2 stage least squares with the variable "average distance of the household to MFIs within 10 kilometres" used as the chosen instrument. Regression 2 and Regression 5 of Table III show the estimation

results of 1st stage regression where a probit model of the probability of microloan take-up was estimated with and without a number of controls. Regression 3 and Regression 6, on the other hand, state the results of 2nd stage of 2SLS method with the use of the stated instrument. Estimates of Table III state statistical significance of the instrument along with the positive and significance impact of microcredit take-up on production of crop.

TABLE III

EFFECT OF MICROCREDIT TAKE-UP ON CROP PRODUCTION (OLS AND 2SLS ESTIMATES)

Variables	(1) Crop production (in '000 BDT)	(2) First Stage Microcredit take-up	(3) Second Stage Crop production (in '000 BDT)	(4) Crop production (in '000 BDT)	(5) First Stage Microcredit take-up	(6) Second Stage Crop production (in '000 BDT)
Microcredit take-up	6.54***		42.46*	7.20***		66.70***
	(2.269 - 10.815)		(-3.463 - 88.373)	(3.106 - 11.302)		(18.006 - 115.387)
Household size					-0.00	
					(-0.009 - 0.007)	
Whether HH head is female (dummy)					-0.08***	
					(-0.123 - -0.034)	
Whether HH head is literate (dummy)					-0.01	
					(-0.042 - 0.020)	
Total cultivable land owned. decimals					-0.00	
					(-0.001 - 0.000)	
Access to electricity (dummy)					-0.01	
					(-0.043 - 0.017)	
Avg. distance to the MFIs within 10 km [normalised by no. of MFI branches]		-0.02***			-0.02***	
		(-0.030 - - 0.010)			(-0.030 - -0.010)	
Observations	2,492	2,190	2,190	2,492	2,190	2,190
R-squared	0.004	0.003		0.082	0.008	
Controls	No	No	No	Yes	Yes	Yes
Instrumented by avg., distance	No	Yes	Yes	No	Yes	Yes
IV F-stat	N/A	N/A	16.23***	N/A	N/A	16.19***

Source: HIES 2010.
Note: Robust ci are in parentheses;******* p<0.01, ** p<0.05, * p<0.1.

Table IV shows similar results of the effect of microcredit on crop production with OLS and 2SLS methodology. Here, instead of a dummy of microcredit take-up, Table IV shows estimation with the size of microcredit loan (in thousand BDT) as the dependent variable. The strong positive impact of micro loan amount could be found in the OLS estimates–in Regression 1 and Regression 4. Regression 3 and Regression 6 show 2nd stage estimation results of the 2SLS, which reveals a positive and significant association of microloan size and crop production even after controlling for endogeneity through appropriate instrument.

TABLE IV
EFFECT OF MICROCREDIT ON CROP PRODUCTION (OLS AND 2SLS ESTIMATES)

Variables	(1) Crop production (in '000 BDT)	(2) First Stage Microloan size (in '000 BDT)	(3) Second Stage Crop production (in '000 BDT)	(4) Crop production (in '000 BDT)	(5) First Stage Microloan size (in '000 BDT)	(6) Second Stage Crop production (in '000 BDT)
Microloan size (in '000 BDT)	0.44***		2.42*	0.44***		3.66***
	(0.243 - 0.636)		(-0.287 - 5.119)	(0.226 - 0.647)		(0.978 - 6.341)
Household size					0.08	
					(-0.073 - 0.242)	
Whether HH head is female (dummy)					-1.25***	
					(-1.849 - -0.648)	
Whether HH head is literate (dummy)					0.09	
					(-0.540 - 0.724)	
Total cultivable land owned. decimals					-0.00	
					(-0.010 - 0.006)	
Access to electricity (dummy)					-0.10	
					(-0.702 - 0.499)	
Avg. distance to the MFIs within 10 km [normalised by no of MFI branches]		-0.35***			-0.37***	
		(-0.501 - -0.209)			(-0.514 - -0.220)	
Observations	2,492	2,190	2,190	2,492	2,190	2,190
R-squared	0.009	0.002		0.086	0.004	
Controls	No	No	No	Yes	Yes	Yes
Instrumented by avg, distance	No	Yes	Yes	No	Yes	Yes
IV F-stat	N/A	N/A	22.77***	N/A	N/A	23.94***

Source: HIES 2010.
Note: Robust ci are in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

VI. CONCLUSION AND POLICY RECOMMENDATIONS

Despite the structural transformation of Bangladesh economy towards industry and service sector, the importance of agriculture in the context of generating employment and meeting food requirement is crucial. Credit is argued to play an important role in facilitating the development of agriculture sector, particularly in food production, and therefore it is important to understand this linkage with appropriate data.

Based on quantitative analyses from a nationally representative household survey, this paper has provided evidence in favour of a positive role of agricultural credit on food production. Given the robustness of the findings in terms of suitable econometric methodology, this paper further emphasizes the importance of appropriate policies in ensuring cheap access to credit to the farmers, particularly the marginal and small ones whose production is particularly constrained due to lack of credit. In this context, a number of recommendations in terms of facilitating the supply of credit for increasing production can be considered.

Given a positive association between institutional credit and agricultural production, increased disbursement of agricultural credit, particularly to the small farmers is strongly recommended. In addition, while devising their credit portfolio a careful balance must be maintained between both formal and quasi formal institutions.

It is often argued that timely sanction of credit and smooth access is more important to farmers than lower rates of interest or waiver on interest. Access to credit from public institutions entails unofficial transaction costs like bribes or delays due to a slow bureaucratic process. Therefore, an important policy issue is to improve the efficiency of public institutions.

Marginal and poor farm households, not having access to formal lending sources except MFI, utilise non-farm credit for agricultural purposes. But this "instalment-based" credit is not suitable for "Point-input-Point-output" type crop agriculture. Steps should be taken so that MFI can arrange appropriate agricultural (crop) credit schemes for the marginal farmers and landless sharecroppers.

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