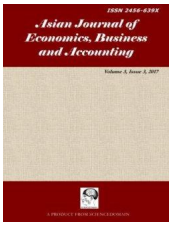

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The Paradox of Poverty Reduction in Ethiopia: Are Microfinance Institutions Really Pro-poor?

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Financial investment is one of development interventions to improve per capita income and consumption of the urban population. This study evaluates whether Adiss Credit and Saving Institution (ADCSI) as a microfinance institution is pro-poor and identifying determinants of borrowing credit. The study employed primary data collected from 108 clients and 108 non clients selected using three stage cluster sampling. Propensity Score Matching (PSM) and Tobit model were used to evaluate the impact of ADCSI on poverty reduction and to identify determinants of borrowing fund respectively. The Average Treatment effect of Treated (ATT) indicates significant welfare difference between clients and non-clients in terms of consumption expenditure. Although the positive welfare impact of microfinance institutions, they are mostly out of the reach of the poor for the reason that credit is limited to those who own residential houses and earnings. Hence, repositioning the financial industry towards pro-poor institutions through minimising collateral related hindrances, supervising borrowed fund to be invested on production activities, and equitable financial service targeting for unemployed youths for creating job opportunities are suggested financial policy options.

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1. INTRODUCTION

African countries are enjoying positive economic trends since the mid-1990s, during which higher economic growth has been registered, become widespread and robust over time. Despite the positive momentum in the economic performance of nations, Africa's development challenges remain formidable [1].

One of the most stylized facts of developing economies is that formal financial institutions leave the poorest population tightly constrained in their access to financial services [2]. It is widely recognised that economic progress relies largely on access to financial services such as savings, insurance, and credit. Paradoxically, formal financial institutions mostly fail to provide financial services (credit, savings, and insurance) for the large majority of the poor population with low income as a strategy to forge ahead poverty reduction [2]. Microfinance institutions (MFIs) can have considerable diversity in their ability to reach poor populations as part of the poverty reduction program. But, excellent financial performance does not imply excellence in outreach to poor households [3].

Growth, poverty and inequality are getting sensitive in Ethiopia due to the lack of accurate information [4] and the incidence of poverty remains a critical issue in most African countries. The growth of small enterprises and improvements in the majority of Africa's poor is hampered by their limited access to formal financial services, such as deposit and credit facilities and other financial services. This has attracted interest in mainstreaming microfinance as a strategy to increase the poor's access and use of financial services [1]. Poverty is a syndrome that is affecting the developing countries and especially in Sub-Saharan Africa [5]. Recently, policymakers and academicians paid a lot of attention to the concept of microfinance. It is considered a flourishing approach for development and has a significant policy proposition concerning poverty reduction, income allocation and attainment of related goals.

Ethiopia is experiencing strong economic growth in recent years. Since 2003/04, the country's real GDP outperforms and grows much faster than other African countries [6]. Despite substantial overall progress in Ethiopia, significant room remains for further poverty reduction. More than 30% of the population still lives under the poverty line ($1.25 per day purchasing power parity adjusted) and the share of economically active population excluded from participation in income earning economic activity is around 25% [7]. Poverty and food insecurity are the main challenges and fundamental issues of economic development in Ethiopia [8]. Microfinance institutions are deemed necessary to target against vicious circle of poverty in rural and urban areas where many people are trapped under absolute poverty line [9,10] given that they continually restructure their functioning towards avoiding challenges of financial sector hindering to reach the poor [11]. Unemployment and poverty levels in Addis Ababa remain high, estimated at 23.5% and 22% respectively. More than one in four households report an unemployed adult compared to one in ten households in other urban areas, and the informal sector employs about 30% of the economically active labour force in the city [12]. Housing microfinance loan products are provided as a strategy for sustainable housing poverty reduction for urban poor in Addis Ababa [13].

A number of previous studies have been extensively studied and, in one way or another, they indicate the positive impact of financial services on different welfare indicators ranging from social to economic development in urban and rural areas [14,15,16,17,18,19]. Notwithstanding the contribution of previous works to existing literature, they leave the open key policy-relevant question whether financial institutions are pro-poor (accessible for majority of the poorest households) deemed required to improve policy and practice. This study is, therefore, going beyond impact analysis to fill in such knowledge gap by giving detail analysis on what determines borrowing from financial institutions with special emphasis on ADCSI for evidence based intervention to revisit financial and poverty reduction policies in urban areas of the country.

2. RESEARCH METHODOLOGY

2.1 Study Area and Sampling Method

The study is done in Addis Ababa to ascertain whether the financial industry in the country is pro-poor. In doing so, three stage sampling

technique was used. First stage is purposive selection of Yeka sub city for its relative coverage of more branches in Addis Ababa. Secondly, from a total of 13 branches found within the sub-city, three branches were selected randomly. The third (last) stage was stratification of the population of three branches as clients and non-clients. In this study, clients are those households who have been customers of ADCSI while non-clients are those with no financial access from the institution. The rationale for selecting the two groups (clients and non-clients) from the same area is to minimise heterogeneity except credit access. The sample size was determined following Cochran test [20] for large populations to yield a representative sample for proportions as indicated in equation (1):

$$no = \frac{z^2 pq}{e^2} = \frac{(1.96)^2 * 0.1815 * 0.8185}{(0.05)^2} = 228 \quad (1)$$

Where, n_o = the sample size of clients & non-clients, P = proportion of clients/users, q = proportion of non-clients, z^2 the abscissa of the normal curve that cuts off an area α at the tails, and e = desired level of precision. Although the formula yields 228, only primary data of 216 samples was used because of non-response error from the remaining 12.

2.2 Data Analysis Method

To achieve study objectives, both descriptive analysis and econometric analysis were employed accordingly. Descriptive statistics were used to compare client and non-client households with respect to their poverty status. To analyse the impact of credit on poverty alleviation, Propensity Score Matching (PSM) Econometric model was used. In doing so, per capita consumption expenditure of households was used as a proxy to measure household poverty status. The last objective was addressed using Tobit model (equation 6) for it allows the intensity of credit borrowed by clients from ADCSI.

As indicated in many poverty analyses, three common procedures are used for the attainment of the first objective of the study. These are: defining the relevant welfare measuring approach, constructing the poverty line which is a cut-off point separating the poor from the non-poor, and lastly selecting poverty indicators to report for the whole sample households under consideration [21].

Despite the availability of the Food Energy Intake (FEI) approach to set poverty line, this study used the Cost of Basic Needs (CBN) method. This approach of poverty line determination is used for its ability to accommodate an estimate of cost of food and basic non-food requirements. Accordingly, food poverty line is constructed by valuing a basket of food items that meet the minimum energy requirement in kilo calories (kcal). The calorie contribution of the food items is adjusted to attain the 2,200 kcal/person/day energy requirement [22]. A basket of food items actually consumed by the households are recorded first. Actual consumption of the households is the sum of expenses on food items and expenses for non-food basics (clothing, education, transportation, health care) including social obligations and other miscellaneous expenses. Second, different units of local measurements are converted into a common measure for each food item. Third, the acquisition of each food item is converted to calories using the food composition table. Fourth, all food calories are added up and then converted to yearly amounts. Finally, the aggregate food calories are adjusted in the adult equivalent unit and all that is consumed is multiplied by local prices of acquiring them to estimate the food poverty line.

To account an allowance for non-food basic needs, non-food poverty line is determined using a simple linear regression developed by the World Bank to compute total poverty line [23] cited in [21].

$$S_i = \alpha + \beta \log\left(\frac{TE}{FPL}\right)_i + \varepsilon_i \quad (2)$$

Where, S_i = (FE/TE) = share of per adult food expenditure to total expenditure, TE = Total expenditure, FPL= Food poverty line, α & β represent food share and slope respectively, *i* = runs through the sample households 1 to n. Hence, $\frac{FPL}{\alpha}$ and $\frac{FPL(1-\alpha)}{\alpha}$ give total poverty line and non-food poverty line respectively.

After constructing poverty line using expenses of food and non-food basic needs [21], three poverty measures are identified following the procedures developed by Foster et al. [24], viz. the incidence of poverty (measured by the headcount index P_0), the depth of poverty (measured by poverty gap index P_1), and the severity of poverty (measured by the squared

poverty gap index P_2). The FGT index is formulated as:

$$P_\alpha = \frac{1}{N}\sum_{i=1}^{n}\left(\frac{z - xi}{z}\right)^\alpha \alpha = 0,1,2 \quad (3)$$

Where: P_α = poverty measure, Z = poverty line X_i = consumption expenditure level, N = Number of sample households, n = Number of the poor households, α = Weight given to severity of poverty (measure of sensitivity of the index to poverty).

To address impact analysis, two groups of households were compared to validate impact of credit for poverty alleviation. These groups are called client households (the treatment group) and non-client households (the control group). The non-client households are used as a comparison group to examine the impact of the ADCSI on client households in Yeka sub city. The outcome variable that was used for comparison, in this study is households' consumption expenditure per day per adult equivalent. The average change in the outcome variable is estimated using propensity score matching (PSM). Client households were matched with non-clients that are assumed to have same probability to participate in ADCSI.

The Average Treatment Effect of the i^{th} household (ATE^i) is the difference in households' consumption expenditure per day per adult equivalent can be expressed by: $Y_1^i - Y_0^i$ where, Y_1^i is the consumption expenditure of the i^{th} client household and Y_0^i the consumption expenditure per day per adult equivalent of the i^{th} non-client household [22]. Assuming D as household client status in ADCSI (D = 1 for client and D = 0 for non-client), the ATE^i in casual effect notion can be expressed as:

$$ATE^i = E(Y_1^i/D = 1) - E(Y_0^i/D = 0) \quad (4)$$

Where, $E(Y_1^i/D = 1)$ is the average consumption expenditure per day per adult equivalent for household with access to ADCSI and $E(Y_0^i/D = 0)$ is the average consumption expenditure per day per adult equivalent for household with no access to ADCSI. For sample households of the study area, the Average Effect of Treatment on the Treated (ATT) can be expressed as:

$$ATT = E(Y_1^i - Y_0^i/D = 1)$$
$$= E(Y_1^i/D = 1) - E(Y_0^i/D = 0) \quad (5)$$

One major challenge of impact evaluation is the difficulty to simultaneously observe household's consumption expenditure per day per adult equivalent with and without access to ADCSI. In other words, the participant households could be different from the non-participants in other attributes other than credit access, and this creates a fundamental problem of casual inference. For this reason, constructing the unobserved (counter factual) outcome is advisable. It is worthwhile to indicate that, the effectiveness of matching estimators for impact evaluation rests on assumption of common support and of conditional independence.

To identify financial policy relevant factors determining borrowing fund from the microfinance institution, Tobit model [25] as formulated in equation 6 is employed. Tobit model is appropriate for modelling both the probability of and intensity of borrowing fund which is censored at the lower limit of zero [26].

$$Y_i^* = \beta X_i + \varepsilon_{i,} \quad (6)$$

i = 1, 2…., N

$Y_i = Y_i^*$ if $Y_i^* > 0$

= 0 if $Y_i^* \leq 0$

Where, N is the number of observations, Y is the dependent variable (amount borrowed), X_i is the vector of the independent variable (client and related economic and demographic data), β is a vector of estimable parameters, and ε_i is a normally and independently distributed error term with zero mean and constant variance σ^2.

3. RESULTS AND DISCUSSION

3.1 Magnitude of Urban Poverty

The CBN approach of setting absolute poverty line was used and the estimated poverty line was found to be ETB 13,019.04 per capita per year. Results of the FGT poverty index revealed that about 44% of the sample households live below poverty line with 11% and 3.8% poverty gap and poverty severity respectively.

Table 1. Poverty indices of sample households

Poverty index	Index value
Poverty head count index (P_o)	0.44
Poverty gap/depth index (P_1)	0.11
Poverty severity index (P_2)	0.038

Source: Own computation (2017)

Table 1 indicates that 44% of the sample households in the study area live below poverty line i.e. this proportion of the sample households are unable to attain the predetermined minimum calorie requirement (2,200 kcal per capita per day). They were unable to fulfill the minimum amount of consumption expenditure of 13,019.04 ETB (Ethiopian Birr) per capita per year and they live under absolute poverty. Besides, the poverty gap index (p_1) which captures the extent or level of mean aggregate consumption shortfall relative to the poverty line across the whole sample households is found to be 11% of the poverty line (1,432 ETB) per poor household to exit from poverty. This means 75,896 ETB is needed to lift up all poor households out of poverty.

Indeed, poverty gap is the amount of income transfer needed to close up the average gap or distance separating the poor from the poverty line [21]. It helps policy makers and welfare planners towards planning the minimum cost required to lift more households out of poverty trap while the severity of poverty (P2) will shed light on how severe is consumption expenditure in urban areas which is 38 % fall below the threshold line.

3.2 Impact of Microfinance on Poverty Reduction

The contribution of ADCSI to poverty reduction shows a statistically significant mean annual consumption expenditure difference of 474.57 Birr (16% of the increase in annual consumption expenditure). Clients enjoy annual consumption expenditure of 3486.97 Birr compared with spending of non-clients which stands at 3012.40 Birr (Table 2). ADCSI as a microfinance institution make significant welfare difference between clients and non-clients attributed to accessing credit from this institution.

3.3 Determinants of Borrowing Fund (Credit)

A household who earn from other sources of income significantly increases the amount of credit borrowed (Table 3). The justification behind the result was that households earning from other sources of income (other than monthly salary) may pledge their income for collateral to borrow high amount of credit than others who have few or no other source of income. Occupation significantly and negatively associated with the amount of credit borrowed. This implies that households who had formal occupation needless amount of credit than those households who have no formal occupation. House ownership is also positively associated with the amount of credit borrowed. The result is justifiable that they may devote their residential house as collateral to easily secure credit from ADCSI.

Table 2. Impact of ADCSI on poverty reduction

Variable	Sample	Treated	Control	Difference	S.E	T-statistics
Consumption	Unmatched	3327.64	3012.40	315.24	256.32	1.230
	ATT	3486.97	3012.40	474.57	236.75	2.001

Source: Own Computation (2017)

Table 3. Determinants of borrowing fund (Credit)

Borrowing fund	Coef.	Std. Err.	P>t
Age	-1394.41	874.45	0.118
Sex	7478.72	13915.27	0.594
Education Status	9095.56	9438.03	0.340
Marital Status	52.75	8385.31	0.995
Family Size	4119.60	4507.23	0.365
Occupation	-35180.14	19581.60	0.079*
Monthly Salary	2.33	1.52	0.132
House Ownership	25076.15	12729.01	0.049**
Other Income Sources	24690.31	13557.29	0.075*
_cons	33133.41	55174.04	0.551

*** and * Denote significance at 5% and 10% significance level respectively.*
Source: Own computation (2017)

4. CONCLUSION AND POLICY SUGGESTIONS

Based on the findings, borrowing capital from microfinance institutions increases consumption per capita of urban households. In that sense, more urban poor households can exit poverty given that hindrances of borrowing fund are restructured through fiscal policy adjustments across financial institutions tailored towards easy financial service provision for households with low income. Owning a residential house and earning income from other sources are positively and significantly determining the decision and amount of borrowing fund by urban households from microfinance institutions while occupation did negatively. This clearly indicates getting the required fund from the institution needs households to pass lengthy bureaucratic procedures like ensuring collateral in the form of cash or legally registered property.

Beyond impact analysis of microfinance institutions for poverty reduction, focusing on what determines borrowing a given amount of credit from institutions is worth policy debate to reposition microfinance institutions towards accessible for all. Instead of tight fiscal policies, relaxing financial policy implementations are demanding. For instance, only households who have formal occupation need less amount of fund or credit than those who have no formal occupation. Selective targeting for urban households who are living with more unemployed youth family members is important towards facilitating opportunities for job creation. Similarly, due to difficulty of collateral reasons, only those who own residential house and earnings from other income sources can secure fund compared with those having nothing. Because, households who have no resident house will never borrow fund if they have no other permanent property or income sources. This calls for both the government and microfinance institutions to work more cooperatively towards minimizing fiscal hindrances while innovating and expanding many alternatives for poor individuals to access credit service.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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