

Is Product Diversification the Ultimate Quid Pro Quo* for Gender sensitive Poverty Alleviation?

Adverse Social Externalities from Combined Microfinance in Latin America and the Caribbean**

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* Translation from Latin: 'something for something'.

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Abstract

Documented deficiencies in traditional social transfer mechanisms have led to the emergence of alternative methods for reducing poverty. In many countries, microfinance institutions (MFIs) have become popular instruments for redistributive pro-poor policies. However, they are also criticised for not being inclusive enough. This paper explores if product diversification has an effect on poverty outreach, in particular when combining micro-credit with savings and insurance. It applies cross-sectional analysis of 250 microfinance schemes in Latin America and the Caribbean. By focusing on elements of the depth of poverty outreach, the research highlights a number of possible effects of combined microfinance (CMF). Product diversification can significantly contribute to increased social outreach («breadth» of poverty outreach). However, the findings suggest that, in the case of combining credit with savings, this is leading to a relatively lower participation of poor and female clients («depth» of poverty outreach). Exclusionary and discriminatory vulnerabilities and dynamics, linked to specific financial products, may apply double or even reinforce each other. Cumulative financial, cultural, geographical or communication barriers can make participation in multiple financial products more challenging. These findings have not been adequately tackled by academic literature, but are most relevant for MFI stakeholders and policy makers. If gender-sensitive or pro-poor income generation is at the heart of the mission of MFIs, corrective measures to these forms of adverse externalities should be considered.

Keywords: microinsurance, microcredit, microsavings, poverty, social inclusion, gender.

Resumen

Las deficiencias probadas de los mecanismos tradicionales de transferencia social han provocado la aparición de métodos alternativos para reducir la pobreza. En muchos países, las instituciones de microfinanzas (IMFs) se han convertido en instrumentos habituales de las políticas redistributivas a favor de los pobres. Sin embargo, han sido criticadas por no ser suficientemente inclusivas. Este artículo analiza si la diversificación de producto tiene un efecto sobre el alcance de la pobreza, en particular, cuando se combinan microcréditos con ahorros y seguros. El artículo aplica un análisis transversal a 250 programas de microfinanzas en Latinoamérica y el Caribe. Al centrarse en elementos de la profundidad del alcance de la pobreza, la investigación pone de relieve varios efectos posibles de las microfinanzas combinadas. La diversificación de producto puede contribuir significativamente a incrementar el alcance social (amplitud del alcance de la pobreza). Sin embargo, los resultados sugieren que, en el caso de créditos combinados con ahorros, llevan a una participación relativamente más baja de los clientes pobres y mujeres (profundidad del alcance de la pobreza). Vulnerabilidades y dinámicas excluyentes y discriminatorias, unidas a productos financieros específicos, podrían aplicarse doblemente o incluso reforzarse mutuamente. Las barreras de comunicación, geográficas, culturales o financieras pueden hacer que la participación en múltiples productos financieros sea más difícil. Los resultados no han sido adecuadamente abordados por la literatura académica, pero son especialmente relevantes para inversores en microfinanzas y legisladores. Si la generación de ingresos sensibles al género o a la pobreza está en el centro de la misión de las IMFs, deberían ser consideradas medidas correctoras de estos factores externos adversos.

Palabras clave: microseguros, microcréditos, microahorros, pobreza, inclusión social, género.

1 Introduction

While various countries gradually move from low to middle-income status worldwide, there remains often a paradoxical coexistence of rising overall household income levels and increasing levels of poverty and social exclusion (Paes de Barros et al 2009). Microfinance is one of the many instruments to support income generation for the poor and socially excluded (Robinson 2004). Many development promoters consider microfinance as a most appropriate tool to lift persons out of poverty, especially if the level of poverty is moderate (Rossel-Cambier 2012). Microcredit can contribute to income generation, schooling and social inclusion (Hamelin 2007; Morduch 1999) and often it encourages solidarity and participation in a community or organisational context (Lapenu et al 2004). However, it remains a challenge to appreciate the evidence — beyond anecdotal references— to what extent microfinance effectively contributes to poverty alleviation, especially when considering its complex and multidimensional nature and dynamics from the perspective of the client (Collins et al 2009).

Despite the fact that recent microcredit summits and international conferences mark the milestone of 150 million clients (Labie 2009), Barr et al (2007) claim that microfinance however is only available to a fraction of the world's poor. There are reasons to expect that these initiatives do not always adequately serve the destitute (Banerjee et al 2009). Financial barriers to microfinance services for the poor can be questioned from a social justice point of view (Hudon 2007). Extreme poverty often goes hand in hand with low levels of education, nutrition and information that are not conducive to program participation. Social ostracism may also make it hard for some of these households to be involved in group activities (Dewan and Somanathan 2007).

If there is a supply challenge in the industry, this challenge isn't only about the need to make loan products accessible, but also about responding to a wider variety of needs and hence financial products (Helms 2006). CGAP, one of the leading MFI promoters states that: «poor people need a wide array of flexible financial services. A demand driven approach will encourage portfolio diversity by offering the poor savings, insurance and cash transfer services in addition to various loan products» (CGAP 2003).

This Paper reviews whether CMF could enhance the poverty outreach of MFIs by reaching poorer and relatively more female loan clients. It highlights the limited attention from academic and sector specific literature and paves the way for more research on the issue. This paper builds on cross-sectional analyses involving 40 variables of 250 audited observations MFIs (10,000 data records) from Latin America and the Caribbean¹ covering the fiscal year 2006. All MFIs have loan delivery as

1 Data collected by the Mixmarket, www.themix.org.

main product. It also refers to information posted in over 300 websites presenting the various product offerings of the MFIs in question.

This Paper is organised as follows. Section 2 reviews literature on the way poverty relevance of microfinance can be measured and summarizes different approaches towards social performance for MFIs. It formulates hypotheses with relation to the main research question. The following section describes the methodology and defines the various selected variables. Section 4 presents the dataset and section 5 gives an overview of the results of the regression analyses. The final section proposes conclusions on the findings and offers a number of recommendations.

2 How can one measure the poverty relevance of microfinance?

2.1. Measuring the depth of poverty outreach. A conceptual approach and methodology

If poverty alleviation lays at the heart of the mission of MFIs, then one should measure the performance of a MFI not only by its economic achievements, but especially by asking how one can measure if a MFI is really relevant and of use for the poor?

The existing literature points to the circularity between poverty and vulnerability: poor people are more vulnerable (exposed to risks), and often, their vulnerability is the cause of their poverty. Hence, the link runs both ways (Ahuja and Jütting 2004). The ILO (2009) suggests that 75 % of worldwide poverty is female. Hence, MFIs —if geared towards poverty reduction— should be targeted towards female clients. This would be already the case globally as the Microcredit Summit 2007 Campaign Report estimates that 85 % of the poorest loan takers are women (Daley-Harris 2007). However, information about gender dynamics, offered by rating agencies, remains limited and intrahousehold dynamics are difficult to assess (Fletschner 2009).

There exists a wealth of literature on the different approaches to define measure and monitor poverty (World Bank Institute 2005; Sen 2000). Measuring the contribution of MFIs to poverty alleviation strongly relates to «social performance assessment» which is the process by which an organisation measures its social performance relative to its social mission and objectives, as well as to those of key stakeholders (Simanowitz and Pawlak 2005).

From the point of view of poor customers, good performance means use and especially repeated use (Bruett 2006). If customers did not expect to gain, than they would not repay debts, borrow more than once,

continue to pay premiums, nor hold deposits (Schreiner 2002). Measuring the breadth of outreach can be relatively straightforward when considering the number of clients as its key variable. Depth of outreach can be approached as directly referring to the level of poverty of the clients of a MFI (Churchill and Frankiewicz 2006). However, measuring income directly through wealth is relatively difficult, especially in informal economy conditions (Churchill 2006). Therefore, various proxies can be proposed to measure the depth of poverty outreach indirectly.

By means of descriptive statistics, correlation analysis and regression estimates, this research explores evidence contributing to the research question. Applying the Hendry/LSE approach, it examines significant results for the poverty outreach dimensions relating to the variables of interest. One potential weakness of the used econometric estimation approach is the possible endogenous relation among the regressors, which may bias the OLS estimates. For example, while the MFIs' breadth of outreach may increase when providing insurance and savings activities, the opposite may also be true. An organisation with a large number of clients may respond to different needs, have a stronger organisational capacity and hence offer a wider array of financial products. Hence there may be a circular effect between the variables which drives MFIs in one or the other direction. Many other unobserved factors can influence the depth of outreach of MFIs. Macroeconomic, cultural or social factors can influence poverty outreach or the intensity of product diversification. In order to control this problem of unobserved heterogeneity —leading to possible endogeneity challenges— the explaining variable would not be exogenous, but depend on the unobserved factors. Estimation tools involving panel data reflecting CMF changes over time could enhance, build and complement this research.

Contrary to much research focused on the breadth of poverty outreach, this paper proposes a conceptual framework built around the concept of «depth» of poverty outreach, which can be indirectly measured by gender and poverty indicators. It aims to offer an alternative view to social outreach of MFIs, where not quantitative elements (number of persons reached) matter, but the quality of the penetration to the gender sensitive and vulnerable groups.

2.2. Is combining microfinance inclusive for the poor?

Hypothesis deriving from literature

In literature, one can make a distinction between two competing interpretations on the effects of CMF on poverty reduction and gender equality.

Possible stimulating effects of combined microfinance

From the point of view of the clients, CMF can be advantageous. The nature of the combined financial services can have a pro-poor protection

element against social exclusion (Armendáriz and Morduch 2005). Microfinance products can enhance gender equality, foster income generation and contribute in more general terms to the millennium development goals (Indira 2005; Boyé, Hajdenberg and Poursat 2006). For microentrepreneurs, CMF can allow microbusinesses to expand towards different markets (Goldmark 2001). Nader (2008) in an empirical study in Cairo, found various positive correlations when assessing microfinance with social outputs. Possible stimulating effects of financial diversification of clients have been assessed in a number of field-based researches involving often quantitative evidence and randomized control trials. In an impact study in Uganda, Morris and Barnes (2005) suggest that more diverse products can respond better to a wider range of financial client needs. Ashraf et al (2010), using a randomized controlled trial in the Philippines, suggests that individual savings products can lead to an increase in female decision-making power within the household. When reviewing the portfolios of the poor, Collins et al (2009) comment that low income clients need loans, savings and insurance for different practical purposes in a household setting. Loans may be provided for a number of purposes: investment, consumption, housing or education. Savings allow clients to safely deposit and build up capital for future financial needs. In a case-study in West Africa, Labie et al (2006) highlighted that insurance products can help mitigating future risks. Adjei, Arun and Hossein (2009) find in Ghana that microsavings and microinsurance have improved the quality of life of microcredit clients and their family and has allowed them to build up their asset base. Moreover, households can use credit to build up assets and thereby increase their future ability to self-insure (Bhattamishra and Barrett 2010). Hence, from a poverty-perspective, one could welcome the availability of a wider array of financial products for low income persons.

Possible adverse effects of microcredit, microsavings and microinsurance relating to gender-sensitive poverty

Literature refers to a number of vulnerabilities when assessing the effect of CMF on the depth of poverty outreach. Microcredit can have exclusionary mechanisms. It is generally accepted that microcredit reaches the poor, but not the destitute (Matin 2005; Amin, Rai and Topa 2003). Banerjee et al (2009) referring to evidence from a randomized evaluation in India, highlights the low social added value for the poor when introducing microcredit. Various reasons can be attributed to this such as affordability, discriminatory practices, but also lack of understanding of the products (Patt et al 2010). Dewan and Somanathan (2007) in a comparison of nonparametric tests of social programmes in India, suggest that credit does not reach the poorest of the poor due to the self-selection of credit-worthy borrowers, determined according to their ability to pay. Often, MFIs tend to extend larger loans in order to reduce transaction costs and are pressured by competition (McIntosh and Wydick 2005). This phenomenon, often linked to «mission drift»

(Armendáriz and Szafarz 2009) creates new forms of exclusion. Microfinance can even have adverse effects on the poor. Maldonado and González-Vega (2008) regressing data from two subsamples from Bolivia that microfinance can even increase the risk for child labour.

When combining microcredit with other financial services, exclusionary dynamics may apply double or even reinforce each other (Gine 2007). One can find empirical research in literature — including randomised control trials — of reasons for poor clients to have reduced access to microinsurance despite their explicit need for it. Dror, Radermacher and Koren (2007) found evidence in India that the poor explicitly demand insurance and are willing to pay for it. While nominal willingness to pay correlated positively with income, they found that relative willingness to pay (expressed as a percent of household income) correlated negatively. Gine and Yang (2009), implementing a randomised field experiment in rural Malawi, found evidence that credit insurance was positively correlated with farmer income as well as education. Using a randomized control trial evaluation in Senegal, Jütting (2004) underlines that the potential enhancement of microinsurance depends on affordability. When loan reimbursement is already challenging, it may be unaffordable for this person to engage in additional financial services. Basaza, Criel and Van der Stuyft (2008) find in Uganda that the lack of good information, affordability, poor quality of services, enrolment requirements and lack of trust are the main reasons for people not to join. Characteristics of clients can also change the distributional impact of insurance benefits. Sinha, Ranson and Mills (2007) found empirical evidence that urban members benefit much more from the scheme than rural members from the benefits of a community-based insurance scheme.

Limited savings by the poor may affect access to loan delivery. Loans may be linked with savings behaviour, but also loan repayment (or outstanding repayments) can financially restrain the client of engaging in savings products (Servet 2005). Lee and Sawada (2010), using household panel data in Pakistan, suggest that precautionary saving is significantly higher for liquidity-constrained households. This finding suggests that the need for saving motives appear stronger when households realise that their access to credit markets is limited. Hence, non-access to savings (or insurance) may impact strongly lower income households in their ability to access loans.

Recent research indicates that there is evidence about unintended exclusionary gender-sensitive dynamics as a consequence of introducing microfinance, often linked to the pressure on MFIs to ensure profit making (Woller 2005; Rahman 2004) and competition (Olivares-Polanco, 2005). It is likely that women, because of their lower power status in the household, may find not only economic, but also socio-cultural barriers to engage in new complementary products such as savings and insurance. Agier, Guérin and Szafarz (2011), referring to a database relating to same-

gender solidarity, suggest that microfinance intra-household practices may contribute to gender inequality through generations. Reported examples of negative social externalities include excessive debt-burdens at the family level (Collins et al 2009), increased social tensions (Indira 2005), intimidation and increased violence against woman borrowers (Servet 2005). Dupas and Robinson (2009), undertaking randomised controlled trials in Kenya, observe that women daily income workers face important savings constraints. Guérin, Palier and Prevost (2009) mention the limits of voluntary savings for poor women as these do not always understand its principles compared with loans and often have geographical and cultural barriers to regularly deposit funds.

Our hypothesis

Clients may be vulnerable to risks generated by combining financial products. Low income persons may not have the means to access multiple financial products allowing protection against vulnerabilities and income generation because financial, cultural, geographical or communication barriers. Exclusionary dynamics, linked to specific financial products, may apply double or even reinforce each other. Literature highlights that in particular low income and female clients are vulnerable to these risks. Moreover, as the financial products are different in nature, they have also distinct requirements —including financial discipline— towards the clients. Because of women's general lower income-status and their greater cultural and socio-economic vulnerability, they may be more exposed to the cumulative access barriers which go hand in hand with CMF.

Therefore, this research expects that, in a context of microcredit schemes, the presence of savings or insurance services —despite their positive nature— may be accompanied with a relatively lower participation of female and low income clients (hypothesis).

3 Constructing an Empirical Model

As reflected in the hypothesis, this research is looking for evidence whether CMF may have an effect on the social utility for the clients of MFIs. This research question can be described in function of following expected utility outcomes: $E[U_c|W]$ and $E[U_m|W]$, where $E[U.|W]$ is the expected (average) utility of either a mono-product (U_m) or combined (U_c) microfinance scheme —measured by the same indicator— given (or conditional on) the information set W . If CMF leads to respectively more or less social inclusion, than the relation is: $E[U_c|W] - E[U_m|W] > (\text{resp.} <) 0$.

In order to address the three hypotheses one can consider the combined microfinance dimension (c) as the situation in which a microcredit organisation offers savings and/or insurance products.

Referring to an analysis of different possible ways to appreciate the insurance function,² this research makes a distinction between following scenarios:

- (i) Credit insurance services (II combination);
- (ii) Multiple insurance services (Ii combination);
- (iii) Savings services (Is combination).

Hence, three potential differences in utility between combined and monoprodut MFIs may be found: $E[U_{II}|W]-E[U_m|W]$; $E[U_{Ii}|W] - E[U_m|W]$ and $E[U_{Is}|W] - E[U_m|W]$.

In order to estimate these potential differences, one can specify the following equation for the MFI i :

$$U_{.i} = \beta_0 + \beta_1.DCI_i + \beta_2.DI_i + \beta_3.S_i + w_{ik}.b_k + u_i, (1)$$

In equation (1), $U_{.i}$ is the utility (social performance) indicator for the clients of the respective MFI i ; DCI_i is a dummy variable for credit insurance. The associated coefficient β_1 estimates $E[U_{II}|W]-E[U_m|W]$. In the same way, DI_i and S_i are dummy variables for the presence of respectively multiple insurance and savings, which are the independent variables of interest. Their respective associated coefficients are presented as well. The equation also includes w_{ik} which is a vector of k independent control variables explaining MFI i utility, to be specified infra; b_k is the vector of the k associated coefficients measuring the effect of each of these control variables and u_i is the error term associated to MFI i utility.

4 The dataset

4.1. Dependent and independent variables

In order to analyse the difference in utility between mono and combined microfinance schemes, this study compares selected dependent ($U_{.i}$) and independent variables (w_{ik}).

The dependent variable, utility —to poverty alleviation— is complex and hence difficult to measure. No single variable can in a comprehensive way correspond to its multidimensional nature (Sen 2000). Analyzing poverty outreach, this research relies on an analysis of proxy indicators, relating to selected dimensions of the utility of microfinance products on the well-being of the client.

The income-related depth of outreach can be associated with the relation between the MFI's average loan size and the country's GNI per capita. This indicator, abbreviated as ' $ALBpGNI$ ', is the average loan balance per GNI per capita. Recent research (Armendáriz and Szafarz 2009; Cull et al 2008) suggests that a relevant proxy for poverty is average

2 The variables for this analysis are: insurance (I) versus no insurance (NI), the number of insurance products (MIP), the logged value of MIP ($\ln MIP$), credit insurance (DCI), medium intensity insurance (DMI), high intensity insurance (DHI) and multiple insurance (DI).

loan size, the smaller the average loan size, the greater the depth of outreach.

Gender-sensitive depth of outreach (to female customers) is another important variable. Gender equality is about the equal treatment between men and women, despite their sex. A proxy for the gender-sensitive outreach to the family at large is the number of female borrowers in relation with the total number of borrowers, abbreviated as 'WOMAN'. It reflects female participation in a MFI.

The most generally accepted indicator for the breadth of outreach of microcredit organisations is the number of active borrowers (Copestake 2007), expressed as 'C' and referring to the number of individuals who have an outstanding loan balance with the MFI (Mixmarket, 2013). This variable will be examined in this paper, but is not the focus of the research question.

The model described above presents as well the w_{ik} vector of k independent control variables, which explain the utility of the MFI, i . This research considers the organisational structure of MFIs as a dimension to define a number of control variables. MFIs can be non-bank financial institutions (*NONBANK*), banks (*BANK*), nongovernmental organisations (*NGO*), cooperative credit unions (*COOP*) or other organisations (*OTHER*). The agreed definitions of these are available in the online Mixmarket glossary.³ The nature of the organisations is expressed by dummy variables which take the value 1 if the MFI i is the organisation in question, 0 if not. The nature of an organisation can strongly influence performance, as it reflects various elements of the functioning of the MFI including its general mission orientation and its legal classification.

This research also considers the control variables:

- AGE_i = the age of the scheme expressed by the number of years that the MFI i existed in 2006.
- $COUNTRY_i$ = the country in which the MFI i is operating. Dummy variables are included for the countries concerned.

The country variables allow this research to control the estimations with country-specific elements which can influence social performance such as legislation, general income and poverty levels, levels of inequality, education levels and cultural norms towards banking.

4.2. Descriptive Statistics

In order to appreciate the key characteristics of the sample, this section describes general trends of MFIs in the Latin America and Caribbean (LAC) region, reviews variables of the database and points out key findings of the correlation analysis.

Many countries in this region —high, middle and low income— have a Gini coefficient of over 0.50 reflecting alarming levels of unequal income

3 See: <http://www.mixmarket.org/en/glossary>.

distribution. As in many other regions in the world, microfinance has known an exponential growth in the LAC region (Lashley 2004) with borrower outreach growing up to a rate of 26 % yearly (Stephens 2009). Following Armendáriz and VanRoose (2009), the number of active MFI borrowers by population would be the highest in the world, estimated at 11.65 %. Despite these specificities in Latin America and the Caribbean, findings from MFIs from this region are not expected to be much different than other parts in the world, taking into account the nature of the various dependent and independent variables.

This paper refers to data from the Mixmarket database. One of the advantages is that this database includes audited financial data of the different schemes and applies the same definition for key indicators, which enhances comparability. A possible disadvantage of using this database is –by having the capacity to register and report to the Mixmarket–, the database may include more advanced and better organised schemes, representing in general larger and more professional schemes than what may be observed in reality.

	Variable	Acronym	Obs.	Mean	Median.	Std. Dev.	Min.	Max.
Independent Variables of interest	Credit insurance	<i>DCI</i>	250	0.216	0	0.412	0	1
	Multiple insurance	<i>DI</i>	250	0.172	0	0.378	0	1
	No insurance	<i>NI</i>	250	0.612	1	0.488	0	1
	Savings	<i>S</i>	250	0.376	0	0.485	0	1
Dependent Variables	Number of clients (in 1000 persons)	<i>C</i>	244	36.298	10.117	91.407	0.123	643.659
	Percentage Female borrowers	<i>WOMAN</i>	235	64.466	62.05	21.463	0	100
	Average loan size per GNI/capita	<i>ALBpGNI</i>	236	51.106	30.16	86.839	1.2	885.4
Independent control Variables	Non-bank financial institutions	<i>NONBANK</i>	250	0.2	0	0.401	0	1
	Cooperatives	<i>COOP</i>	250	0.168	0	0.375	0	1
	Banks	<i>BANK</i>	250	0.068	0	0.252	0	1
	Non governmental organisations	<i>NGO</i>	250	0.536	1	0.499	0	1
	Other organisations	<i>OTHER</i>	250	0.028	0	0.165	0	1
	Maturity of scheme	<i>AGE</i>	249	14.992	13	9.802	1	51

Table 1
Descriptive statics.⁴

Table 1 reflects key statistical data on the different variables in the sample, grouped by independent variables of interest, dependent performance variables and independent control variables.

We observe that many schemes in the database are combined in nature. In more than one in three cases, the clients have access to savings

4 Section 5 describes the selected variables. Dummy country variables are not presented.

services (37.6 %) while respectively 21.6 % and 17.2 % have also access to credit insurance and multiple insurance.

With reference to the dependent performance variables, important dispersions exist between the social performance of the MFIs, expressed by the high values of the respective standard deviations and the differences between minimum and maximum values. One can observe important differences in breadth of outreach ranging from small MFIs having 123 to others reaching 643,659 borrowers. The mean and median values are respectively 36,298 and 10,177 clients.

Most schemes have more female than male clients with an average of 64 % and a median of 62.05 % of total clients being female which suggests that the sample MFIs are proactively targeting female clients.

One can observe important discrepancies in terms of income related depth of outreach (*ALBpGNI*), with minimum and maximum values of respectively 1.2 % and 885.4 %. Its average and mean values are respectively 51 % and 30.16 %. Barres (2002) suggests that MFIs with an average loan size of 20 percent of GNI per capita do effectively reach poorer segments of the population. With an, one can suggest – with the necessary reservations – that the majority of the schemes tend to reach middle-income instead of poorer households. Only a few outliers are over 200 %.

As for the independent control variables, one can observe that the majority of the MFIs are NGOs (54 %), followed by non-bank financial institutions (20 %) and cooperatives (17 %). A minority are formal banking institutions (7 %) and other organisations (2 %).

Also the age of the schemes is heterogeneous, ranging from 1 to 51 years of existence with a mean of 14.9 years and a median value of 13 years, which refers to a relative average maturity.

	<i>DCI</i>	<i>DI</i>	<i>S</i>	<i>C</i>	<i>WOMAN</i>	<i>ALBpGNI</i>	<i>NONBANK</i>	<i>COOP</i>	<i>BANK</i>	<i>NGO</i>	<i>AGE</i>
<i>DCI</i>	1.000										
<i>DI</i>	-0.225	1.000									
<i>S</i>	0.108	0.235	1.000								
<i>C</i>	-0.111	0.080	0.142	1.000							
<i>WOMAN</i>	0.005	-0.103	-0.392	-0.043	1.000						
<i>ALBpGNI</i>	-0.027	0.051	0.236	0.023	-0.300	1.000					
<i>NONBANK</i>	0.074	-0.039	0.351	0.037	-0.122	0.111	1.000				
<i>COOP</i>	0.084	0.212	0.505	0.034	-0.270	0.137	-0.218	1.000			
<i>BANK</i>	-0.033	0.255	0.300	0.293	-0.119	0.002	-0.126	-0.108	1.000		
<i>NGO</i>	-0.150	-0.224	-0.779	-0.204	0.323	-0.186	-0.567	-0.487	-0.281	1.000	
<i>AGE</i>	0.023	-0.099	0.192	-0.051	-0.125	0.184	-0.020	0.152	-0.012	-0.057	1.000

Table 2

Correlation Table of the values of credit and multiple insurance (respectively *DCI* and *DI*), savings (*S*), number of clients (*C*), percentage of female borrowers (*WOMAN*), average loan balance per gross national income per capita (*ALBpGNI*), non-bank financial institutions (*NONBANK*), cooperatives (*COOP*), banks (*BANK*), NGOs (*NGO*) and maturity (*AGE*). (N=222).

Table 2 presents the correlations between the independent variables of interest, the dependent variables and the independent control variables.

While little strong correlation results can be found between the dependent variables and the various dummy variables for insurance, a negative correlation (value of -0.392) is found between *S* and *WOMAN*. Hence, microcredit organisations offering savings tend to have less female clients than those who don't.

The positive correlation between *S* and *ALBpGNI* (value of 0.236) in table 2 suggests that MFIs offering savings tend to contract higher loans and hence –are expected to– reach out to higher income categories than the MFIs which do not offer savings services.

By way of conclusion, one can observe that the MFIs in the database are strongly geared towards female clients and reach out to a middle-income target group. One can find –in case of combining credit with savings– a tendency of lower participation of the low income clients, which are in majority female. The next section looks deeper into the relationship between combining microfinance and the social performance outcomes through regression analysis.

5 Estimation Results

As mentioned above, this research aims at exploring if combining microcredit with savings or insurance can have an effect on the social performance of MFIs affecting clients. The previously specified model (1) reflects this question and can be presented as following, when including the above-described explanatory variables:

$$(2) U_{.i} = \beta_0 + \beta_1.DCI_i + \beta_2.DI_i + \beta_3.S_i + \beta_4.NGO_i + \beta_5.COOP_i + \beta_6.BANK_i + \beta_7.NONBANK_i + \beta_8.AGE_i + \beta_9.\sum_{p=1}^p COUNTRY_{p_i} + u_i$$

As an alternative and whereas possible, variables are specified in logarithms. The following model therefore is also estimated:

$$(3) \ln U_{.i} = \gamma_0 + \gamma_1.DCI_i + \gamma_2.DI_i + \gamma_3.S_i + \gamma_4.NGO_i + \gamma_5.COOP_i + \gamma_6.BANK_i + \gamma_7.NONBANK_i + \gamma_8.\ln AGE_i + \gamma_9.\sum_{p=1}^p COUNTRY_{p_i} + v_i$$

Both models (2) and (3) are estimated by means of Ordinary Least Squares (OLS) regressions.⁵ Table 3 presents the results of the OLS regressions, with relation to the original and logged values of respectively income-related depth of outreach (*ALBpGNI*) and gender-sensitive depth of outreach (*WOMAN*).

5 Robust standard errors are estimated in case of 5% significant heteroskedasticity following the Breusch-Pagan/Cook-Weisberg specification test (This test allows one to appreciate whether the estimated variance of the residuals from the regression depends on the values of the independent variables).

Independent variables ^a	Dependent variable			
	% Female Borrowers (WOMAN)	Average loan per GNI per capita (ALBP _{GNI}) ^b	Logarithm % Female borrowers (lnWOMAN) ^c	Average loan per GNI per capita (lnALBP _{GNI}) ^d
Credit insurance <i>DCI</i>	0.816 (3.413)	-25.286 (15.358)	0.077 (0.070)	-0.095 (0.064)
Multiple insurance <i>DI</i>	4.836 (4.007)	-3.717 (23.698)	0.181 (0.135)	-0.020 (0.075)
Savings <i>S</i>	-10.564** (5.223)	41.930** (19.198)	-0.145* (0.058)	0.352** (0.097)
Non-bank financial institutions <i>NONBANK</i>	-12.711 (9.229)	10.953 (31.241)	-0.055 (0.100)	0.120 (0.161)
Cooperative organisations <i>COOP</i>	-15.647 (9.831)	5.251 (35.453)	-0.161* (0.134)	-0.024 (0.170)
Banks <i>BANK</i>	-17.318 (10.958)	-8.026 (33.471)	-0.439 (0.433)	0.006 (0.185)
Nongovernmental organisations <i>NGO</i>	-12.711 (9.229)	-15.573 (26.133)	-0.021 (0.104)	-0.128 (0.150)
Maturity <i>AGE</i>	0.041 (0.155)	1.182 (1.049)	-0.017** (0.109)	0.125 (0.081)
Constant	78.912*** (22.333)	-56.820 (68.133)	2.016*** (0.335)	0.779** (0.310)
(Adjusted) R-squared value	0.180	0.325	0.153	0.521
F-test statistic	2.97***	2.64***	1.53***	11.17***
Number of Observations	234	235	234	235

***, **, * Significant at respectively the 1 %, 5 % and 10 % level.

a Robust standard errors in parentheses; country dummy variables not reported

b Idem with a Prob > chi2 = 0.000.

c Idem with a Prob > chi2 = 0.000.

d Idem with a Prob > chi2 = 0.018.

Table 3.

Regression of the dependent variables towards the independent variables.

As a methodology to appreciate the estimation results, this research applies the Hendry/LSE approach to build simplified models from larger models by including the most significant variables.⁶ This research first selects the models with the highest (Adjusted) R-squared value (comparison between regression results from nominal values and logged values). Following, it applies the Fisher test to explore if the test statistic has an F-distribution under the null hypothesis with a probability of less than 5 %. In case of significant results for the F-test, it simplifies the equation by discarding those variables which have t-stats of less than 1. In the simplified econometric model, this research only keeps those variables having a $P > |t|$ which is lower than 10 %. The results of the simplified equations are

6 The estimation results — applying the Hendry/SLE approach — have been reviewed against possible bias when using country dummy variables. The significance of a binary country variable is dependent on the reference country and hence the simplification exercise of the binary variables is linked with country specific elements. As the inclusion of a variable

presented in table 4. The coefficients after simplification remain relatively robust when eliminating non-significant variables.

The following two sections present the equations of those dependent variables with the most significant results (based on the highest R-squared value). The various OLS regressions allow one to make observations which directly refer to the hypotheses projected in section 3.

5.1. Adverse externalities on the income-related depth of outreach of microcredit organisations when combining credit and savings

When comparing the estimations of the logged and original dependent variables, one finds the highest R-squared value when regressing the logged values of *ALBpGNI*. The simplified equation suggests a significant positive effect of *S*, *lnAGE* and a number of country variables on the dependent variable as reflected below:

$$(4) \ln ALBpGNI = 0.651^{***} + 0.489 S^{***} + 0.163 \ln AGE^{**} + 0.903 Bolivia^{***} \\ (0.087) \quad (0.056) \quad (0.078) \quad (0.103) \\ + 0.500 Colombia^{***} + 0.728 Costa Rica^{***} + 0.606 El Salvador^{***} \\ (0.113) \quad (0.151) \quad (0.121) \\ + 0.454 Ecuador^{***} + 0.432 Guatemala^{***} + 0.878 Haiti^{***} \\ (0.080) \quad (0.112) \quad (0.172) \\ + 0.515 Honduras^{***} + 0.759 Nicaragua^{***} + 0.466 Peru^{***} \\ (0.114) \quad (0.090) \quad (0.081)$$

In this simplified model (4), also presented in table 4, one can find similar results as in the general model presented in table 3. The value of the F-stat is 19.83 with a probability > t of 0.000 and an adjusted R-squared of 0.49. Standard errors are presented under brackets. The coefficients remain robust after simplification and are all within the 1 % probability (expressed by ***).

This equation suggests that MFIs offering savings tend not to reach out to poorer or socially excluded clients, but to a relative higher income group. This finding is in line with the hypothesis and highlights possible obstacles for the low income households to engage in savings services. Low income persons may not have the financial means to participate in multiple financial products. There may also be cultural, geographical or communication barriers. Lack of understanding of the savings products may also hamper full participation. On the other hand, the current estimation doesn't offer significant evidence to support the hypothesis relating to possible adverse affects of the insurance function on the income-related depth of poverty outreach.

The estimation also brings forward the significant effect of country-specific elements which can influence the dependent variable. We can observe that in particular the lower income countries (with low GNI) contribute to a higher outcome of the *lnALBpGNI* and hence –in a relative way– could be considered to target less the low income clients

(marginally) influences the different coefficients, the result of the selection of the binary country variables may not be fully neutral in the final simplified equation. For this purpose, the results have been compared with in one hand the findings before simplification and in the other hand the simplified estimations when not including the country dummy variables. For the selected significant equations, one can observe findings which do not contradict the presented results for the variables of interest, but indicate different levels of significance.

Independent variables ^a	Abbreviation	Dependent variable	
		% Female borrowers (WOMAN)	Average loan balance per GNI per capita (lnALBpGNI) ^b
Credit insurance	<i>DCI</i>		
Multiple	<i>DI</i>		
Savings	<i>S</i>	-17.933*** (2.692)	0.489*** (0.056)
Non-bank financial institutions	<i>NONBANK</i>		
Cooperative organisations	<i>COOP</i>		
Banks	<i>BANK</i>		
Nongovernmental organisations	<i>NGO</i>		
Maturity	<i>lnAGE</i>		0.163** (0.078)
Constant	Constant	71.459*** (1.631)	0.651*** (0.087)
(Adjusted) R ²	(Adj.) R ²	0.163	0.490
F-stat	F-stat	23.91***	19.83***
Number of Observations	N	236	236

a Robust standard errors in parentheses; country dummy variables not reported; ***, **, * Significant at respectively the 1%, 5% and 10% level.

b Corrected for heteroscedasticity after Breusch-Pagan/Cook-Weisberg test at Prob > chi2 = 0.017.

Table 4.

Regression findings of the simplified models, applying the Hendry/LSE methodology.

of their society. The estimation highlights as well the adverse effect of maturity on the depth of poverty outreach. This may be linked with how subsidy uncertainty and how subsidies are progressively being withdrawn from more mature MFIs. Armendáriz et al (2011) may have an explanation for this. They suggest that in conditions where subsidies dry up over time, MFIs lend to wealthier clients.

5.2. The availability of savings may go hand in hand with a more balanced focus on female-male targeting of microcredit organisations

We can observe from table 3 that the variable *WOMAN* –in comparison with *lnWOMAN*– offers the most adequate estimation with an adjusted R-squared value of 0.180. When applying the above-

described methodology, one can find following simplified model after OLS regression:

$$(5) \quad WOMAN = 71.459^{***} - 17.934 S^{***} - 20.559 CostaRica^{***}$$

(1.631) (2.692) (7.598)

In this equation, the F-stat is 23.91 with a probability > t of 0.000. Though the explanatory value of the findings remains relatively low with an adjusted R-squared of 0.163, the model suggests that the variable S has a significant adverse effect on *WOMAN* at $P > |t|$ of 0.000. Standard errors are presented under brackets. The coefficients remain robust after simplification. The simplified equation —in comparison with the general model— suggests that many control variables —including *COOP*— have little significant effect on *WOMAN*. The only control variable which remains robust is the dummy variable for Costa Rica. In the database, the MFIs working in Costa Rica tend to have relatively less female clients than the other countries.

These findings can allow one to suggest —in line with the hypothesis— that in the database there may be a trend of relative adverse effects of savings on the women-specific depth of outreach of MFIs. While the positive role of savings is not under discussion, the presence of savings goes together with a relative lower participation of females in microfinance. The various literature studies in section 2 highlight a number of possible barriers of females to participate in combined financial products. Next to the general level of lower income of female clients (coherent with hypothesis), the geographical and cultural barriers of voluntary savings for women can explain these findings.

As described in the previous section, as in all combined and mono-product scenarios, the majority of the clients are female (over 50 %), one can also consider the schemes as being «less focused» on targeting women. One can even consider that the combination of loans and savings —in function of the socio-cultural specific context of each MFI— is accompanied with a more balanced approach of both male and female participation in the MFIs. Similar to the income-related depth of poverty outreach, the estimation results do not allow one to present significant estimations with relation to the effects of insurance on gender-sensitive depth of poverty outreach (hypothesis).

5.3. Combined microfinance enhances social outreach but can lead to adverse externalities relating to the depth of poverty outreach

Conform to the hypothesis, the findings suggest that the presence of savings products can have a relative adverse effect on the income-related and gender-sensitive (pro-female) depth of outreach of microcredit organisations. CMF —with the exception of credit insurance— can enhance poverty outreach from a self-sustainability approach, but can

have relative adverse effect on MFIs from a poverty approach point of view. While generalization should be avoided, the observations may challenge policy expectations that combining microfinance should naturally lead to higher levels of social performance. This research doesn't question the contribution of savings and insurance to the wellbeing of a person or a micro business. However, it highlights the possible hindering factors of access —both financial or socio-cultural— which need to be reviewed in the different contexts. One of the main reasons for these adverse effects may be that the new services are not enough targeted to the poor, but foresee other exclusionary mechanisms —often linked to affordability and socio-cultural or gender-sensitive dynamics— creating new access barriers. The lower participation of women in combined financial products supports observations in literature that women are given a greater role in debt-repayment than in capitalization of funds (savings), reflecting their lower power position in households.

6 Conclusion

Microfinance can be considered as an instrument to deal with market failures, especially when the poor and socially excluded have no access to financial services such as credit, savings or insurance. When combining multiple financial services, one can expect that more unbankable clients would be reached but little robust sources on the issue can be found in academic literature. This Paper has explored this research question by analysing cross-sectional data involving 40 variables of 250 microcredit organisations offering —at different levels— also savings or insurance products.

Remarkably, this research question has not been extensively tackled in literature and this research paper can be considered as an attempt to tackle this knowledge gap. By making a distinction between the breadth and the depth of poverty outreach, the research highlights a number of possible positive and adverse externalities of CMF. One can expect stimulating effects of savings and multiple insurance on the breadth of poverty outreach of microcredit organisations. The empirical evidence gives another picture on the effects of savings with reference to the depth of poverty outreach, both viewed from an income-related and gender-sensitive point of view. The findings suggest that the presence of savings with microcredit schemes is accompanied with a relatively lower participation of poor and female clients. This can be linked to a number of vulnerabilities to which they are exposed. Low income persons may not have the means to participate in multiple financial products because these have additional financial costs. There may also be cultural, geographical or communication barriers which make the participation in multiple financial products more challenging for these clients.

Discriminatory practices and a lack of understanding of the products may also hamper full participation. Limited access to one financial product may negatively influence access to other products. Exclusionary dynamics, linked to specific financial products, may apply double or even reinforce each other. No significant evidence was found in the empirical database on the effects of insurance on the depth of poverty outreach.

An important contribution of this paper is —next to the empirical findings presented above— to question the pro-poor relevance when diversifying microfinance schemes. It argues that more in-depth research is needed to understand —context specific— dynamics of exclusion and the importance to look beyond the concept of «outreach». While an absolute higher number of clients can be reached through CMF, their relative proportion of the poor is significantly decreasing. This important observation may stimulate public and corporate policy decision makers to undertake corrective measures, when social inclusion is high on the agenda.

The proposed more aggregate approach of this paper is only an initial and relatively modest contribution to a set of more complex and comprehensive answers to the proposed research question. Future research needs to focus on the effect of specific financial services on poverty reduction, apply other quantitative and qualitative approaches and explore evaluative research involving methodologies embracing time series or randomized controlled trials.

An important outcome of this paper is that the presence of savings matters for poverty outreach. Savings, as a variable of interest was found significant for both the breadth and the depth of poverty outreach. Savings can be an important empowerment tool for low income, and in particular female, vulnerable groups. Social studies in the field of microfinance should give more attention to the various characteristics of this crucial dimension. Findings and future research could explore how savings, and the elimination of its access barriers, can contribute more effectively to local business and household financial development.

This study underscores the relevance to monitor «depth of outreach» performance indicators when implementing CMF in order to ensure effective design and targeting. Policy support and supervision, building on the ongoing efforts to enhance social performance should be encouraged. This would better ensure the effective translation of the MFI's ultimate *vivendi ratio*:⁷ lift unbankable people out of poverty.

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7 Latin, translation: 'reason to live; reason of existence'.

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