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# Sustainable Institutions or Sustainable Poverty Targeting: The Case of Microfinance

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## **Abstract**

Microcredit, being the most unique form of antipoverty intervention in terms of its methodology and outreach, has generated considerable amount of disagreements in recent times. While there may be more serious disagreements surrounding microcredit, this article addresses whether or not microcredit has the potential to alleviate poverty, and whether or not the conclusion derived to the first issue is sensitive to interest rate variations. Connecting the already established principles of economics, we show that there is every reason to believe that microcredit has the potential to change the fortunes of the poor communities. However, we also show that this change in fortune can be in any direction, depending on how costly the financial services of the microfinance institutions are felt by the poor.

**Keywords: Poverty, Microfinance Institutions, Optimization, Income/Price Policy.**

**JEL Classification: I 30, G 21, C 61, E 64.**

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## 1. Introduction

For most practical purposes, poverty can be defined as lack of income to meet basic needs such as food, clothing and shelter. Thus any intervention that aims at poverty reduction should boost, in one way or the other, income of the poor. Transfer payments like social security and unemployment compensation has historically been used to meet this end. But all such transfers, at the best, can only temporarily reduce the deprivation felt by the poor and hence cannot cause a sustainable exit out of the poverty trap. A sustainable poverty reduction policy should constitute efforts that enable the poor to continually earn sufficient income so that their daily basic needs are fulfilled. In line with this objective, most of the developing countries of the world started programs of rural credit to develop their agriculture sector soon after World War second. The plan was to provide farmers with cheap credit so that modern cultivation, with promising positive externalities, is encouraged. The policy, although a good one, failed to deliver (Imai *et al*, 2010) and efforts of cheap rural credit ceased afterwards till the discovery of Grameen Bank and its micro credit.

Before the advent of Grameen Bank, poor communities were considered un-bankable because they lacked the compulsory collateral requirements which conventional banks need in return of advancing credit. In the absence of formal financial service providers, poor people sought to borrow from relatives and friends, local traders, money lenders and some other well off people of the community (Armendariz & Morduch, 2010) but their resources remained limited and is a major source of exploitation of the rural poor as well (Bateman, 2010). Microfinance is sought to be the solution that, on one hand, provides the much needed credit to the rural poor (Miyashita, 2000) and on the other hand, releases them from the exploitation which the local money lenders are capable to practice. It was believed that most of the less developed areas have indigenous potential (i.e. their human capital) to break the vicious circle of poverty (Sievers & Vandenberg, 2007; Hulme & Mosley, 1996; Imai, *et al.*, 2010) but all they need is microcredit (Dunford, 2001; Littlefield *et al.*, 2003; Armendariz & Morduch, 2010) at affordable rates.

The idea behind the role of microcredit to alleviate poverty is simple. Economic theory tells us that the receipt of micro credit, like any other income transfer, should definitely increase income and consumption (Morduch, 1999) but there would be two counterbalancing effects i.e. income and substitution effects on the labor supply. Empirical research has shown that the substitution

effect dominates income effect at lower levels of income and hence labor should also become more attractive (Sharp *et al.*, 2012). Thus, the initial expectations from microfinance were to increase income and consumption of the poor; to make their labor more productive; and to reduce their vulnerability to adverse shocks as well (Sievers & Vandenberg, 2007). A number of more positives such as better education, health and housing, women empowerment and the likes are also expected to improve with the provision of microcredit (Hermes & Lensink, 2011).

Enough time has elapsed since the first micro loan was extended by Muhammad Younas in Bangladesh and enough replications and extensions are being seen of the Grameen Bank model around the world. But where we stand now? Had there been any visible improvements made in the living standards of the Third World poor or microfinance was and is an exercise in futile? Initial research findings, in this regard, were very encouraging (e.g. Mosley & Hulme, 1998, Morduch, 1999, Morduch & Haley, 2002, Robinson, 2001, Imai *et al.*, 2012) but skepticism increased with the passage of time and further research (e.g. Goetz & Gupta, 1996; Scully, 2004, Simanowitz, 2002, Hulme & Mosley, 1996; Marr, 2004, Kirkpatrick & Maimbo, 2002; Mosley, 2001, Bateman, 2010; Hermes & Lensink, 2011). Interestingly, most of the success stories relates to the old poverty lending approach of microfinance, while most of the discomfort originates with the new financial system approach to microfinance. With this observation in mind, this paper is an attempt to outline how microcredit can help alleviate poverty and which approach, i.e. the old poverty lending approach or the new financial system approach, is more likely to achieve the goal of poverty alleviation. The rest of the paper is organized in three sections. Section two, starts with a brief introduction to the two approaches to microfinance, presents and solves our basic theoretical model. Section three evaluates the implications of the two approaches to poverty alleviation through the lenses of our model. Section four concludes with some policy recommendations for the stake holders.

## **2. Theoretical Model**

Since its inception, two types of microfinance institutions (MFI) have been operational. The first type, very much Grameen Bank inspired, followed the poverty lending approach that championed providing credit to the rural poor at concessional rates and without the conventional collateral requirements (Arun, 2005). MFIs in this type of lending relied heavily on grants and subsidies, which are not reliable sources of funds availability. Hence sustainability of such

institutions raised serious concerns amongst the stake holders. Thus, to make MFIS sustainable, the new financial system approach was introduced in the early 1990s. The hallmark of this new approach is that it follows the usual banking practices except that the collateral mechanism is adopted from the old approach. The major difference between the two approaches centers on the rate of interest being charged from the clients, i.e. the new approach considers providing credit to the poor as the solution to eradicating poverty, no matter how high interest is charged, while the old approach believes on cheap availability of credit to facilitate poor out of their poverty trap. The higher interest rate makes the MFIs more likely to be sustainable but its impact on poverty alleviation is in shadows until now.

With this background, let us show that how tiny loans like microfinance would help the rural poor. Our criteria for evaluation should be increased income, consumption and production but this automatically translates into better education, health, self esteem and the likes as well.

Consider a rational consumer with convex and monotone preferences who consumes  $L = 1, 2, 3, \dots, n$  commodities, denoted by a consumption vector  $\mathbf{x}$ , and has a continuous utility function given by

$$U = U(\mathbf{x}) \quad (1)$$

We assume no inheritance or any other sources of income of the individual and thus his consumption is constrained by the maximum income he produces. Thus, the utility of the individual is constrained by his production function given by

$$\mathbf{y} \leq \mathbf{p} \cdot \mathbf{z} \quad (2)$$

Where  $\mathbf{z}$ , in the constraint set, is the input vector (such as land and labor) which the individual uses to produce output/income  $\mathbf{y}$ , and  $\mathbf{p}$  is the price vector that he has to pay to acquire inputs. Thus, this individual's problem is to maximize  $U = U(\mathbf{x})$  subject to the constraint that he can consume the maximum which he produces himself; i.e.  $\mathbf{y} \leq \mathbf{p} \cdot \mathbf{z}$ . The constraint set, in a sense, is the budget set of our hypothetical consumer because his consumption cannot exceed his production. Thus, we may write the constraint set as  $g(\mathbf{p}, \mathbf{y})$  and call it the budget set of the consumer. This problem can now be stated as;

$$Max\{U(\mathbf{x}): \mathbf{x} \in g(\mathbf{p}, \mathbf{y})\} \quad (3)$$

Invoking the Weierstrass extreme value theorem (Intrilligator, 2002) the above maximization problem has a solution if the constraint set is compact and the utility function is continuous. For compactness of  $g(\mathbf{p}, \mathbf{y})$ , we will have to show that  $g(\mathbf{p}, \mathbf{y})$  is both closed and bounded. A real valued set  $S$  is closed if it contains all its boundary points (Simon & Blume, 1994) and is bounded if there exist real numbers  $k$  and  $\hat{k}$  such that  $k \geq s$  and  $\hat{k} \leq s$  for all  $s \in S$  (Simon & Blume, 1994). The fact that input prices cannot be negative (i.e.  $\mathbf{p} \geq 0$ ) and that no one can produce something out of nothing implies that the constraint set is both closed and bounded and hence, is a compact set. Since  $U(\mathbf{x})$  is a continuous function by assumption, it follows that the above maximization problem has a solution (not necessarily unique). The solution set is given by;

$$\{\mathbf{x}^* \in g(\mathbf{p}, \mathbf{y}) : u(\mathbf{x}^*) \geq u(\mathbf{x}) \text{ for all } \mathbf{x} \in g(\mathbf{p}, \mathbf{y})\} \quad (4)$$

Explicit in this formulation is the fact that our hypothetical individual chooses the optimal input bundle first, given his resources and input prices, so that output/income is produced at the minimum possible cost and then the earned income is consumed optimally to choose  $\mathbf{x}^*$  amongst the affordable consumption bundles. This is exactly what implied by equation (4).

The maximum value function, known as the indirect utility function, associated with the problem specified in equation (3) can be stated as (it is also guaranteed to exist by the continuity of  $U(\mathbf{x})$  function) (see Jehle & Reny, 2011);

$$V(\mathbf{p}, \mathbf{y}) = \text{Max}\{U(\mathbf{x}) : \mathbf{x} \in g(\mathbf{p}, \mathbf{y})\} \quad (5)$$

One of the properties of the indirect utility function specified in equation (5), is that if  $U(\mathbf{x})$  is continuous and represents locally non satiated preference relation, then  $V(\mathbf{p}, \mathbf{y})$  is strictly increasing in income (i.e.  $\mathbf{y}$ ) and non-increasing in prices (Mas-Colell et al., 1995). The implications of this property on the welfare of the consumer are straight forward; that is any relaxation of the consumer's budget constraint can never cause the maximum level of achievable utility to decrease and any tightening of the budget constraint can never cause utility to increase.

### 3. Implications of the model

The result derived in equation (5) and its associated property has two very important implications for antipoverty interventions like microfinance. The first part of the property says that any intervention which increases income would always increase the welfare of the consumer. The

constraint set can be relaxed in a number of ways. For example, if the individual has only his raw labor time as an input to produce things, then training and skill provision can enhance his productivity and hence relax the constraint set. A conventional farmer who only applies the primitive techniques for cultivation can gain in terms of production if necessary capital is provided to modernize his farming. A person who produces raw material or intermediate goods due to non availability of processing resources can be enabled to produce finished goods if resources are being provided. In all of these cases, the increase in income of the consumer should translate into better living conditions and a sustainable exit from poverty trap. But all these changes need money which the profit seeking financial institutions will never provide at affordable rates (as such institutions will internalize all the cost associated with banking with the un-bankable) and hence leaves room for antipoverty interventions such as microfinance.

The second part of the property says that utility is non-increasing in prices. This is a very interesting result because most of the proponents of the so-called financial system approach claim the interest insensitivity of microloans (Ghate 1992; Mustafa *et al.*, 2000; Miyashita, 2000; Morduch, 2000; Helms & Reille, 2004). This can be true, according to the property, in only two situations. The first case has to do with corner solution, i.e. the case where the consumer avoids taking loan completely which amounts to no intervention at all. The second possibility is that microloans, in reality, are interest insensitive (i.e. a giffen good) as far as participation of the poor is concerned but would definitely decrease the welfare of the consumer. Clearly, both the scenarios are unacceptable if the intervention is really meant for poverty reduction.

Let suppose, for the time being, that microloans are really interest insensitive; one of the building blocks upon which the old poverty alleviating microcredit intervention is abandoned and the new wave adopted. Abandoning the old subsidized microcredit in favor of the new wave definitely involves charging a higher interest rate from the clients. Doing so, as the proponents of the new wave claim, would not cause MFIs to lose clients. Rather adopting the new financial system approach would enable MFIs to advance more loans than before. This is exactly the case with the giffen goods. Theory suggests that giffen goods are likely to be found in impoverished areas especially where there are very limited substitution possibilities for the good under consideration (Jenson & Miller, 2008a). Thus, accepting that microloans are interest insensitive is tantamount to accepting that microloan is a giffen commodity. However, the very definition of a giffen commodity implies that a rise in its price (interest rate in our case) would cause consumers to

shift their budgets from other expenditure to purchase the giffen commodity (Jensen & Miller, 2008b). In case of microcredit, charging a higher interest would imply, and accepting that microloan is a giffen good, that people would cut on other expenditure such as food, clothing, shelter, education, health and the likes to pay back the principle and the mark up. Would it make sense to call such an intervention antipoverty? Clearly not.

Let us take another view of the above analysis. Consider equation (5) and its two associated properties that; any relaxation of the budget constraint will never reduce consumer's utility (call it the income augmenting effect of microcredit) and any tightening of the budget constraint can never cause the utility to increase (call it the budget tightening effect of higher interest rate). In this view, the current practices of microcredit institutions have two counter balancing effects on individual's welfare; i.e. the income augmenting effect which results from getting microcredit and budget tightening effect which results from the higher interest rate. Whether the net welfare effect of these practices is positive or negative depends on the relative magnitude of the two types of effects. Although, this is largely an empirical issue, the current practice (the financial system approach) implicitly assumes that the income augmenting effect is greater than the budget tightening effect. The economic principle that is sought, by the proponents of the financial system approach, to support this assumption are the so called Inada (1964) conditions.

The Inada conditions state that “the marginal product of capital is very large when the capital stock is sufficiently small and that it becomes very small as the capital stock becomes large” (Romer, 1996: 9). In the context of current practices of microcredit, these conditions imply that small businesses (characterized by small capital holdings) should produce more from any given increment in their capital than big businesses (characterized by large capital holdings). Thus, so goes the argument, it is perfectly reasonable to charge a higher interest rate for micro loans. While the principle is correct, its application is quite wrong here (Morduch, 2000; Armendariz & Morduch, 2010). The applicability of the Inada conditions to microcredit rest on so many assumptions (Morduch, 2000) which are not likely to hold in poor communities. Thus, there is every reason to believe that the budget tightening effect is greater than the income augmenting effect of the current practices of MFI's.

#### **4. Conclusion and Recommendations**

Microfinance, by now, is a relatively old concept but researchers are still vary of its impact on poverty reduction. To be objective, it seems that the difference in opinion stems from the fact that various donor agencies and multilateral financial institutions wish to replace the old poverty reduction approach by the new financial system approach. As we have shown, the neo classical optimization model has clear-cut implications for the impact of microloans on poverty reduction i.e. microcredit can potentially enhance the productivity of each factor of production and hence, can increase the consumption boundaries for the poor masses. There is, and needs not be, any difference of opinion in this regard.

The major difference in opinion, between the old and new approaches of microfinance, centers on the rate of interest which an MFI should charge from its clients. The old microfinance model is based on the idea that MFIs should be provided grants and subsidies to provide them with lifeline for greater outreach at minimum cost. The new wave sees inefficiencies in the subsidized credit (Morduch, 1999 & 2000; Miyashita, 2000) and stresses on the sustainability aspects of the MFIs. Hence, the new wave advocates market based or even a mark-up above the market based rate of interest. While the logic behind cheap credit, advocated by the old model, is more philanthropic and less backed by rigorous economic theory, the new wave claims that charging a higher rate is what the principles of economics suggest. Our findings, however, suggest otherwise.

The neoclassical utility maximization model implies that household utility can never be enhanced by charging a higher price for microloans and hence, the claim that microloans are interest insensitive cannot be true unless we either accept zero demand for microcredit or that microcredit is a giffen commodity. The first scenario could not be the case as millions of people around the world do approach MFIs and take loans for various purposes. Then, we will have to accept that microloans belong to the category of giffen commodities and theory may not refute this conclusion as well. Once we accept microloans in the category of giffen commodities, we come across another strong theoretical justification for providing cheap microcredit to the poor.

This is so, because by definition, giffen commodity is the commodity that the poor cannot do without it and if its price is raised; poor people will reshuffle their expenditure to make room for a greater consumption of the giffen commodity. What other expenditure of the poor are likely to be effected if a higher interest rate is charged on microloans? Definitely some of the subsistence

food, shelter, health and education will be suffered. Consequently, this impact of microcredit would hardly be acceptable to any one, as it implies making poor even poorer.

To be objective about the market economy, the benefits that market economy carries with itself can hardly be denied. However, there are always some grey areas where market cannot be trusted and microfinance is one of those grey areas which if left to the market, would produce catastrophic results. Enough evidence has been found and serious arguments accumulated that poverty and some of the most undesirables, e.g. crime and terrorism, are strongly associated with each other. This is one kind of externality that private markets will never consider in its cost benefit analysis while extending credit to the poor. Naturally, the state and the donor agencies has a role to play in this regard and interest rate subsidies are a valuable option (Jensen & Miller, 2008b; Armendariz & Morduch, 2010) to provide cheap credit to the poor. We do acknowledge the huge volume of literature on the negative consequences of subsidized microcredit (Morduch, 1999 & 2000; Miyashita, 2000) but we also know that market is not the solution. Moreover, the policy of subsidized microcredit has nothing inherently wrong in it but problems on the execution side make these worse. There will always be some efforts needed on the execution side to get the desirable consequences even from the best of economic policies. Subsidized microcredit is not an exception in this regard.

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