Accessing finance for productive employment opportunities in rural Benin

RESEARCH PROPOSAL

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1. **Abstract**

What finance scheme is more appropriate for what productive employment for economic agents in rural Benin and particularly women? In this study, we ask whether own finance driven self-employment activities are more profitable than microcredit driven self-employment activities in rural Benin. Although the importance of rural entrepreneurship for poverty reduction is acknowledged, little is known on how and to what extent access to finance brings about sustainable employment opportunities for people in rural Benin and particularly women. The question remains whether and how these entrepreneurship activities are sustainable enough to promote rural development. We assess the (differential) effect of accessing microcredit (versus self financing) as a source of financing rural women and men’s generating income activities on the performance of these activities. We also estimate the heterogeneous effects using the framework of the generalized structural equation model and the potential outcome framework. We use data from the 2011 multi-topic household survey titled "Plans Fonciers Ruraux Impact Evaluation 2011, Baseline Survey", nationally representative of the rural areas in Benin with 3,507 households interviewed. The main particularity of this survey is that it focused exclusively on the rural area and thus contains a detailed set of questions as revealed by the extensive 58-pages length household questionnaire.

2. **Main research questions**

An important share of rural people in Africa engaged in self-employment through the creation and the management of small businesses (Fox & Sohnesen, 2012). Most of these businesses are very small and involve majorly women that are not otherwise skills and opportunities to get employed in decent salaried work. It is generally acknowledged that increasing self-employment opportunities in rural areas and particularly for women is seen as a way to promote their empowerment and decision making and thus to improve their family’s welfare (Sraboni, Malapit, Quisumbing & Ahmed, 2014).

Micro-entrepreneurial activities in the form of self-employment in rural areas evolve however in a context of resource constraints. The lack of finance is one important factor that inhibits the ability of rural people to create micro-enterprises, to manage them and to enhance their performance (Nagler & Naudé, 2017). Making finance accessible to this target, and particularly rural women through microcredit related policies is the more often advocated intervention among many others (Islam et al., 2016).

There is evidence showing the importance of entrepreneurship driven by microcredit, in Sub-Saharan Africa, for growth and livelihoods (Fox & Sohnesen, 2012; Shehu & Sidique, 2014; Hoang, Pham & Ulubasoglu, 2014). Yet there is also a concern that these small businesses in Africa are generally survivalist or necessity-driven micro-enterprises (Williams & Youssef, 2014). Although the importance of rural entrepreneurship for poverty reduction is acknowledged (Benjamin & Mbaye, 2012; McCaig & Pavcnik, 2015; Mhando & Kiggundu, 2018), the question remains whether and how these entrepreneurship activities are sustainable enough to promote rural development. As
The role of women entrepreneurs is widely recognized as critical engines of growth, there is advocacy for designing adequate policies to facilitate their involvement into higher-productivity activities (Cirera & Qasim al., 2014).

The main research question we ask in this proposal is: What finance scheme is more appropriate for what productive employment for rural women and men in Benin? In other words, we ask whether own finance driven self-employment activities are more profitable than microcredit driven self-employment activities? Are they productive employment in agricultural related activities (such as the transformation of agricultural products) or in non farm sectors (such as small trading)? Women and men entrepreneurial success may depend on the types of finance for running micro-enterprises. People who are risk adverse would likely manage enterprises based on its own finance, for example through saving or other informal sources, in contrary to microcredit driven enterprises which are subjected to the interest rate and credit amount conditions.

It has been reported that while there is no difference in the use of personal finance in their businesses, women are more reluctant than men to use institutional finance such as overdrafts, bank loans and supplier credit (Carter & Rosa, 1998; Coleman & Robb, 2009) and if so, they receive smaller loans than their male counterparts (Bardasi, Sabarwal & Terrell, 2011). Also, experimental evidence in rural Kenya has shown that providing basic saving services (non interest-bearing bank accounts) alone helps increase business investment for self-employed women in trading, compared to self-employed men in the transport sector (Dupas & Robinson 2013). Clearly, gender differences are likely in accessing finance and in performing small business, depending on the types of finance and sectors of activity.

In this study, we evaluate the (differential) effects of accessing microcredit (versus self financing) as a source of financing generating income activities on the performance of these activities in rural Benin. We estimate the heterogeneous effects in terms of gender and sectors of employment activity. We also estimate the heterogeneous effects in terms of age (younger/older) and education level, as it has been found that education is relevant for the success of female-owned enterprises (Chirwa, 2008).

3. **Main contributions**

Most studies in the literature have addressed the issue of financial inclusion and entrepreneurship in a gender perspective. Research results are however mixed and little is known on how and to what extent access to finance brings about sustainable employment opportunities for rural active people, in particularly women. We add to the literature by analysing the question of rural employment and access to finance in Benin, in a more disaggregated way: gender, type of
finance and types of employment activities. In terms of financial inclusion, we analyse the relative importance of two immediate-related types of finance having a potential to be easily accessible for rural women and men: that is self financing (implicitly through saving) and credit through microfinance. We also analyse as regards to these two types of finance which sectors of rural employment are more profitable or productive in terms of micro-enterprises performance. The mixed effect of financial inclusion on micro-enterprises performance found in the literature may be explained by several factors including the heterogeneity in access of finance and also by sectors of employment activities.

Our contribution is twofold. First, we are aware of the recent study of Djossou, Atchade and Novignon (2019) that assessed the role of microcredit on youth entrepreneurship’s performance in Benin. We add to the authors’ work in the following way. Djossou et al. (2019) considered differently as treatment variable, either formal credit from banks and microfinance institutions, informal credit and family credit, estimating thereby the effect of one type of credit relatively to the two others. We explicitly consider in our study the effect of the form of formal credit stemming only from microfinance institutions, which we compare to the effects of self financing. In addition, the sample used by Djossou et al. (2019) was not representative at the national level and is biased towards youth women and men in the urban area, mostly in one large city of Benin. Contrary, we focus on the implication of specific forms of financial inclusion on entrepreneurship in the rural area and use a representative sample of rural women and men owning micro-enterprises in the form of income generating activities.

We consider the profitability of these self employment activities additionally to the level of sales, as measured by Djossou and al. (2019) and we differentiate between employment in the farm and non farm sectors. DuRietz and Henrekson (2000) provide evidence, using a sample of swedish entrepreneurs, that women entrepreneurs tend to underperform relative to men when the data is examined at the most aggregate level. A disaggregation in terms of industry, size of firm and sector reveals that women underperform only for sales and no gender difference is found for profitability.

Secondly, the answers of our research questions will be very informative for the Government of Benin that created in 2006 the national fund of microfinance (FNM) to reinforce the financial and operational capacities of microfinance institutions for making accessible to the target population, financial services required for the development of growth enhancing activities. Among the services offered by the FNM, is the microcredit program to the poorest (MCP) in order to render the poor and particularly women autonomous through microcredit activities for entrepreneurship and saving products. There is also a program on financing agricultural related activities in rural areas at an interest rate different to that of MCPP. The MCPP has evolved throughout years and
became recently in 2018 the mobile microcredit allowing potential beneficiaries to have access to credit by mobile and including literacy and micro-insurance as additional new products. This innovation is, among others, a response of the government to avoid unpaid credits observed in many beneficiaries of the former MCPP.

In this context, policy makers that aim to increase the participation of rural women and men in sustainable income generating activities through financial inclusion may want to know what type of finance to promote while taking into account the reality of gender disparities in the rural area. For a better management and efficient allocation of limited funds available, they may want to know whether to promote self finance driven profitable employment opportunities through saving or whether to provide microcredit for specific profitable sectors of self employment activities. The 2017 AGVSA data show that about 26.3% of households in Benin finance their income generating activities with funds from friends and family (57%), tontines (27%) and loans granted by banks and micro-credit institutions (29%). While cumulative percentages of informal sources of funds are more important than the one of formal sources, they may not however as effective in generating sustainable employment opportunities.

4. Literature review

People in rural areas face many challenges such as resources constraints confining them into unproductive or low-yielding activities (United Nations, 2014). As regards to the financial market in particular, the impossibility to have access to credit on attractive terms in order to invest in income generating activities, the difficulties of access to adapted savings instruments and the difficulty of using land titles as a guarantee constitute among other obstacles faced by rural women (ILO, 2008). In the context of the failure to financing rural activities, new financing systems have developed such as microfinance programs (credit, savings, micro-insurance, leasing) (ILO, 2008). Yet, despite the significant growth experienced by the microfinance sector in recent years, access to finance in developing countries is still subject to disparities and is still a major problem (Guerin et al., 2007, Kacem and Zouaril, 2013). Geographical (low population density, remote from urban centers, with agriculture related activities), sectoral and economic specificities of rural areas make rural financing difficult, expensive, risky and lead to reticence in the ranks of Microfinance Institutions (MFIs) (Lesaffre, 2000, Lapenu, 2008, Morvant-Roux et al., 2010).

The existence of potential credit risks (recovery, liquidity and interest rates, management and governance) induces MFIs to be cautious about financing the rural sector, leading them to adopt risk-minimizing measures such as reducing the amount of credit allocated, concentrating on short-term credit, and diversifying the loan portfolio (Diagne and Zeller, 2001; Niyongabo, 2008;
Given the financial realities of the rural environment, these measures can induce MFIs to offer products and services that may not suit the real needs of financing agriculture or income-generating activities, leading thus to different or less efficient investments behavior, and particularly for women. In assessing the performance of female and male-owned businesses in United States, it has been found that women-owned businesses size is linked directly to the resources that their control (Carter & Allen, 1997) and that women are less successful than men due to less startup capital (Fairlie & Robb, 2009).

The question of the appropriate financing scheme for productive employment or businesses is addressed in different study contexts in the literature. For example, using a field experiment in India, Field and al. (2013) assessed the relation between microfinance lending flexibility and high-return investments behaviors of the poor. The authors found that microcredit that requires early repayment prevents illiquid risky investment and thus limits the potential impact of microfinance on micro-enterprise growth. Dupas and Robison (2013) asked whether limited access to formal saving services impede business growth in rural Kenya. Using a randomized field experiment, they found that self-employed women in trading and having access to noninterest-bearing bank accounts, were able to save more and increase their productive investment in their business compared to self-employed men in the transport sector. In a field experiment, Amponsah (2016) evaluated which of a locked savings-loan product or an unlocked savings-loan product leads to better productivity and growth outcomes for female-led micro enterprises in Ghana. The authors found that the locked/asset loan is a more attractive product for business owners. Evidence from a randomized field experiment in rural Mongolia showed that access to group loan increases female entrepreneurship but no difference in repayment rates between individual-liability microcredit and joint-liability microcredit (Attanasio et al., 2015).

We add to this strand of literature by answering the question of whether (and what) self finance driven employment opportunities are more or less profitable than microcredit driven employment opportunities for rural women and men in Benin. As stated above, gender differences may exist both in accessing finance and in performing small business in the rural areas, depending on the types of finance and sectors of activity. There is evidence that men use larger amounts of capital than women on starting their business and that lower initial finance is negatively related to business performance (Carter & Rosa, 1998). Exploring nascent firms in the United States, Coleman and Kariv (2013) found that female and male entrepreneurs use different financial strategies; that financial strategies have an impact on performance, and that female and male-owned firms differ in terms of performance in the later years of the life cycle. Bardasi, Sabarwal and Terrell (2001) found significant gender differences between male- and female-owned firms in terms of
performance in Sub-Saharan Africa and in Eastern Europe and Central Asia, and that female entrepreneurs access smaller loans than their male counterparts. Sabarwal and Terrell (2008) show that female entrepreneurs in Eastern Europe and Central Asia are less efficient and have significantly smaller sales revenues than men entrepreneurs, although they generate the same amount of profit per unit of revenue.

Our analyses differ to most of studies that have assessed the effects of access to microcredit and the sources of the credit on microenterprises performance and found mixed results. For example, microcredit is found to have no impact on business investment in urban Philippines (Karlan and Zinman, 2010) and rural Thailand (Kaboski and Townsend, 2011), no impact in urban Kenya (Atandi and Wabwoba, 2013) and in Bosnia and Herzegovina (Augsburg et al., 2015) while microcredit impacts positively microenterprises performance in rural Morocco (Crepon et al., 2015), in Ivory Coast (Becho, 2017) and in urban Benin (Djossou et al., 2019). Contrary to these studies and particularly to the latter, we analyse, in a gender perspective, the heterogeneous impact of specific forms of financial inclusion on entrepreneurship in the rural area. In addition to the literature that examines only the heterogenous impact of types of finance in firms’ performance (Coleman & Kariv, 2013), we further assess the heterogenous impact in terms of types of income generating activities rural women and men are involved in.

5. Methodology

The decision of individual rural economic agent to take microcredit in order to run microenterprises is likely to be non-random. Potential endogeneity from taking a microcredit may bias estimated coefficients in a simple OLS regression if non-random programme placement and self-selection are ignored. For instance, the beneficiaries of the microcredit may be selected by the microfinance institutions according to some eligibility criteria or unobserved factors. In addition, the beneficiary’s choice of applying for the microcredit is likely to be guided by observables and also unobserved factors such as its ability in running small businesses or its motivation. In such cases, the decision for taking microcredit may depend on both observable and unobservable factors which are also correlated with the micro-enterprise performance.

Previous studies have used several methods of estimation to deal with the issue of endogeneity of taking microcredit. Although used differently, all these methods are instrumental variables methods. In this study, we account for the specific correlation structure between the unobservable factors affecting the firm performance and taking microcredit by using two different frameworks. We first use the framework of the generalized structural equation model (GSEM) by estimating the following equations (Rabe-Hesketh, Skrondal & Pickles, 2004):
Firm Performance\(_i\) = Microcredit\(_i\)\(\beta_1 + X_1\beta_2 + UC_i\delta + \epsilon_i\) \hspace{1cm} (1)

Microcredit\(_i\) = \begin{cases} 
1, & \text{if } Z'_i\alpha + UC_i + u_i > 0 \\
0 & \text{otherwise}
\end{cases} \hspace{1cm} (2)

where Microcredit\(_i\) is the binary endogenous (treatment) variable representing the access to finance through microcredit from institutions of microfinance, for a rural individual (i). Firm Performance\(_i\) is the outcome variable representing the performance of the micro-enterprises, \(X_1\) and \(Z_1\) are explanatory variables and \(\text{var}(UC_i) = 1\). \(\alpha, \beta_1, \beta_2\) and \(\delta\) are parameters to be estimated. We account for the correlation between the two equations by introducing in these equations, a common unobserved component (UC). We can then test endogeneity with the estimated parameter \(\delta\). The estimated parameter \(\beta_1\) is the marginal average effect of accessing microcredit on firm performance.

The second method we use for estimating the effect of accessing microcredit on performance relies on the following endogenous treatment-regression model or extended regression model (Cameron and Trivedi, 2005, p. 3):

\[
\text{Firm Performance}_{i1} = X'_i\beta_3 + \epsilon_{i1} \quad \text{if } \text{Microcredit}_{i} = 1 \\
\text{Firm Performance}_{i0} = X'_i\beta_4 + \epsilon_{i0} \quad \text{if } \text{Microcredit}_{i} = 0
\]

Microcredit\(_i\) = \begin{cases} 
1, & \text{if } Z'_i\alpha + u_i > 0 \\
0 & \text{otherwise}
\end{cases} \hspace{1cm} (5)

where explanatory variables and parameters are as indicated above. The outcome variable Firm Performance\(_i\) (Profitability) for every individual \(i\) is only observed in one state of the microcredit treatment and then takes either the value Firm Performance\(_{i1}\) or Firm Performance\(_{i0}\). Endogeneity is modelled through the correlation between the unobserved error terms that are normally bivariate with mean zero: \(\text{corr}(\epsilon, u) = \rho\). Evidence of endogenous treatment is found if \(\rho \neq 0\). Contrarily to the GSEM, the endogenous treatment-regression model (ETRM) is more flexible and can allow the estimation of separate coefficients of covariates \(X_i\) for the two groups of individuals – Treatment and control groups.

According to the potential outcome framework, we estimate two treatment effects for access to microcredit. The first is the average effect of the treatment on the treated (ATT):

\[
\text{ATT} = E(\text{Firm Performance}_{i1} - \text{Firm Performance}_{i0} | \text{Microcredit}_{i} = 1)
\]

\hspace{1cm} (6)
The second treatment effect is the average treatment effect among the whole population of the individual having access to rural microcredit (ATE):

\[ ATE = E(Firm\ Performance_{1t} - Firm\ Performance_{0t}) \quad (7) \]

In order to assess the heterogeneous effect of accessing finance through microcredit, we will run additionally the GSEM and the ETRM on separate samples for rural women and rural men and for the types of income generating activities. Using the ETRM, we are also able to extend our analysis by estimating the effects across groups of rural women and men in terms of age and education level. We will estimate thus the profiles of the average treatment effect among rural women and men that use effectively microcredit to finance their activities, for representative values of these covariates. We will do so among rural women and men that finance themselves their activities.

The control variables \( X \) are observable covariates that might affect individual decision making, namely individual, household and micro-enterprises characteristics, used in previous studies. In addition to all explanatory variables in \( X \), we will include in the vector \( Z \), some exclusion restrictions used in previous studies according to data availability. These instruments should not directly affect the performance of the micro-enterprises, except through accessing rural microcredit. Upon on the availability of data, potential instrumental variables are:

(a) related household/individual land ownership variables (Chowdhury & al., 2016). Land ownership may be used as a criteria eligibility or a warranty for accessing credit. Several modules of the questionnaire we will use are related to land issues and can be exploited at that end.

(b) microfinance availability as measured as the share of households/individuals that took microcredit in the community. Communities with greater access to microfinance loans are likely to have more households/individuals with microfinance loans (Sultakeev & al., 2018). The microfinance availability may be also proxied by communities’ variables indicating whether any source of credit exist in the villages and whether these sources offer credit in the village. We will use the “credit” module of the community questionnaire that includes questions related to the source of credit in the villages.

(c) the interest rate on credit line or the interest rate on loans, practiced by department or in the communities (Seck & al., 2015).

For the robustness check of our results, we will use the Lewbel’s method that constructs instruments by relying on the heteroscedasticity of the error term \( u \). These instruments are calculated as \( u \) multiplied by the difference between a set of the observed variables included in \( X \) and their sample average value (Lewbel, 2018a; 2018b).
6. Data requirements and sources

We use data from the 2011 multi-topic household survey titled "Plans Fonciers Ruraux Impact Evaluation 2011, Baseline Survey", available on the World Bank site: http://microdata.worldbank.org/index.php/catalog/2530. The survey is nationally representative of the rural areas in Benin, covering the entire range of Benin’s agro-climatic zones and nine of Benin’s twelve regions. 3,507 households were interviewed. The main particularity of this survey is that it focused exclusively on the rural area and thus contains a detailed set of questions as revealed by the extensive 58-pages length household questionnaire. These questions are related to basic demographics (household module), employment and enterprises, habitation, parcel land use, intra-household control of resources, agricultural production, women and men modules.

Of interest in our study, the part B of the household questionnaire informs on employment and enterprises that is, paid work and income generating activities (non salaried work or self employment) undertaken by each household member of age 6 and older, during the twelve months prior to the survey. This part of the household questionnaire contains information on finance accessibility, specifically the main source of finance for running the income generating activities. Contrarily to previous studies that include formal credit from banks, informal credit and family credit, we exclusively focus on the sample of self-financing individuals (control group) and the sample of individuals that have used credit only from micro finance institutions (treatment group).

The part B of the household questionnaire also informs on the related costs, revenue and benefit generated by the micro enterprises, allowing estimating the performance of the generating income activities (the outcome variable). As such the performance indicators we will use are (a) the value of sales from the generating income activities and (b) the profitability of these activities.

As additional indicators of performance, we may consider estimating the technical efficiency of the micro enterprises, using either stochastic frontier analysis (Theriault & Serra, 2014) or Data Envelopment Analysis (Seck & al., 2015) techniques.

The community questionnaire that was administered to a set of key respondents in each village contains detailed information on village-level demographics, infrastructures, social services, economic activities, mode of land acquisition, land market activity, conflicts and credit sections. Questions stemming from the community questionnaire may be used to generate instrumental variables.
7. References

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