



EMN European Microcredit Research Awards **2010**



Within the framework of the **2010 EMN Annual Conference on June 23-25 in London**, the third edition of **The European Research Award** has been launched, as a joint initiative of EMN and its Spanish member Fundación Nantik Lum (FNL).

The European Microcredit Research Award was initially created in 2008 at the 5th EMN Annual Conference in Nice and it is endowed with a prize of €1,000, sponsored by FNL, leader and coordinator of the EMN Research Working Group (RWG).

The Award is granted to research papers that present ongoing or finalized practitioner-oriented research on issues related to microfinance in the European Union (the 27 Member States) and EFTA (including Norway and Switzerland) countries, with special focus on one of the topics of the EMN Working Groups: Legal Environment and Regulation; Growth, Expansion, Sustainability and Funding; Information Technology; or Social Performance. Additionally, papers presented by young researchers are especially valued in the selection process.

Based on pre-determined criteria such as innovativeness, link to EMN working groups, methodology, structure, literature used and replicability, representatives of the Fundación Nantik Lum, RWG Core Members and the EMN have chosen the three best papers to distribute at the Conference and to be presented to the Conference's Research Strand Workshop.

The three selected papers for the European Microcredit Research Awards 2010 are:

- "Analysis of Sustainability for European Microfinance Institutions; An empirical study", by Irimia Diéguez, Ana I., Blanco Oliver, Antonio and Oliver Alfonso, María Dolores, University of Seville
- "Financial Behaviours and Vulnerability to Poverty in Low-Income Households", Michal Matul, Microinsurance Innovation Facility, International Labour Organisation
- "Measuring the impact of EU microfinance. Lessons from the field", Karl Dayson and Pål Vik, Community Finance Solutions, University of Salford

On the following pages, these papers are presented.

Research Working Group

The EMN Research Working Group was founded in January 2007, when several EMN members met and formed a group to foster synergy in the research field of microfinance in Europe. The RWG is comprised of individuals, academics and representatives wanting to collaborate on joint research projects within the European microfinance sector. It aims at (1) conducting research and fostering exchange of knowledge, experiences and good practices in the research field of microfinance in Europe; (2) promoting pan-European research projects by linking universities, researchers, practitioners, regulators, and clients; and, (3) improving the visibility and public awareness of the microfinance sector in Europe.

The European Microcredit Research Award, linked to a research strand at the EMN Annual Conferences, is one of the main activities carried out by the RWG besides its biennial pan-European survey of the microcredit sector, the web-based Electronic Research Bulletin (eRB), joint publications and updates of publications.

You may find updated information on the Awards and the EMN Research Working Group on the RWG website: <http://www.european-microfinance.org/rwg/home.php>

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Analysis of Sustainability for European Microfinance Institutions; An empirical study

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ABSTRACT

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One of the main goals of European Microfinance Institutions (MFIs) is to be sustainable over the long term, and to be widely regarded as achieving best practice in the microfinance industry. This paper analyses which factors influence the sustainability of European MFIs. A better understanding of these key factors will enable MFIs to improve their performance.

The European microfinance market presents a dichotomy between Western Europe and Central Eastern Europe in terms of the characteristics of intermediaries. Whilst Eastern European MFIs have generally followed the current microfinance orthodoxy by concentrating on sustainability, profitability and scale, Western European MFIs have a strong focus on social inclusion and pay little or almost no attention to their profitability.

The methodology applied in this paper combines a factor analysis and a multiple linear regression. The database employed is that of Mixmarkets with data variations between the years 2007 and 2008. The methodology has been previously tested with a database of 244 Latin-American MFIs in order to obtain a benchmark. The variable explained is financial sustainability and the impacts rendered by different factors are quantified in the form of a combination of 30 variables, such as size, interest rate, efficiency, credit risk and financial risk. This methodology has never been previously used in the Microfinance Sector and the results show a high level of significance.

The same methodology is then applied to a European MFI database. The sample is composed of 19 Central and Eastern European entities that have passed the survival stage. Nevertheless, results are not significant. Owing to the impossibility of replicating the empirical analysis, an alternative methodology is considered: a stepwise linear regression, obtaining a high level of significance.

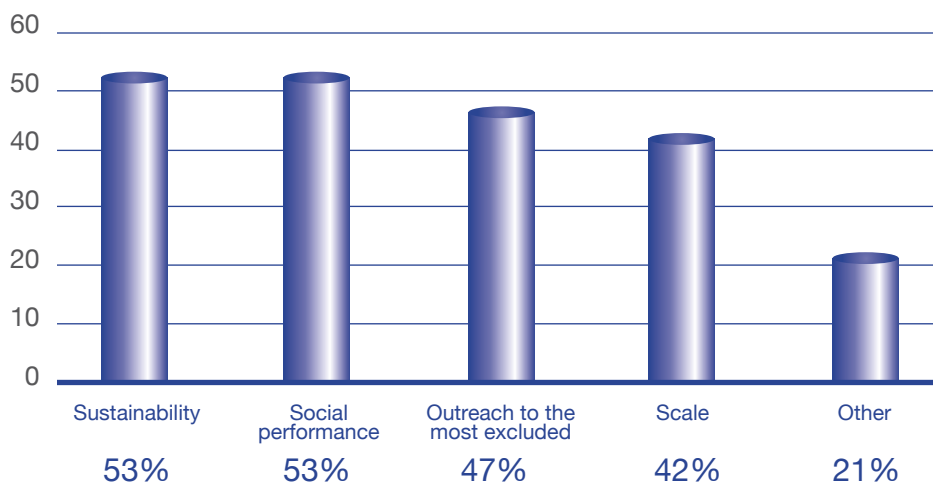
The Latin-American empirical study allows us to reach conclusions concerning the explanatory power of both “solvency” and “default” factors with respect to financial sustainability. These explanatory factors can be extrapolated and used as a benchmark in the microfinance sector. Nevertheless, this study of European MFIs points to new explanatory variables, namely “inefficiency” and “cash flow generation”, although “solvency” remains as an important key factor.

Key Words: Sustainability, Success factors, Factor analysis, Linear regression.

INTRODUCTION

One of the main goals of European Microfinance Institutions (MFIs) is to achieve sustainability over the long term. As shown in Jayo et al. (2008), the majority of European microlenders providing information about their future goals assert that the most important challenges are reaching sustainability and achieving a good social performance, followed by outreach to the most excluded and achieving scale. However, these latter two goals are in some way related to the first ones.

Graph 1: Future Goals of European MFIs



Source: Jayo et al. (2008)

Jung et al. (2009) point out that the benchmarks in terms of the degree of self-sustainability set for MFIs in the EU should be individually adjusted according to the target groups they are serving and to the complexity of services they provide. They also argue that financial and non-financial services should necessarily be considered as separate cost centres. Even though the financial operation may become sustainable in the long run, business development services for disadvantaged target groups will require subsidies.

Yaron (1994) focuses on two performance indicators for assessing the success of a microcredit program: outreach and sustainability. Institutional outreach can be measured in terms of its breadth as well as depth. On the one hand, the breadth of outreach is assessed by measuring such variables as the number of people who are provided with financial services, and the kinds of products and services offered to them; on the other hand, the depth of outreach is generally measured by the average loan size and the gender distribution of the portfolio. A second, widely employed measure is the sustainability of the program. According to Yaron, self-sustainability is achieved when the return on equity, net of any subsidy, equals or exceeds the opportunity costs of funds.

The quest for sustainability and eventual self-sufficiency is widely regarded as best practice in the microfinance industry. Von Pischke (2002) states that the first best practice (among other twelve) is to create sustainable institutions. In this sense, European MFIs have been increasingly pressured to adapt more business-like practices and to become more self-sufficient but it is necessary to set out precisely what this means.

There are two specific definitions of sustainability: operational and financial. Operational sustainability refers to the ability of an MFI to cover its costs with income from its core activities (i.e. fee and interest rate income from its loan portfolio), whilst financial sustainability refers to the ability to cover its costs if it had to raise 100% of its loan portfolio through recycling existing funds and through borrowing funds at the market rate (CGAP, 2003; CDFA, 2006). Furthermore, financial self-sufficiency is also defined in practice as

income derived from operations divided by the operating expenses incurred, thus excluding revenue from subsidies (Vinelli, 2002).

Pollinger et al. (2007) suggest that MFIs generally operate in one of three different modes: survival, sustainability, or self-sufficiency. In survival mode, organizations barely cover their monthly expenses and many programs face a slow death as capital that was lent out in earlier years fails to return as expected to cover future operations. Many of these organizations and programs eventually begin the process of dissolution and this explains the high organizational and program mortality in the sector. Most organizations seem to operate somewhere between survival and sustainability mode, the latter being understood as the ability of organizations to cover their annual budget through donations and other grants in addition to earned income from their lending operations. In this context then, self-sufficiency refers to organizations that can survive and add to their asset base wholly on the basis of income derived from their lending and related operations.

Vinelli (2002) analyses the pros and cons of retaining financial sustainability as an important strategic goal and offers five supporting arguments. First, sustainability helps ensure organizational survival and the continuing provision of a financial service that is desired by many microbusiness owners. Further, defaults may increase if borrowers believe that a lender lacks permanence or if they believe the lender will not punish them (Schreiner and Morduch, 2002; Gonzalez-Vega, 1998; Bates, 1995). Second, MFIs which price

their products at market levels will be able to attract the target population of nonbankable (but potentially viable) borrowers who do not have access to cheaper products. Third, traditional lenders may be deterred from competing with organizations that enjoy large subsidies. Fourth, sustainability facilitates the ability to raise capital from a variety of sources. And, lastly, a focus on self-sufficiency could prompt MFIs to control costs. This may run up against other MFI goals, such as serving higher risk borrowers, lending to whom may lead to higher costs, but philanthropic donors need to be more likely to respond to programs that understand their pricing and consciously manage costs.

In terms of increasing self-sufficiency, by targeting different segments of the microbusiness population, it is easier to generate value by lending to individuals with better credit records, owing to their increased ability to handle debt and lower associated default rates. However, in doing so, an MFI must be careful not to subvert its mission. Vinelli (2002) suggests that mission drift can occur when a lender seeks profit not by working harder to make better and less expensive products but rather by searching for borrowers who are easier and cheaper to serve (Schreiner and Morduch, 2002; Vinelli, 2002).

The European microfinance market presents a dichotomy between Western Europe and Central Eastern Europe in terms of characteristics of intermediaries. The Eastern European microfinance sector has generally followed the current microfinance orthodoxy in focusing on sustainability, profitability and scale (Hartarska

et al, 2006). Conversely “Western European microfinance has...a strong focus on social inclusion and pays less or almost no attention to its profitability” (Evers&Jung, 2007). Kramer-Eis et al. (2009) argue that the main challenge for MFIs in the EU is to develop and maintain a flexible and sustainable funding model for microfinance operations that allows them to realise their individual approach. However, for reasons of a difficult and little developed market place, sectorial immaturity and the presence of subsidies, there has not been a considerable move towards sustainability (Evers and Jung, 2007; Guichandut and Underwood, 2007).

The main objective of this research is to study which factors influence the sustainability of European MFIs. The paper is organized into the following sections. First, we start with an introduction and a review of all current studies on sustainability from both developed and undeveloped countries. Second, the methodology applied (a factor analysis and a linear regression with a wide range of variables), and the database employed are described. Third, the results of the empirical study are explained. We quantify the impact on sustainability of different factors such as size, interest rate, efficiency, credit risk and financial risk. This methodology has never been previously used in the Microfinance Sector. Conclusions and possible future lines of research are stated in the final section. Therefore, this research is focused on the better understanding of key factors that enable European MFIs to improve their performance.



LITERATURE REVIEW

Dayson et al. (2009) conducted a benchmarking study of five UK MFIs. As part of this study they analysed and modelled the past and future performance of their loan portfolios, their partnerships, and the way in which their staff members spent their time and the processes and structures driving this time-use. They include previous research into the UK MFI sector which has identified three pathways of improving financial and operational sustainability: staff productivity and efficiency, effective partnerships (to reduce costs and increase client base) and an appropriately mixed loan portfolio.

In that study the MFIs of the sample are still some way away from covering all their costs with income generated from their core activity of lending. The results of the analysis of the loan portfolio suggest that they can increase their sustainability considerably through charging interest rates which more closely reflect the costs of delivery and by organising staff to maximise loan officer exposure to potential customers. The degree to which the MFIs can boost the sustainability of their operations depends on their starting point, product mix and cost structure.

Pollinger et al. (2007) discuss relationship-based financing as practised by microfinance institutions (MFIs) in the United States, by analyzing their lending process, and present a model for determining the break-even price of a microcredit product. Comparing the results of the model with actual prices offered by existing institutions reveals that credit is generally being offered at a range of subsidized rates to microentrepreneurs. This means that MFIs have to raise additional resources from grants or other funds each year to sustain their operations as few are able to survive on the income generated from their lending and related operations.

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Such subsidization of credit has implications for the long-term sustainability of institutions serving this market and may help explain why mainstream financial institutions have not directly funded microenterprises. They conclude that any progress toward a potential resolution in this debate depends on a better understanding of the actual costs involved in the process of microlending, a better assessment of the profiles of borrowers and the risks involved, and the development of a lending model with concrete parameters that can then be adjusted and calibrated to local conditions, borrower characteristics, and risk profiles. Once a realistic estimate of the transaction costs of microfinance and the interest rates that may need to be charged for an MFI to cover its costs of lending are obtained, it is easier to understand their effectiveness, evaluate their needs and the levels of private and public subsidies that may be needed, and analyze why private banks and related financial actors have or have not entered these markets (Pollinger et al., 2007).

Vinelli (2002) explores the statistical relationship between financial sustainability and outreach indicators by using firm-level data from 24 MFIs. Several linear regressions were performed to assess the influence of different variables on financial self-sufficiency. The explanatory variables included percentage of women, percentage of rural clients, average loan size per gross national product (GNP) per capita, real interest rate, and number of borrowers. The results are, first, that organizations with higher percentages of women as clients seem to have lower levels of self-sufficiency, whereas those that have activities in more industrialized countries seem to be less financially self-sufficient than those in developing countries, and second, that organizations with higher average loan sizes as a percentage of GNP per capita seem to have lower levels of self-sufficiency.

Yaron's measure of sustainability has been widely adopted, for example, Gonzalez-Vega et al. (1996) in their study of the Bancosol program in Bolivia; Khander et al. (1995) use it in their study of Grameen Bank; and Christen et al. (1994) adopt it in their study of 11 microfinance programs in Latin-America, Asia, and Africa.

OBJECTIVE AND METHODOLOGY

As we have previously seen, there is no clear sustainability model to serve as a benchmark and guide for all MFIs. The main reasons are, first, that sustainability can be defined in various ways and, second, that empirical studies do not arrive at a unique and conclusive model.

We consider that future development of most MFIs should not depend on subsidies and donations although the role played by these kinds of funding is well known in the microfinance sector. In this sense, we prefer to prioritize the goal of financial sustainability as a successful way to achieve solid MFIs capable of both accessing financial resources at competitive market rates and obtaining subsidies and donations. Therefore, this paper analyses which variables significantly affect the financial sustainability of MFIs.

According to CGAP (2003), financial self-sufficiency measures how well an MFI can cover its costs taking into account a number of adjustments to operating revenues and expenses. The purpose of most of these adjustments is to model how well the MFI could cover its costs if its operations were unsubsidized and it were funding its expansion with commercial-cost liabilities. Therefore, Financial Sustainability is calculated in our research as follows:

$$\text{Financial Sustainability} = \frac{\text{Adjusted Financial Revenue}}{\text{Adjusted (Financial Expense + Impairment Losses on Loans + Operating Expense)}}$$

The methodology applied combines a factor analysis and a multiple linear regression. The factor analysis procedure is a data reduction technique used to find homogeneous groups of variables from a large group of variables. These homogeneous groups are formed with a lot of variables that correlate with each other, and postulating, initially, that the groups are independent of each other. According to Kim et al. (1978), the steps for factor analysis are:

1. **Suitability of factor analysis to the data:** the Statistical KMO (Kaiser-Meyer-Olkin) and Bartlett test of sphericity should be calculated. When the KMO statistic is greater than 0.5, the factor analysis is considered appropriate to be applied, Bernal et al., (2004).

In regards to selecting the most explanatory factors, there are different rules for understanding which factor numbers should be considered. The most widely used approach is, first, to look at the cumulative percentage of variance explained by the factors or components. A number of factors that cause this cumulative percentage to be around 70-80% should be chosen. The second approach is to consider the minimum possible number of factors.

2. **Calculation of factor scores which are the coefficients that allow expressing each factor as a lineal combination of the original variables.** Then, a coefficient matrix is required to attain the factor scores for each MFI. This matrix contains in the main diagonal the variance of factor scores, which should be equal to one, and the covariances between pairs of factors which should be, for all values, zero. This means that all factors are independent of each other, and therefore, there is no correlation between them.

The multiple linear regression analysis is a statistical technique to study the relationship between a set of variables, described as independent, and a variable described as dependent.

In our study, the dependent variable is financial sustainability, and the independent variables are the factors obtained by the previous Analysis of Principal Components.

This methodology has been previously tested with a database of Latin-American MFIs in order to obtain a benchmark. The first step was a factor analysis which used 30 financial variables, and then the factors obtained were introduced as independent variables in a linear regression. The results show a high level of significance.

The same methodology was applied to a European MFI database although the results were not significant. Due to the impossibility of carrying out a factor analysis on the East European data set, we regress the same factors estimated with the Latin-America data set to the dependent variable of the European data set. In other words we consider the results obtained with the Latin-America MFIs as a standard model based on an in-depth data set to apply to a smaller data set when it is impossible to make the same analysis. A stepwise linear regression was then made.

EMPIRICAL STUDY: DATA AND VARIABLES

A reliable database of worldwide MFIs with significant financial information is that of Mixmarket which can be obtained from the website <http://www.mixmarket.org>. In order to study which factors influence sustainability of European MFIs, data from European MFIs that have passed the survival stage are required. We selected two samples, one of 244 Latin-American MFIs and the other from 19 Central and Eastern European entities. Western MFIs are also focused on sustainability but the lack of primary data and the wide heterogeneity of institutions make it impossible to currently carry out an empirical research.

Regarding the analysis of variables, we could not use all the selected variables in a first step because information was available for only a limited number of entities. If these variables had not been eliminated, the sample (the number of MFIs) would have been reduced considerably. The eliminated variables are all related to deposits that MFIs offer to their customers.

Other new variables were calculated and included in our study by using the information available on the above-mentioned website. We consider that the selected variables should have greater explanatory power in the case of using annual variations. Thus, we calculate the annual changes 2007-2008 (in per one) for each variable. Therefore, some MFIs were eliminated from our database because there was no information in both years (2007 and 2008).

Table 1 presents the 30 independent variables used in this study, as well as a definition and formulation following microfinance standards. The last column shows the sign of the theoretical relationship between each variable and the financial sustainability. The database provides information concerning some of the variables included in Table 1 but other variables have been calculated by the authors from the information included in the database.

Table 1: Independent variables

VARIABLES	DEFINITION OF VARIABLES	FORMULATION	SIGN
Totalassets	Includes all asset accounts net of all contra asset accounts, such as the loan loss reserve and accumulated depreciation.	Total Assets, adjusted for Inflation and provisioning for loan impairment and write-offs	+
Grossloan portfolio	The outstanding principal balance of all of the MFIs outstanding loans including current, delinquent and restructured loans, but not loans that have been written off. It does not include interest receivable.	Gross Loan Portfolio, adjusted for standardized write-offs	+
Totalequity	Total assets less total liabilities. It is also the sum of all of the equity accounts net of any equity distributions such as dividends, stock repurchases, or other cash payments made to shareholders.	Total assets less total liabilities	+
Total borrowings	Number of borrowings that have been lent since MFI was opened	Number of borrowings	+
Capitalasset ratio	This indicator shows the proportion of the equity about assets. If this ratio increases, the financial risk of the company will fall, and shareholders will demand less dividends to the company.	Adjusted Total Equity/ Adjusted Total assets	+
Debttoequity ratio	This indicator measures the degree and manner in which creditors involved in the financing of the company. If this ratio increases, the financial risk of the company will also increase, and shareholders will demand more dividends to the company.	Adjusted Total Liabilities/ Adjusted Total Equity	-

Average loan balance per borrower	It measures the average amount of each microcredit. Some researchers argue that there is an inverse relationship between the amount of microcredit and poverty of beneficiaries.	Adjusted Gross Loan Portfolio/ Adjusted Number of Active Borrowers	+/-
Average loan balance borrower per borrower GNI per capita	This ratio is the same as the previous. However, it considers that depending on the country with the same money quantity is possible to buy different things. So, this ratio incorporates the GNI per capita.	Adjusted Average Loan Balance per Borrower/ GNI per Capita	+
Return on assets	Measures how well the MFI uses its total assets to generate returns.	(Adjusted Net Operating Income – Taxes)/ Adjusted Average Total Assets	+
Return on equity	Calculates the rate of return on the average equity for the period. Because the numerator does not include non-operating items such as donations, the ratio is a frequently used proxy for commercial viability. Usually, ROE calculations are net of profit or revenue taxes. MFIs that are not using average equity as the denominator should indicate if it is based on equity at the beginning of the period or the end.	(Adjusted Net Operating Income – Taxes)/ Adjusted Average Total Equity	+
Financial revenue assets	This ratio relates the financial revenue with the assets. If this ratio increases the IMF will be more efficient.	Adjusted Financial Revenue/ Adjusted Average Total Assets	+
Yield on gross portfolio nominal	Indicates the gross loan portfolio's ability to generate cash financial revenue from interest, fees and commissions. It does not include any revenues that have been accrued but not paid in cash, or any non-cash revenues in the form of post-dated checks, seized but unsold collateral, etc.	Adjusted Financial Revenue from Loan Portfolio/ Adjusted Average Gross Loan Portfolio	+
Financial expense assets	This ratio relates the financial expenses with the assets. If this ratio increases the FMI will be less efficient.	Adjusted Financial Expense/ Adjusted Average Total Assets	-
Provision for loan impairment assets	This ratio relates the provisions for defaults with the asset. If this ratio increases the FMI will be less efficient. On the other hand, if the provisions increase the profit will fall.	Adjusted Impairment Losses on Loans/ Adjusted Average Total Assets	-
Operating expense assets	This ratio relates the operating expenses with the asset. If this ratio increases the FMI will be less efficient.	Adjusted Operating Expense/ Adjusted Average Total Assets	-
Operating expense loan portfolio	This ratio relates the operating expenses with the loan portfolio. If this ratio increases the FMI will be less efficient.	Adjusted Operating Expense/ Adjusted Average Gross Loan Portfolio	-
Cost per active borrower	Shows the average cost of maintaining an active borrower or client. MFIs may choose to substitute number of active loans as the denominator to see cost per active loan outstanding. (We suppose that each person only has one microloan).	Adjusted Operating Expense/ Adjusted Average Number of Active Borrowers	-
Borrowers per staff member	This ratio indicates the number of microcredit for each employee. If this ratio increases the IMF will be more efficient. Typically, this ratio grows long-term. At the beginning, this ratio has its highest value.	Adjusted Number of Active Borrowers/ Number of Personnel	+



Portfolioatrisk gt30days	The value of all loans outstanding that have one or more instalments of principal past due more than 30 days. This item includes the entire unpaid principal balance, including both the past due and future instalments, but not accrued interest. It also does not include loans that have been restructured or rescheduled. Portfolio at risk is usually divided into categories according to the amount of time passed since the first missed principal instalment.	Outstanding balance, portfolio overdue > 30 Days + renegotiated portfolio/ Adjusted Gross Loan Portfolio	-
Writeoffratio	Represents the percentage of the MFI's loans that have been removed from the balance of the gross loan portfolio because they are unlikely to be repaid. A high ratio may indicate a problem in the MFI's collection efforts. However, MFI write-off policies vary, which makes comparisons difficult. As a result, analysts may present this ratio on an adjusted basis to provide for uniform treatment of write-offs.	Adjusted Value of loans written-off/ Adjusted Average Gross Loan Portfolio	-
Personnel	The number of individuals who are actively employed by the MFI. This includes contract employees or advisors who dedicate the majority of their time to the MFI, even if they are not on the MFI roster of employees. This number should be expressed as a full-time equivalent, such that an advisor that spends 2/3 of her time at the MFI would be considered 2/3 of a full-time employee.	Total number of staff members	+
Prestactuals	The number of individuals who currently have an outstanding loan balance with the MFI or are responsible for repaying any portion of the gross loan portfolio. This number should be based on the individual borrowers rather than the number of groups.	Number of borrowers with loans outstanding, adjusted for standardized write-offs	+
Totalwomen borrowers	Number of women borrowers.	Number of women borrowers	+/-
G°Ope	Adjusted Operating Expense.	Operatingexpense assets * Totalassets	-
G°fros	Adjusted Financial Expense.	Financialexpense assets * Totalassets	-
Prov	Adjusted Impairment Losses on Loans.	Provisionforloan impairmentassets * Totalassets	-
lfros	Adjusted Financial Revenue.	Financialrevenue assets * Totalassets	+
Interes	Interest rate for the microcredit. Some MFIs increase this rate so that to be self-sufficient. However, the goal of the microloan goal is reduce poverty. Moreover, the borrowers are poor. So, the interest rate must be low.	lfros / Grossloanportfolio	+
l°por prestamo	This ratio represents the revenue of each microcredit. If it increases, the FMI will have more profit. A way for increase this ratio would be to increase the interest rate or/and the number of customers.	lfros / prestactuals	+
Margenpor Prestamo	This ratio is essential so that MFI might be self-sufficient. All the MFI must try to increase it, but without increasing the interest rate.	l°porprestamo – costepres	+

RESULTS OF EMPIRICAL STUDY

1. Latin-American MFIs

In order to check the suitability of the factor analysis to the data, we start calculating the KMO index (0.558), and the chi-square value (it is high, 5094.954), obtaining a perfect significance (0.000). Therefore, the factor analysis was suitable.

Then, to select the best number of factors both aspects, cumulative percentage of variance explained and the number of factors, were taken into account. We obtained six factors which accounted for 66.082% of the variance of the sample. The possibility of considering an additional factor does not increase significantly the percentage of variance explained (factor 7 increased this percentage only a 4.397%). In order to interpret more clearly the meaning and significance of the factors extracted, a Varimax orthogonal rotation was then made Kaiser, (1958). The six factors obtained are shown in table 2.

Table 2: Provisional factors of financial variables

COMPONENT 1	COMPONENT 2	COMPONENT 3
VARTotalassets0708	VARFinancialrevenueassets0708	VARAverageloanbalanceborrowerper/PIB
VARGrossloanportfolio0708	VARYieldongrossportfolionominal0	VARBorrowersperstaffmember0708
VARtotalborrowings0708	VARFinancialexpenseassets0708	VARprestactuals0708
VARAverageloanbalanceperborrower	VARInteres0708	VARTotalwomenborrowers0708
VARPersonnel0708		VARG_fros0708
VARG_Ope0708		VARMargenporPrestamo0708
VARIFros0708		VARI_porprestamo0708
COMPONENT 4	COMPONENT 5	COMPONENT 6
VARReturnonassets0708	VARTotalequity0708	VARProvisionforloanimpairmentass
VAROperatingexpenseassets0708	VARCapitalassetratio0708	VARPortfolioatriskgt30days0708
VAROperatingexpenseloanportfolio	VARDebttoequityratio0708	VARWriteoffratio0708
VARcosteprest0708	VARReturnonequity0708	VARProv0708

We review this first assignment and consider that this factor analysis could be improved by changing the following three variables: VARprestactuals0708 (Number of current borrowers) and VARG_fros0708 (Financial expenses) are closely related to the size factor. Moreover, statistically, these two variables have the second largest weight in the matrix of rotated coefficients in factor one (size).

Moreover, the cost per borrower was in factor 4 (Inverse of the return of asset) as negative. Theoretically, when the default increases, the cost of borrowing increases, too. Therefore, this variable was changed to factor 6. From a statistical point of view, this variable has its second largest weight in the matrix of rotated components in factor 6 (default). By combining the statistical procedure and the theory, the following assignments are made:



Table 3: Definitive factors of financial variables

COMPONENT 1	COMPONENT 2	COMPONENT 3
VARTotalassets0708	VARFinancialrevenueassets0708	VARAverageloanbalanceborrowerperPIB
VARGrossloanportfolio0708	VARYieldongrossportfolionominal0	VARBorrowersperstaffmember0708
VARtotalborrowings0708	VARFinancialexpenseassets0708	VARTotalwomenborrowers0708
VARAverageloanbalanceperborrower	VARInteres0708	VARMargenporPrestamo0708
VARPersonnel0708		VARL_porprestamo0708
VARG_Ope0708		
VARIFros0708		
VARG_fros0708		
VARpreactuals0708		
COMPONENT 4	COMPONENT 5	COMPONENT 6
VARReturnonassets0708	VARTotalequity0708	VARProvisionforloanimpairmentass
VAROperatingexpenseassets0708	VARCapitalasetratio0708	VARPortfolioatriskgt30days0708
VAROperatingexpenseloanportfolio	VARDebttoequityratio0708	VARWriteoffratio0708
	VARReturnonequity0708	VARProv0708
		VARcosteprest0708

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The six components obtained are named according to the variables included. These are:

- **Component 1** includes those ratios or variables related to the size of the MFIs. Therefore, this component was named “Size” and explains 17.289% of total variance.
- **Component 2** contains four variables that could be associated with the generation of resources of a MFI. This second component was named “Generating Cash Flow” and explains 16.247% of total variance.
- **Component 3** includes five variables related to policy

and commercial operations. It was named “Operations and Commercial Policy” and explains 10.568% of total variance.

- **Component 4** is composed by variables associated to assets. This component was named “Inefficiency in the use of the asset” and explains 9.619% of total variance.
- **Component 5** is formed of variables related to equity. This factor was named “solvency” and explains 7.607% of the total variance.
- **Component 6** is composed of variables related with “default” and, therefore, that is its name

“Default”. It explains 4.753% of the total variance.

Then, a coefficient matrix is calculated to obtain the factor scores for each MFI obtaining that all factors are independent of each other. Therefore, the six components can be introduced as independent variables in a linear regression, being sure that there is no collinearity. The dependent variable in this linear regression was the annual change in financial sustainability.

These six components explain 11% of the variance of the dependent variable (that is, the corrected R2 is equal to 0.11).

Table 4: Regression Model Summary (Latin America)

REGRESSION MODEL SUMMARY (B)					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.377(a)	.142	.110	.1522510038682	2.144
a Independent variables: (Intercept), F6, F5, F3, F1, F2, F4					
b Dependent variable: VARAutosuf0708					

The F statistic allows to decide if there is a significant linear relationship between the dependent variable and all the independent variables. The critical level value (Sig = 0.000) indicates a significant linear relationship. Therefore, the hyperplane defined by the regression equation provides a good fit to the cloud of points.

Table 5: ANOVA (Latin America)

ANOVA (B)						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.612	6	.102	4.402	.000(a)
	Residual	3.686	159	.023		
	Total	4.298	165			
a Independent variables: (Intercept), F6, F5, F3, F1, F2, F4						
b Dependent variable: VARAutosuf0708						

Table 6 shows all the information necessary to build the regression equation. Two of the six factors are significant, at 5%, in the model: factor 5 (Solvency) and factor 6 (Default). Hence, the components Size (1), Generating Cash Flow (2), Operations and Commercial Policy (3) and Inefficiency for use the assets (4) do not contribute significantly to explain the dependent variable.

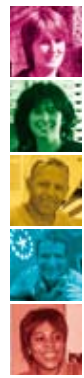


Table 6: Coefficients (Latin America)

COEFFICIENTS (A)								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta	Tolerance	VIF	B	Std. Error
1	(Intercept)	-.015	.016		-.938	.349		
	F1	.042	.026	.577	1.632	.105	.043	23.167
	F2	.055	.033	1.034	1.690	.093	.014	69.436
	F3	.009	.013	.120	.715	.476	.191	5.226
	F4	-.019	.022	-.804	-.841	.402	.006	169.626
	F5	.014	.007	.171	1.973	.050	.715	1.398
	F6	-.031	.010	-1.601	-2.925	.004	.018	55.583

a Dependent variable: VARAutosuf0708

The regression equation obtained is:

$$\text{Financial Sustainability} = 0.015 + 0.014 \text{ Solvency} - 0.031 \text{ Default}$$

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Therefore, financial sustainability is positively related to the component "solvency" (+ 0.014) and negatively to the component "default" (- 0.031).

To end with the Latin-American study, we analyze the assumptions

of independence and collinearity. The Durbin-Watson statistic takes a value of 2.144 (it is between 1.5 and 2.5), then, the independence of residuals can be assumed.

There is no collinearity among the independent variables because

only one of the condition indices exceeded the value of 15, the component "default". However, we do not consider collinearity problems because, in a previous stage, a principal component analysis was made and the relationships between the components were zero.

Table 7: Collinearity Diagnostics (Latin America)

COLLINEARITY DIAGNOSTICS (A)										
Model	Dimension	Eigenvalue	Condition Index	Variance Proportions						
		(Intercept)	F1	F2	F3	F4	F5	F6	(Intercept)	F1
1	1	3.100	1.000	.00	.00	.00	.01	.00	.01	.00
	2	1.828	1.302	.01	.01	.00	.03	.00	.00	.00
	3	.963	1.794	.24	.00	.00	.00	.00	.40	.00
	4	.935	1.821	.27	.00	.00	.00	.00	.32	.00
	5	.148	4.583	.00	.09	.01	.71	.00	.01	.00
	6	.023	11.726	.02	.16	.24	.14	.00	.26	.38
	7	.004	29.303	.46	.73	.75	.11	.99	.00	.62

a Dependent variable: VARAutosuf0708

2. European MFIs

At this point, using a linear regression, we want to check if the previous six components explain the European MFIs financial sustainability. The independent variables are the six components obtained with Latin-American MFIS and, of course, the explained variable is financial sustainability.

In order to calculate the factor scores for each European MFI, information from the same website is used but referring to European MFI data (<http://www.mixmarket.org/>), and the same procedure followed.

The six components enter as independent variables in the linear regression explaining 46.9% of the variance of the dependent variable (corrected R2 = 0.469).

Table 8: Regression Model Summary (Europe)

REGRESSION MODEL SUMMARY (B)					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.961(a)	.924	.469	.0707869742468	2.344
a Independent variables: (Intercept), F6, F4, F3, F1, F5, F2					
b Dependent variable: VarAutosuficiencia					

The F statistic shows a critical level value (Sig = 0.491) which indicates that there is no significant linear relationship. Therefore, the hyperplane defined by the regression equation does not provide a good fit to the cloud of points.

Table 9: ANOVA (Europe)

ANOVA (B)						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.061	6	.010	2.029	.491(a)
	Residual	.005	1	.005		
	Total	.066	7			
a Independent variables: (Intercept), F6, F5, F3, F1, F2, F4						
b Dependent variable: VARAutosuf0708						

Table 10 shows all the necessary information to build the regression equation although all the independent variables are not significant, at 5% (significance < 0.05).



Table 10: Coefficients (Europe)

COEFFICIENTS (A)								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta	Tolerance	VIF	B	Std. Error
1	(Intercept)	.147	.068		2.151	.277		
	F1	.205	.090	3.119	2.271	.264	.040	24.857
	F2	.349	.338	2.873	1.033	.490	.010	101.892
	F3	.073	.100	.313	.725	.601	.407	2.459
	F4	.563	.288	7.613	1.954	.301	.005	199.892
	F5	.340	.142	3.888	2.395	.252	.029	34.728
	F6	-.067	.050	-1.159	-1.335	.409	.101	9.932

a Dependent variable: VarAutosuficiencia

In order to study the assumptions of independence and collinearity, the Durbin-Watson statistic is calculated. It takes a value of 2.344 and therefore, the independence of the residuals can be assumed.

The following table 11 presents the results of collinearity analysis and shows that there is no collinearity among the independent variables because only one of the condition indices exceeded the value of 15,

the component "default". However, collinearity is not a problem because of the results of the principal component analysis made (and the relationships between the components were zero).

Table 11: Collinearity Diagnostics (Europe)

COLLINEARITY DIAGNOSTICS (A)										
Model	Dimension	Eigenvalue	Condition Index	Variance Proportions						
		(Intercept)	F1	F2	F3	F4	F5	F6	(Intercept)	F1
1	1	2.951	1.000	.00	.00	.00	.00	.00	.00	.00
	2	2.714	1.043	.01	.00	.00	.02	.00	.00	.00
	3	.888	1.823	.05	.01	.00	.06	.00	.00	.02
	4	.362	2.856	.14	.00	.00	.29	.00	.00	.01
	5	.050	7.713	.10	.23	.03	.27	.00	.01	.70
	6	.034	9.372	.17	.01	.07	.00	.00	.48	.25
	7	.003	32.146	.53	.74	.90	.36	1.00	.51	.01

a Dependent variable: VarAutosuficiencia

Since the six factors were not significant in explaining the financial sustainability of European MFIs, an alternative methodology is used with the purpose of comparing results from European

MFIs with the benchmark of Latin-American MFIs. In this sense, a stepwise linear regression is made. The independent variables are the previous thirty variables (see table 1) and the dependent variable

is the European Microfinance Institution's financial sustainability. This linear regression explains 97.78% of the variance of the dependent variable (corrected R2 = 0.9778).

Table 12: ANOVA (European Model II)

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.29533	9	.03281	39.17	.0001
	Residual	.00670	8	.00083770		
	Total	.30203	17			

The F statistic shows a critical level value (Sig = 0.0001) and indicates that there is a significant linear relationship. Therefore, the hyperplane defined by the regression equation provides a good fit to the cloud of points.

The following table 13 shows all the information necessary to build the regression equation. Seven of the thirty variables were significant, at 5%, in the model. And nine of the thirty variables were

significant, at 10%. The variables with the highest percentage of significance (10%) are:

1. Variation of Gross Loan Portfolio 07/08.
2. Variation of Equity/Asset Ratio 07/08 (Capitalassetratio).
3. Variation of Financial Revenue/ Assets Ratio.
4. Variation of Yield on Gross Portfolio Nominal.
5. Variation of operating expense/ loan Portfolio.
6. Variation of Borrowers per staff member.
7. Variation of Portfolio at risk overdue more than 30 days.
8. Variation of Financial expenses (G_Fros0708).
9. Variation of Interest rate (interes0708).

Table 13: Coefficients (European Model II)

COEFFICIENTS						
Model		Unstandardized Coefficients		Type II SS	F-Value	Pr > F
		B	Std. Error			
1	(Intercept)	.11683	.01472	.05275	62.97	<.0001
	Var_Gross_loan_portfolio	-.20477	.05583	.01127	13.45	.0063
	Var_Capital_asset_ratio	.49263	.06009	.05631	67.22	<.0001
	Var_Financial_revenue_assets	-.31902	.13332	.00480	5.73	.0437
	Var_Yield_on_gross_portfolio	-.38084	.08864	.01546	18.46	.0026
	Var_Operating_expense_loan_portfolio	-1.48218	.14174	.09160	109.35	<.0001
	Var_Borrowers_per_staff_member	-.62819	.07093	.06571	78.44	<.0001
	Var_Portfolio_at_risk_30_days	.02173	.01042	.00364	4.35	.0706
	VarG_Fros	-.01204	.00630	.00306	3.65	.0924
	VAR_Intereses	1.16663	.15536	.04724	56.39	<.0001



The regression equation obtained is:

$$\text{Financial Sustainability} = 0.11683 - 0.20477 \text{ Var_Gross_loan_portfolio} + 0.49263 \text{ Var_Capital_asset_ratio} - 0.31902 \text{ Var_Financial_revenue_assets} - 0.38084 \text{ Var_Yield_on_gross_portfolio} - 1.48218 \text{ Var_Operating_expense_loan_portfolio} - 0.62819 \text{ Var_Borrowers_per_staff_member} + 0.02173 \text{ Var_Portfolio_at_risk_30_days} - 0,01204 \text{ Var_G_Fros} + 1.16663 \text{ Var_Intereses}$$

Therefore, financial sustainability is positively related to the variables:

1. Variation of Equity/Asset Ratio (+ 0.49263).
2. Variation of Portfolio at risk overdue more than 30 days (0.02173).
3. Variation of Interest rate (1.16663).

And negatively to the variables:

1. Variation of Gross Loan Portfolio (- 0.20477).
2. Variation of Financial Revenue/ Assets Ratio (- 0.31902).
3. Variation of Yield on Gross Portfolio Nominal (- 0.38084).

4. Variation of operating expense/ loan Portfolio (- 1.48218).
5. Variation of Borrowers per staff member (- 0.62819).
6. Variation of Financial expenses (- 0.01204).

The variables with a higher explanatory power are “variation of operating expense/ loan Portfolio” which was included in a factor called “inefficiency in the use of the assets” and “variation of interest rate”, included in the “cash flow generation” factor. However, the “solvency” factor represented by “variation of equity/asset ratio” is also related in a positive sense to financial sustainability according to Latin-American MFI empirical

study, whilst the “default” factor has a positive but near-to-zero coefficient.

Moreover, these results of the empirical study of European MFIs differ from the theoretical relationships (included in Table 1) between some independent variables and the financial sustainability. For example, if the portfolio at risk increases, then financial self-sufficiency will fall (theoretical relationship). The linear regression shows a reverse relationship, which is probably due to the small size of the sample (approximately 20 European MFIs).

CONCLUSION AND FUTURES LINES OF RESEARCH

In order to increase sustainability, it is easier to generate value by lending to individuals with better credit records, due to their increased ability to handle debt and lower associated default rates. However, in doing so, an MFI must be careful not to subvert its mission. Outreach must be considered as a goal related to sustainability. Nevertheless, a better understanding of the actual costs involved in the microfinance process will enable an evaluation of the interest rates that may need to be charged by an MFI to cover its costs of lending and also its needs of private and public subsidies.

The conclusions of our empirical study are:

1. The empirical study of Latin-American MFIs allows us to conclude on the explanatory power of “solvency” (in a positive way) and “default” (in a negative sense) with respect to financial sustainability. Furthermore, considering the wide sample of MFIs used in the study, and the development and maturity of the Latin-American entities of the sample, the analysis of these explanatory factors can be extrapolated and used as a benchmark in the microfinance sector.
2. Results from Latin-American MFIs fail to explain the financial sustainability of European MFIs in our sample, where the explanatory power is focused on “inefficiency” and “cash flow generation” factors. A better management of the most sensitive variables will enable better performance of the MFIs. The weakness of the empirical study of European MFIs can be found in both the undersized sample used in our research and the actual lower level of development of European MFIs.
3. Future steps in our research may be, first, to replicate the study with a wider European database and, second, to solve the problem of factor analysis where little data is available by means of the Bayes approach to factor analysis. In the Bayes approach to factor analysis, available prior knowledge is quantified in the form of prior distribution and incorporated along with the data. Information contained in the data is quantified in the form of a likelihood distribution. The priors and likelihood are combined by Bayes’ rule so that knowledge from both sources is incorporated into the inference.

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Financial Behaviours and Vulnerability to Poverty in a Transition Context

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ABSTRACT

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Purpose of the paper: This paper examines links between financial behaviours of low-income individuals and their vulnerability to poverty in transition context of Poland.

Design/Methodology/Approach: Two qualitative and two quantitative datasets on low-income households in Poland are analysed using a multidisciplinary approach based on the sustainable livelihood framework, expanded by behavioural and institutional economics perspectives on saving by low-income households. The framework is enriched by the financial capability model (Cohen, PFRC in Bristol) and personal financial intermediation concept developed by Rutherford.

Key results: Reactive financial behaviours in low-income households hamper asset accumulation and significantly increase vulnerability to poverty in the transition context of Eastern Europe. Driven by levels of financial capability, the financial behaviours are instrumental in explaining vulnerability to poverty as they are the strongest predictor from a wide menu of other livelihood and asset variables. Limited long-term financial planning, saving and preparing for risks increase vulnerability, whereas borrowing and using financial services do not have a great influence, although these do assist in the accumulation of assets. The relationship between financial behaviours and vulnerability is weaker but also true for the poorest groups, which shows that the poorest can benefit from greater financial capability, especially if it is coupled with better access to safety nets in order to unleash their productive potential.

Impact: Vulnerability to poverty has increased significantly over the last 20 years in the transition countries. This is due to a collapse of public safety nets, which have not yet been replaced by other risk-management mechanisms developed by low-income households. At the same time, financial behaviours are widespread in the transition context. I argue that determinants of reactive financial behaviours are the key to developing sound vulnerability reduction policies. While various actors have been trying to eliminate structural vulnerability drivers during the transition period, there have been few initiatives to promote proactive financial

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behaviours. This study also draws important conclusions relating to microfinance. Achieving vulnerability reduction through “access to finance” agenda uniquely is not evident in a context where individuals have low financial capabilities. It appears that microfinance will not be fully successful in meeting its development objectives in the

transition context if it does not consider promoting proactive financial behaviours.

Value: There are few studies that have attempted to include financial behaviours as a central element in understanding vulnerability to poverty. Among the rare examples are Sebstad and Cohen (2000) and Hospes and Lont

(2004). This research contributes to filling this gap in the knowledge by developing a conceptual framework and exploring links between financial behaviours and vulnerability to poverty based on a multi-disciplinary framework.

Key Words: Vulnerability, poverty, transition, savings, financial behaviours, microfinance.

INTRODUCTION

It is now recognized that in designing forward-looking interventions, which both prevent and fight poverty, one needs to approach poverty from a dynamic perspective, namely vulnerability to poverty (Holzmann and Jorgensen 2000, World Bank 2001, Dercon 2005), which reflects exposure and ability to cope with downward pressures and shocks. The inability to respond to risks may lead to social exclusion and deprivation. Without a certain level of security individuals living in low-income households are unable to take advantage of promotional opportunities in order to grow out of poverty. Given that low-income households are by nature risk-averse, this traps them in low-return, survival activities (Rosenzweig and Binswanger 1993, Ravallion 1997, World Bank 2001, Dercon 2005).

Vulnerability level is a function of various factors – ranging from structural to individual. It is argued that access and control over one's assets is key to understanding vulnerability as assets determine access to effective ex-ante or ex-post risk-management strategies (Sebstad and Cohen 2000, Gamanou and Morduch 2002). Low-income individuals acquire lump sums to build assets and cope with risks through a wide range of saving, borrowing and insuring strategies. Intuitively, it may be expected that ways in which people manage money, financial capabilities and behaviours should affect how they accumulate assets, and consequently their vulnerability to poverty. In principle, there should be differences in the effectiveness of asset accumulation between those individuals who manage their finances proactively - having a positive attitude towards managing their finances, taking a longer horizon in financial planning, saving systematically, trying to insure or at least prepare for risks, and borrowing smartly; and those who do it in a reactive manner – not seeing much sense in managing money, tending to live from hand to mouth and responding spontaneously to risks.

This study attempts to understand whether financial behaviours determine vulnerability to poverty in low-income households. Does it change anything for a low-income household if it manages its finances proactively? Or are the resources so scarce and structural factors so important that proactive financial behaviours do not add much value to reduce vulnerability to poverty. To my knowledge, there are few studies that have tried to include financial behaviours as a central element in understanding vulnerability to poverty. The rare examples include Sebstad and Cohen (2000) and Hospes and Lont (2004). This research contributes to filling this gap in the knowledge by developing a conceptual framework and exploring links between financial behaviours and vulnerability to poverty based on a multi-disciplinary framework and empirical work that involves analysis of two quantitative and two qualitative datasets from Poland.

This study concludes that reactive financial behaviours in low-income households hamper asset accumulation and significantly increase vulnerability to poverty in the transition context of Eastern Europe. This is an important finding in the context of transition countries where vulnerability to poverty has increased significantly over the last 20 years. Such a high vulnerability is due to a collapse of public safety nets, which have not yet been replaced by other risk-management mechanisms developed by low-income households. At the same time, the range of financial behaviours is widespread in the transition context. This reflects ingrained practices of communist times, when people had limited incentives to pay attention to managing their own finances.

Based on these findings I argue that determinants of reactive financial behaviours are key to understanding the development of successful vulnerability reduction policies. While different actors have been trying to eliminate structural vulnerability drivers during the transition period, there have been few actions to promote proactive financial behaviours. The findings are also relevant to the microfinance movement which has not yet incorporated financial capability agenda. Achieving vulnerability reduction uniquely through an "access to finance" agenda is not evident in the context where individuals have low financial capabilities.

The remainder of this paper is organized as follows. The next section puts forward a conceptual framework for this study. Section 3 presents details on research methodology and data. Section 4 briefly discusses transition, poverty and vulnerability to poverty. Section 5 attempts to understand financial behaviours of low-income households. In Section 6 the relationship between financial behaviours and asset accumulation as well as vulnerability to poverty is analysed. The last section summarizes key findings and concludes on applications.



CONCEPTUAL FRAMEWORK

To study both complex concepts, vulnerability to poverty and financial behaviours, there is a need to draw on theories from different disciplines. The sustainable livelihood framework, proposed first by Chambers and Conway (1992), is an underpinning concept used in this study. As argued by Lont and Hospes (2004) the central rationale for using livelihood framework in development studies today is the necessity to look beyond work and income in order to understand poverty and vulnerability. Key to describing vulnerability is to understand a risk chain, which comprises risk realization, risk management and impact of risk (Sebstad and Cohen 2000, Heitzman et al. 2002, Cohen et al. 2003). The magnitude of impact of risks gives the level of vulnerability to poverty of a given household. The impact of risks is a function of household exposure to risks, nature of risks (severity and frequency) as well as access to and effectiveness of risk management strategies used, which are defined by the level and mix of household assets. Thus, financial, physical, human and social assets are a central piece in vulnerability analysis (Sebstad and Cohen 2000, Moser 1998, Sherraden 1991).

The term financial behaviour encompasses a wide range of strategies and tools used to generate lump sums of money needed to respond to various types of financial needs. Rutherford (1999) explains that low-income individuals acquire lump sums through basic personal financial intermediation, which relates to saving up (saving current income or cutting expenses), insuring to protect future income, and saving down (borrowing from future income to increase consumption now). It can be said that all the financial strategies are a form of saving. Therefore, saving theories are particularly useful in conceptualizing the framework to analyse financial behaviours.

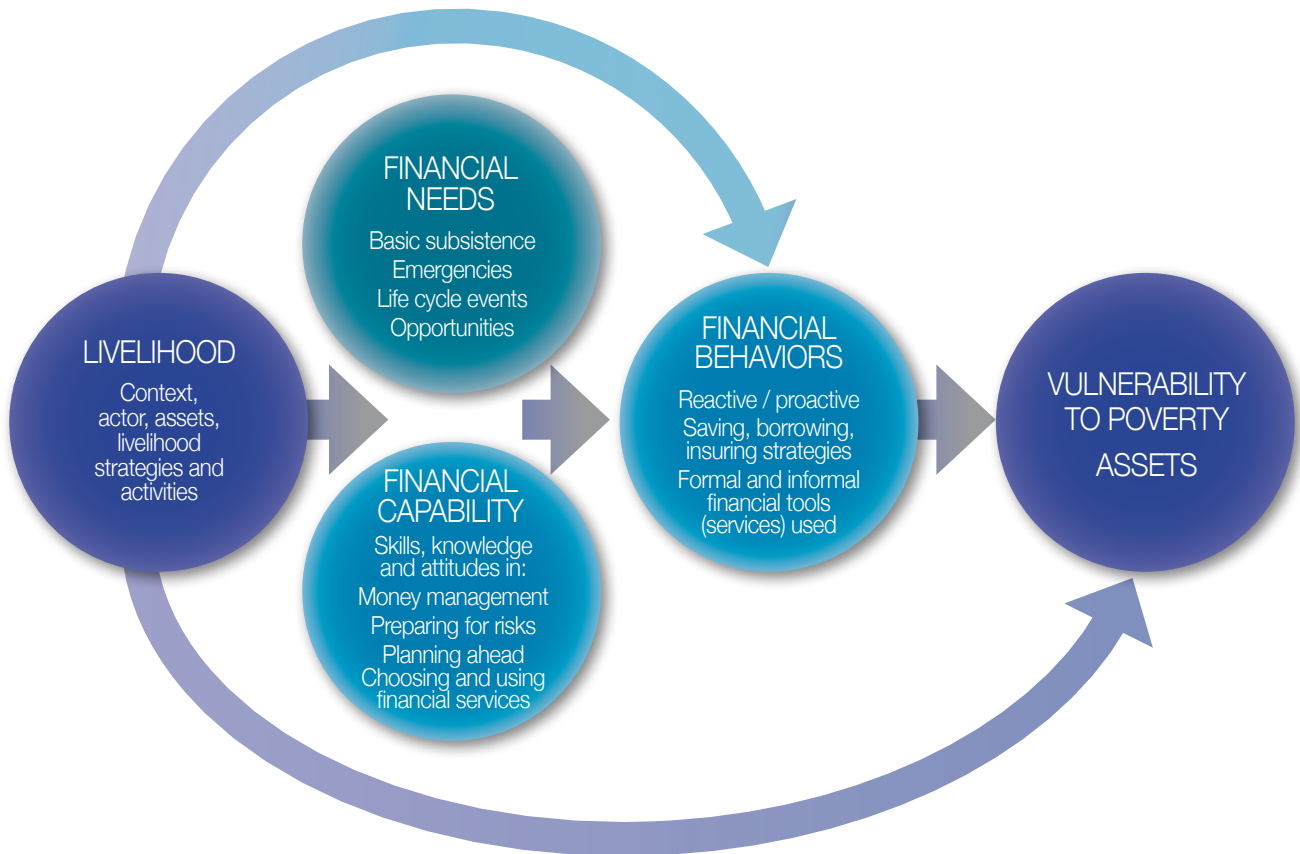
As neo-classical theories of saving hardly explain saving behaviours of low-income household across the globe (Beverly 1997), the livelihood concept and the Rutherford's personal financial intermediation are expanded by two perspectives, namely behavioural and institutional economics, both of which promise to shed more light on this issue. Behavioural economics distinguishes ability to save from willingness to save and argues that motives, attitudes and expectations of consumers play a significant role in determining financial behaviours (Katona 1975). Modern behavioural economics emphasises that individuals infinitely postpone decisions to defer consumption now and save for the future because they show a very sharp impatience for short-term horizons and request an immediate reward. Therefore, saving is a result of behavioural incentives and constraints created by individuals (Thaler and Shefrin 1981, Shefrin and Thaler 1988, Laibson 1996, Barberis and Thaler 2003). According to institutional theories, saving is shaped by institutional arrangements through which saving occurs involving explicit connection, rules, incentives and subsidies (e.g. tax deductions, housing subsidies) (Sherraden 1991, Beverly and Sherraden 1999).

Those frameworks are enriched by the financial capability model (PFRC 2005, Cohen et al 2003), which argues that financial capability is a function of knowledge, skills and attitudes that make a household capable of managing its finances. The following four key financial capability areas are identified: money management, planning ahead, preparing for risks and using financial services. In brief, financial capability is about setting goals and choosing the right strategies to a meet a household's financial needs.

To sum up, the study framework, presented in Figure 1, draws the relationship between financial behaviours and vulnerability to poverty². Financial behaviours encompass a wide range of strategies used to generate lump sums of money needed to respond to financial needs. These strategies can take monetary or non-monetary form as well as be operationalised using formal or informal financial services. Financial behaviours are determined by the household's financial capability level. Livelihood variables determine financial needs and capability, but they also impact directly on financial behaviours (e.g. actor psychographic profile, available financial offerings) and on asset building and vulnerability levels (e.g. structural factors, risky context, profile of household activities).

² An inverse causality is also possible. The reactive financial behaviors can also be a result of high vulnerability to poverty. Analyzes presented in Section 6 take this into consideration.

Figure 1: Framework for studying financial behaviours and vulnerability to poverty





METHODOLOGY AND DATA

To achieve study objectives, both quantitative and qualitative methods were applied using data from Poland. The latter allowed understanding concepts, developing quantitative surveys and interpreting results, while the quantitative methods were used to measure and explore the studied issues on a representative sample of low-income households. Two qualitative and two quantitative datasets were used:

1. *MFC dataset* - cross-sectional household data collected in Poland in 2006 on a representative sample of 1020 low-income household heads for one of the projects of the Microfinance Centre (MFC) for CEE and this NIS. Designed by the author and conducted by Ipsos, the survey aimed to capture financial capability, financial behaviours, asset possession, exposure to risks and vulnerability to poverty. Only low-income households were surveyed; defined as living below a median equivalised household income (at 850 PLN, close to social minimum in Poland).
2. *SD dataset* - panel household and individual data collected in Poland in 2000, 2003, 2005 by Social Diagnosis longitudinal project (Czapinski and Panek 2005) designed by a team of academics and administered by the national office of statistics (GUS). The comprehensive questionnaire collects detailed data on various aspects of living conditions of Polish households. The total samples are as follows: 3006 households, 9996 individuals (2000), 3962 households and 9597 individuals (2003), 3858 households and 8790 individuals (2005). In 2003, there are 60% of households interviewed in 2000. In 2005, there are 64% of households interviewed in 2000 and 81% of households interviewed in 2003. For the analysis, the low-income population is defined in the same way as for the MFC dataset.
3. *Research on financial education* - designed and conducted by the author and other MFC experts in 2004, this qualitative study aimed at identifying and understanding key gaps in financial education of low-income households in Poland (Matul et al 2004). The research was conducted mainly in small towns and rural areas. It comprised 11 focus group interviews with 5-10 participants each and 23 in-depth individual interviews conducted in the following districts: Nowe Miasto Lubawskie, Iława and Rypin.
4. *Research on entrepreneurship and financial practices* – designed by the author and conducted jointly with Ipsos in 2006, this qualitative study aimed at exploring various issues related to entrepreneurship, financial capabilities, financial and risk-management behaviours of low-income households in Poland. It also helped to inform design of the quantitative MFC survey mentioned above. It consisted of 6 focus group discussions, with 6 participants each in Lodz and Rypin.

The low-income household is a primary unit of analysis (actor). The unitary model of a household is applied, which assumes that all household resources are pooled and distributed in a non-discriminatory way and that household members take most of the financial decisions jointly. Those assumptions significantly simplify the reality and should be unpacked in future research on this topic.

Both datasets have slightly different sample structures and a set of available variables. That is why, within same conceptual framework, different approaches are used for measurement of asset ownership, vulnerability to poverty and financial behaviours. This helps to triangulate findings and increases reliability of final conclusions. Gamanou and Morduch (2002), Hoddinott and Quisumbing (2003), Ligon and Schechter (2004) provide an overview of practices in measuring vulnerability. In this study two approaches are used: 1) for the SD data, a measure for vulnerability draws from consumption variability approach but uses patterns of subjective evaluation of purchasing power instead of consumption expenditures, 2) for MFC data, an “ability to cope” approach is used to construct two measures: a) indicator based on potential impact of health risks on household finances, and b) indicator based on actual impact of six bigger emergencies identified as the most important in the focus groups. Asset indexes are built based on equal weights of four asset groups: financial, physical, social and human. For financial behaviour indexes two different approaches are used. For MFC dataset it is based on segmentation by financial behaviours done using cluster analysis on all available financial behaviour/capability indicators. For SD dataset, it is a simple index counting symptoms of proactive financial behaviours. Qualitative data collected informed development of the accurate measures.

The relationship between financial behaviours and vulnerability to poverty is modelled using a basic multiple regression equation with the vulnerability index as a dependent variable and the following predictor variables: financial behaviour dichotomous variables/indexes as specified in Section 5, asset index and other control livelihood variables as specified in Section 2. A similar model is used to specify impact of financial behaviours on asset accumulation, while the asset index is taken as dependent variable. As linear regression assumptions are met, the equation is estimated using a linear model (least squares), which provides a reasonably good fit.

TRANSITION AND VULNERABILITY TO POVERTY

The transition from communism to democracy resulted in a dramatic rise in poverty in Eastern Europe. The total estimated number of the poor in the eighteen countries of the region has raised twelve fold from nearly 14 million before the transition (1987-88) or about 4 percent of the population, to 168 million in 1993-95, or approximately 45 percent of the population (Milanovic 1998)³. Slight improvements in the human development and poverty reduction were observed in the late 1990s. The UNDP human development index rebounded in 1995 for the Eastern Europe and Central Asia regions after a decrease in the early 1990s (UNDP 2006). According to the World Bank (2005) roughly 21% lived below the extreme poverty line in 1998, while the figure was 12% in 2003. While much of this poverty reduction has occurred in the populous Kazakhstan, Russian Federation, and Ukraine, poverty has fallen almost everywhere, except for Poland, Lithuania and Georgia. In Poland, one of the wealthiest countries in the region, poverty has been steadily increasing. In 1997 13.3% people were estimated to live below the official poverty line, while in 2005 the rate increased to 18% (GUS 2005). Half of the population in Poland can be classified as living on low incomes according to the official social minimum threshold. The poverty increase resulted in a significant wave of the “new poor” together with so called pockets of poverty and strong regional disparities in poverty levels.

There is substantial knowledge on who is poor and what the key drivers of poverty are. However, few studies explicitly researched vulnerability to poverty in transition settings, and if they did their approach was limited to income mobility or consumption shocks. Those studies draw a general picture of high vulnerability in transition countries (World Bank 2000, Okrasa 1999a, Szukielojc-Bienkunska 1996). Based on “ability to cope” and asset ownership, the vulnerability analysis done for this study shows that more than half of low-income households in Poland (approximately one-fourth of total population) are vulnerable to poverty. For as many as 61% of low-income households a series of three minor sickness of any household member during one month causes significant or dramatic decrease in financial standard of living in the given month⁴. Only 7% of households do not feel any financial pressure associated with series of minor health problems. 94% of low-income households experienced downturn changes in affordability of satisfying basic or luxury needs over 2000-05. The analysis also shows the importance of education, modern life skills, employment and adequate level of income in reducing vulnerability. What is more, household vulnerability to poverty is linked strongly to low ownership of household financial, physical, human and social assets. The analyses run on both SD and MFC datasets yield similar results showing that:

- Financial, physical, human and social assets are interdependent, thus building assets is the most effective when it concerns all types of assets at the same time.
- Vulnerability of households is closely linked to their asset ownership. Assets describe vulnerability better than any other context, socio-demographic, psychographic, income and employment indicators.

Besides asset ownership the observed general increase in vulnerability can be attributed to an occurrence of significant gaps in effective risk-management mechanisms.

On one hand, the social safety nets and free public services have collapsed in most of the transition countries, which has resulted in low effectiveness of social protection systems in reducing poverty during transition (Fox 2003, Okrasa 1999b, World Bank 2000). There was a significant leakage to non-poor (e.g. subsidised fuel prices) and low coverage (in Latvia or Bulgaria only 2% of those covered by assistance were poor). On the other hand, the “new poor” have not yet developed their own coping mechanisms, therefore their current risk-management practices are far from being optimal.

³ Using official statistics Milanovic underestimates the level of poverty during communist times. There is evidence that in most CE countries there was on average 10-20% of the population living below the poverty rate (5% extreme poverty) in late 80's (Ladanyi and Szelenyi (2000), Golinowska et al (2002), Tarkowska (2000) and Domanski (2002)).

⁴ In most of the qualitative research health comes as the major risk for low-income households during the transition period (Matul et al 2004). Palska (2002) qualitative analysis of the lifestyles of poor people in Poland confirms that for the poor series of health problems constitute serious financial crisis because there is no money set aside for emergencies in household budgets. Health risks are important also because they are one of the most frequent risks, in most cases they cannot be postponed (illness must be cured), low-income households have more members than average (who can be affected by the risks) but also because access to health care and medicines has become expensive.



FINANCIAL BEHAVIOURS IN THE TRANSITION CONTEXT

Reactive financial behaviours are widespread in Poland. The majority of low-income people save money very rarely, insure to a limited extent and borrow extensively. Only 15% of low-income households in Poland declare regular savings⁵. One-third have significant difficulties with budgeting and cash-flow management. They do not plan ahead, 87% do not plan beyond a one-month horizon. Only 21% save for old-age provision. 47% have taken a loan in the last 5 years, mostly to deal with emergency expenses, to cover subsistence needs or purchase durable goods. 33% still do not have a bank account. All in all, only 28% of low-income households can be classified as proactive money managers. This reflects the ingrained practices of communist times, when people had limited incentives to pay attention to managing their household finances. It was useless to be a proactive money manager while consumption opportunities were limited, income was low but relatively stable, a wide range of in-kind supports was delivered by the state, pensions were guaranteed, private property was restricted, a so-called “culture of waste” was widespread, and there were few standard retail financial products available to the general population. As a result of previous institutional arrangements, in transition context there are virtually no informal savings and credit groups, which are so widespread in other developing countries and play an important role in building assets and managing risks (Bouman and Hospes 1995, Rutherford 1999).

The transition triggered changes that affected financial behaviours of households. Many households lost their monetary savings in the first years of transition owing to hyperinflation, introduction of real exchange rates or the collapse of financial sector institutions. This heavily undermined trust in the financial sector at the beginning of transition and this experience is still fresh in people’s minds 20 years after these reforms. What is more, pension system reforms and the quick development of retail financial products shifted responsibility and risk for financial decisions from the state to individuals and made choices more abundant but also more difficult to make.

Why people do not save?

Savings behaviours are central for understanding financial behaviours. This research shows that attitudes and more broadly financial capability have more explanatory power than household age or income level when it comes to explain low saving rates of low-income households.

According to the analysis, neither the life cycle hypothesis of Modigliani (1954) nor the permanent income hypothesis of Friedman (1957) have any explanatory power with regards to savings by low-income households in Poland. Instead of an inverted U-shaped age pattern savings follow a U-shaped pattern, when youngest and oldest groups save more than middle aged ones. Both neo-classical theories fail to explain saving because low-income households in transition context do not project their future. Moreover, low capacities to save or low income level are not predominant factors explaining limited savings behaviour among low-income households. This is significant only for the poorest group, one-fourth of the low-income population.

Institutional theories of saving (Beverly and Sherraden 1999) do not explain it either. Institutional arrangements put into practice in 90s and 2000s in Poland play a negligible role in determining financial behaviours of Poles, especially low-income people. This is reflected in low take up figures for third pillar pension products and individual retirement account. Additionally, there is no evidence that using financial services stimulates saving.

Behavioural theories of saving seem to better reflect the reality. Figure 2 gives a snapshot of predominant attitudes towards savings in low-income households. Three main types of attitudes are as follows:

- Approximately 20% of low-income households do not believe in saving at all. For them present needs are the most important. Future needs, for which one can save, are not salient, thus are not factored into decisions.
- There is a widespread attitude that saving is only for rich and with low income at disposal it is not possible to save. 80% of non-savers do not save because they say they have not enough capacities to do it. 72% argue that higher income is the most important incentive to save. 48% say that saving is possible only by rich people.

⁵ This is confirmed by other research. Czapinski and Panek (2003, 2005) show that almost 80% of Polish households do not save in any form and half of them are currently repaying a loan. IPSOS (2004) reports that in 2003 only 12% of Poles managed to put aside some money; while this figure was at 25% in 1999.

25% of low-income households are not willing to save because they are impatient to wait so long to see the results. Even if they started saving they quickly became discouraged by the lack of immediate effects and used their savings for other instant needs. This confirms the human tendency to procrastinate and struggle with self-control. Additionally, households tend to be over-optimistic about their finances. As many as 58% of low-income households think they will manage to save in the next 12 months.

These three attitudes are strongly correlated with each other and explain saving practices of low-income households to the

greatest extent of all the analysed factors. This research confirms a central hypothesis of behavioural theories of saving that individuals show a very sharp impatience for short-term horizons and request an immediate reward (Shefrin and Thaler 1988, Laibson 1996). Therefore, they infinitely postpone decisions to defer consumption now and save for the future. Low financial capability is another important factor explaining low savings among low-income households. It refers mostly to the inability to develop a coherent savings plan, with well established goal(s) and instruments to realise them. Almost half of low-income households attempted to save but

failed. The qualitative research revealed that people either did not adopt any goals (*"I wouldn't be saving even if I could because there is nothing to save for"*; *"what's the use of setting goals if every now and then something goes wrong"*) or, if they did, they were unable to keep to them (*"[you can't keep money] there is always something that comes up"*). What is more, it is not only about one financial goal but about many interlinked financial needs that are spread over time. Low-income households in transition context do not have skills to manage such a dynamic portfolio of financial needs, strategies and tools to realize them.

Figure 2: Attitudes towards saving

	DEFINITELY AGREE	AGREE	DISAGREE	DEFINITELY DISAGREE	DIFFICULT TO SAY
It is worth saving even if your income is low	20	51	15	6	8
It does not make sense to save since you do not know what tomorrow will bring	7	19	46	21	7
Only the rich can afford to save	23	25	38	11	3
Everybody can save these days, even if these are just small amounts	12	38	27	16	7
Even small savings can improve your stability and security in the future	17	56	15	5	7
It doesn't make sense to save because you need to wait so long for your goals to be achieved	6	19	43	22	10
It is impossible to save because there are always expenses coming up that force you to use your savings	15	33	34	7	10
We wanted to save, but we were not successful	13	33	35	11	8
It pays to keep money in the account because you are less tempted to spend it	16	42	22	8	13

Source: Own calculations on MFC dataset. Statements developed based on qualitative research.



Planning ahead and preparing for risks

As many as 80% of low-income households do not believe that saving small amounts can help them to reach their financial goals in the future. 73% of low-income households do not think it is realistic to plan anything for such long term periods of 5 or 10 years. As many as 64% of low-income households believe they do not have the capacity to save for emergencies. As many as 41% of households do not see benefits in proactive risk-management and say there is no need to worry in advance to budget for emergencies. This was well described by one of the respondents of qualitative research: *“People don’t worry that something unfortunate will happen. They say that when it happens they will manage somehow. And when it happens, they learn it’s not that easy at all”*.

Planning ahead and preparing for risks, two fundamental areas of the financial capability framework, depend dramatically on saving behaviours. Hence, the reasons for a lack of long-term financial planning and limited preparation for risks are similar to the determinants of saving described above.

Borrowing and debt

Seeking immediate rewards and high discount rates also explain the remarkable propensity for debt. Despite shame, negative attitudes towards borrowing and low capabilities to take right credit decisions, low-income households

in the transition context borrow more and more. They do not borrow smartly for items that will yield returns in the future. Instead, they borrow either to buy consumer goods or to face emergencies or subsistence needs. Very often borrowing is spontaneous without much thinking about its consequences.

5% of low-income households in Poland have too much debt⁶. 17% of those who are repaying loans now are over indebted, particularly among the poorest. It is in line with other studies, which found out that the majority of the poorest are in debt all the time. They mastered living in permanent debt, paying off one loan with another, and saw no reason to change it (Palska 2002, Matul et al 2004).

Use of financial services

67% of low-income households have a bank account, 16% use any formal saving services, 24% use any formal credit services, 14% have a credit card, 52% use insurance services. A division based on those using financial services and not using them is not so straightforward since income level is not the most important determinant. It is true only for one-fourth of low-income households, who have positive attitudes towards financial services and institutions and do not use the services as much as they want because they are excluded by providers, mostly due to high prices. However, almost half of the low-income households exclude themselves by saying that they do not need financial services.

Household profiles by financial behaviours

A segmentation of households by financial behaviours helps to simplify this complex issue into few most important dimensions⁷. Figure 3 presents four main segments identified through this segmentation:

- “Smart planners” (28%) are proactive in all the dimensions of the financial behaviour framework, save and plan ahead as well as use effectively financial services to build assets.
- “Traditional planners” (24%) save and plan but using mostly informal ways. They are sceptical about financial services and rarely use them. They do not use/believe in formal insurance services. They are indifferent with regards to borrowing, neither consider it as a shame nor as a good solution.
- “Reactive borrowers” (25%) have cash-flow difficulties, and do not save or plan. They get discouraged from saving owing to past failures. On the other hand, they have a positive attitude towards borrowing and financial services that pushes them in the direction of debt trap.
- The “uneducated survivors” (23%) segment scores negatively on all dimensions of the financial behaviour framework. They do not plan and do not save and have very negative attitudes towards it. They are afraid of borrowing and avoid it. On top of this, they are totally opposed to financial institutions and their services.

⁶ Over indebted households are defined as those whose monthly installments for all debts, not including mortgage loans, are higher than 25% of monthly disposable income.

⁷ Segmentation done using cluster analysis (k-means method) on all the financial behaviour/capability indicators (all transformed into dummies).

Figure 3: Segmentation by financial attitudes / capability

	TRADITIONAL PLANNERS	UNEDUCATED SURVIVORS	REACTIVE BORROWERS	SMART PLANNERS
Share in low-income population	24%	23%	25%	28%
Profile	Not big cities; older; Smaller households (singles, without children); Primary education; Low modern skills; Middle income groups; Not self-employed; Head unemployed; Self-confident law-abiders	Big cities; Aged 50+; Neither primary nor higher education; Low modern skills; Lowest income; Less wage employment, more social transfers; Head unemployed	Female headed households; Aged 40-59; Fatalists	Aged 30-49; 3-4 member households; Secondary and higher education; High modern skills; Highest income; Wage and self-employment; Either self-confident law-abiders or risk-takers
MONEY MANAGEMENT				
Share of those having difficulties with budgeting and cash-flow	18%	56%	54%	4%
SAVING				
... which save regularly or often	16%	4%	2%	35%
... which keep savings at home	48%	21%	18%	24%
PLANNING AHEAD				
... which believe in planning ahead and plan	44%	14%	13%	40%
RISK-MANAGEMENT				
... which save for emergencies	27%	12%	3%	52%
... which borrow for emergencies	12%	31%	46%	7%
... which have insurance policy	33%	34%	56%	80%
BORROWING				
... which repay a loan now	11%	15%	39%	41%
... which repay a loan and are over indebted	2%	1%	9%	6%
USAGE OF FINANCIAL SERVICES				
... which have a bank account	34%	46%	88%	93%
... which have a credit card	4%	4%	13%	32%
...which use formal saving services	5%	5%	8%	43%
... which use formal credit services	23%	32%	82%	99%
... which use 3 and more financial services	5%	3%	30%	62%

Source: Own calculations on MFC dataset.



FINANCIAL BEHAVIOURS AND VULNERABILITY TO POVERTY

Impact of financial behaviours on asset accumulation

This study tests a hypothesis that higher possession of assets now can be partly explained by a good level of financial capability and proactive financial behaviours. One may argue that an inverse causal link might be more relevant. Those who have a low asset base have difficulties in adopting and do not benefit from proactive financial behaviours. This hypothesis is also tested by analysing the relationship between assets and financial behaviours for low asset sub-groups only.

Figure 4 presents three multivariate models that were the most powerful in predicting asset accumulation. For all models the coefficients for financial behaviour variables/indexes are significant and have expected signs. What is more, when coefficients of all predictor variables are standardised the coefficients of the financial behaviour variables have the highest values, meaning that financial behaviour determines asset accumulation to the strongest extent from a rich menu of all predictor variables. Being a “smart planner” provides the highest return in terms of asset accumulation. Three other groups are much more distant from “smart planners”. “Uneducated survivors” have the lowest asset level. “Reactive borrowers” are slightly more successful in asset accumulation than “traditional planners”. This is in line with the “microcredit revolution”. Despite the fact that debt is a liability and thus lowers the value of the financial asset index, even those who are over indebted are more likely to possess more assets. Smart and reactive borrowing is to be distinguished. Those who borrow for emergencies do not get the asset-building bonus. Last but not least, relatively higher effects of usage of financial services on asset building confirm the importance of “access to finance” for asset accumulation.

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Several other variables also have significant influence on asset building. Among those the strongest determinants relatively are: income source (including dependence on social transfers, unemployment), age and location. Those households relying on wage income or on self-employment are more successful in asset building. It is more difficult to build assets for those households living in small towns and rural areas as well as among those headed by elderly people.

The indicator of asset change, available on the SD dataset, is a more credible measure of asset accumulation (Model 3 in Figure 4). Once again financial behaviour is the strongest determinant of asset building. Other strong predictors are location, income source, age and gender. But these results are opposite to the ones obtained using asset possession indicator. Those households relying on temporary jobs and on social welfare, living out of big cities, female-headed and young-headed households are more likely to have better results in asset building. One explanation might be that it is easier to achieve higher growth of assets starting from low levels of asset possession.

Figure 4: Multivariate analysis of impact of financial behaviours on asset accumulation

		MODEL 1 (MFC)		MODEL 2 (SD)		MODEL 3 (SD)	
		Coeff.	Stand Coeff.	Coeff.	Stand Coeff.	Coeff.	Stand Coeff.
	(Constant)	12.31**		3.33*		-0.16	
Financial profile	Traditional planners	0.36	0.04				
	Uneducated survivors (ref.)						
	Reactive borrowers	0.47*	0.06				
	Smart planners+	2.82**	0.37	0.21**	0.48	0.03**	0.16
Region	Central (ref.)						
	Southern	-0.25	-0.03	-0.71**	-0.09	0.26	0.07
	Eastern	0.44	0.05	-0.59*	-0.08	-0.09	-0.02
	North western	-0.62**	-0.07	-0.6*	-0.08	-0.2	-0.05
	South western	0.18	0.02	0.21	0.02	-0.04	-0.01
	Northern	-0.41	-0.04	-0.37	-0.04	0.1	0.02
Location	Rural	-0.18	-0.03	-0.98**	-0.16	0.45**	0.15
	Small towns	-0.67**	-0.08	0.04	0.01	0.62**	0.2
	Medium towns	-0.43	-0.05	0.81*	0.06	0.6**	0.09
	Big cities (ref.)						
Gender	Female	0.22	0.03	-0.49**	-0.08	0.24*	0.08
Age groups	Up to 29 (ref.)						
	30-39	-0.5	-0.05	1.46**	0.19	-0.64*	-0.17
	40-49	-0.08	-0.01	1.6**	0.25	-0.39	-0.12
	50-59	-0.55	-0.07	0.67	0.1	-0.66*	-0.2
	60 +	-0.89**	-0.11	0.49	0.06	-0.95**	-0.23
Number of household members	1	-0.68**	-0.08	ref.		ref.	
	2	ref.		2.21**	0.22	0.2	0.04
	3	-0.27	-0.03	1.86*	0.23	0.53	0.14
	4	-0.17	-0.02	2.51**	0.37	0.45	0.14
	5+	-0.83**	-0.08	2.2**	0.35	0.34	0.11



Main income source	Wage employment	1.26**	0.18	2.86**	0.45	0.99	0.33
	Self-employment	1.3	0.06	3.16**	0.23	1.17	0.18
	Agriculture	1.31**	0.06	1.36	0.1	0.64	0.1
	Old-age or disability benefits	ref.		1.84	0.24	1.13	0.31
	Temporary jobs	-0.68	-0.04	1.92	0.16	1.55**	0.28
	Social welfare benefits++	-0.73	-0.04				
Unemployment status	Having unemployed members	-0.99**	-0.12	-0.03	-0.01	-0.14	-0.05
	Unemployed household head	-0.34	-0.03				
	Share of income from social transfers in total household budget	-0.02**	-0.18				
R2		0.43		0.5		0.09	
N		911		524		593	

Model 1: on MFC dataset; total household assets index as dependent variable. Model 2: on SD dataset; total household assets index as a dependent variable. Model 3: on SD dataset; change of total household assets as a dependent variable. For the sake of presentation few psychographic variables (e.g. attitude to risk) that entered those models are skipped because they did not have a significant impact on asset building.

* $p \leq 0.1$, ** $p \leq 0.05$, + on SD dataset a different measure is used for financial behaviours – high values for the index should be similar in meaning to “smart planners” group on the MFC dataset, ++ on SD dataset temporary jobs and social welfare benefits are combined into one category.

Additional multivariate analysis on asset building is independent among lowest income/modern skills groups proactive financial behaviours give the same returns with regards to asset building as for highest income/modern skills groups by income, modern life skills, asset possession⁸. Analyses on both datasets yield similar results. In other words, from the level of income and the level of modern skills.

⁸ This way it was possible to check the importance of income and education for asset building (not possible in the models presented above because both variables were used to compose the asset indexes so that they were not included as predictor variables). This also allowed testing the inverse hypothesis by analysing whether impact of financial behaviors on asset building is significant for those who have low or high asset bases.

groups. Regarding differences by asset sub-groups the results are mixed. SD data shows that financial behaviours impact asset accumulation to the similar extent among low-asset and high-asset groups. Results obtained on MFC data show that the impact of financial behaviours is insignificant on asset building among the two lowest of four equal groups by level of assets.

Impact of financial behaviours on vulnerability to poverty

Figure 5 summarizes four multivariate regression models used to measure the impact of financial behaviours on vulnerability

reduction. The coefficients for financial behaviour variables/indexes are significant for Model 1 and 2 which were run on the MFC dataset and have expected signs. What is more, when coefficients of all predictor variables are standardised the coefficients of the financial behaviour variables have the highest values, higher than coefficients for asset indexes, which are the second strongest. Being a planner, either “traditional” or “smart” significantly reduces vulnerability to poverty among low-income households. “Reactive borrowers” and “uneducated survivors” are more vulnerable to poverty. Even if the results on SD dataset are less significant⁹, it can be concluded that financial

behaviours are strong determinants of vulnerability.

Once again asset indexes (possession and change) are the second strongest determinant for vulnerability to poverty. Not many other predictor variables have significant influence on vulnerability. Despite some differences between the models, factors decreasing vulnerability are as follows: higher asset base, positive change of assets, living in small towns. Factors increasing vulnerability are: primary/vocational education, unemployed members, living in medium towns, older household head. Vulnerability to poverty is independent from income levels and education of household head.

⁹ The results on the SD dataset are less significant (for Model 3 and 4 ran on SD dataset $p=0.15$), though in the same direction. This is due to the fact that the vulnerability indexes on SD dataset have higher power requirements and need a bigger sample as they are based on actual subjective observations of changes in purchasing power of those affected by risks (there is a group of “lucky” ones that might had been vulnerable but were not affected by risks so that they were categorized as not vulnerable).

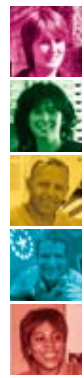


Figure 5: Multivariate analysis of impact of financial behaviours on vulnerability to poverty

		Model 1 (MFC)		Model 2 (MFC)		Model 3 (SD)		Model 4 (SD)	
		Coeff.	Stand Coeff.	Coeff.	Stand Coeff.	Coeff.	Stand Coeff.	Coeff.	Stand Coeff.
	(Constant)	3.39**		2.86**		7.92**		6.28**	
Assets	Total assets (high)	-0.04**	-0.17	-0.04*	-0.14	-0.11	-0.07	-0.19	-0.16
	Asset change (positive)					-0.39**	-0.11	-0.31**	-0.12
Financial profile	Traditional planners	-0.49**	-0.25	-0.42**	-0.18				
	Uneducated survivors(ref.)								
	Reactive borrowers	0.15**	0.08	0.12	0.06				
	Smart planners+	-0.39**	-0.21	-0.37**	-0.17	-0.06	-0.1	-0.05	-0.09
Region	Central (ref.)								
	Southern	-0.03	-0.01	-0.15	-0.06	0.78	0.06	0.65	0.06
	Eastern	0.05	0.02	-0.09	-0.04	0.4	0.03	0.13	0.01
	North western	-0.11	-0.05	0.01	0	1.1	0.09	0.33	0.03
	South western	0.09	0.04	-0.16	-0.05	0.95	0.06	0.61	0.05
	Northern	-0.1	-0.04	-0.12	-0.05	1.67**	0.12	1.05*	0.1
Location	Rural	0.03	0.02	-0.18	-0.1	-0.4	-0.04	-0.15	-0.02
	Small towns	-0.17**	-0.08	-0.61**	-0.27	-0.02	0	0	0
	Medium towns	0.16*	0.07	-0.25*	-0.09	2.33**	0.11	1.5*	0.09
	Big cities (ref.)								
Gender	Female	0.05	0.03	0.03	0.01	0.04	0	-0.07	-0.01
Age groups	Up to 29 (ref.)								
	30-39	0.14	0.07	0.29	0.11	1.16	0.1	1	0.11
	40-49	0.02	0.01	0.02	0.01	1.36	0.13	1.05	0.13
	50-59	0.11	0.05	0.22	0.1	1.67	0.15	1.44	0.17
	60+	0.19	0.1	0.3	0.14	3.02**	0.22	2.57**	0.24
Number of household members	1	0.04	0.02	-0.34**	-0.15				
	2 (ref.)					-0.72	-0.04	-0.81	-0.07

	3	-0.17**	-0.09	-0.03	-0.01	-0.83	-0.07	-0.86	-0.09
	4	-0.11	-0.05	-0.27*	-0.11	0.35	0.03	0.24	0.03
	5+	-0.09	-0.04	-0.21	-0.08	-0.46	-0.05	-0.27	-0.04
Household head education level	Primary (ref.)								
	Vocational	-0.02	-0.01	0.29**	0.15				
	Secondary	-0.04	-0.02	0.15	0.07	-0.47	-0.03	0.34	0.03
	Higher	-0.15	-0.05	0.1	0.03	-0.98	-0.04	-0.91	-0.05
Modern life skills+++	Low (ref.)								
	Average	0.06	0.03	0.11	0.06				
	High	0.07	0.04	0.21	0.09				
Income level	1st quartile (ref.)								
	2nd quartile	-0.01	0	0.1	0.05				
	3rd quartile	-0.12	-0.06	-0.01	-0.01				
	4th quartile	-0.24*	-0.12	-0.24	-0.11				
Main income source	Wage employment	-0.08	-0.05	0.03	0.02	ref.		ref.	
	Self-employment	-0.4*	-0.07	0.04	0.01	0.79	0.04	0.56	0.03
	Agriculture	-0.06	-0.01	0.45*	0.09	-0.83	-0.04	-0.95	-0.06
	Old-age or disability benefits	ref.		ref.		-1.17	-0.1	-1.3**	-0.14
	Temporary jobs	0.22	0.05	0.06	0.01	-2.71**	-0.15	-1.61**	-0.11
	Social welfare benefits++	0.18	0.04	0.56**	0.13				
Unemployment status	Having unemployed members	0.13*	0.07	0.06	0.03	0.4	0.04	0.08	0.01
	Unemployed household head	0.08	0.03	0.29	0.09				
	Share of income from social transfers in total household budget	0	-0.07	0	0.04				
R2		0.28		0.26		0.13		0.15	
N		878		791		456		480	



Model 1: on MFC dataset; vulnerability indicator based on potential impact of health risks as a dependent variable.

Model 2: on MFC dataset; vulnerability indicator based on actual impact of six bigger emergencies as a dependent variable. Model 3: on SD dataset; vulnerability indicator based on downturn changes in subjective evaluation of affordability of basic and luxurious needs as a dependent variable. Model 4: on SD dataset; vulnerability indicator based on downturn changes in subjective evaluation of affordability of basic needs only as a dependent variable. For the sake of presentation few psychographic variables (e.g. attitude to risk) that entered those models are skipped because they did not have a significant impact on vulnerability to poverty.

** $p < 0.1$, ** $p < 0.05$, + on SD dataset a different measure is used for financial behaviours – high values for the index should be similar to “smart planners” group on the MFC dataset, ++ on SD dataset temporary jobs and social welfare benefits are combined into one category, +++ modern life skills defined as computer and foreign language skills.*

Additional multivariate analysis has been done on different sub-groups by asset possession and vulnerability levels in order to see if the impact of financial behaviours on vulnerability to poverty is significant for the most destitute groups (lowest level of assets, very vulnerable to poverty). Results are mixed. According to the MFC data this relationship is significant no matter the asset/ vulnerability levels. According to SD data the same relationship is not significant for those who are the most vulnerable and/or have the lowest level of accumulated assets.

CONCLUSIONS

To conclude, reactive financial behaviours hamper asset accumulation and consequently significantly increase vulnerability to poverty in low-income households in transition context. Financial capability and behaviours seem to be instrumental in explaining vulnerability to poverty as they are the strongest predictors from a wide menu of other livelihood and asset variables included in various analyses on two different datasets. These findings are even more reliable in the light of a strong relationship between proactive financial behaviours and asset building. Again, financial behaviours are the strongest predictors of asset accumulation. This supports the conceptual framework proposed in this study and the causal chain: financial capability-financial behaviours-assets-vulnerability.

A segmentation of low-income households in Poland by their financial behaviours identified four main groups: 1) “smart planners” – those the most proactive in financial planning, using sophisticated financial services; 2) “traditional planners” – those that save and plan but use mostly informal financial services; 3) “reactive borrowers” – those that borrow a lot, use formal financial services, but do not have sound saving and planning habits; and 4) “uneducated survivors” – those that have the lowest financial capabilities, do not plan at all and have very negative attitudes toward formal financial services. Regarding asset accumulation and vulnerability to poverty, proactive “smart planners” are a very distant group compared to others. Interestingly, “reactive borrowers” are slightly more successful in asset accumulation than “traditional planners”. This shows the importance of borrowing and using financial services for asset accumulation. It is different when it comes to vulnerability reduction. Being a planner, either “traditional” or “smart” significantly reduces vulnerability to poverty among low-income households. “Reactive borrowers” and “uneducated survivors” are more vulnerable to poverty. Therefore, the dimensions of financial capability that are the most important for vulnerability reduction are good money management, planning ahead, saving and preparing for risks. Whereas, borrowing and debt do not greatly influence vulnerability to poverty. The effects of using financial services are lower for vulnerability reduction than with regards to asset accumulation.

This is an important insight for microfinance (financial inclusion agenda), which assumes that by giving access to financial services it provides low-income households with better tools to manage their finances in order to help them build and protect their assets (Helms 2005). This analysis proves that access is indeed important when it comes to asset building as households using financial services get an asset-building bonus. On the other hand, there is no bonus for using financial services when it comes to vulnerability reduction. What is more important is the proactive risk-management, no matter whether supported by use of financial services (“smart planners”) or not (“traditional planners”). As microfinance wants to achieve both goals – facilitating asset accumulation as well as asset protection and vulnerability reduction, it seems that achieving vulnerability reduction uniquely through an access agenda is not straightforward in the context where individuals have low financial capabilities. This paper provides evidence that microfinance might not reduce vulnerability to poverty if it does not consider promoting proactive financial behaviours.

This research provides also interesting insights with regards to the poorest groups. They rarely display proactive money management approaches and debt is an integral part of their life. It is common to assume that if somebody is starving or has no shelter it does not matter if the person is a proactive financial planner or not. According to the analysis, the relationship between financial behaviours and asset building and vulnerability reduction is also important, though weaker and less significant, for the poorest groups. Therefore, proactive financial behaviours can benefit all, including those from destitute groups, at least in the transition context of Eastern Europe. For this group, better safety nets are an important start because without a proper management of risks those households cannot realise other financial goals and seize economic opportunities.

These are all important findings for development policy in Eastern Europe as virtually nothing has been done to improve the financial capabilities of households and individuals and promote proactive financial behaviours during the transition process. Out of 156 financial literacy schemes identified in EU27 only 14% are located in 10 Eastern European countries (mostly in Poland, Lithuania, Hungary) (Habschick et al 2007). The main challenge for the microfinance industry and policy makers is to decide how to best promote proactive financial behaviours. Beverly and Sherraden (1999) provide a useful framework that identifies key elements that are necessary to be successful in switching people from the reactive to proactive mode: information, access to good financial services, incentives and ongoing facilitation. However, it is useful to talk not only about



information transfer but also about education to increase knowledge and skills as well as change attitudes, which is so important in shaping financial behaviours in low-income households in transition context. Incentives and ongoing facilitation are crucial success factors as shown by recent

research by Ashraf et al (2006), which shows that commitment savings devices help people to save more but if communication and promotion efforts are stopped low-income households tend to return to previous low-saving equilibrium. Only those solutions that integrate all the key elements

and are long-term in nature are likely to result in lasting changes.

Lastly, evidence presented in this paper highlights the need to include financial behaviour/capability framework to a greater extent in further research on risks, poverty, microfinance and development.

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Measuring the impact of EU microfinance. Lessons from the field

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ABSTRACT

Type of Paper: Research Paper

Purpose of the paper: Over the last few decades a consensus has emerged in international microfinance concerning the execution of microfinance impact assessments (MIAs). MIAs should be large-scale and longitudinal, tracking changes among clients over time, and make use of an appropriate control group (usually non-clients or pipeline clients) and/or location, isolating the impact of microcredits from other possible influences. On the back of a recent MIA conducted in the UK sector drawing on this approach, this paper reflects on and discusses the feasibility and appropriateness of applying such a methodology in EU-15.

Design/Methodology/Approach: We draw on first-hand experiences of conducting a MIA in the UK and on primary data on response and attrition rates from the study. We also use secondary data and existing literature to inform our discussion concerning the application of the consensus methodology, such as conducting experimental research, sampling and refusal rates.

Key results: Our findings suggest that conducting MIAs in industrialised countries with extensive welfare states pose particular problems. In part due to lower self-employment rates relative to Developing countries, the client base of EU-15, Microfinance Institutions (MFIs) is generally small in absolute and relative terms, making it difficult to get a sufficiently large sample to ensure reliability. Moreover, our study revealed specific challenges in recruiting financially excluded individuals for longitudinal studies. Many of the first wave survey respondents did not answer their phones. Many vulnerable households live a precarious existence juggling numerous payment commitments on a low income and many may not answer their mobile phones if they do not recognise the number in case it is an unpaid creditor. More broadly, high and rising refusal rates to participate in surveys across Developed countries are also likely to negatively affect attrition rates for EU MIAs. Another challenge for EU MIAs is identifying an appropriate control group to isolate the impact of microfinance. Small EU MFI client numbers may make it difficult to recruit a sufficient number of pipeline clients. Finally identifying an “untainted” group of comparable non-clients and control locations may be particularly challenging given the multitude of publicly funded programmes aimed at combating financial exclusion and supporting self-employment.

Impact: We hope that our findings will inform future MIAs in the EU and make a contribution towards developing a new methodological paradigm better suited for the EU microfinance sector.

Value: To our knowledge, the MIA on which this paper draws on is the most extensive academic study of microfinance impact in Western Europe. The resulting lessons will be of value for practitioners and academics.

Key Words: Microfinance, impact assessments.



INTRODUCTION

Whether and the extent to which microcredits constitute an effective tool in combating poverty is a question of great importance for the many governments, NGOs and international development agencies supporting the sector. Recently the EU established the European Microfinance Facility which will have a budget of €100 million providing microcredit for around 45,000 aspiring entrepreneurs. In the US the Obama administration recently requested US\$250 million for the country's CDFI sector in the 2011 budget.

It is not surprising then that the microfinance impact assessment (MIA), the tool by which the effectiveness of microcredits can be ascertained, constitutes one of the largest bodies of peer-reviewed research in microfinance. Since the late 1980s several dozen MIAs have been conducted (e.g. Mosley and Rock, 2004; Coleman, 1999; Pitt et al, 1999) and a number of methodological papers and guidelines have been developed.

Although there is considerable discussion and disagreement around the most appropriate methodologies assessing the impact of microfinance, a consensus has emerged around three broad principles which MIAs should adhere to.

First, an MIA should be large scale to ensure that robust and statistically significant findings can be produced. Gaile and Foster (1996) argue that to be able to accurately discern microfinance impact through appropriate sub-divisions according to and controlling for socioeconomic and enterprise characteristics, a data set should consist of a minimum of 500 respondents. Ultimately the number of respondents required will depend on the precision required, the amount of variability in the population of interest (more heterogeneous populations require larger samples) and the complexity of the analysis (the more complex analysis the greater sample is needed) (Agresti and Finlay, 1997).

Second, an MIA must enable the researcher to track changes among clients over time. Hence most MIAs tend to be longitudinal (e.g. Pitt et al, 1999; Coleman, 1999). Alternatively it is also possible to include recall questions. However, research into survey design suggests that respondents tend to over-report past events as they include events predating the period in question (Schuman and Presser, 1981).

Finally, any study of the impact of microfinance must determine whether and the degree to which these changes can be attributed to the intervention, and establish what would have happened in the absence of the intervention. The most widely used method of isolating the impact of microcredits from other potential sources of change has been to use a control group.

Among the most common approaches of selecting a control group has been to select non-client households with similar observable socioeconomic characteristics. Often these non-client households are from an area without an MFI branch as MFIs may have spillover effects beyond the client households (employment opportunities created by client businesses etc).

Another method to isolate the impact of microcredits has been to compare clients with incipient or pipeline clients (i.e. households that have been accepted but have yet to receive a loan). The perceived advantage of this approach is that incipient and pipeline clients may be expected to be more similar to existing clients than non-clients as they have actively sought credit and have been approved unlike non-clients. Numerous studies show that clients tend to be wealthier than non-clients (e.g. McKernan, 2002).

Over the past few years, these two approaches have been heavily criticised for not controlling for self-selection bias (the notion that MFI clients may be inherently different from non-clients thus biasing the results) and MFI-selection bias (the notion that clients are selected through a careful screening process and so the likelihood of success may be a pre-condition rather than an outcome of access to credit leading to biased results) (Karlan and Goldberg, 2007; Meyer, 2008).

The best way to circumvent these biases according to these critics is to move towards an experimental research design where the access to credit or the location of the MFI is random (e.g. de Mel et al, 2007; 2008; Fernald et al; 2008; Karlan & Zinman, Forthcoming). These studies are often referred to as randomised or experimental impact assessments. In theory, by randomising access to MFI services, a comparison of recipients and non-recipients will yield a more accurate estimate of impact. However, there are serious ethical challenges that need greater attention.

Ultimately these methodological principles have been developed for assessing the impact of microfinance in Developing countries. The principles have not only been developed based on perceived methodological best practice, but also through trial and error. This means they have been developed and adjusted to the nature of the microfinance sector in the Developing world and the context within which they operate.

This paper draws on an extensive, longitudinal impact assessment we conducted of business and personal loan clients from four UK MFIs to discuss the feasibility and appropriateness of applying these principles to MIAs in the EU. The focus will be on the EU-15 as these countries

are the most comparable to the UK in the sense they not only are industrialised countries but also have extensive welfare states.

It will be argued that conducting MIAs in industrialised countries with extensive welfare states pose particular problems. EU MFIs have a smaller base of clients relative to MFIs in Developing countries. This combined with high survey non-response and attrition rates in the Developed world make large-scale, longitudinal MIAs difficult. Finally, finding an “untainted” group of comparable non-clients and control locations may be particularly challenging given the multitude of publicly funded programmes aimed at combating financial exclusion and supporting self-employment.

We recommend that cross-country studies are considered to make up for the small size of the countries’ MFIs and microfinance sector. This would also make it more viable to use pipeline clients as a control group, though we must give appropriate consideration to the ethical issues. Where conventional MIAs are not feasible or appropriate, we suggest using a qualitative research approach.

The remainder of this paper is organised into five sections. In the second, the MIA on which we base much of our discussion is detailed. In sections three, four and five we examine the three principles of MIA: large-scale and longitudinal of nature and use of control group. In the final section we conclude by discussing future EU MIAs on the basis of the challenges identified.

METHODOLOGY AND BACKGROUND UK MIA

We recently completed an MIA of four UK MFIs as part of the most extensive social impact assessment to date of the UK microfinance sector in collaboration with the University of Sheffield (though this paper only reflects our own experiences and views). The research was funded by Esmée Fairbairn Foundation, Barclays Bank and the Small Business Service. We assessed the impact of both consumer and business loans offered by these institutions. The methodology was designed, as far as possible, on the principles outlined in the introduction. The aim was to conduct a large-scale, longitudinal study which would make use of control groups and locations to isolate the impact of microfinance.

The methodology for assessing the impact of MFIs on personal loan clients was primarily based on a longitudinal survey of personal loan clients and with a group of non-clients (control group). The personal loan client survey was conducted in two waves. In the first wave, loan applicants were asked to fill in a questionnaire while their application was being processed. The information from the questionnaire was supplemented with information from the loan application form.

The first wave was conducted between January 2007 and March 2008. In the second wave, we interviewed loan applicants by telephone a year after the first interview was conducted. This wave of interviews was conducted between January 2008 and March 2009.

In order to isolate the effects of the services offered by the MFIs, we used a control group and a control area. As a control area, we chose an almost unique location in the UK in that it is an urban area of some size not directly served by an MFI, credit union or any equivalent lender. The intention in using a control location was to reduce the risk of self-selection bias – i.e. that the people that approach MFIs in some immeasurable way are inherently different from those that do not – and spillover effects (i.e. that non-clients may indirectly benefit from MFI loans through increased prosperity in the area).

A key concern was to ensure that the control group were comparable to the personal loan client (or treatment) group in terms of socio-economic and demographic characteristics. Hence, we used socioeconomic data from a random sample of 60 approved loan applicants for one of the participating MFIs to stratify the control group sample. Based on the characteristics of the clients we were able to identify areas in which the population was similar to the client group in terms of socioeconomic and demographic characteristics. The control group was also screened on the number of mainstream banking products to ensure that they were financially excluded, as this is the target market for MFIs. Like the clients, the control group was surveyed twice: November 2008 and November 2009.

The methodology for assessing the impact of MFIs on existing businesses and aspiring entrepreneurs constituted a departure from the overall focus on longitudinal survey data and the use of control groups and locations. Instead, we opted for a one-off survey with MFI business clients because of a very low response rate in the first survey. A second survey would have produced an even smaller sample. We also did not use a control group for the business surveys. Apart from the response rate potential respondents did not express any interest in participating in a repeat survey. Additionally, we were informed by the MFIs that many of their former and existing business clients had relocated or were no longer in contact. Therefore, we were unable to find a sufficient number of former or longstanding clients to justify conducting a follow-on survey. The respondents were in the main drawn from the business loan clients of one business lending MFI in the North of England. The sampling frame was a register of all the clients of the MFI.

FINDINGS

Drawing on the experience and data from the UK MIA and on the literature, this section discusses the applicability of the international MIA standards. We start by discussing challenges associated with generating large samples. We then examine the requirements of conducting longitudinal surveys. Finally the different options for control groups and locations and their appropriateness for EU-15 are discussed.

Generating large samples

For the purposes of inference, producing statistically significant results and allowing for the application of complex forms of multivariate analyses, a survey of clients and non-clients should be large-scale. Some authors have suggested that a MIA sample should have at least 500 respondents (Gaile and Foster, 1996) and some MIAs have sampled as many as 1,600 (Pitt et al, 1999).

Table 1 displays the samples of the UK MIA study.

Table 1: Survey participants by wave

	BUSINESS CLIENTS	PERSONAL LOAN CLIENTS	NON-CLIENTS
Total respondents wave 1	24	205	173
Total respondents wave 2	NA	62	81

In our study, the sample after the first wave consisted of 378 clients and non-clients for personal loans and 24 business loan clients. After the second wave of interviews had been conducted with the personal loan clients and non-clients, this had reduced to 143. This is a considerably smaller sample than our initial target and to allow for multivariate analyses. There were three factors accounting for the smaller than anticipated samples, all of which are relevant for EU-15.

First, the population of MFI clients of which a sample could be drawn was, and continues to be, small. At the time of the first wave of interviews in 2007, the UK MFI sector had approximately 4,600 personal loans and 4,000 business loans outstanding (CDFA, 2008). The sector has grown since and in 2008 the number of outstanding loans had increased to 7,700 personal loans and 4,700 business loans (CDFA, 2009).

The same applies to the EU-15 microfinance sector (Table 2).

Table 2: Size of microfinance sector by continent

	AFRICA	ASIA	EECA	LAC	EU-15
Clients	9,400,000	51,400,000	3,000,000	12,900,000	27,000
MFI's	467	535	380	403	78
Clients per MFI	20128	96075	7895	32010	346

Source: 2008 MIX data; EU 15 data from 2007 EMN survey

Notes: EECA = Eastern Europe and Central Asia, LAC = Latin America and the Caribbean



The EU-15 microfinance sector made 27,000 loans in 2007. The largest sectors are in France, Germany, Spain, Finland and the UK which accounted for 94% of the EU-15 microloans reported to the last EMN survey (Jayo et al, 2008). In comparison, per 2008 Asian and Latin American and Caribbean MFIs have over 50 million and 12 million active borrowers respectively. Even taking into account the fact that these continents are considerably more populous than EU-15, the region's microfinance is very small in international terms. While there are many natural explanations for this, it nevertheless remains a problem to be taken into account when designing a large-scale MIA.

A second, and closely related, factor which negatively affected our ability to conduct a truly large-scale study was the small sampling frames. For the business survey we used the client register of the MFI in question which consisted of 115 clients. Only 21% or 24 clients agreed to participate in the study. Even with a higher response rate, the starting point was a limiting factor.

More broadly this poses a challenge to MIAs given that UK and EU-15 MFIs are generally small in absolute terms and relative to other continents (Table 2). Of the MFIs that submitted data to the 2007 EMN survey, only 20% issued more than 400 loans per year (Jayo et al, 2008). The double digit growth experienced by the EU microfinance sector since 2003 has in many countries been driven by new entrants rather than by consolidation (Jayo et al, 2008). This suggests that even if the sector

overall grows the sampling frames need not necessarily grow. There are some notable exceptions to this. ADIE and, to a lesser extent, Finnvera are comparable to international MFIs as they have approximately 10,000 and 3,000 clients respectively (Jayo et al, 2008).

A final factor which contributed to a reduction in our sample was the low response rate. Only 21% or 24 of the business clients in the sample frame agreed to participate in the survey. (Given that the personal loan clients filled in questionnaires at the MFI branch in the first wave, we do not have refusal rates for that survey). The low response rates were mainly due to the inability to establish contact with respondents. Many participants also did not want to participate because they felt they did not have the time or, to a lesser extent, because they had dropped out of the microfinance programme altogether.

The fact that non-response rates have been increasing across industrialised countries is well documented (Smith, 2007). In the UK, survey response rates in the Labour Force Survey fell from 83% in the 1990s to 68% in 2008 (Barnes et al, 2008). In the case of telephone surveys, de Leeuw and Hox (2004) argue that the growing number of unsolicited calling in Industrialised countries may have made people less willing to participate in such interviews. They go on to cite research conducted in the Netherlands and the US in support of this argument. Further, research suggests that rural and

sub-urban areas tend to exhibit high response rates while highly urbanised areas, where many if not most of MFI target clients live, have lower response rates (Hopper, 2008 cf. Barnes et al, 2008).

Low response rates are of course also a concern because they may lead to or increase non-response error (i.e. non-respondents different from respondents) and potentially lead to biased estimates of means, proportions, and other population parameters (Holbrook et al, 2008). However, this is only problematic if respondents and non-respondents differ on variables of interest to researcher (Holbrook et al, 2008). Empirical evidence regarding the impact of high non-response rates on the degree to which a sample is representative is mixed (Holbrook et al, 2008).

Achieving longitudinal surveys

A large sample is not in itself insufficient. A survey should also be longitudinal to enable the researcher to track changes over time. An alternative could be to conduct a one-off survey using incipient and established clients and/or recall questions. However, research suggests that such an approach may produce less accurate or even biased results (see Karlan and Goldberg, 2007; Schuman and Presser, 1981). In our study, we conducted a longitudinal survey in which the first and second waves were separated by 12 to 18 months (Table 3).

Table 3: Survey participants by wave

	MF1	MF2	MF3	Control
Total respondents wave 1	119	62	24	173
Total respondents wave 2	41	12	9	81
Differential	78	50	15	92
Attrition rate (%)	66	81	63	53

The attrition rates across the four MFIs were very high ranging from 53 to 81%. There were four reasons explaining the high attrition rates.

First, because the personal loan clients responded to the first wave by filling in a questionnaire at the MFI branch, we were unable to establish rapport with the clients. This may have led to a rise in attrition rates.

Second, the largest problem in interviews for the second wave was establishing contact with respondents. Many had changed their mobile numbers or had their mobile disconnected without notifying the CDFI or the University. Also, many were simply not responding to their mobile or telephones. This is indicative of specific challenges in recruiting financially excluded individuals for longitudinal studies. Many of the first wave survey respondents did not answer their phones. Many vulnerable households live a precarious existence juggling numerous payment commitments on a low income and many may not answer their mobile phones if they do not recognise the number in case it is an unpaid creditor.

Third, in some cases, respondents did not want to be interviewed.

Only 10 clients stated in their questionnaire that they did not want to participate. A further 19 clients did not want to participate in the second wave when asked.

Finally, in some cases we were able to establish contact, but unable to conduct the interview despite repeated attempts at various times in the day or at times suggested by the client.

More broadly, it appears that attrition rates have been on the rise across Western Europe and other industrialised countries (Holbrook et al, 2008). In the case of the UK Labour Force Survey, attrition rates increased from 4% in 1997 to nearly 10% in 2008 (Barnes et al, 2008). This is suggestive of the problems that may face researchers wanting to conduct longitudinal MIAs in EU 15 and Industrialised countries more generally. Moreover, the subject matter, personal and business finances, are often seen as intrusive. In most conventional surveys these types of questions are either limited and/or asked at the culmination of the interview. Given that these were the essence of study it was necessary to ask these questions in greater quantity and detail. As many of the respondents were constantly

balancing the requirements of the welfare agencies and the need to have sufficient income, sometimes from the informal economy, there is an understandable desire to avoid intrusive questions into their financial situation. The same problem applies for microentrepreneurs, some of whom may be reluctant for taxation reasons to share this information. This does not mean their activities were illegal, rather it represents a desire for privacy.

Isolating the impact of microfinance

A microfinance impact assessment requires the researcher not only to track changes among microfinance customers over time, but more importantly to determine whether and the degree to which these changes can be attributed to the intervention. The most common approach to isolating the impact of microfinance has been using a quasi-experimental or experimental approach by relying on the use of control groups and control locations.

In our study, we used a control group and a control location for the personal loan clients but not for the business loan clients, which we discuss below. For a



control location we selected a relatively large urban area without an MFI, credit union or equivalent lender to avoid self-selection bias and spillover effects. The control group was screened on ownership of mainstream banking products to ensure that they, like the MFI clients, were financially excluded. This approach was largely successful as the non-clients were largely comparable on observable traits.

Relative to non-clients, clients were younger, more likely to be single and were more likely to have children relative to non-client households, suggesting a greater propensity to borrow according to research. A greater proportion of clients were also in full or part-time employment vis-à-vis non-clients. While the majority of non-client and client respondents were social housing tenants, a greater proportion of non-clients were home owners. However, the similar rates of means-tested benefits and incomes suggest similar levels of deprivation.

That said we did not use a control group for the business clients, for reasons which are of great importance for executing quasi-experimental and experimental research in microfinance. We considered the possible options for control group, but concluded that none of them were appropriate or feasible for our study.

First, the use of non-clients was considered, which is possibly the most common widely used approach in MIAs. In the cases where the control group is recruited from the same area as the MFI clients, a common approach is to conduct a random walk selecting, say, the fifth house going north to south from the client's residence. A control group is typically selected for having

similar characteristics or level of poverty (sometimes judged by the quality of housing or size of arable land held) and there tends to be a requirement that the respondent has his or her own economic activity and no loan from other MFIs or formal lenders.

This is a feasible approach in many Developing countries where as many as 70% may have some form of economic activity of their own (Armendáriz, 2009). However, according to the most recent statistics from Eurostat, the UK has a self-employment rate of only 10%. This is also the case for EU-15 where self-employment rates range from 4% in Luxembourg to 18% in Portugal. This makes it more difficult to locate non-clients using techniques such as the random walk. A further complication related to finding non-clients is that microfinance in EU-15 is closely linked to tackling unemployment. This means that in many cases MFIs will support vulnerable and socially excluded individuals start up their own economic activity.

Second, we examined the possibility of using pipeline clients (i.e. clients that have been approved for a loan but have yet to receive it) which is used in many MIAs (e.g. Mosley and Rock, 2004). This may be a methodologically problematic approach as it may over-estimate if drop-out clients are not included and in that it also assumes that the client base remains constant over time (Karlan and Goldberg, 2007). However, given the difficulties in designing an appropriate control group consisting of non-clients this approach is possibly the most suitable for EU-15. It does require a large MFI as sampling frame and this was ultimately the stumbling block in our study as our sampling

frame or MFI was relatively small.

The third option we considered was to use an experimental research, often referred to as randomised studies, design whereby the access to credit or location of MFI is random. There is an emerging consensus in the microfinance literature that impact assessments should move toward experimental research design because it enables the researcher to circumvent the most importance biases in MIAs: self-selection bias (i.e. that households resorting to microfinance may be inherently different from those that do not) and MFI-selection bias (i.e. that clients and client areas may be inherently different from non-clients and control locations as purposively selected by MFI) (see Karlan and Goldberg, 2007; Meyer, 2008).

However, in practice such experimental studies are often very difficult to conduct and often ethically questionable. It is difficult to convince an MFI to randomly allocate credits among participants or to randomly delay the issuing of credit to successfully screened clients. It is probably easier done with non-financial support services. However, if timely access to credit or ancillary services is believed to be beneficial for clients, then it is arguably unethical to withhold or delay access to microcredit for certain households. But even in the selection process there is the ethical question about how these choices were made and more importantly are they required. Researchers should always explore other methods before adopting the most ethically problematic option. There is also the rather uncomfortable sense that experiential surveys of MFI clients in the developing worlds

treat respondents as the objects of the research. In the developed world and outside of the medical sector there are few examples of experiential surveys being used and it is generally considered an inappropriate methodology for exploring social problems (de Vaus 1993). Yet, there is limited evidence that researchers, often from developed world organisations, have similar concerns when undertaking this type of work in the developing world. Hence we did not opt for such an approach.

More generally, conducting quasi-experimental or experimental

research on microfinance in the UK, EU-15 and Industrialised countries with relatively extensive welfare states more broadly poses a particular challenge: How can we find a truly “untainted” control group and location in a market place so crowded with government interventions?

There is a plethora of government funded initiatives with the same or comparable aims and impact domains. Hence even if a comparable location or group that have not used the services of an MFI can be identified and surveyed, we are still left with the

question of how to separate the impact of microfinance from that of government interventions with the same impact domains, such as employment generation and poverty alleviation. In the UK, for example, the Government has piloted and implemented a range of interventions, including free face-to-face debt advice and the savings gateway, which like the personal lending microfinance sector aims to combat financial exclusion and over-indebtedness. Related to this how can we be sure that all other social factors remain constant between the groups being observed.

CONCLUSION - TOWARDS AN EU PARADIGM FOR MICROFINANCE IMPACT ASSESSMENTS

A microfinance impact assessment requires the researcher not only to track changes among microfinance customers over time, but more importantly to determine whether and the degree to which these changes can be attributed to the intervention. The most common approach to isolating the impact of microfinance has been using a quasi-experimental or experimental approach by relying on the use of control groups and control locations.

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