Microfinance and Investment: A Comparison with Bank and Informal Lending

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Summary. — Comparing the impact of different types of credit on households' investment in Bangladesh, we find that loans from microfinance institutions are likely to be channeled toward non-agricultural activities while both informal and bank lending are associated to a higher expenditure in agricultural inputs. Estimated effects are net of the differences in the amount borrowed, interest rates, and collateral. Results suggest that features which are specific to microfinance—such as tight repayment schedules and land-based eligibility rules—may reduce the suitability of this source of funds for the farming sector.
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1. INTRODUCTION

A large part of the literature on microcredit has been devoted to the analysis of its effectiveness in terms of poverty reduction. Several applied studies have investigated the impact of different programs operating on the basis of group lending on the behavior of households and firms, such as *per capita* consumption, labor supply, children school enrollment (Morduch, 1998; Pitt & Khandker, 1998), and business performance (Madajewicz, 2003a; McKernan, 2002), providing evidence of success.

Standardized microfinance (hereafter MF) agreements, however, have been recently criticized since they are considered not properly suited to fulfill the needs of all sectors of the economy. Agriculture, in particular, seems to suffer from the absence of contractual flexibility (Christen & Pearce, 2005; Llanto, 2007; Meyer, 2002; Murray, 2001). In fact, it is a common practice for microfinance institutions (from now on MFIs) to lend to landless households and require reimbursement of the loan soon after it has been granted.

In particular, tight repayment schedules may preclude borrowers from undertaking long-term investments, as is often the case in agriculture where the production cycle is longer than in several other activities. In addition, farmers may encounter difficulties to commit to regular installments due to the risk related to climate conditions (see, e.g., Caldwell, Reddy, & Caldwell, 1986). This might also bias MFIs in favor of the non-agricultural sector as consequence of reducing the risk of default more commonly associated with natural disasters.[1] Such a situation could be exacerbated by the eligibility rules for MF programs which rely on the lack of land ownership in order to identify poor borrowers. As opposite to other producers, in fact, farmers are more likely to have all their wealth concentrated in small land plots, and are thus less entitled to obtain loans.

This paper examines the role of financing mechanisms on household investment decisions. In particular, we aim at verifying what kind of investment—in agricultural and non-agricultural activities—is promoted by different kinds of lending: micro-lending, informal lending, and bank lending. The article, in particular, adds to previous work by concentrating

on a comprehensive definition of investment—expenditure in both working capital and fixed assets—and by including all available sources of credit.[2]

The reason why we focus on investment is that, as opposite to consumption behavior, the former is more suited to provide insights on programs' long-term effect on growth. For example, practitioners (Båge, 2004) stress that in order to achieve self-sustainability households in low income contexts should not myopically consume borrowed funds but rather invest them in productive activities.[3] Ahlin and Jiang (2008) also claim that the key to the success of MF long-term objectives rests in the fact of promoting the gradual accumulation of average returns in self-employment. These recommendations, though, might be ineffective when addressed to poorest people, since, having a higher time preference rate compared to richer individuals, they might be tempted to raise present consumption instead of acquiring production inputs (Lawrance, 1991). Hence—at least at first glance—it becomes important to verify to what extent borrowers from MF programs perform better than non-borrowers, and this is essentially what has been done by most of the empirical studies dealing with the impact of MF.

However, this approach seems somehow restrictive since it classifies borrowers from other sources as non-borrowers. In fact, in the same vein as ignoring non-treated groups (see, e.g., Heckman, 1976), disregarding those who are treated with different types of credit may provide biased estimates when evaluating the impact of MF programs. Moreover, comparison with other types of lending is important to our purposes since it allows verifying whether there are features of MF

contracts which are likely to penalize some categories of borrowers, such as farmers. If this is the case, we should observe that these categories more frequently apply to other credit providers having different characteristics. [4]

We use data from a survey of the World Bank carried out during the years 1991 and 1992 in Bangladesh. The survey contains information about credit from MFIs and non-governmental organizations providing group lending, loans obtained from landlords, input suppliers, shopkeepers, employers, relatives and friends (which we define as the informal lending channel), and banks. There are a number of reasons why it is still useful to investigate data related to a period when group lending was predominant in the context analyzed in the paper. First, although the Grameen Bank (GB) has significantly reduced the focus on the traditional five-person group in favor of the village organization, it still maintains the group structure (Barua & Dowla, 2006), so that borrowers' incentives should not be significantly affected by these changes (Armendariz & Morduch, 2005, p. 101). Second, traditional group loans are even now the core of credit services provided by other institutions included in our dataset, such as the Bangladesh Rural Development Board. [5] Third, the group lending model as used by GB in the 1990s is still the dominant one in many developing countries, and especially in Africa (see, e.g., Basu, Blavy, & Yulek, 2004, on a variety of African counties, Brandsma & Chaouali, 1998, on North Africa and the Middle East; Hermes, Lensink, & Mehrteab, 2005, on Eritrea).

The empirical analysis has been carried out through techniques that use instrumental variables to reduce the endogeneity bias generated by the correlation between the choice of the credit source and non-measurable characteristics affecting investment, such as for example, household members' ability. Moreover, we concentrate on a core relationship involving investment, on the one hand, and the probability of borrowing from each source, on the other hand, while the impact of the amount borrowed, interest rate, and collateral is analyzed separately. This helps isolating the effect of other characteristics of credit contracts such as, among others, the repayment system.

Results show that, conditional on measurable features of credit agreements, borrowers from MFIs are likely to invest more in non-agricultural activities while both informal and bank lending are associated to a higher investment in agricultural inputs. According to what has been discussed so far, this seems to provide evidence in favor of our hypothesis concerning the lower suitability of MF standardized lending programs for the agricultural sector.

It is worth stressing, however, that there may be other factors driving our empirical findings. Joint or individual liability (Ghatak & Guinanne, 1999; Hermes & Lensink, 2007; Hermes et al. 2005; Madajewicz, 2003b; Paxton, Graham, & Thraen, 2000; Sharma and Zeller, 1997; Wydick, 1999), the quality of monitoring (Armendariz, 1999; Banerjee, Besley, & Guinnane, 1994; Madajewicz, 2003a; Stiglitz, 1990; Varian, 1990, among others) and the pattern of sanctions (Besley & Coate, 1995) may induce different attitudes toward investment depending on the contract chosen. Threat of future credit denial, which is typically used in MF, could also work in a similar way. Nevertheless, there seems to be weaker evidence, as well as a less intense debate, as to whether these elements are likely to unevenly affect different sectors of the economy.

The rest of the paper is organized as follows. In Section 2 we illustrate the dataset. Section 3 concentrates on the estimation techniques and instruments adopted. In Section 4 we discuss the results. Section 5 concludes.

2. DATA

Data were collected in a survey carried out on 1,798 households in rural Bangladeshi villages by the Bangladesh Institute of Development Studies at the World Bank in 1991–92. The survey was conducted in three rounds, approximately corresponding to the harvesting of the rice crop. The first round (November 1991–February 1992) corresponds to the Aman season, the second (March–June 1992) to the Boro, and the third (July–October 1992) to the Aus. The original sample consists of three randomly selected villages from each of the 29 districts (thanas) surveyed. In 24 of these districts, a microcredit program had been in operation for at least three years. A total of 20 households in each village were surveyed. We mainly concentrate on the first round since a great deal of information went missing during the remaining two. In particular, we work under a cross-sectional setup, [6] using the other rounds to gather information on investment in fixed assets (i.e., to compute the difference in the stock), since data do not provide a direct measure of this variable. [7]

Households engaged in self employed activities number 1,276. Almost all of them (1,192) are farmers or fishermen, 797 are non-farmers, and of these 713 are engaged in both farming and non-farming activities. Investment in working capital corresponds to total operating costs in the year preceding the survey. [8] In the case of farming, these include expenditure on seeds, fertilizers, pesticides, water, tillage, rented labor, and veterinary costs. Non-farmers' operating costs [9] are constituted by raw materials, rented labor, fuel for transport, and other expenses for equipment maintenance. Investment in fixed assets is computed as the incremental value of physical capital between the first and the third rounds of the survey. Capital consists of bullocks, cows, sheep, poultry, and agricultural equipment if the household engages in farming activities. As for non-farmers it is mainly constituted by buildings, machinery, rickshaws, sewing machines, and other durables. We exclude inherited assets since they are not bought by the household, neither through credit, nor by self-financing. Land is also omitted—it is instead used as a control variable for reasons that will be discussed in the following sections—while rent paid for land is accounted for as part of operating expenditure.

The importance of distinguishing between fixed assets and working capital is a pure statistical issue. It lies in the fact that the distributions of these two variables differ considerably (see the following section). More precisely, fixed assets may be dismissed—hence a negative investment is possible—and also show a considerably higher variance as compared to working capital. Jointly considering the two variables would not account for the heterogeneity of the latter, since all the effects would be driven by the relationship between credit and the more highly-volatile component of investment. [10]

Table 1 reports summary statistics on investment. Working capital expenditure is on average 1,297 taka for farmers compared to 1,191 for non-farmers. Also investment in fixed assets is higher for farmers (766 taka, against 69 for non-farmers if negative values are excluded; 350 taka, against −3,958 for non-farmers if negative values are included). [11] T-tests of mean comparison reported in Table 1 suggest that there is no significant discrepancy between the operating costs of farmers and non-farmers. The difference in means is instead weakly significant for investment in fixed assets.

We consider all loans granted to household members in the year preceding the survey. The sources of microcredit are the GB, the Bangladesh Rural Advancement Committee (BRAC), and the Bangladesh Rural Development Board (BRDB). All