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The role of capitals in the promotion of sustainable community microfinance organizations

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The role of capitals in the promotion of sustainable community microfinance
organizations

by

Ignacio Carranza Cerda

A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

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Major: Sustainable Agriculture

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ABSTRACT

In the Central Valleys of Puebla Mexico a rural microfinance scheme called “savings box” (caja de ahorros) has been established to promote sustainable development among rural small-holders. After ten years of operation of this microfinance community scheme there is little information on the differing performance of groups and factors that influence their survival in rural communities. The study was designed to elucidate how rural microfinance is related to social, human, cultural and financial capitals as indicators of survival and sustainability of the savings and loan groups. A cross-sectional study among 34 informal microfinance groups was conducted through interviews with representatives and members of these groups. Multiple ordered logistic regression was used as a statistical technique to find causal relationships between the dependent variable expressed as the success level of the saving box and the independent variables of social, human, cultural and financial capital. Social capital, measured in terms of relations of trust, reciprocity, rules and norms, and cultural capital measured as the participation of women in leadership roles in the group, were the most important factors affecting the savings box survival and performance status. On the other hand, human capital, measured as the average schooling of treasurers, along with financial capital measured as the diversity of income sources and collective ownership of physical assets of the groups did not show statistically significant effects on success or survival of the savings box groups. Public policies and institutional support addressed to improve informal microfinance services through training, technical advice, and funding is necessary, as well as a suitable

legal framework that allows the practice and research for learning and improving this kind of social institution.

CHAPTER 1. INTRODUCTION

1.1 Background

Improving living standards of rural small-holders in developing countries has often been addressed through rural or community development projects. Several approaches have been followed to incorporate small farmers in the development process and alleviate rural poverty. One approach has been to encourage technology transfer through the diffusion of innovations approach resulting in farm output increase, which would be translated into income improvement. Other approaches have focused more on local organization by involving more comprehensive strategies in directing social, economic and technological development efforts. Building social capital and microfinance schemes by extension programs has become a common practice by governmental institutions and non-governmental organizations (NGO's) to improve farm production and household livelihoods (Ochieng, 2002). In the Central Valleys of Puebla State, Mexico, rural community microfinance schemes called "savings boxes" have been established to promote sustainable development among rural small-holders. These "saving boxes" have been in operation for about ten years, but the impact of this microfinance model has not been studied. Extensive knowledge about local conditions and key factor interactions in such contexts, whatever the development project approach, represents a determinant for its success or failure. Linkages between sustainable small-farmers organizations and key socio-economic factors, such as social capital, cultural

capital, human capital, political capital, financial capital, natural capital, and microfinance schemes provide insight on how to promote sustainable rural development among small-holders and their organizations in developing countries.

1.2 Microfinance Resources in Mexico

Microfinance resources available for the rural population in Mexico can be classified in three types: formal institutions such as banks, credit unions, and savings and credit cooperatives; semi-formal sources like NGOs; informal sources such as local moneylenders, family members and friends; informal saving and loan groups such as “cajas de ahorro”^{*} or savings boxes; and informal saving groups such as rotating savings and credit associations (ROSCAS), which in Mexico are named in different ways, according to the region such as “tandas”, “rifas”, “pitarrillas”, “cundinas”, etc.

The formal banking system typically has not been interested in rural poor clientele, which results in poor or negligible coverage of financial services from these institutions. In addition, formal banking institutions are focused on urban areas and big enterprises, including big agricultural corporations (AMUCSS, 2007; Sharma, 2004; Adams, 2002; Zeller & Sharma, 2000; Shreiner & Nagarajan, 1998). Small farmers traditionally were served by the governmental development banking system (BANRURAL) until this entity was dismantled in the era of structural adjustment programs (SAPs) promoted by the Washington Consensus (Zezza and Llambi, 2002;

^{*}Caja de ahorro is generally translated as a savings bank or credit union. However, since these groups are much more informally organized, the term “savings box” was closer. A caja may be a generic box, a safe, or a cash-box.

Weber, 2002). At that time, for financial purposes, farmers were classified in three categories and a corresponding financial scheme. Farm enterprises would be served by commercial banks through funds from the second-tier governmental development program of the Mexican Central Bank called FIRA (Instituted Funds Related to Agriculture). The second segment of farmers was those in a transitional status from traditional to modern farming but with substantial resources (land, water, technology). This intermediate group was supported by the new “Financiera del Campo” (which replaced the BANRURAL banking system), and programs from the Ministry of Agriculture like “Alianza para el Campo” and FIRCO (Funds for Shared Risk). The third segment was composed by marginal and small farmers in rain fed areas called subsistence farmers or self-consumption farmers. This category of poor farmers would be supported through assistance programs addressed to fight poverty. These programs are mainly from the Ministry of Social Development, some of them are credit based on the farmers pledge to repay, support to coffee producers, farm workers, and “PROGRESA” (program of education, health and nutrition) later called “OPORTUNIDADES” (opportunities). Under these conditions of liberalization and deregulation of public financial services to the poor and especially to small farmers, survival strategies have emerged in rural areas to cope with financial needs. Some of these strategies build on basic community social relationships such as informal groups among family members and relatives, neighbors and friends. The saving box community scheme, in this context represents an innovative and effective means to provide microfinance services for meeting farmer necessities.

1.3 Problem Statement and Research Objectives

Scientific and technological advancements in agriculture were especially remarkable after World War II. The Green Revolution is one example and its implementation was mainly addressed to “feeding the world”, especially those countries struggling with hunger and famine due to agricultural under-production (Hecht, 1995). The Green Revolution precepts were put into practice in Mexico; the advantages mainly favored market-oriented farmers with irrigation systems and enough land (Henriquez and Patel, 2004; Gliessman, 1990; Ochieng, 2002). The Green Revolution technology was based on improved seeds, fertilizers, pesticides and machinery, along with other supports such as credit, insurance, technical assistance, infrastructure and marketing assistance that were provided by governmental agencies. However, during the 1960’s, most of the production of corn and beans for the domestic market occurred under rain-fed conditions and by small farmers for whom the benefits from the Green Revolution were not available (CIMMYT, 1974).

In central Mexico in 1967, an initiative was formulated between the International Maize and Wheat Improvement Center (CIMMYT) and Colegio de Postgraduados (the Graduate School of the former National School of Agriculture, now Universidad Autonoma Chapingo), in order to support small farmers in areas with proper agroecological conditions for making them more efficient in crop production and income generation. This effort, named ‘Proyecto Puebla’ and later re-named ‘Plan Puebla,’ had two main objectives: (1) to develop, test, and refine a strategy to rapidly increase the maize yields of small farmers, and (2) train technical staff from other areas in the components and the effective implementation of that strategy in other regions (Turrent,

1987). This strategy was developed from coordinated actions among technicians, institutions and farmers. Some of the most important elements of that strategy included field research on farmers' land and on-site technical recommendations by experts followed by the spreading of this knowledge among small farmers by an extension team.

The extension program communicated field research results and recommendations for specific agrosystems. Extension staff promoted those inputs and services required to apply the new technology, such as improved seed, chemical fertilizer, pesticides, financial credit, insurance for covering the investment and other services like crop commercialization and farmer support organizations. Redclift (1983) stated that 'Plan Puebla', by that time was an innovative research-training-extension model, which contributed to the 'appropriate technology' thinking among researchers and agricultural development institutions. At the beginning, the extension team was focused on maize recommendations and the extension program was expanding as field researchers incorporated other crops, vegetables, fruits, livestock, biotechnology, and natural resource conservation. In these research programs other researchers studied socio-economic aspects like gender, rural family, local and global markets, and rural microfinance. The complexity and amount of information disseminated through research and extension increased with time.

However, access to financial resources has always represented a serious constraint for small farmers, not just for farm input acquisitions but also for coping with household needs. Too often, traditional banking systems in developing countries have considered the poor, including small farmers, as non-clientele. Lack of capital assets for collateral for supporting loans, along with their low repayment capacity, and the risky nature of

farming, were factors used to deny loans or to discourage participation of the rural poor in bank-financed schemes. As a result, a wide variety of alternative means for self-finance among small farmers in rural communities has been developed, ranging from farmers' cooperatives to family and neighbors' saving and loan clubs (Yunus, 1999).

In small rural villages in Puebla State of Central Mexico, a saving and loan community scheme called "caja de ahorro" or "saving box" is used by small farmers to access financial services, mainly providing savings accounts and granting loans to their members. These groups are self-managed and self-controlled. Initially seed capital and technical advice were given to 34 small farmers' groups by Colegio de Postgraduados scientists. After almost 10 years of the savings box microfinance scheme, some groups have survived, are self sufficient and working effectively. Some groups are working at "half-capacity", which means that the group exists and has its resources (invested in loans) gathering interest and issuing small loans with the interest income; however, members are no longer contributing savings to the scheme. Other groups no longer exist. Members are working by themselves but not as a group and the saving box has been liquidated.

There are many questions about factors related to group or organizational survival in rural communities. As stated by Pretty and Ward (2001):

"The fact that groups have been established does not, however, guarantee that resources will continue to be managed sustainably or equitably. What happens over time? How do these groups change, and which will survive or terminate? Some will become highly effective, growing and diversifying their activities, whilst others will struggle on in name only. Can we say anything about the conditions that are likely to promote resilience and persistence? There is surprisingly little empirical evidence about the differing performances of groups" (Pretty and Ward, 2001:217).

The comments of Pretty and Ward (2001) are also applicable to the saving box microfinance scheme used in Puebla State. After 10 years of implementation, there is little information on the differing performance of groups and factors that influence their survival in rural communities.

Thus, the initial research question of this study is: Which factors are related to the success or failure of community rural microfinance schemes called saving boxes? And more specifically: How is rural microfinance related to human, social, cultural, financial/built, political and natural capitals, when used as indicators of survival and sustainability of the savings and loan groups? Analysis of the role and impact of saving boxes will enable researchers and practitioners to determine how rural microfinance systems are working “on the ground” to generate sustainable rural development. Furthermore, identifying significant contributing factors to rural sustainability will help in the effort to refine and improve rural development strategies to achieve sustainable rural communities.

1.4 Significance of the Study

Microfinance practices have become an important means to fight against poverty especially in developing countries. In urban settings in Mexico, microfinance has evolved under credit and loan cooperatives (AMUCCS, 2007); however, in rural areas informal microfinance schemes still represent the major source for savings and loan services. Informal microfinance schemes in Mexican rural communities can vary from local

money lenders, relatives and friends loans, to informal groups such as ROSCAS and savings boxes.

Rural microfinance schemes not only represent a major source for savings and credit services for the poor due to the scarce coverage from the formal banking system. Rural microfinance schemes also represent an alternative to the formal money market. In this sense, rural microfinance as alternative paradigm to the current banking system, is addressed to ensure the existence and development of small, sustainable rural communities, which are important because they can provide healthy food, fodder, fuel, and fiber, environmental services, equitable social relationships, and vital local economies (Lyson, 2004; Francis et al., 2003; Costanza, 2007; Swinton et al., 2006).

Understanding how informal microfinance is working in rural communities and knowing which socioeconomic factors are related to the success of microfinance community schemes can help scholars, practitioners, and policy makers in the design, implementation, and assessment of sustainable community development projects.

1.5 Organization of the Study

The study is organized in five chapters. Chapter 1 is the introduction. Chapter 2 is the review of the literature, which is comprised of three sections: 1) conceptual and theoretical perspectives on microfinance, 2) the saving box scheme, and 3) factors related to success of microfinance schemes. Chapter 3 describes the research methodology used in this study. This chapter includes the research design, questionnaire design, secondary research, the research setting, operationalization and measurement of variables, the data

analysis process, and reliability and validity issues related to the study. Chapter 4 is the presentation and discussion of results of the study. This part is composed by the test of hypotheses through statistical analysis and supportive field information from qualitative data. Chapter 5 presents the conclusions of the study, some policy implications related to the major findings and recommendations for future research based on the conclusions. The references used in the study are listed in the Literature Cited and finally two appendixes are attached. The first one includes information from secondary sources and from opinions of the interviewee. The second is the instrument used for the field data collection.

CHAPTER 2. REVIEW OF THE LITERATURE

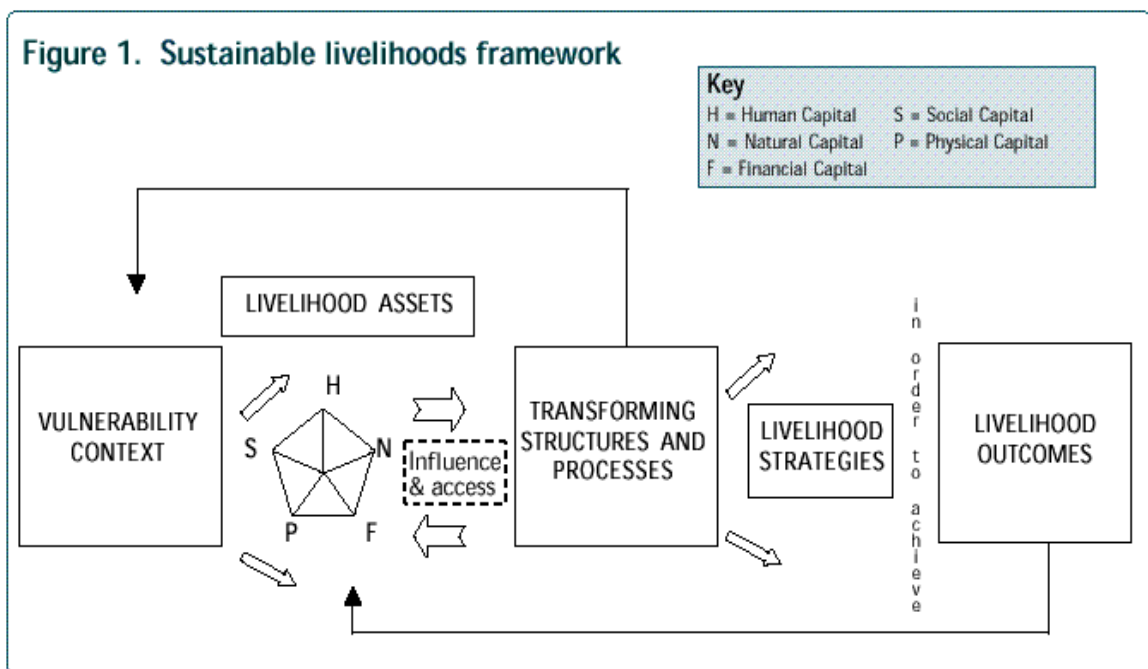
2.1 Conceptual framework

The focus of this study is the sustainability of small-farmers' organizations in rural communities. In the proposed study, community capitals and microfinance schemes are perceived as key factors in sustainability in rural communities. By focusing on factors that support local capitals and microfinance schemes of small-farmer organizations rural communities can approach sustainability more closely than can the current agricultural paradigm under the market convention in which industrialized agriculture is based on mega farm operations (Thevenot, 2001).

This research study will utilize the Sustainable Rural Livelihoods framework (Scoones, 1998; Chambers and Conway, 1991) in a "capitals building" approach (Bourdieu, 1986; Flora and Flora, 2004) to assess the contribution of different capitals to the success or failure of a rural community microfinance scheme called "savings boxes". Success is defined in terms of supporting sustainable development, in this case, in rural communities in the State of Puebla in central Mexico. These approaches, articulated below, will be useful for diagnosis and action, in which main actors are the community's own members or stakeholders.

The sustainable rural livelihoods (SRL) framework is one way to approach complex issues related to rural poverty. This framework focuses on different households in a vulnerability context based on degree of accessibility to livelihood assets which are

affected by the assets' diversity, amount, and balance among them. Those assets are also called capitals (human, social, physical, natural, and financial). Not only is the amount of these capitals important, but also their diversity and balance among them. Poor households face a high index of vulnerability due to shocks (floods, droughts, cyclones, deaths in the family, violence or civil unrest), seasonality (crop production, job market), and socioeconomic dynamics (population, environmental change, technology, markets and trade, and globalization). Policies, institutions, and processes from outside the community also influence livelihood strategies and livelihood outcomes. Fragile or unbalanced livelihood assets may prevent small communities from coping with shocks, changes or trends, or force communities to adopt unsustainable livelihood strategies for survival (Chambers and Conway, 1991; DFID, 1999).



DFID, 1999

Flora and Flora (2008) stated that every rural community has its own resources and when those resources or assets are invested to produce other resources, then they become capital. These authors suggested that seven kinds of capitals should be considered within rural communities: cultural, human, social, financial, built, political and natural. These capitals should be in equilibrium to prevent disruptions in the economy, environment or social equity.

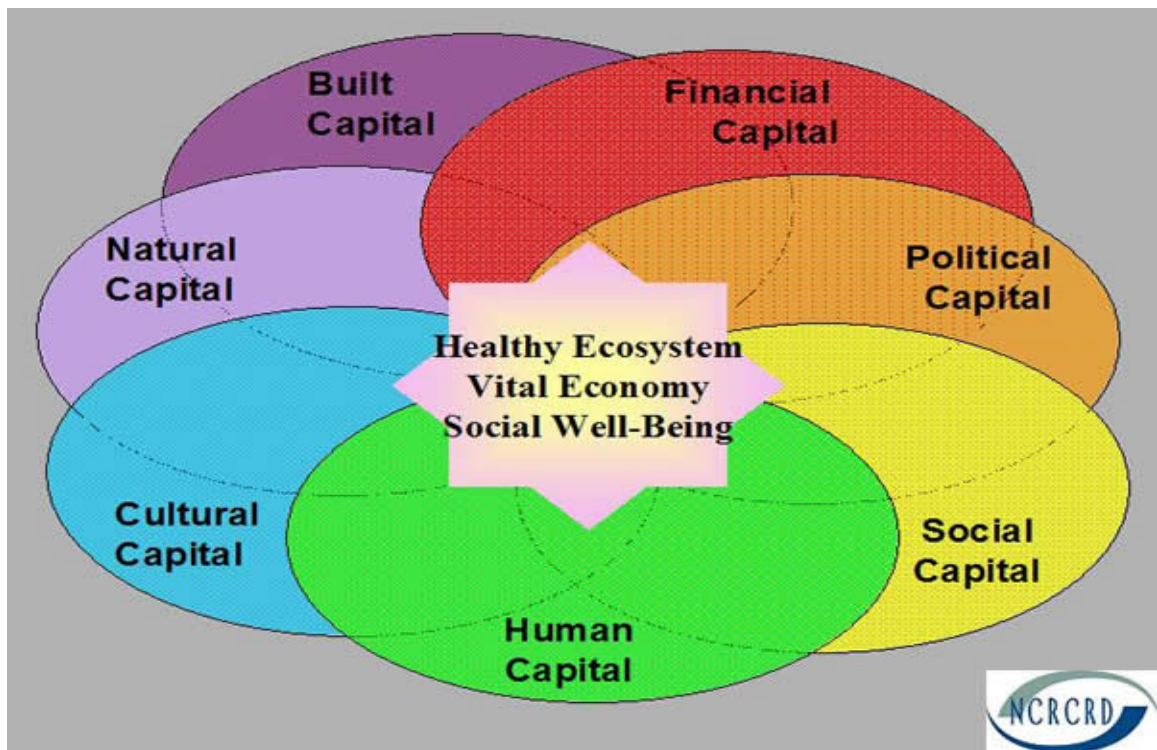


Figure 2. Community capitals and interactions

The “savings box” as a rural microfinance scheme

In the case of small groups of peasants living in rural villages, microfinance schemes have been developed to respond to their limited access to formal financial services such as banks and credit unions. This alternative savings and credit model has been called “saving boxes.” Saving boxes are managed directly by peasants who are organized in small groups, which can vary from 10 to 40 members; the most common size of a typical group is 15 members (Colegio de Postgraduados, 2003).

Since the management responsibility of the saving box is held by the members collectively they are in charge of the administrative tasks of managing money and keeping records, calculating interests and other activities that require administrative skills. However, the formal educational level of the adult in these communities averages 5 years of elementary school (Colegio de Postgraduados, 2003). The lack of formal education becomes a real challenge for members as they seek to improve their individual and group capabilities. Savings box groups increase members’ access to monetary resources to resolve issues of food production, health care, education, housing improvement, initiating and expanding small businesses, and even repayment of other debts. In examining this process of building and developing savings and loan schemes, one may identify at least the following capitals: cultural, human, social, political, financial, built, and natural. However, what is not clearly understood is how these capitals intervene and interact with the success or failure of rural community microfinance schemes called saving boxes.

The Colegio de Postgraduados served as an external consultant in a project called “sustainable integrated rural development in the central valleys of Puebla and Oaxaca

states". Throughout its involvement, the university recorded the process of building and developing community savings and loan schemes as it provided technical advice, training, and participated in various events such as meetings, assemblies, self-diagnosis, programming, and evaluation workshops. These notes along with each saving box's records, data from key informant interviews, and direct observation provide a rich body of data for analyzing and identifying relationships between indicators that influence success or limitations of these rural community savings and loan schemes.

2.2 Microfinance and the saving box scheme: Theoretical framework

This section focuses on different approaches to analyzing microfinance schemes. The evolution of financial services addressed to the poor, especially to the rural poor, are presented and discussed. The progression of informal lending to microcredit and microfinance schemes, and differences and similarities among different approaches of savings and loans are contrasted with the saving box schemes..

2.2.1 Microcredit vs. microfinance

Microfinance is understood as a developmental approach that emphasizes providing financial and social intermediation. The financial intermediation includes services such as savings, credit, and insurance. The social intermediation is represented by the organization of groups to voice individual aspirations, to raise concerns for policy makers and to help develop self-confidence and bargaining power. These services are provided by three different kinds of lenders: formal institutions like banks, credit unions

and co-operatives; semi-formal institutions like NGOs; and informal sources like local moneylenders and shopkeepers. Both microfinance institutions (MFIs) may be either formal or semi-formal.

Microcredit and microfinance have both functional and conceptual differences (Khandakar and Rahman, 2006). The main functional difference between microfinance and microcredit programs is the kind of service they provide. Microcredit is almost uniquely focused on loan distribution and recovery and is invariably related to group formation and compulsory savings, as is the case of the Grameen Bank model (Woolcock and Narayan, 2000), whereas microfinance programs provide all kinds of financial services including microcredit. According to Khandakar and Rahman (2006) the microfinance movement is called the second revolution in credit theory and policy, while the first revolution was considered microcredit. Microcredit is more concerned on how to overcome the structural obstacles like the lack of information, lack of collateral, high cost, high risk, and systematic market bias, which can negatively influence savings and credit services to the poor. Khandakar and Rahman stated that the key methods used in microcredit programs are a standardized and limited set of products and services (especially credit and compulsory savings), group lending, social collateral or joint liability, forced savings, small initial loan size, loan amount tied to savings, standardized loan repayment and disbursement schedules, and frequent repayments. The evolution and innovations in these methods were driven by NGOs and donor demands called product centered services. In contrast, microfinance is focused on the demand side or is customer-centered (Khandakar and Rahman, 2006).

There are two main conceptual differences between microcredit and microfinance. The first difference concerns profits. NGOs and non-profit institutions operating microcredit schemes do not aim for profit, while microfinance is a for-profit, private venture. The second conceptual difference is the origin of resources for funding their operations. Microcredit programs depend on external finance from donors but microfinance programs generally manage their own resources through savings mobilization (Khandakar and Rahman, 2006).

2.2.2 Informal lending schemes

The saving box scheme is a microfinance scheme. It occurs in the context of informal lending sources predominantly in rural areas such as self-help groups, solidarity groups or joint liability groups, rotating savings and credit associations (ROSCAs) and accumulative savings and credit associations (ASCRA) (Zeller and Sharma, 2000; Tsai, 2004; Shreiner, 2001; among others). Informal lending sources are comprised of friends, relatives, neighbors, informal groups, and moneylenders. Tsai (2004) argued that informal financing mechanisms are imperfect substitutes for the formal banking sector. He called these alternatives ‘non institutional credit agencies’, which include agricultural moneylenders, professional moneylenders, traders, relatives, friends, and others. To illustrate this, he pointed out that farmers in China obtain four times more credit from the informal market than from the formal financial institutions. In India in 1992, 40% of rural households continued to rely on informal financing (Tsai, 2004). Shreiner (2001) described six basic virtues of informal finance based on the experience of informal financing efforts from rotating savings and credit associations (ROSCAs), money-guards,

hire-purchase stores, moneylenders, pawnshops, trade finance and check cashing outlets to lending among family and friends. These virtues are: (1) slashed transaction costs; (2) increased supply of credit, savings, and insurance; (3) services to women; (4) credit upon one's word instead of physical collateral; (5) socially enforced and/or self-enforced contracts; and (6) being amenable to repeated transactions. However, some perceived weaknesses of informal finance are no deposit insurance, no large loans, no long-term loans, and no means to legally enforce contracts (Shreiner, 2001).

Bhatt and Tang (2001) stated that group-based microfinance is used as a “linkage” between the individual and financial services that seeks to increase the flexibility and reduce the disadvantages of the informal credit market. If appropriately designed, group-based lending has the potential for enhancing economic development for rural communities.

Group-based microfinance has been utilized as the core of operations of many microcredit programs, for the Grameen Bank and its replicates in the developing world. An example was presented by Sharma (2004) from two case studies in Nepal and India, in which both based their microfinance practices on groups. The author found that these groups were self-regulated through peer-selection, peer monitoring, and peer enforcement of contracts in order to have access to microfinance services.

2.2.3 Self-help groups and bank linking

Tsai (2004) found that in India microfinance services led by NGOs have followed one of three forms: self-help groups (SHGs), cooperatives, or Grameen replicators. The author pointed that, as of 2002, there were one million SHGs with 17 million members.

By March 2003, over 444 banks had participated in microfinance linkages with 717,360 SHGs. In total the SHG-Bank linkage program had served an estimated 7.8 million low-income households. Over 500 NGOs were serving as financial intermediaries by brokering funds between banks and low-income borrowers (Tsai, 2004). In the same fashion, Reddy and Manak (2005) stated that there were two million SHGs in India; 1.6 million SHGs have been bank-linked with correlative loans of 69 billion Rupees. In 2004-05 alone, almost 800,000 SHGs were bank-linked (Reddy and Manak, 2005).

The SHG model is based on groups of about 10 to 20 people, generally women from a similar class and region who came together to form savings and credit organizations. The members pool financial resources to make small interest bearing loans among themselves. Through this process an ethic focused on savings is developed. Terms and conditions of loans are set in the group by designated members (Reddy and Manak, 2005).

One important attempt to deal with the informal nature of SHGs is the creation of SHG federations, which according to the legal system in countries like India are considered formal institutions registered as societies, mutual benefit trusts and mutually aided cooperative societies. SHG federations generate important benefits such as stronger political and advocacy capabilities for women; sharing of knowledge and experience; economies of scale; and access to greater capital (Reddy and Manak, 2005).

On the other hand, Morduch and Rutherford (2003) stated that the outlook for the SHGs movement is far from certain. Even advocates of this approach recognize that there is much to be done to upgrade and mainstream SHGs, mainly because the present system appears unsustainable. It is not clear who is responsible for maintaining quality in terms

of service and how the costs of doing so are to be met. The authors concluded that neither NGOs nor banks are ideal candidates for those tasks. Therefore, leaving the groups alone in their bookkeeping management of their internal savings and loan accounts, without outside assistance, will increase the difficulty of ensuring quality especially for the rural poor. They suggested that if the SHG movement represents a real financial alternative for the poor, this program should undergo a transition into a more stable institutional form, such as the credit union system. In this fashion SHGs are regarded as an 'interim' means to provide microfinance services in a period before other institutions can be developed or adapted (Morduch and Rutherford, 2003).

Nair (2005) discussed some constraints in India that stand in the way of SHG-based microfinance programs making significant achievements. The financial sustainability of SHGs was not clear because several of their costs were subsidized by promoter agencies which operated at less than market costs paid by SHGs on loans from banks. Their organizational sustainability may be linked to their small size, which limits their financial and human capital (Nair, 2005). Nair (2005) assumed the SHGs need to be sustainable and suggested that SHG federations have the potential to contribute to SHGs' sustainability. SHG federations support SHGs through various services to achieve economies of scale; obtain value-added services, reduce transaction costs and enhance empowerment thereby contributing to organizational sustainability of the SHGs (Nair, 2005)

2.2.4 ROSCAS and ASCRAS

Shreiner and Nagarajan (1998) predicted creditworthiness using visually observable characteristics when they studied accumulating savings and credit associations (ASCRA) and rotating savings and credit associations (ROSCA) in Gambia. Gambian ASCRAs and ROSCAs are similar in that they are both informal, cooperative community organizations that collect deposits and make loans. They differ in that the amount lent by ASCRAs need not equal the amount collected at a given meeting, whereas all the deposits mobilized by a ROSCA are immediately lent out. In addition, not every member of the ASCRA borrows money, and the timing of ASCRA loans depends on borrower demands, whereas all members of a ROSCA must borrow money and the timing of ROSCA loan is generally fixed (Shreiner and Nagarajan, 1998).

These authors studied the “Kafo” that is an informal community cooperative organization, which meets the definition of an ASCRA according to Bouman (1995). ASCRAs have about 100 members who provide each other with basic social, financial, and insurance services. Most groups maintain a common fund built up by occasionally collecting dues and/or by selling produce from a plot collectively farmed by members of the group. The ASCRA draws on the common fund to make grants to members with emergencies or to make loans. Many groups also collect small deposits from their members at regular intervals and periodically return the accumulated sum to the members, often immediately before the celebration of Ramadam.

The “osusu” is a cooperative community organization fitting Ardener’s (1964) and Bouman’s (1979, 1977) definitions of a ROSCA. These ROSCAs are groups of 10 to

30 members who regularly meet to contribute a fixed amount of cash to a common fund which is immediately distributed by some rule of rotation to a single member. More meetings follow until each member has received the pot once. Thus, ROSCAs collect deposits and immediately lend them out again. All pots except the first and the last have a loan component (the amount yet to be contributed by the recipient in future meetings) and a savings-withdrawal component (the amount already contributed by the recipient in previous meetings).

Seibel (2000) described the case of informal finance in Liberia. The institution of rotating savings (ROSCA) is ancient, dating back at least to the 16th century, when Yoruba slaves carried the concept to the Caribbean as part of their institutional luggage- or social capital. Both the term “esusu” and the practice have persisted to this day, as “esusu” in the Bahamas, “susu” in Tobago or “sou” in Trinidad. Among the Yoruba in Nigeria today, there is hardly a single adult who is not a member in one or even several esusos, which range in size from several dozen to hundreds of members. The institution exists all over West Africa as well as in many other parts of the world as an integral part of the local microeconomy and referred to with its own vernacular terms (arisan in Indonesia, paluwagan in the Philippines, gameya in Egypt, ekubin in Ethiopia, and cuchubal in Guatemala (Seibel, 2000).

Aniket (2005) studied modified ROSCAs in microfinance named “totine” in Cameroon and Senegal, “esusu” in Nigeria, “stokvel” in South Africa, “bishi” and “chit” fund in India (Bouman, 1994). Besley et al. (1993) suggested that “ROSCA constitute one of a number of institutions, whose existence is pervasive in developing economies.” What has made it a pervasive as well as enduring is its simple and intuitive rules which make

very little demand on the intellectual capability of the participants; this levels the playing field for participants from all backgrounds and intellectual capabilities” (Besley et al., 1993).

Variations of principles for better management of ASCRAs have been used to improve finance alternatives such as Financial Service Associations, a program started by IFAD in the Republic of South Africa in 1994. These principles are proximity between service provider and clients, local financial intermediation, ownership and self-management by the poor, self-reliance, and sustainability (Seibel, 2000).

2.2.5 Saving box and the other microfinance community schemes: similarities and differences

Saving box classification

The saving box scheme in Mexico has several features showing many similarities and differences from existing microcredit and microfinance schemes. The saving box can be described as a savings club, which is in essence a SHG and an informal lender in the category of Informal Finance Group (IFG) like ROSCAs, ASCRAs or Grameen model solidarity groups. The saving box scheme can also be categorized as a micro finance institution (MFI), since its goal is to provide savings and loan services.

The members in the saving box scheme are, at the same time, owners and customers. They are the main clientele for loan release and they share the benefits earned through gained interests. Therefore, the profit concept is hard to apply in these circumstances. They pay interest for using their own resources but they share the revenues gained. In this sense the saving box is more like a solidarity group in which

self-help, self-sufficiency, food security, and other goals are the main motivations. On the other hand, the saving box is different from the concept used by the Grameen model and replicators in which groups are mostly composed of women and a small number of members (5-6), where joint liability or social collateral is a key feature. In the saving box there is no joint liability rather it is self-selection, self-monitoring, and self-enforcement of the contracts that comprise the individual motivations to keep their savings safe.

NGOs participation

The concept of SHGs was first promoted by NGOs and later by governmental programs (Eyo, 2008; Reddy and Manak, 2005; Aniket, 2005; Tsai, 2004; Sharma, 2004; Morduch and Rutherford, 2003; Olomola, 2001; Seibel, 2000; Zeller and Sharma, 2000). The main goal of SHGs is linking groups with bank services, especially credit, and in some cases compulsory savings tied to credit (Seibel 2000, Nair 2005). For the saving box promotion and operation, no NGOs are involved. Individual savings and external donor seed capital constitute the bulk of resources for starting the lending program for each group. After five years of using seed capital, the starter fund was returned to the promoter agency in order to fund other groups. The interests gained by the seed capital remain in the group as a social fund. The concept of social fund is understood as an amount of money owned by the group, and generally built by individual shares and/or external donations.

Evolution of microfinance schemes

In most of the cases saving box groups have evolved from small farmers groups organized around a productive project linked to crop production. They have followed some of the evolutionary trends from labor to credit described by Seibel (2000), which include from labor to cash; from non-financial to financial groups; from rotating to non-rotating schemes; from short-lived to permanent groups; and from savings-only to savings-driven credit.

The saving box scheme faces the same drawbacks as other informal microfinance alternatives. Despite their ability to economize on transaction costs and offer fast, flexible, and convenient financial services, informal credit markets suffer from many limitations such as lack of enforcement to repay, undercapitalization, and poor instruments for mobilizing savings, compared with formal financial markets (Bhatt and Tang, 2001).

The concept of sustainability

The main indicator for assessing sustainability of microfinance programs has been repayment of loans. Repayment rate and conditions are also critical for the saving box scheme (Wenner, 1995; Sharma and Zeller, 1997; Zeller, 1998, 1999; Wydick, 1999; Ghatak, 2002). In a case study about credit scoring in Colombia, Shreiner (2000) observed that the terms of the loan contract affected the risk of loans with monthly installments. The risk of loan non-payment increases by about 3 percentage points for each additional installment. A loan repaid monthly was about 0-6 percentage points

riskier than a loan repaid weekly. The Colombian lenders used these results in adjusting their loan contracts in search of an acceptable risk level.

Ghatak (2002) reviewed repayment rates and the kind of liability assumed, using empirical studies comparing the performance of microfinance programs. The author concluded that microfinance programs using joint liability had better repayment rates than those using individual liability. Others have studied group lending programs that use joint liability and found that variables related to social cohesion and better information flow among group members had improved repayment rates (Wenner, 1995; Wydick, 1997).

Generally microfinance programs operating non-subsidized microcredit charge higher interest rates than those in the formal finance market (Tsai, 2004; Schreiner, 2001; Morduch and Rutherford, 2003; Zeller, 1999). This is true for the saving box scheme, in which the most common interest rate is about 3% monthly. However, microfinance programs offer lower interest rates than other informal lenders. Tsai (2004), in a study of NGO microfinance institutions, found that the highest monthly interest rate that rural borrowers in China would be willing to pay was 32.6%. The author also found that the interest rate in pawnbrokering in Chandrapur, India was 3% monthly (Tsai, 2004).

Safe Save is a microfinance institution in Dhaka, Bangladesh, which offers savings and loan services addressed to the poor. Clients earn interests on the balances of their passbook accounts and they can make deposits or withdrawals at any time. Loans are collateralized by savings balances, and clients can borrow 1.5 times their savings. There is no fixed repayment schedule and loans are charged an interest of 3% monthly (Shreiner, 2001).

Morduch and Rutherford (2003) in their analysis of microfinance in India found that leading institutions charge between 24% and 48% per year. The Grameen Bank applied the lowest interest rate and most others were 36% (Morduch and Rutherford, 2003). Zeller (1999) stated that village banks in Madagascar set savings rates between 24% and 36% per year and lending rates at 36% to 48% per year, although the formal lending rate of the agricultural bank was only 14%. The lending rate from the village bank was higher than that from relatives and friends, but less than the lending rate of 60% interest from moneylenders (Zeller, 1999).

Regulation

Seibel (2000) questioned whether MFIs benefit more from banking status or by remaining hidden within an informal financial sector. He suggested that these microfinance institutions should stay informal if the policy environment is repressive enforcing interest rate regulation, submitting institutions to inappropriate supervisory agencies, or simply barring institutions from social practices. He argued that a delegated system for upgrading a large number of Informal Financial Institutions (IFIs) into formal microfinance institutions for regulation and supervision represented a big challenge because the large number of MFIs exceeded the capacity of most central banks or bank superintendencies in developing countries. Some countries like Indonesia, the Philippines, Vietnam, Tanzania and several Latin American countries planned to establish a second-tier regulatory authority as a self-regulatory and self-supervisory apex organization for MFIs. However, Seibel (2000) suggested that such an upgrading would have to be a voluntary step for the vast numbers of indigenous peoples IFIs.

Public policies

In the 1980s, public policies and development banks began addressing the problem of providing cheap credit to the poor, which were regarded as risky and unbankable clientele by the formal finance sector. However, corrupt practices and high transaction costs in formal financial institutions resulted in failure to reach their institutional development goals (Bhatt and Tang, 2001). In a repressive policy environment, IFIs and other unregulated MFIs have a competitive advantage because they are free to set their own interest rates and other contract terms. Many IFIs remain informal simply because there is no suitable legal organization available, or at least no legal organization with sufficiently low minimum equity capital requirements or with capital adequacy ratios (Seibel, 2000).

Technical assistance

Ouattara et al. (1998) studied the role of technical assistance in microfinance programs in West Africa and found that direct, hands-on technical assistance was important, especially in the starting phase of the program, and that the promoting entity should provide comprehensive and fairly long-term assistance. When this technical assistance ends, a minimum support base should remain in order to lead the organization to an adequate level of sustainability (Ouattara et al., 1998).

2.3 Factors related to success of microfinance schemes

Some microfinance studies have addressed the role of socioeconomic variables among the poor, especially women and small farmers, to the success of microfinance programs

(Ghatak, 2002; Pitt, 2006). In the present study, an important feature was the assumption that for microfinance program success, a minimum threshold of socioeconomic assets must exist in order to support the establishment, development, and success of rural microfinance schemes. This idea was supported by Granovetter (1995) who argued that economic development took place through a mechanism that allowed individuals to initially draw on the benefits of close community membership but also enabled them to acquire the skills and resources to participate in networks that transcend their community, thereby progressively joining the economic mainstream. The Grameen Bank model also used pre-existing social capital in small villages to leverage its group-based credit programs that were started in Bangladesh (Morduch, 1998; Van Bastelaer, 2000).

These kind of empirical studies regard microfinance programs as an independent variable, and therefore, a promoter of socioeconomic assets like human capital, social capital, and financial capital, among others. This promoter effect has been observed when microfinance programs come to rural communities as outside service providers, first under microcredit programs as Grameen Bank replications managed mainly by NGOs, and later, as microfinance services providers by public programs and private practitioners. However, when microfinance schemes emerge from the people in rural communities, such as saving boxes (SB), rotating savings and credit associations (ROSCAS), and accumulative savings and credit associations (ASCAS), they persist over time. Some of them evolve to semi-formal or formal microfinance institutions. Thus, it is important to identify underlying factors that influence such community self-help groups in their quest for social and economic sustainability.

As was stated by Nair (2005), the extent of sustainability and factors determining sustainability of SHGs are little studied. Knowledge on impact is also inadequate. The need to investigate these issues is long overdue.

The following section of this literature review is presented to conceptualize and measure the variables involved in this study. Firstly, a conceptual definition is given according to scholars investigating each one of these variables. Secondly, possible ways to measure these variables are presented. And finally, a hypothesis for the study is proposed in which the independent variables are identified.

Conceptualizing and measuring capitals have been addressed in different ways according to a researcher's theoretical orientation. Economists usually favor econometric models based on statistical analysis from quantitative data. Social scientists, such as sociologists and anthropologists tend to support their analysis on qualitative data. However, the use of mixed methods (Creswell, 2003), which combine quantitative and qualitative approaches, have been increasingly used by social scientists in order to better understand and explain complex social issues.

2.3.1 Social capital

Social capital is defined as the relationships and communications between individuals within defined groups. According to Coleman (1988), social capital comes about through changes in the relations among persons that facilitate action. The function and value of social capital are determined and influenced by the individual components of social structure that can be used as resources for people to achieve their interests. Social institutions are proposed as economically productive resources in which the

concept of social capital is clearly implicit. The World Bank defines social capital as ‘the ability of individuals to increase their well-being through involvement in social networks’ (Bowles and Gintis, 2002).

The importance and value of social capital can be demonstrated in a case study in a Midwestern community in the U.S.A. In this study Flora (1998), concluded that social capital was high in the community as evidenced by strong social networks, strong norms based on a dominant religion, intergenerational continuity of leadership, and a high level of trust that existed within the community. Integration and linkage of individual relationships can occur together and do contribute to economic and community development. Entrepreneurial social infrastructure and social capital are effective predictors of both collective and individual action (Flora, 1998).

Flora et al. (1997) measured indicators to show a legitimacy of alternatives, resource mobilization, and social network qualities and found that communities with these characteristics were able to mobilize community economic development efforts and ultimately have measurably high entrepreneurial social infrastructure (Flora et al., 1997).

On the other hand Fey et al. (2006), found that social networks were extremely important in most communities’ economic development efforts, within and outside of a given community. They decided that the number of new groups that formed and how communities leveraged outside help were sound ways to measure investments made in social capital (Fey et al., 2006).

Wenner (1995) examined the determinants of performance of 25 Costa Rican credit groups and found that the use of “inside” information on character attributes, such as creditworthiness, in credit groups reduced the incidence of default by individuals.

Repayment performance was better in groups engaged in active screening of their members. The existence of a written code or group rules and informal screening of individuals significantly decreased loan delinquency. He also found that savings mobilization, which acted like an intra-group insurance, and more isolated communities were linked with better performance.

Sharma and Zeller (1997) found that relatively remote communities and even communities that have higher than average rates of poverty, had better repayment rates than more urban or higher income communities in a sample of 128 groups interviewed in Bangladesh. A higher proportion of relatives within a group and higher loan amounts had negative impacts on group performance. According to these authors, the success of group lending cannot be solely attributed to innovations that reduce the costs of screening, monitoring and enforcing loan contracts, but also to the perceptions of long-lasting nature of the program by the intended borrowers in small rural communities.

Zeller (1998) concluded that clear, internal rules of conduct, group size, communities characterized by a relatively high degree of monetarization, the presence of several agricultural input retailers and a lower exposure to covariate risks significantly improved repayment performance. The latter two characteristics were more likely to prevail in less remote villages. These conclusions were in contrast to the findings of Wenner (1995) and Sharma and Zeller (1997) who found improved loan repayment performance in more isolated and remote communities.

Wydick (1999) analyzed the effects of social ties, peer monitoring and group pressure on the provision of intra-group insurance, the mitigation of morosely and overall group repayment performance in 137 Guatemalan borrowing groups in Quetzaltenango

and Totonicapán. He argued that the success of group lending appeared to be driven by peer monitoring and intra-group insurance through solidarity. Social sanctions play a secondary and supporting role. Wydick concluded that in order to reduce problems related to asymmetric information in credit markets, group lending may be less effective in areas where social ties were strong. Paxton et al. (2000) studied 140 Burkinabe credit groups. They proposed that the domino effect derived from defaulting members as a bad example, was a significant determinant of repayment problems. They found that the role of group solidarity outweighed coercive peer pressure behavior on repayment rates.

In contrast to the findings of Wenner (1995) and Sharma and Zeller (1997), Paxton et al. (2000) found that access to other sources of credit did not have a negative impact on a group's repayment performance, but served as an indication of creditworthiness. In addition, defaults seemed to increase with subsequent loan cycles but were counteracted by the positive influence of adequate leadership and training.

In summary, the existing empirical studies highlight the importance of intra-group insurance, risk diversification, social ties and location in driving the success or failure of groups. Group solidarity and risk diversification appear to be unambiguously linked with higher group loan repayment.

Use of group member's information for screening loan applicants using personal and social information improves repayment rates and reduces the effort in enforcing loan repayment. Some economic theorists suggest that other innovations like dynamic incentives such as progressively bigger loans combined with denial of new credit in case of failure in repaying loans represent important means to decrease loan default. Peer pressure within groups affects group performance positively, while the existence of other

Self-Help Groups in the same village seems to bear a negative impact on the groups' performance (Verhelle and Berlage 2003).

Eyo (2008) stated that “the success of a finance group in repaying group loans and in other group activities depend, in part, on the human capital of group members. Outside the personal characteristics of group members upon which social pressure is affirmed, their net worth in investment, managerial know how and knowledge of alternative sources of credit, as well as lending practices of the lenders are variables that affect their use of external finances vis a vis their willingness to join and become members of finance groups” (Eyo, 2008).

According to Bhatt and Tang (2001) in designing group-based microfinance programs, membership in such informal credit networks was often limited to specific geographic areas and narrow kinship groups. These informal arrangements relied on various social networks and mechanisms to ensure conformance to mutually agreed upon contracts. Such arrangements thrived as a “business” in developing countries, and an informal credit market existed side-by-side with the formal one (Bhatt and Tang, 2001). The authors raised the question of whether group-based microfinance was an economic development intervention, or if it was an integrated approach to meeting the socio-economic and political development needs of the poor? Some see the role of such programs largely in terms of meeting the capital needs of the poor but others also stress the positive impact of such schemes on human and social capital formation in some instances, and personal and political empowerment of the poor in others (Bhatt and Tang, 2001).

The World Bank's Community-Driven Development (CDD) initiative is part of the bottom-up approach to development. Rather than viewing poor people as the target of poverty-reduction efforts, CDD tries to treat poor people and their institutions as assets and partners in development. The CDD initiative is embedded in the idea of social capital, which refers to institutions, relationships, and norms that shape the quality and quantity of social interactions. Evidence suggests that social cohesion is critical for economic prosperity and sustainable development. "Social capital is not just the sum of society's institutions; it is the glue that holds them together" (World Bank 2005).

Olejarova et al. (2003) explored the concept of social capital from the perspective of microfinance and studied the link between microfinance provision and social capital. Their study explained the links between social networks, poverty and the process of transition to open market economies in Central and Eastern Europe. They stated that there was a debate between definitions of social capital that are based on community and those that are based on trust. Their study used all of the most widely acknowledged social capital indicators such as trust, voluntary involvement, and political participation as a ground for their decisions about the relationship between social capital and microfinance. They stated, however, that obtaining a single, true measure of social capital was probably not possible. Contemporary researchers have had to compile indexes from a range of appropriate items like measures of trust, confidence, government, voting trends, social mobility, and others. Another way to measure social capital has been the use of membership in formal and informal groups and networks. Examples of this were demonstrated by Narayan (1997) who measure social capital by identifying individuals' membership in informal and formal associations and networks in Tanzania; and Narayan

and Pritchett (1999) who developed an index of social capital at the household and community levels involving participation in formal and informal groups and networks.

For practical reasons, in the proposed study political capital was considered a dimension of social capital. Therefore political capital was included with trust, reciprocity, norm and rules, and groups and networks as components for measuring social capital in the saving box groups that were studied.

Political capital is related to the ability of a group to influence the rules and regulations that determine the distribution and utilization of resources within a social unit. Political capital includes organizational skills, networking and communication skills, influence, voice and power (Flora and Flora, 2004).

According to Fey et al. (2006) political capital can be measured in terms of political empowerment. If the community group has this political clout, they are then able to mobilize resources in the way of economic and social capital, which is necessary for community change. What this may mean for small communities is that the CED group needs to engage those in town who already have political power and control over decision-making, so that others in the community will want to join the CED group and work toward community success. In this way, local people are making an investment in the community's political capital to make an impact on CED efforts (Fey et al., 2006).

Olejarova et al. (2003) linked microfinance, social capital formation, and political development in Russia and Eastern Europe. Their designed hypothesis and results of the wider impact study, which included three microfinance organizations, represented a pilot attempt to assess the contribution of microfinance to community-building and political participation. These authors found that microfinance apparently was not associated with

higher levels of formal association, but was associated with informal association, which can lead to informal political participation.

Although most of the previous studies used repayment rates as a measure of the microfinance institution's performance, for the present study the performance of the group was measured based on its survival status and savings and loan functioning. The hypothesis is that social capital in the saving box groups is a variable that is positively associated to the success of the survival and performance of the saving box group (Ho 1).

2.3.2 Cultural capital

Cultural capital is defined as the values and philosophies of life that have both economic and non-economic implications. Cultural capital is analogous to the filter through which people live their lives, the daily or seasonal rituals they observe, and their cosmivision or the way they regard the world around them. The socialization process serves to transmit values and cultural capital from a group to its members (Flora and Flora, 2004). Fey et al. (2006) used community traditions, festivals, and local history to study how the "culture" of a community changed or evolved.

The cultural dimension involved in this study is represented by gender differences concerning participation in saving boxes. Women groups have been targeted as a strategic sector in fighting against poverty. Schreiner and Nagarajan (1998) predicted creditworthiness through publicly observable characteristics and concluded that some easily observable characteristics helped predict creditworthiness. Formal lenders can easily profit from informal lenders' practices in that they consider females to be creditworthy. This assumption is made because at the village level, informal lenders are

good judges of creditworthiness and because females borrow from informal lenders more than males do.

Women's empowerment, according to Mayoux (2006) needed to be an integral part of public policy, and it was not an automatic outcome of microfinance programs. Other empowerment interventions should be included such as group development and complementary services (Mayoux, 2006).

Decision making power related to various types of microfinance resources as a measure of women's empowerment was analyzed by Wakoko (2003) in Uganda. She concluded that participation in informal financial groups was the most important microfinance resource promoting women's empowerment in Ugandan rural households. The study recognized the limits of the transformative capacities of microfinance resources, especially of the more formal sources of credit, and that financial empowerment did not necessarily lead to a transformation in gender relationships. The author also advocated for an integrated approach to microfinance delivery in Uganda because the integrated informal sources offered the best opportunities for rural farmers in general and women in particular.

Pitt et al. (2006) estimated the impact of participation in microcredit programs in women's empowerment using a large set of qualitative responses to questions related to gender relationships within the household in a survey in rural Bangladesh between 1998 and 1999. They concluded that women's participation in micro credit programs helped increase women's empowerment. Credit programs resulted in women taking a greater role in household decision making, having more access to financial and economic

resources, expanded social networks, and more freedom and mobility. Spousal communication about family planning and parenting concerns also improved.

The general literature suggests that male entrepreneurs tended to divert a greater proportion of profits to reinvestments in an enterprise, while female entrepreneurs in developing countries tended to allocate a greater share of profits towards food, clothing, and other expenditures affecting family and child welfare and health (Wydick 2002). Jennings (1989), also found that female entrepreneurs had a primary goal of ensuring subsistence consumption for members of the household. While on the other hand, male entrepreneurs were greater risk-takers engaged in higher-yielding but potentially riskier projects.

In a study about Self-Help Groups (SHGs), women empowerment, and social security in India, Reddy and Manak (2005) found that women's participation in the local political arena increased through active involvement in SHGs. Women's political engagement in local government included local assemblies and participation in public affairs, and civic issues, such as building a school or a health center, repairing eroded river bank lands and laying drinking water pipes. Impoverished women developed greater language and financial skills through the SHG which provided the basis for higher levels of confidence to engage in larger issues. Quinones (2000) in a Philippines case study about social capital in microfinance stated that women were more supportive of their group members, more patient, trustworthy and giving to their peers, and they had a deeper sense of shame.

In a study about informal finance and microfinance in rural China and India, Tsai (2004) found that ROSCAs in Lin Village called 'chenghui' or 'hui' were only managed

by women because they had better developed social networks with one another, because they were more likely to remain in town year round (as opposed to men who may engage in seasonal migration), and because men were more likely to have other financial options.

Women may have a comparative advantage for functioning within lending groups but not necessarily due to their responsiveness to shame sanctions according to Barr and Kinsley (2002) in a study in Zimbabwe. The comparative advantage of women in lending groups may be more related to the behavioral rules they have internalized, the way these rules interact with the general level of social interaction, and their effectiveness at sanctioning others who behave antisocially.

However, access to financial sources by women does not guarantee that those resources positively impact the welfare of the household, especially related to children and women's health, nutrition and schooling. In this regard Goetz and Sen Gupta (1999) assessed women's loss of direct control over their loans. They concluded that access to loans did not necessarily benefit women's or household welfare due to gender authority issues in the management of household assets. This study raised several issues for further research about the empowerment contribution of credit targeting women.

In the case of the present study, an important number of women have been participating in saving box groups. Women participation ranged from groups entirely composed by women to those in which they represented only a small proportion. Quality of women's participation was also different among groups. In some groups women were ordinary members, while in other groups they performed key roles in the structure of the group such as leadership and organizational management. The second hypothesis for this

study is that women's participation in leadership roles in the saving box group is positively associated to the saving box success and survival (Ho 2).

2.3.3 Human capital

Human capital is defined as the characteristics and potential of the community's individuals as a result from the interaction between other human beings and the environment. These characteristics are related to a person's knowledge, skills, capabilities, and potentials. Pretty and Hine (2000) defined human capital as the total capability residing in individuals, based on their level of knowledge, skills, health and nutrition. According to Coleman (1988), human capital is built by changes in people that bring about skills and capabilities that enable them to act in new ways.

Alston (2004) argued that the loss of young people was a threat to the sustainability of rural communities. This is an indicator of the loss of future leaders, small business owners, entrepreneurs and community drivers (Alston, 2004). Fey et al. (2006) stated that communities sustain themselves over time in relation to their investments in education, health care, and youth retention in the CED effort; these are all important for attracting and keeping people in small rural areas, i.e. building human capital.

Regarding administrative management of saving and credit programs, Morduch and Rutherford (2003) stated that saving and loan clubs faced problems in managing their microfinance schemes, because "good book-keeping is hard for the illiterate and without good book-keeping such devices are prone to abuse, carelessness, and collapse" (Morduch and Rutherford, 2003). Regardless of poverty level, people "prefer an individual service, the simplicity of having a reliable retailer look after the bookkeeping

instead of having to do it themselves, and prefer to avoid the risks involved in owning and managing their own mini-financial institution. This is especially true, they argue, of the very poor, who are often illiterate and ill-equipped to maintain a good set of books for anything but the simplest inflexible transactions over short periods” (Morduch and Rutherford, 2003).

When Aniket (2005) studied the use of modified ROSCAs in microfinance, he concluded that group leaders were those that were economically better off and more educated than the rest of the group. The ordinary members had minimal education skills. He stated that education was the scarce resource among the impoverished. Among the benefits of lending groups was that these groups increased the “effective literacy” of the group. This came about when less educated individuals benefited from sharing the educational skills of the few but well educated in the group.

While the achievements of women members in forming common groups to help themselves is remarkable, much more progress is needed to build the capabilities of the staff of SHGs. In this regard, NGOs play a key role in providing the support needed for establishing bookkeeping and accounting organizational structure, governance and other areas (Reddy and Manak 2005).

Specifically for the present study, human capital is perceived as an asset residing in saving box groups. This variable is considered as a necessary ingredient for the successful performance of the group. Most of the literature shows that microfinance programs promote and help build human capital (Morduch and Rutherford, 2003; Reddy and Manak, 2005; Ghatak, 2002; Aniket, 2005); however, in the present study, human capital is regarded as a prerequisite for the saving box group. Human capital for this

study was measured by the average number of years of formal education of the treasurers of the saving box. Alternatively the number of treasures trained and involved in the saving box management was also considered as an indicator of human capital. The effect of training group members in administrative management of microfinance practices can be attributed to external promoters, named NGOs, governmental agencies, or university extension programs. Nonetheless, the final decision on who and how many members of the saving box group should be trained and advised resides in the group's own dynamics. The importance of human capital in microfinance led to the third hypothesis of this study: human capital is positively associated to saving box success in terms of its survival status (Ho 3).

2.3.4.. Financial capital

Financial capital is related to all forms of currency and assets used for increasing financial capacity of the household. Financial capital includes credit and loans, investments, taxes, savings, tax reductions and refunds, scholarships and grants. According to Pretty and Hine (2000), financial capital is accumulated claims on goods and services built up through financial systems that gather savings and issue credit, such as pensions, remittances, welfare payments, grants and subsidies.

Another kind of financial capital is termed "built capital". This form of capital is built by humans to be used for the production of other capitals. Built capital is related to dwellings, roads, irrigation systems, water and drainage systems, health infrastructure, electronic communications, marketing and storage facilities, etc.

Flora et al. (2000) stated that human capital, social capital, natural capital, and financial/built capital were critical contributors to long-term sustainability. Campana et al. (2000) also mentioned that social, human, and financial capitals, if properly focused, can improve quality of life and the environment.

According to Flora et al. (2001), it is much more difficult now for farmers to maintain a constant share of the value chain. These chains and the farmer's proportional share tend to be driven by different relationships: first with input suppliers, particularly suppliers of knowledge; second with markets, particularly in reaching emerging markets; and finally with fellow producers in new models of cooperation. However, one more relationship is missing in this scenario of rapid globalization and modernization: access to financial opportunities, which is even more difficult for traditional, small farmers.

Eyo (2008) suggested that for ensuring the success of community rural microfinance schemes, small farmers and those in the community with better net worth and better managerial skills should be adequately informed and encouraged to form or join informal groups and participate in the microfinance schemes.

In this study financial capital is considered one of the factors –along with social capital, cultural capital, and human capital- that affect saving box performance and survival. Thus, a fourth hypothesis was established for this study: financial capital is positively associated to saving box success (Ho 4).

CHAPTER 3. RESEARCH METHODOLOGY

This chapter describes the research design, procedures used for collecting data and statistical tools for analyzing results. The chapter begins with a description of the research design and the saving box groups and member interviews, which represent the primary sources of information for this research, and is followed by a description of data collection from secondary sources (mainly group records, publications, theses, and project reports) and the research site, the target populations and their characteristics. I next describe the variables and their measurement, present the data analyses and discuss procedures to achieve reliability and validity.

3.1 Research design

This research was mainly conducted as a cross-sectional quantitative study; however, qualitative information has been collected to support and better explain quantitative findings. The study was focused on community rural microfinance groups called “saving boxes”, also known as informal finance groups (IFGs), which were the unit of analysis. Quantitative and qualitative information from key informants on each one of 34 groups in the Central Valleys of Puebla State of Mexico was recorded through personal interviews using a structured guide or protocol for interviewing. These interviews were addressed to the representatives and persons in charge of the saving box

and members of the group. A minimum of three persons per group were interviewed, notably the president and the treasurer, and at least one member of the saving box.

Prior to the field work, the research design was evaluated considering pros and cons of using quantitative or qualitative approaches or both in the study. Due to the lack of previous information on the topic and place of study, a quantitative approach supported by qualitative data was considered the most appropriate research methodology.

During the summer of 2005 I conducted an exploratory field study, which outcome was the categorization of the saving boxes into three levels of success and performance as informal finance community groups. Socioeconomic factors were considered as the most influential variables on the group's performance, notably social, human, cultural, and financial capitals.

My first-hand knowledge of the research groups and communities in Puebla, Mexico, allowed the field work to be conducted into the concentrated time-frame. I collected data for this study between July and August 2007. These data are supported and complemented by secondary data from publications like state and municipal census, yearbooks and statistics, theses, and technical reports from previous studies of the groups by research colleagues at the Colegio de Postgraduados.

The major objective of the present study was to elucidate the sustainability of community groups through the relationship between a microfinance community scheme called saving box and socioeconomic factors affecting its performance. Such factors are social capital, human capital, cultural capital, and financial capital. Thus, a cross-sectional study that utilized correlations and regression techniques was used to find relationships between the variables under study. The use of other methodologies such as

ethnographic or participant observation methods would not have been possible within the time-frame of the research and for the large number of groups included in this study.

3.2 Questionnaire design

A questionnaire was the primary data gathering process in the research. Using this instrument, both quantitative and qualitative data were collected; however, quantitative data predominated. Prior to the field work of data collection, a structured questionnaire was developed and refined at Iowa State University. The questionnaire was also developed as a protocol for interviewing using closed-ended and open-ended questions. Personal interviews were conducted with representatives and members of all of the 34 informal finance groups (IFGs) or saving boxes. For the purpose of accurate reading and better sequencing of questions, the questionnaire was divided into seven parts as follows:

The first part was the identification sheet, which contained the purpose of the interview and information about the researcher in charge. This part also contained site specific information (group, community, and municipality), and interviewee identification. From the second through the seventh part, the questionnaire was composed of items related to social capital, cultural capital, current status of the saving box, financial capital, human capital, and political capital. The date and interviewer were registered in the last part. Quantitative and qualitative data were collected at the same time in each part. Closed-ended questions predominated in the questionnaire to produce a large amount of information in the short time-frame and to provide an easier way to code data and statistically analyze and interpret the data. Open-ended items were included in the questionnaire to provide more detailed understanding about the interviewee's

opinions, perceptions, and to record concrete examples for illustrating their responses. A combination of both kinds of questions in the same questionnaire allowed a better understanding and explanation of the precise responses given by interviewees.

3.3 Secondary research

Secondary sources of information were also analyzed, such as the group's records of savings deposits and loans, and technical and financial reports from the advising team. Previous research done in the area, field-notes, and recorded observations from the experiences of previous researchers were also used. Group records were consulted for general information about the saving box development process, such as original goals and objectives, membership, participant actors and association with regional organizations. Also data were taken in saving and loan records like amount saved per member and total by period, frequency and amount of savings, loan size, terms and repayment, moroseness or arrears, defaults, types and rates of interest, purpose of loans, common fund growth, and other items. Group records were also consulted for specific data to be used as indicators or variables in the study like gender composition and leadership roles played by women in the group (used as indicators of cultural capital), meeting frequency (used as indicator to construct social capital), and treasurer's schooling average and number of treasurers and members trained for the saving box management (used as indicators to construct human capital). Publications also were consulted, especially those closely related to rural microfinance schemes and saving boxes in Puebla and Mexico, notably graduate theses and evaluation reports. Technical and financial reports elaborated by the

team advising the W.K. Kellogg Foundation were also consulted. This information allowed one to contrast the technicians' data with those from the group's records, and perceptions from the advising team and its executive director. Researcher field notes written from the beginning of the saving boxes from 1998 through 2003 were also consulted in the research process.

3.4 Research setting

The focus of this study was on informal finance groups (IFGs) known as saving boxes. The research included all 34 saving box groups in the region under study so a sample analysis was not used. Data collection from the total population of saving boxes was used to establishing relationships between the success or failure of the microfinance scheme and socioeconomic factors as predictors of that outcome.

The region of the Central Valleys of Puebla is geographically bordered in the north by the Malintzi mountain and the state of Tlaxcala. In the west the natural borders are the Popocatepetl and Iztaccihuatl volcanoes. The natural limits in the south are the Tentzo Cordillera and Atlixco Valley, and the eastern borders are the Valleys of Acatzingo and Tecamachalco.

The study area was divided in three different ecological zones: 1) step lands in the Popocatepetl, Iztaccihuatl, and Malintzi volcanoes, 2) fertile and irrigated lands in the valley, and 3) poor rain-fed soils and dry lands in the Tentzo Cordillera. Initially in the study, the relationship of the three ecological zones with saving box performance was

considered; however, statistical analysis showed no significant relationship between ecological zones and savings box performance.

The total population in the Central Valleys of Puebla was 2,119,291 inhabitants, including the capital city of Puebla and its metropolitan area (INEGI, 1995). The 34 small-farmers' groups were located in 24 rural communities divided into 13 municipalities in the Central Valleys of Puebla (Figure 1). The total population for these municipalities was 332,462 inhabitants. However, the target population for this study was comprised of 684 small farmers (377 men and 307 women). These 34 groups were previously assessed and categorized according to their organizational group performance and current organizational status as a saving box. Saving box performance were categorized into good, regular, and poor performance as defined in the following section 3.5. Table 1 shows how the target population was classified by performance or survival status and by gender. Table 2 shows the entire population classified by group, community municipality and gender of the members.

Table 1. Population distribution by group success and gender

	GROUPS	MEMB	GOOD		REGULAR		POOR	
			GR	MEMB	GR	MEMB	GR	MEMB
WOMEN	10 30%	209 31%	2 6%	58 9%	7 21%	123 18%	1 3%	28 4%
MEN	12 35%	227 33%	2 6%	33 5%	5 15%	99 16%	5 15%	95 14%
MIX	12 35%	248 36%	5 15%	131 19%	6 18%	102 15%	1 3%	15 2%
TOTAL	34 100%	684 100%	9 26.5%	222 33%	18 53%	324 47%	7 20.5%	138 20%

3.5 Operationalization and measurement of variables

This section is focused on the conceptual and operational definitions of variables and indicators. In this study indicators were the measurable empirical evidence used to estimate level of capital. A conceptual definition for each variable involved in the study is given followed by an operational definition, which refers to the way which that variable is understood. Finally, a measurement scale is given for each variable and indicator.

The dependent variable: Success or performance of the saving box

The “saving box” as a community microfinance scheme was categorized into three levels of performance based on current activity of the saving box in gathering savings, issuing loans, drawing interest, recovering loans, keeping records, and meeting members: The three identified categories were:

Good performance: Currently working well, performing all the necessary tasks of savings and loans, group resources and social fund were increasing; internal group communication and collective member activities were strong.

Average performance: Currently no savings were gathered and no new loans were granted; all the money was placed in loans, interests were gathered and in some cases loans were being recovered; group’s members remained in contact and met sometimes. Group resources and social fund were steady or slowly increasing.

Poor performance: Groups that were not working or were dismantled, and it was difficult to meet as a saving box group. They had no group resources or social fund.

The variable success or performance of the saving box group was coded as 1, 2 and 3 for poor, average and good performance, respectively.

Independent variables

Social Capital

In this study social capital was composed of six indicators: 1) relations of trust, 2) reciprocity and exchange, 3) common rules, norms and sanctions, 4) connectedness, networks and groups, 5) meeting frequency, and 6) participation in political decisions. These six indicators were measured using a five-point ordinal likert-scale.

(1) Relations of trust referred to the existence and intensity of confidence among group members, between members and their group representatives, and between them and their local authorities. The answers from the interviews were coded as 1 for very low, 2 for low, 3 for regular, 4 for high, and 5 for very high level of intensity. The final scale was constructed with the average among the three indices (trust in other group members, trust in group's representatives, and trust in local authorities).

(2) Reciprocity and exchange referred to the existence and intensity of community schemes of self-help and solidarity, and ways of interchange in kind, labor or other forms of exchange among community members. This indicator, measured as intensity, was coded as 1 for very low, 2 for low, 3 for regular, 4 for high, and 5 for very high intensity.

(3) Common rules, norms and sanctions were used to estimate the existence and observance of written or unwritten internal guidelines used for regulating group and member activities. These data specifically related to their "internal rule-book". The

intensity level of this indicator was coded as 1 for very low, 2 for low, 3 for regular, 4 for high, and 5 for very high.

(4) Connectedness, networks and groups were used to estimate the existence and participation in local and regional groups and networks. Two types of networks (bonding and bridging) were used in this study. Bonding networks referred to the participation in groups and networks in the community such as church, school, political parties, community action, productive projects, etc. This index was measured in terms of participation intensity and was coded as 1 for very low, 2 for low, 3 for regular, 4 for high, and 5 for very high.

Bridging networks referred to the community member's relationships outside the community with other farmers' organizations, regional organizations, private institutions (NGO's), and public institutions (government agencies). This index was measured as the intensity of interaction and was coded as 1 for very low, 2 for low, 3 for regular, 4 for high, and 5 for very high. The final indicator for connectedness, networks and groups was constructed from the average of bridging and bonding network indices.

(5) Meeting frequency. Meeting frequency of the group was considered a component of social capital for the purposes of this study. Meeting frequency of the group was coded as 1 for never, 2 for once every two months, 3 for monthly, 4 for every two weeks, and 5 for weekly.

(6) Political capital was assessed in terms of group and member participation in political decision making at the local level, and their ability to negotiate with other groups, and public and private institutions. Political capital was measured through the participation intensity of the group in community decisions and member participation in

local government, and the group's bargaining power. Participation intensity in community decisions and participation in local government were coded as 1 for very low, 2 for low, 3 for regular, 4 for high, and 5 for very high. Negotiation power was a dichotomous answer and coded as 0 for none and 1 for yes.

In summary, the final value for social capital was calculated as an average as follows:

$$\text{Social capital} = [\text{Index of Trust (members + representatives + and authorities/3)} + \text{Index of Reciprocity} + \text{Index of Rules} + \text{Index of Networks (bonding networks + bridging networks/2)} + \text{Index of Meeting} + \text{Political Capital (decision influence + local government/2 + negotiation power)}] / 6$$

This variable construction was validated through the Cronbach's alpha index in order to measure the internal reliability for multiple-item indices. For this case the Cronbach's alpha index was 0.9323, which was a good indicator of internal reliability considering the expected indices are alpha values of 0.70 or higher (Knoke, et al., 2002).

Cultural Capital

In the case of the present study, cultural capital was assessed in terms of the quality of women's participation in leadership roles in the saving box group. The measurement of women's participation was made using a combination of frequency and quality of women's participation in representative or leadership roles in the group. The scale was 0 to 5, with 0 assigned for groups with no women's participation, 1 for one woman or one leadership position performed by a woman (president, secretary or

treasurer), 2 for two leadership positions, 3 for three leadership positions, 4 for more than three leadership positions, and 5 for groups comprised entirely by women.

Financial Capital

Financial capital was composed of all forms of access to monetary resources and assets used to increase productive capacity of the group member's households. Financial capital was comprised of credit and loans, savings, investments tax reductions or refunds, remittances, scholarships and grants. According to Pretty and Hine (2000), financial capital is accumulated claims on goods and services, built up through financial systems that gather savings and issue credit, such as pensions, remittances, welfare payments, grants and subsidies. For this research, financial capital was defined as the household's diversity in sources of money and assets, access to financial services –formal or informal, and the existence of built capital of the group.

Household financial capital referred to the different ways and sources by which individual households accessed monetary resources, such as crop and livestock sales, handicrafts and small trade, off-farm wages, remittances, grants, scholarships, refunds, welfare payments, etc. This indicator was measured by the number of income sources of the households in the group.

Access to financial services was measured by the use of savings and loan services from formal or informal sources. This was a dichotomous response from the interviewees.

Built capital referred to the group's assets or material resources for farm production and commercialization, which were collectively owned. In this study

observations of built capital such as irrigation systems, buildings, warehouses, agricultural machinery and equipment, transportation, communication, etc. were recorded. This indicator was measured as 0 for none and 1 for yes.

The internal reliability for this variable construction was measured through the Cronbach's alpha index, which was derived from the correlations between the three involved indicators (sources of income, access to savings and loans, and built capital) with the constructed variable. The Cronbach's alpha was 0.8098 and was considered a good indicator of the internal reliability of the variable.

Human Capital

In this study human capital was measured in two ways. One was by the formal schooling average (measured in years) of the saving box treasurers in charge of the management tasks. The second was by the number of individuals with specific skills for managing the saving box that were acquired by training after participating in the saving box group. This number was the total number of current and past treasurers for each saving box group.

3.6 Data analysis

This research was conducted as a cross-sectional study utilizing a quantitative component and a questionnaire of structured interviews for data collection, involving all of the 34 groups.

The statistical approach utilized correlational and simple and multiple regression analyses through the Ordinal Logistic Regression technique, since the dependent variable was considered ordinal. The computational tool used to perform the statistical analysis was SAS (Statistical Analysis System).

The measurement of the dependent variable (SUCCESS) was categorized into three levels (good, regular, and poor) and was considered ordinal. The measurement of the independent variable social capital (SOCCAP) was made from a five-point likert-scale, which according to Demaris (2004), the variable is ordinal but has enough levels to be treated as 'approximately' continuous. In the case of human capital (HUMCAP) a continuous variable was used, which consisted of the average number of years of formal schooling of the treasurers. Human capital was also measured by the number of persons trained in the management of the saving and loan scheme; however this measurement was not used in the statistical analysis. Cultural capital (CULCAP) was represented by the number of leadership positions performed by women in the group and the proportion of women participating in each group (% of women); both were considered continuous variables, and only the first one was used in the statistical analysis because it reflects more accurately women's influence in group performance. Finally, financial capital (FINCAP) was constructed by the number of income sources of the members including access to saving and loan sources, and built capital owned by the group; this variable was also considered continuous.

Before the regression analysis, a set of descriptive statistics for the targeted variables were reviewed in order to better understand the characteristics of the saving box

groups such as: frequency distribution, mean, standard deviation, and maximum and minimum value for each variable.

A correlation matrix was constructed involving all five variables (one dependent and four independent) to preview significant correlations. Correlation values associated to a probability equal to or smaller than five percent ($p < .05$) to commit Type I or alpha error, caused a rejection of the true null hypothesis of no relationship between the two variables (Knoke et al. 2002).

Bivariate regression analysis was used in the first step to find significant associations between the dependent variable (sustainability or survival status, measured by performance level of the saving box) and each one of the independent variables (social capital, human capital, cultural capital, and financial capital) in order to assess the suitability of using simple and multiple ordered logistic regression analyzes.

Multiple Ordered Logistic Regression analysis was conducted by regressing the four independent variables (predictors) against the outcome variable as a fully recursive model. The interpretation of the logistic regression was focused on the test for Proportional Odds Assumption (POA) to be sure that the proper statistical procedure for ordered logistic regression was used (Chi-Square); Model Fit Statistics, Testing Global Null Hypothesis, Analysis of Maximum Likelihood Estimates (regression coefficients), Effect of Point Estimate (odds ratio), and Confidence Limits.

3.7 Reliability and validity issues

Reliability of the research procedure and the research instrument to collect primary data is a critical concept related to the ability of the instrument to consistently measure the variables under study (Babbie, 1998; Knoke et al., 2002). To be sure that the instrument consistently measured the variables under study, clarity and specificity of the questions were considered. Also, the prior experience of the researcher in field extension program evaluation through survey studies was a factor to assure a reliable data collection process.

There are inherent shortcomings especially when interviews are made in one single visit; however, the accessibility to the rural communities and availability of transportation allowed the researcher to conduct a second visit to clarify or to complement answers from the respondents. In designing the protocol for interviews some considerations were taken into account: a) logic, b) phrasing, 3) sequencing, and 4) time to complete the interview.

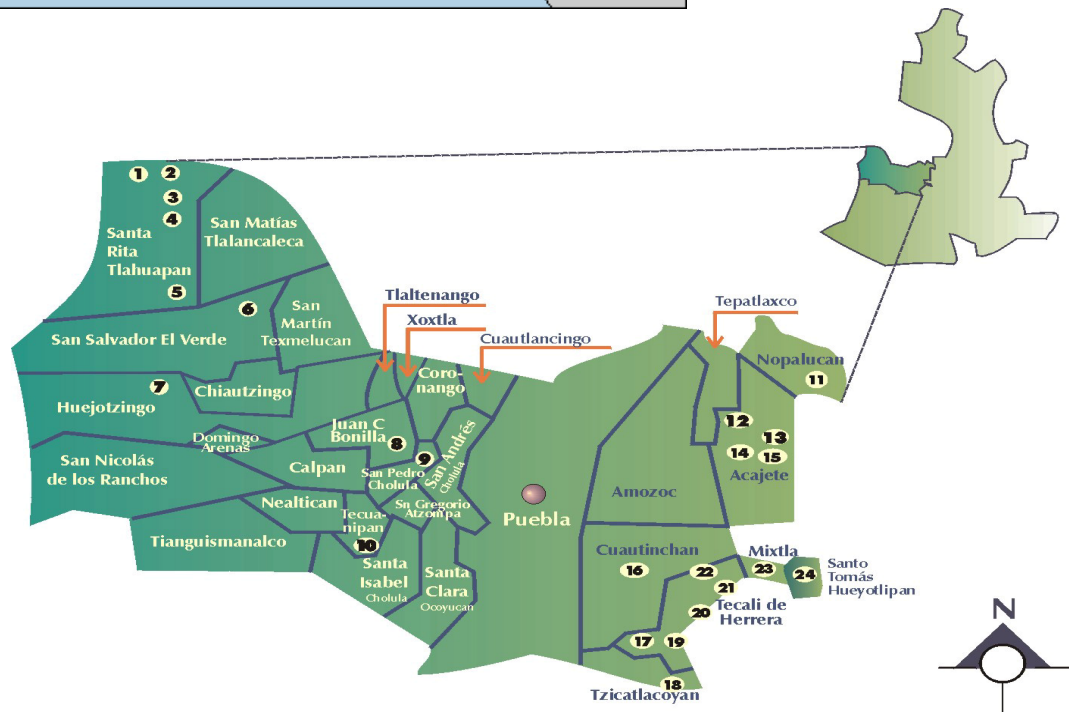
The internal reliability for multiple-item indices construction, such as for social capital and financial capital, was measured through the Cronbach's alpha index, and the values for both social and financial capitals were larger than 0.7.

Validity is understood as the degree to which the operationalization of a variable accurately reflects the concept that is intended to measure (Knoke et al., 2002). Or in other words, is the concept measuring what it tries to measure? And is the interviewee understanding and answering what the researcher believes s/he is asking (Babbie, 1998).

This study first relied on face validity measures, second on theoretical assumptions, and third that the entire population was under study and no sample was

utilized to make inferences. Face validity was supported by an accurate translation of the questionnaire into Spanish and a clear reading of the questions to the respondents. The research was guided by theoretical perspectives on rural community groups, social networks, and rural microfinance schemes.

The validity of the concept of group sustainability, in terms of the success of the saving box, was composed of indicators that reflected the actual status or performance of the saving box.



1. San Francisco La Unión
2. Guadalupito Las Dalias
3. La Preciosita
4. Santiago Coltzingo
5. San Miguel Tianguistengo
6. San Andrés Hueyacatitla
7. San Mateo Calputitlan
8. Santa María Zacatepec
9. Santa Bárbara Almoloya
10. San Jerónimo Tecuanipan
11. Santa María Ixtiyucan
12. Nuestra Señora del Monte

13. Santa Isabel Tepetzala
14. San Juan Tepulco
15. Santa María Acajete
16. Colonia Morelos
17. La Trinidad Tianguismanalco
18. Santa Cruz El Calvario
19. Colonia Aquiles Serdán
20. Concepción Cuautla
21. Magdalena Cuaxitla
22. Santa Cruz Ajajalpan
23. San Simón Coatepec
24. Santo Tomás Hueyotlipan

Figure 3. Location of the study area in the state of Puebla, Mexico

Table 2. Groups and participants by community, municipality and gender

Group	Community	Municipality	Members		Total
			M	W	
Tzilqueyotl	Santa Cruz Ajajalpan	Tecali de Herrera	0	15	15
Agricultores Unidos	La Trinidad Tianguismanalco	Tecali de Herrera	13	29	42
Uparmex	La Trinidad Tianguismanalco	Tecali de Herrera	6	8	14
Tlanamaconi	La Trinidad Tianguismanalco	Tecali de Herrera	7	9	16
Morelos	Colonia Morelos	Cuautinchan	10	5	15
Guitlalotla	Aquiles Serdán	Tecali de Herrera	5	9	14
Santa Cruz El Calvario	Santa Cruz el Calvario	San Juan Tzicatlacoyan	9	8	17
Cuaxixtla	La Magdalena Cuaxixtla	Tecali de Herrera	11	4	15
El Oro Español	Santa Isabel Tepetzala	Santa María Acajete	25	4	29
Malintzi T. Tucker	Nuestra Señora del Monte	Santa María Acajete	16	9	25
Santa Ma. Ixtiyucan	Santa María Ixtiyucan	Nopalucan	9	6	15
Atlantepetzi	San Simón Coatepec	Mixtla	15	4	19
Concepción Cuautla	Concepción Cuautla	Tecali de Herrera	11	6	17
Tepeyolotl	Concepción Cuautla	Tecali de Herrera	14	17	31
Progreso Reforma Tepulco	San Juan Tepulco	Santa María Acajete	20	0	20
Pinahuizatl	Santa María Acajete	Santa María Acajete	9	15	24
Productores de La Preciosita	La Preciosita	Santa Rita Tlahuapan	22	0	22
Productores de Las Dalias	Guadalupito las Dalias	Santa Rita Tlahuapan	14	0	14

Table 2. (Continued)

Group	Community	Municipality	Members		Total
			M	W	
La Unión de San Francisco	San Francisco la Unión	Santa Rita Tlahuapan	15	0	15
SPR Pozo No. 1 Santa Bárbara	Santa Bárbara Almoloya	San Pedro Cholula	21	13	34
SPR La Magueyera – El Manantial	Santa María Zacatepec	Juan Crisóstomo Bonilla	10	1	11
El Crisol de Calpultitlan	San Mateo Calpultitlan	Huejotzingo	9	2	11
El Coltzi	Santiago Coltzingo	Santa Rita Tlahuapan	17	1	18
Vaqueros de Hueyecatitla	San Andrés Hueyecatitla	San Salvador el Verde	33	7	40
Progreso de San Miguel	San Miguel Tianguistengo	Santa Rita Tlahuapan	15	0	15
Estación Tecuanipan	San Jerónimo Tecuanipan	San Jerónimo Tecuanipan	12	1	13
Confecciones Rox	San Miguel Tianguistengo	Santa Rita Tlahuapan	14	14	28
Campesinas de Las Dalias	Guadalupito Las Dalias	Santa Rita Tlahuapan	0	15	15
Grupo Unido para el Mañana	La Preciosita	Santa Rita Tlahuapan	0	28	28
Campesinas de La Preciosita	La Preciosita	Santa Rita Tlahuapan	0	14	14
Mujeres Unidas al Progreso	San Andrés Hueyecatitla	San Salvador el Verde	0	24	24
PRODEHCO	San Andrés Hueyecatitla	San Salvador el Verde	3	10	13
Unidas por un Bienestar Mejor	San Francisco la Unión	Santa Rita Tlahuapan	5	6	11
La Granjita de Hueyotlipan	Santo Tomás Hueyotlipan	Santo Tomas Hueyotlipan	7	23	30
Total	34	24	13	377	307
			684		

CHAPTER 4. PRESENTATION AND DISCUSSION OF RESULTS

In this chapter the major findings of the study are described and discussed. The main guideline for presentation of results was the test of hypothesis stated in Chapter 2 section 3, which was related to the relationships between the independent variables, notably social capital, cultural capital, human capital, and financial capital, and the dependent variable: the success level of the saving box group in terms of its performance and survival status over time. For each stated hypothesis, the results are presented first from bivariate analysis such as Pearson correlations and simple ordered logistic regression, and second from multiple ordered logistic regression.

Empirical evidence about microfinance programs was used to help assess success and related factors, assuming the underlying idea that microfinance programs promote and build capitals such as human, social, cultural, and financial. However, in this research it was assumed the reverse relationship. The degree of success in terms of survival status of saving box groups, required a minimum of such capitals residing in the groups and individuals before external interventions take place.

4.1 Correlation analysis

A correlation matrix was initially used in contrasting all the intervening variables in order to identify significant associations between pairs of them. As shown in Table 3, all the independent variables, [SOCCAP (social capital), HUMCAP (human capital),

FINCAP (financial capital), and CULCAP (cultural capital)] were positively correlated to the dependent variable SUCCESS (success level of the saving box group). Pearson correlation coefficients were used to measure association degree between pairs of variables. Social capital association strength with success was higher than financial capital and human capital with success, respectively. These three correlations were highly significant ($p < .01$) while cultural capital was still correlated with success at a significant level of $p < .05$.

Two pairs of independent variables were also correlated with each other. Social capital was highly correlated to human capital ($p < .01$); and human capital was correlated to financial capital ($p < .05$). This collinearity among the independent variables (capitals) may limit measuring the effects of the independent variables on the outcome variable as shown later in the logistic regression analysis.

Table 3. Pearson correlation coefficients for the variables measured in the study

	SUCCESS	SOCCAP	HUMCAP	FINCAP	CULCAP
SUCCESS	1.00				
SOCCAP	0.69** <.0001	1.00			
HUMCAP	0.46** 0.0060	0.48** 0.0039	1.00		
FINCAP	0.52** 0.0015	0.32 0.0642	0.36* 0.0352	1.00	
CULCAP	0.38* 0.0247	0.17 0.3429	0.08 0.6288	0.21 0.2415	1.00
Mean	2.06882	3.50000	5.73529	3.88235	2.29412
Std Dev	0.69375	0.82572	1.94327	0.68599	1.74997
N	34	34	34	34	34

** Significant at $p < 0.01$

* Significant at $p < 0.05$

4.2 Social capital

Hypothesis 1: The stated hypothesis is that social capital in the saving box groups is a variable positively associated to the survival and success of the saving box group.

The null hypothesis is stated as: the success of saving box groups is independent of their social capital.

A positive and strong relationship existed between SOCCAP and SUCCESS as indicated by a Pearson correlation coefficient of 0.68769, with a p value smaller than 0.0001 (Table 3). The results from a simple ordered logistic regression (Table 4) was consistent with this observed relationship. The regression coefficient (B) or maximum likelihood estimate was 2.5521 with a p value of 0.0006 and the odds ratio (OR) was 12.834. The multiple ordered logistic regressions in a full model including all the independent variables (SOCCAP, HUMCAP, FINCAP, and CULCAP), showed significant values for the regression coefficients (slopes) of SOCCAP and CULCAP (Table 5). These regression coefficients were 2.6871 with a p value of 0.0037 for SOCCAP and 0.612 with an associated p value of 0.0377 for CULCAP. The corresponding ORs were 14.69 and 1.844, respectively for SOCCAP and CULCAP. In contrast, the regression coefficients for HUMCAP and FINCAP were not significant with values of 0.2091 with a p value of 0.4450 and 1.4887 with a p value of 0.0806 for HUMCAP and FINCAP, respectively (Table 5).

Regarding social capital (SOCCAP), it was observed that going from a simple to a more complex model with a greater number of variables involved, the B (regression coefficients) values increased from 2.5521 to 2.6871. The OR increased from 12.834 to 14.69 indicating that a one unit increase in social capital would result in 14.69 units of increase in the ordered log-odds scale for the success of saving box while the other variables in the model were held constant. In simple words, the OR value of 14.69 means that for each unit of social capital added, the success likelihood for the saving box is increased almost 15 times. The -2 Log L (negative two multiplied by the log likelihood) value decreased from 47.775 to 35.290 from the simplest to the more complex model.

This results indicated that the complex model improved the ability of the independent variables to predict the dependent variable.

These results strongly supported the first hypothesis that social capital was positively associated to the success of saving boxes. The association between the two variables of SUCCESS and SOCCAP was a causal relationship.

Table 4. Simple ordered logistic regression between SUCCESS and SOCCAP (N=34)

Independent variable	Maximum Likelihood estimates	Probability pr > ChiSq	Odds ratio estimates	POA pr > ChiSq
SOCCAP	2.5521**	0.0006	12.834	0.8542
-2 Log L	47.775			

** Significant at p< 0.01

* Significant at p< 0.05

Table 5. Multiple ordered logistic regression between SUCCESS and SOCCAP, HUMCAP, FINCAP, and CULCAP, full model (N=34)

Independent variable	Maximum Likelihood estimates	Probability pr > ChiSq	Odds ratio estimates	POA pr > ChiSq
SOCCAP	2.6871**	0.0037	14.690	0.1595
HUMCAP	0.2091	0.4450	1.233	
FINCAP	1.4887	0.0606	4.431	
CULCAP	0.6120*	0.0377	1.844	
-2 Log L	35.290			

** Significant at $p < 0.01$

* Significant at $p < 0.05$

This hypothesis confirmation is concordant with findings from other research studies. Wenner (1995) found among 25 Costa Rican credit groups, repayment performance was better in groups engaged in active screening of their members, which can be assumed as a form of social capital. The author also argued that the existence of a written code and the social pressure of reputation helped decrease loan default and delinquency. In a study of 137 Guatemalan borrowing groups, Wydick (1999) found that peer monitoring and intra group insurance were determinants for lending group success. Social sanctions play a secondary and supportive role. However, the researcher concluded that group lending may be less effective in areas where social ties are strong. This is contrary to what was found in the present study, in which social capital had a strong positive, relationship to saving box group success. Regarding kinship and loan size, Sharma and Zeller (1997) found in Bangladesh that a high proportion of relatives

within a group and larger loans had a negative effect on group performance. In the present study, this effect was especially observed for failed groups, which more frequently loaned to family subgroups, made bigger loans, and showed irregular loan recovery. The presence of external ties with public and private institutions played a significant positive role on those groups that showed success, especially supplying key services like training and organizational support. Something similar was reported by Paxton et al. (2000) in 140 credit groups in Burkina Faso. They found that the role of group solidarity outweighed cohesive peer pressure behavior and suggested strengthening leadership and training to counteract negative effects such as default.

The positive relationship between social capital and saving box success seemed to be related to the ability of groups to better deal with the lack of financial services meeting their necessities than by individual efforts. Moreover, working in groups has been more successful than individual efforts in obtaining funding for their collective projects. Solidarity within the group also plays a cohesive role. This is not related to joint liability but rather to collective action searching for two kinds of microfinance services: access to loans as saving box clients and access to savings with interest revenues as saving box owners.

These findings were also supported by qualitative information gathered during the field research process from group member's opinions, group records, and microfinance program files (Appendix A). Most of the saving box groups were created into formally constituted small farmers groups. This proportion represented 85% of the total, and from this percentage 93% of the groups were legally recognized as Social Solidarity Societies (SSS); the remaining 7% were Societies of Rural Production (SPR). The former kind of

group was established by the “Ley de Sociedades de Solidaridad Social” (Law of Social Solidarity Societies), (D.O.F. May 27th, 1976) and the latter group by the “Ley Agraria” (Agrarian Law), (D.O.F. July 9th, 1993). The remaining 15% was composed of groups that did not have legal status; all of them were women groups which were formed mainly for two reasons: to start the savings box and to look for funding for collective projects.

Land tenure among the savings box groups was predominantly under the social ownership form of ejido (32% of the groups) and a combination of this form with small property holders (53%), a low proportion was small property holders only (5%). In terms of group age, the oldest group dated from 1976. Most of the groups started between 1991 and 1996 (74%); however, some groups (20%), especially women’s, were initiated in 1998 at the same time when the saving box was started. Two of the groups (6%) were created specifically as a saving box group and the rest (94%) were created primarily to search for external resources for funding collective, productive projects. These projects were mostly associated with crop production (grain and forages such as corn, beans, barley, oats, alfalfa), backyard husbandry (cows, hogs, goats, sheep, and rabbits), poultry (chickens and turkeys), dairy production, irrigation systems, edible mushroom production, fruits (peaches, pears, plums, apples, apricots) and fruit tree nurseries (peaches). However, other kinds of projects included corn mills and tortilla making, grocery stores, sewing shops and clothes, confection, bakery, acquisition and operation of agricultural machinery, farming inputs supply, and natural resource conservation (soil, water, and reforestation).

The main external actors participating in the promotion and establishment of the groups were scientists at the Colegio de Postgraduados for 82% of the groups, a NGO

named Enlace y Comunicacion, A.C. (Liaison and Communication, Civil Association), which intervened in 12% of the groups, and the Secretary of Rural Development (SDR) of the Puebla State and the National Union of Farming Workers (UNTA) who participated in 3% of the groups, respectively.

In order to illustrate the construction of the variable social capital using its indicators: trust, reciprocity, norms and rules, groups and networks, political capital, and meeting frequency, some important information from the respondents is described as follows:

Trust referred to relations of trust among group members, member's trust in their group representatives, and member's trust in their local authorities. The most consistent and stated reason of trust among group members was that most of them were relatives, neighbors, and friends that knew each other well. They worked together in harmony and some of the groups were still managing collective projects in addition to the saving box. These feelings of trust in general existed among all groups regardless of group performance or success status of the saving box.

A member's trust in their group representatives for successful groups was illustrated by good opinions of leaders and good information flow. In the case of failed groups, the opinions of members were related to a poor representative's performance, especially the treasurer, internal division by families, and difficulties in recovering loans. For regular performing groups, problems existed in meeting after repayment of the seed capital. After reimbursement of seed capital and distribution of savings and interest gained among the members, saving box's funds were reduced to its minimal amount or

even zero. Then, restarting again without a common fund was not possible for most of those groups.

In the same fashion a member's trust in their local authorities was illustrated by their opinions related to good communication to local authorities due to kinship ties. Negative opinions were mainly related to the lack of communication and lack of participation in community decision making.

The most common form of reciprocity observed among groups was "faena", which is a social practice consisting of required labor donation especially for community projects such as school and church remodeling, streets, roads, and public maintenance. This reciprocity also included community work, volunteering as local authorities, judges of peace, police, band musicians, dancers, public writers, and others. Other common forms of reciprocity were labor and seed exchange among relatives, neighbors and friends. Donations in cash were also a common practice for community material improvements, religious celebrations, and civic festivities.

The main indicator for norms and rules was the observance of internal bylaws or written codes. This instrument governs a group's functioning in general and a saving box's management in particular. These written rules included economic fines among the main sanctions for nonattendance at group meetings and activities, and delays in depositing savings after a designated due date. However, most of the groups did not impose monetary fines because they considered it unnecessary. One opinion in failed groups was that at the end, members stopped depositing savings, paying interest and repaying loans and group representatives lost influential control over the individual

members. Other groups returned all savings and benefits to its members, and failed to restart after distributing the financial resources.

A saving box group's participation in other groups and networks can be categorized into three different kinds of networking. (1) relationships with other groups within the same community; (2) group participation with other groups at the regional level; and (3) their connections with external agents at institutional levels such as NGOs and governmental agencies.

At the community level, the most important networking of the saving boxes occurred in activities related to school and church groups. However, this communication was done more as individuals or families rather than as a group. Participation in ejido meetings and irrigation societies were also mentioned as important networking activities.

About two thirds of the groups originally belonged to one of two regional organizations for small farmers. The Federation of Social Solidarity Societies of the Tenzo Cordillera (FESSCOT) included 14 saving box groups (41%), while the Plan Puebla Integrated Farming, Civil Association (IAPPAC), included 9 saving box groups (27%). The remaining 11 groups (32%) were independent. These two regional organizations no longer exist; however, most of the saving box groups are still working by themselves.

External relationships with private and public institutions were also clearly evident among saving box groups. These farmers groups had the most frequent contact with Colegio de Postgraduados, the Puebla State's Rural Development Secretary (SDR), and the federal Secretary of Agriculture (SAGARPA). Other public institutions mentioned with less frequency were Secretary of Social Development (SEDESOL), and

National Water Commission (CNA). The most frequent contacts with private institutions were with a NGO named “Enlace y Comunicacion AC” and a credit union named “Union de Credito Mixta del Plan Puebla” (Mixed Credit Union of the Plan Puebla). Despite the institutional contact, the general concern about public and private institutional services was the lack or insufficient support from them. Some specific projects were highlighted as good institutional support examples, such as saving box training, monitoring, and follow up; productive projects; women projects; food sufficiency projects; and others in the social and community action side.

Political participation at community level was generally related to individual rather than group action. Few groups registered influence in local authority and directly involving some group member in local community decision making (20%). Just two groups (6%) recognized themselves as having a specific affiliation with a political party. Most of the groups had little or no influence in political policy decision making either as a group or individually.

Group meeting frequency was related to saving box success. Groups that met weekly, every two weeks, and monthly had greater member involvement and participation in group activities and were better informed about the saving box management and group performance. The purpose of these meetings were to gather savings, grant loans, and deal with current issues related to the saving box and collective projects.

4.3. Cultural capital

Hypothesis 2: A second hypothesis in this study was that the quality and proportion of women's participation in leadership roles in the saving box group was positively associated with saving box success. The null hypothesis was stated as the quality and proportion of women participation in saving box groups had no effect in its success in terms of survival status and performance.

The correlation coefficient between SUCCESS and CULCAP of 0.38469 was significant with an associated p value of 0.0247 (Table 3). This correlation suggested a significant relationship between these two variables.

The simple ordered logistic regression analysis between SUCCESS and CULCAP confirmed the association found in the correlation analysis. The regression coefficient of 0.4705 for CULCAP was significant with a p value of 0.0258 (Table 6). The corresponding odds ratio was 1.601 indicating that SUCCESS would be increased 0.6 times for every unit increase in CULCAP.

Table 6. Simple ordered logistic regression between SUCCESS and CULCAP (N=34)

Independent variable	Maximum Likelihood estimates	Probability pr > ChiSq	Odds ratio estimates	POA pr > ChiSq
CULCAP	0.4705*	0.0258	1.601	0.0894
-2 Log L	63.607			

** Significant at p< 0.01

* Significant at p< 0.05

In the multiple ordered logistic regression for the full model (Table 5), the variable CULCAP showed a significant B value of 0.6120 with a p value of 0.0377. The odds ratio was 1.844 indicating that a unit increase in CULCAP resulted in approximately two-unit increase in SUCCESS. In this multiple correlation THAT included all the independent variables, the effect of CULCAP in the response variable SUCCESS was increased in comparison to the simple regression.

When these two models (simple ordered logistic regression and multiple ordered logistic regression) were compared, the trend for the values of CULCAP such as regression coefficients, p values, and odds ratio were similar to those observed for SOCCAP. The B coefficient value was higher in the multiple model rather than in the simple model; the odds ratio also improved and approached 2. The -2 Log likelihood value also improved from 63.607 to 35.290 from the simplest to the more complex model.

Empirical evidence from records and on-site interviews also supported the positive effect of the quality of women's participation and leadership on the success of the saving box group. Women participation in the saving box groups varied from low to entirely women. In mixed groups a lower proportion of 10% or less of women was found in 6% of the groups; between 11% and 20% of women in 18% of the groups; between 21% and 50% of women 27% of the groups; and between 51% and 80% of women in 21% of the groups (Table 7).

However, the quality of women participation was more important than the quantity of women participation. Women played representative roles in 13 mixed groups (38% of the total). Women performed leadership roles in both representation and in the

saving box management. Five groups (15% of the total) were always represented by women performing the roles as president, secretary, and treasurer. However, the proportion of groups in which women played more than four leadership positions was 20% (7 groups) (Table 8). In the other groups, women performed leadership roles mainly as secretary, treasurer, or in management of collective projects. It is important to highlight that in four out of nine successful saving box groups (12% of the total, and 44% of the successful groups), women played key leadership roles in the mixed groups.

Table 7. Women's participation in saving box groups

Proportion of women Participating (%)	Groups No.	%
0	5	14.7
1 – 10	2	6.0
11 – 20	6	17.6
21 – 50	9	26.4
51 – 80	7	20.6
100	5	14.7
TOTAL	34	100.0

Table 8. Women's participation in leadership roles in saving box groups

Number of positions Performed	Groups No.	%
0	4	12
1	12	35
2	4	12
3	5	15
4	2	6
5	7	20
TOTAL	34	100

When group members were asked about the advantages of being in all-women, all-men, or mixed groups, the opinions given were: all-women groups believe that women were more responsible and they were better organized, women were more aware of household necessities, they attended group activities more frequently, and they were more engaged and participated more actively in the group (Appendix A). These responses were in concordance with findings from Shreiner and Nagarajan (1998), which stated that informal lenders consider females to be creditworthy, and that women borrowed from informal lenders more than males did. Quinones (2000) also found that women in microfinance groups were more supportive of their group members, more patient, trustworthy and giving to their peers, and they had a deeper sense of shame. The informal microfinance practice of ROSCAs in China were managed only by women, because they had better developed social networks with one another, they were more likely to remain

in town year round, and because men had other finance options (Tsai, 2004). Barr and Kinsley (2002) argued that women had a comparative advantage in lending groups because behavioral rules were more important for them but this advantage was unrelated to their responsiveness to shame sanctions.

When group members were asked about the advantages of working in men's only groups, men answered that they can work off-farm and get money to save, and they have more experience in farmer's organizations.

The advantages members gave for belonging to mixed groups were that men and women had the same opportunity for participating, the group's life was enriched with more points of view, groups had the opportunity to get funding for men and women projects, one family was able to get two loans, they can deal with family issues within the group, and women can have support from men especially in tasks that demand physical efforts.

Four groups (12%) answered that there were no advantages in belonging to any kind of group of a particular gender composition. Concerning the disadvantages perceived in belonging to each kind of group, the most common response was that there were no disadvantages in being women, men, or mixed groups.

Women argued that belonging to a women's group sometimes was a disadvantage because women had no cash for savings from off-farm employment or from regular income. Other disadvantages listed were difficulties in transportation and for completing paperwork for institutional support due to their household responsibilities including child and elderly health care within their homes.

Disadvantages listed by men of belonging to men's only groups included less time to meet and lack of attendance discipline. Men were more accustomed to get help from the government and to paternalist practices from political parties limiting their willingness for volunteering. Other answers included that there was more corruption among men and men were not as efficient as women in administering cash transactions.

In mixed groups the member's list of disadvantages included that sometimes they had to pay double fees, savings, and repayments; and that in mixed groups men tended to impose their opinions.

Women participation in saving box groups was perceived as an important tool, not just for microfinance program functioning and group success, but for women empowerment in the household and community. However, as Mayoux (2006) stated women's empowerment was not an automatic outcome of microfinance programs. Microfinance activities have to be an integral part of public policy, which should include group development and complementary services for women. Pitt et al. (2006), studying gender relationships within the household in Bangladesh, found an increase in women's empowerment when women participated in microcredit programs, which allowed them more decision making power, greater access to finance and economic resources, expanded social networks, and more freedom and mobility for social and economic action. Similar results were found by Wakoko (2005) studying Ugandan rural households. Women participation in informal finance groups was the most important factor promoting women's empowerment; however, financial empowerment did not necessarily lead to a transformation in gender relationships.

A more diverse use of loans was also observed among women's groups. Men tended to allocate more investments in productive projects linked to crop or livestock production; while women addressed loans for a wider range of purposes from crop and livestock production loans to household necessity loans like health care, schooling, nutrition, consumption, house improvement, and small business loans, which in general were less riskier than men's business ventures. This greater diversity of loans in women's groups has also been reported by Wydick (2002) and Jennings (1989) regarding female entrepreneurs and the allocations of profits.

The results of extended networks from participation in saving box groups also encouraged women to participate more in the local political arena. Women gained more confidence in dealing with group and community problem solving, which was also observed among self-help groups in India by Reddy and Manak (2005).

4.4 Human capital

Hypothesis 3: The third hypothesis in the study was that human capital was positively associated to saving box success in terms of its survival status. The null hypothesis statement was that human capital had no relationship with the success of the saving box groups based on its survival status and performance.

As shown in Table 3, the Pearson correlation coefficient between SUCCESS and HUMCAP was 0.46145 with a p value of 0.0060, indicating a significant direct relationship between both variables. This positive relationship was corroborated through the simple ordered logistic regression analysis when the independent variable HUMCAP

was regressed against the response variable SUCCESS. In this analysis (Table 8) a B value of 0.5254 was obtained with a p value of 0.0143 denoting a significant relationship between both variables. The odds ratio was 1.691 indicating that for a one unit increase in HUMCAP, SUCCESS would increase about 0.7 times.

Table 9. Simple ordered logistic regression between SUCCESS and HUMCAP (N=34)

Independent variable	Maximum Likelihood estimates	Probability pr > ChiSq	Odds ratio estimates	POA pr > ChiSq
HUMCAP	0.5254*	0.0143	1.691	0.7918
-2 Log L	61.304			

** Significant at p< 0.01

* Significant at p< 0.05

However, when all the independent variables were regressed against the response variable in the multiple ordered logistic regression analysis, the results suggested HUMCAP was not significantly related to SUCCESS. In Table 5 the B coefficient for HUMCAP was 0.2091 with an associated p value of 0.4450. The corresponding odds ratio was 1.233 and was negligible indicating a 0.23 unit increase in SUCCESS for each unit added of HUMCAP.

The empirical evidence only partially supported the hypothesis about a direct positive effect of human capital on the success level of the saving box groups as based on their survival status and performance.

The measurement of human capital in this study referred to the average number of years of schooling each treasurer had in each saving box group. Another dimension of human capital in the saving boxes was the number of treasurers trained; and when this indicator was used as a variable representing human capital, the relationship with the dependent variable SUCCESS became stronger. However, including the number of treasurers trained as a variable in human capital resulted in a degree of multicollinearity between HUMCAP and SOCCAP, and HUMCAP and FINCAP. Although the number of treasurers trained within a group is regarded as an internal decision of each group, a breakpoint may exist in which good performance of the saving box may warrant rotating treasurers more often within the group. Other group members were also trained in management of the saving box; however, they were not actually involved in saving box management such as keeping records, gathering savings, issuing loans, and general cash management. These group members were generally the group representatives, such as group's president and secretary.

Fifty-four percent of the saving box groups that did not change their treasurer failed or experienced average success. Successful saving box groups were those with a greater number of experienced treasurers and more frequent rotation of them. Only one successful group had only one treasurer and the success of this group was likely due to the managerial skills of the treasurer because all of the other members were illiterate.

Mismanagement by the treasurer or another representative was identified only in four saving box groups. These cases were related to loan self-issuing and failure to repay them.

Representatives work in the groups has always been voluntary, and this was true for treasurers managing the saving box. Only in two groups was some symbolic and seasonal remuneration given to the treasurer.

4.5 Financial capital

Hypothesis 4 stated that financial capital was a variable that positively affected the saving box success and performance as measured by its survival status.

In the correlation analysis (Table 3) the Pearson coefficient between SUCCESS and FINCAP was 0.52438 with a p value of 0.0015 indicating a significant positive relationship between both variables.

This relationship was also significant in the simple ordered logistic regression analysis in which the B coefficient for FINCAP was 1.7340 with an associated p value of 0.0034. The corresponding odds ratio was 5.664 (Table 9).

However, in the multiple ordered logistic regression for the full model (Table 5), a not significant B coefficient of 1.4887 for the variable was obtained with a p value of 0.0606. The odds ratio was 4.431, which indicated that a 4.5 unit increase in the response variable SUCCESS was obtained for each unit increase of FINCAP.

When these two models were compared, the B coefficient values decreased from the simple to the complete model. The odd ratios showed the same decreasing pattern.

The -2 Log likelihood value improved from 58.498 to 35.290 from the simple to the multiple regression model. This improvement in the -2 Log likelihood value suggested that when more independent variables are involved the ability of FINCAP to predict SUCCESS increased.

These results suggested the stated hypothesis about the positive effect of the variable financial capital on the success and survival of the saving box group was partially, but not fully, supported.

Table 10. Simple ordered logistic regression between SUCCESS and FINCAP (N=34)

Independent variable	Maximum Likelihood estimates	Probability pr > ChiSq	Odds ratio estimates	POA pr > ChiSq
FINCAP	1.7340**	0.0034	5.664	0.5485
-2 Log L	58.498			

** Significant at $p < 0.01$

* Significant at $p < 0.05$

As was described in the methodology chapter, financial capital was measured by the household's diverse sources of money and assets; access to financial services (formal or informal) and the existence of built capital of the group.

The most mentioned income sources for group members were: farming (crops, vegetables, forages, fruits, and flowers), backyard and extensive livestock operations

(cow-calf, goats, sheep, hogs, chicken, and turkey), forestry, off-farm employment (mason, construction carpenter, marble industry, and farm worker), remittances, brick making, and small trade.

Built capital was identified by the group's assets or material resources for farm production and commercialization. This kind of collective property was identified in 50% of the groups and was the result of collective projects funded from governmental institutions. The most common built capital of groups was: farmland, irrigation systems, peach orchards; nurseries for peach tree production; green houses for hydroponic vegetable production, dairy facilities (equipment, and cows), goat pens, edible mushroom production facilities, bakeries, corn mills, tortilla making machines, input supply stores, grocery stores, feed lot facilities, hog production facilities, sewing machines, buildings and warehouses, and tractors, trucks and other agricultural implements.

The positive effect of financial capital on the survival and performance of the saving box groups can be attributed mainly to its components, such as the diversity of income sources which enable group members to access money for financial services. In addition, the presence of common ownership on material assets works as a cohesive means for keeping group members united around group projects.

CHAPTER 5. CONCLUSIONS, POLICY IMPLICATIONS AND RECOMMENDATIONS

5.1 Conclusions

The major objective of the present study was examining the relationships between a microfinance community scheme called saving box and socioeconomic factors affecting the performance and sustainability of these specialized community groups. The sustainability of the saving box groups was assessed in terms of their survival status and performance as informal microfinance institutions. In a preliminary study, socioeconomic factors were identified as independent variables associated with the survival and success level of these small farmer saving box schemes. The research question that guided this study was stated as: which factors were related to the success or failure of rural community microfinance schemes called saving boxes? And more specifically, how well do human, social, cultural and financial capitals, indicate survival and sustainability of these savings and loan groups? It is hoped that the results from this study will improve the understanding of the role and impact of socioeconomic factors in the success of saving boxes in small rural communities in the Central Valleys of the State of Puebla, Mexico. This knowledge will enable researchers and microfinance practitioners to better understand how rural microfinance systems are working “on the ground”, and how they can be addressed to strengthen rural development programs in small rural communities.

The microfinance community scheme called saving box is an informal microfinance institution like self-help groups, Grameen Bank joint liability groups,

ROSCAs or ASCRAs. However, the saving box has specific microfinance services including savings and loans, self-management and self-regulation, loans funded by savings and seed capital from an external agent, individual liability, compulsory savings not associated with banks, and no NGO participation. This kind of informal microfinance institution (IFI) plays an important role in providing savings, loans and self-insurance services to small rural communities, where the formal banking coverage is negligible or simply non-existent.

Four hypotheses were in the research study. The first hypothesis related to the residing social capital in the small farmers' groups and its positive effect on the survival and performance of the saving box. This hypothesis was confirmed after statistical evidence identified a causal and positive relationship between these two variables. The Pearson correlation coefficient and the regression coefficients in the simple and multiple ordered logistic regressions were significant. A significant Odds Ratio value of 14.69 was obtained, which meant that the likelihood for success in the saving box increased almost 15 times for each unit of social capital.

Social capital appeared to be the most influential factor on determining the survival and performance level of the microfinance community scheme called saving box. Social capital was measured in terms of trust, reciprocity, norms and rules, groups and networks, meeting frequency, and participation in community decision making. Most of the groups showed strong social capital inventories. However, the successful groups showed higher indices of trust, networking and meeting frequency.

The presence of collective projects among group members was observed as a cohesive means to keep the group united. A successful saving box was a key factor in

maintaining an active membership within the group promoting an iterative process or “virtuous circle”. In this sense, individual and family interests were compatible with those of the group in which the main reason for participation was to benefit from improved access to savings and loans for all kinds of daily necessities.

The positive impact of seed capital provided to the groups for their initial establishment of a saving and loan operation was viewed as critical in this study. The period of maturation for each group differed and therefore the time they can successfully manage such external funds should vary. Groups that failed and those with middle levels of survival and performance resulted from organizational weakness after repaying the seed capital. This organizational weakness was attributed to weak or non-existent training and follow up. The reason why the successful groups satisfactorily overcame these same limitations offered insights to successful microfinance schemes. In many cases of failed or weaker saving box groups members stopped saving and divided and distributed the seed capital and social fund generated from the interest among group members. In other cases saving box funds were used to cover defaulted loans in order to not affect members’ savings and benefits. The restarting process under these conditions was more difficult, because they had to restart with no outside sources of seed capital funds for lending. This situation mirrored their initial status in which the seed capital played a key role in fueling initial savings and lending operations.

Findings of the present study on the effect of social capital in microfinance group performance were consistent with those reported in the literature. Self-selection, self-monitoring and self-enforcement of contracts involved in group decision making during meetings were key ingredients for successful microfinance practices. Also synergistic

effects were promoted by effective internal communication flow, connections with institutional providers of training, technical support, and external resources for funding collective projects. In contrast, kinship ties and family subgroups tended to monopolize saving box benefits and exerted negative effects in micro lending practices primarily because of self-lending, bigger loans, arrears and defaulting.

The second hypothesis was related to the positive effect of women participating in leadership roles on the survival and performance of the saving box. This hypothesis was confirmed after analyzing the statistical evidence provided from the correlation and the simple and multiple ordered logistic regressions. The Pearson correlation and the regression coefficients were significant and revealed a causal relationship between the two variables. The OR value associated with the multiple logistic regression was 1.844, which indicated that success of the saving box increased almost two times for every unit increase in women's leadership participation.

Cultural capital was the second most influential factor in determining saving box survival and performance. Assessing the degree and impact of women participation in leadership and management roles in the microfinance scheme proved to be an important factor for saving boxes success. This finding was entirely compatible with those reported in the literature, which are concordant with the opinions from those group members interviewed in this study.

Women were considered creditworthy, to have better management and organizational skills; more honest, disciplined and more cognizant of individual and group needs. These skills were quite likely related to their role at the household level, where they focused more on individual and family needs. On the other hand, women as

individuals or within a group have traditionally been tied less to governmental and private institutions. Therefore, they may have been less exposed to bureaucratic policies, political influence, and corrupt practices, which may have been more influential among men and men groups in the agricultural and rural development areas in Mexico.

About 44% (four out of nine) of the successful groups were women's or mixed groups in which women played key roles in representing and managing group activities. Out of seven groups that failed only one was a all-women's group (14%), while four all-men's groups failed (57%), and two mix groups failed (29%). Even men recognized women's abilities in saving box management when the men came from failed men's groups and joined women groups in the same community.

The third hypothesis was that human capital was positively associated with the success level of saving boxes based on survival and performance status. The statistical evidence from the correlation and regression analyses did not completely confirm this hypothesis. Although the Pearson correlation and simple logistic regression coefficients were significant, the regression coefficient for human capital in the multiple ordered logistic regression involving all the variables was not significant.

Human capital in this study was measured as the average years of schooling of the treasurer in each group. This indicator may not have been the best way to assess this variable as a group feature, since a treasurer's schooling is more of an individual attribute than a group characteristic. The treasurer's formal education fluctuated widely among groups, and because this position is usually voluntary, the treasurer was not always the most educated member of the group. Under these circumstances, the schooling average of the entire group might have more accurately reflected human capital.

As many scholars have noted, education is commonly a scarce resource among the poor. NGOs, universities and governmental extension services can provide training and technical advice in bookkeeping and accounting, organizational structure and leadership development. In this case only technicians from the promoting institution, Colegio de Postgraduados, provided these services, which ceased in 2003. After that year, the surviving saving box groups operated by their own means with practically no external institutional support.

The fourth and last hypothesis stated that financial capital positively affected the saving box success and performance based on survival and performance status. The correlation and simple logistic regression coefficients indicated a significant association between the two variables; however, the multiple ordered logistic regression coefficient for financial capital was not significant. The odds ratio was large enough (almost 6 times) to suggest some relationship between financial capital and the success of a saving box even though not quite statistically significant.

Financial capital was measured using the diversity of income sources of the member's households and the collective ownership of built capital by saving box groups. However, as in the case of human capital, financial capital was assessed as an aggregate at the group level. It may be necessary to explore financial capital at the micro-level of a household in order to better assess the impact of financial capital on saving box success.

In summary, socioeconomic factors were significantly related to saving box survival and performance status and social capital and cultural capital were especially influential. Financial capital and human capital may have some effect but indicators or

proxies for these capitals need to be accurately identified and defined for future research at individual and household levels.

5.2 Policy implications

The barriers affecting microfinance institutions in general, and informal microfinance institutions in particular, such as small size and resources, lack of trained staff, inappropriate organizational structure, insufficient institutional support including technical assistance, training and funding, represent formidable challenges for national governments and private institutions involved in the microfinance industry. Microfinance represents a needed alternative to typical commercial finance markets, which are not serving an important sector of the population, the poor. Alternative microfinance schemes like saving boxes that serve local needs are similar to the farmers' markets movement in the United States, which support local and more diverse individual needs of small farmers than the industrial, consolidated economic model. Locally focused, microfinance schemes have the potential for achieving important advancements in revitalizing local economies, improving access to healthy food, and promoting environmental and social issues that address sustainable development.

Comprehensive public policies are needed to deal with the promotion and support of formal microfinance institutions for the poor. Informal microfinance institutions (IFI) are especially important and worthy of more institutional support with policies addressed to empower the poor, especially women. These IFIs not only need an adequate and

suitable legal framework in order to act under legal jurisdiction, but also to have access to training, technical support, funding and prudential supervision.

The Law of Popular Savings and Credit passed in June 2002 by the Mexican Congress and published by the Executive Branch, unfortunately did not directly address IFIs. The main precepts contained in this law like equity capital, savings mobilization conditions, interest rates regulation, and prudential supervision, among others, were addressed more specifically to formal microfinance institutions (MFIs) like savings and credit coops, popular banks, micro-banks, and other bank-like institutions. This law and its legal framework did not fill the IFIs' particular needs for their actual conditions and specific operational procedures.

Despite the informal character of the IFIs, there are several lessons to be learned from them with important implications for improving microfinance programs in developing countries. Small farmer organizations working in microfinance have shown to be persistent over time because they represent a real alternative for coping with their financial needs, which are not covered by the formal financial market.

5.3 Recommendations

Institutional support from governments and private institutions like NGOs need to address organizational support structures in microfinance programs. These efforts should focus on improving quality in microfinance services, such as training staff, providing technical advice, and improving access to funding, improving saving and lending

practices, and for investing in physical facilities (buildings, furniture, communication equipment, computer tools and software, etc.).

Legal arrangements need to be added in the regulatory system in order to assist those evolving informal microfinance institutions that want and are able to advance to a more formal microfinance organization. Since informal microfinance practices are a pervasive practice among the poor, networks assisted by research scholars and practitioners are needed to continue generating knowledge from empirical experiences working within these microfinance groups.

Some of the limitations observed in this study resulted from the focus on groups as the unit of analysis. This approach allowed a more complete understanding of the group performance affected by socioeconomic factors such as social, cultural, human and financial capitals. However, such factors exert and are influenced by effects at the individual and at household levels which were not the foci of this research. Thus, a study or series of studies focusing on individuals and households participating and not participating in the microfinance community schemes are needed to disclose other factors affecting the success or failure of microfinance practices.

Studies at the micro-level, focusing on individuals and households would enable a better measurement of human and financial capitals using more suitable proxies for their assessment. These studies would strengthen the ability to explore other important indicators or factors affecting saving box success, such as leadership, entrepreneurship, loan fate, repayment rates, arrears, defaulting, etc.

Based on the results of this study, social and cultural capitals are strong positive influences on success of informal microfinance groups. Building these capitals within

informal rural community finance groups should be an integral part of policy strategies to improve financial services to the poor. Saving boxes not only provide an important local strategy to serve financial needs, but can and should be structured to provide opportunities for leadership and empowerment of the rural poor, especially of women.

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APPENDIX A

INFORMATION FROM SECONDARY SOURCES AND FROM OPINIONS OF THE INTERVIEWEE

Table 1A. Legal status of saving box groups

Type of association	No. Groups	%
Social Solidarity Society	27	79
Society of Rural Production	2	6
None	5	15
TOTAL	34	100

Source: Group records

Table 2A. Type of land tenure among saving box group communities

Type of land tenure	No. Groups	%
Ejido	11	32
Small-property	5	15
Ejido and Small-property	18	53
TOTAL	34	100

Source: Group records

Table 3A. Age of the groups with saving box

Years	No. Groups	%
10-11	8	23
12-15	23	68
16-17	2	6
22	1	3
TOTAL	34	100

Source: Group records

Table 4A. Institutional actors in the origin of the groups

Institution	No. Groups	%
Colegio de Postgraduados	28	82
Enlace y Comunicacion AC	4	12
Rural Development Secretary	1	3
National Union of Agricultural Workers	1	3
TOTAL	34	100

Source: Group records

Table 5A. Opinions on reasons for trust among group members

Reason	Group No.	%
Relatives, neighbors, and friends	14	41
They know each other	2	6
Use to work together/united	9	26
Working well	2	6
Still managing collective projects	1	3
No response	6	18
TOTAL	34	100

Source: Interview

Table 6A. Opinions on reasons for trust between group members and their leaders

Reason	Group No.	%
Good job as representatives	19	56
Good information flow	2	6
Poor performance in leadership	6	17
Internal division	3	9
Repayment problems	2	6
No response	2	6
TOTAL	34	100

Source: Interview

Table 7A. Opinions on reasons for trust between group members and their local authorities

Reason	Group No.	%
Good communication	12	35
No contact or scarce communication	12	35
Sometimes some communication	6	18
Local authority is a relative	3	9
Local authority is a group member	1	3
TOTAL	34	100

Source: Interview

Table 8A. Reciprocity practices among groups

Reason	Group No.	%
“Faenas”	19	56
“Faenas” and money donations	8	23
None	7	21
TOTAL	34	100

Source: Interview

Table 9A. Advantages in being a women/men/mixed group

Opinion	Group No.	%
Women		
Responsible and better organized	3	9
Aware of household necessities	2	6
Attend more frequently	1	3
More engaged and participate actively	1	3
Men		
Get money easily to save	7	20
Experience in organization	1	3
Mix		
More points of view	3	9
Projects for women and men	3	9
Same opportunity for participating	6	17
Attend family issues	1	3
Support from men	1	3
Ability to get two loans	1	3
No advantages	4	12
<hr/>		
TOTAL	34	100

Source: Interview

Table 10A. Disadvantages in being a women/men/mixed group

Opinion	Group No.	%
Women		
Sometimes no money for saving	1	3
More difficult to mobilize and do paperwork	1	3
Men		
Accustomed to get help from government	1	3
Lack of discipline	2	3
More corruption	1	3
No as efficient as women in administering money	1	3
Paternalism	2	6
Less time to meet	2	6
Mix		
Double fees, savings, and payments	4	12
Men tend to impose opinions	2	6
No disadvantages	15	44
No response	2	6
<hr/>		
TOTAL	34	100

Source: Interview

APPENDIX B

PROTOCOL FOR INTERVIEWING KEY INFORMANTS OF SAVING BOXES IN THE CENTRAL VALLEYS OF PUEBLA

Social capital

1. When the group was created? At the same time as the saving box?
2. What was the original objective of the group?
3. Who (which actors) participated in the creation of the group?
4. What kind of land tenure do the group members have?
5. To what extent do you trust your group mates?

VERY HIGH HIGH REGULAR LOW VERY LOW

6. Please give us an example which illustrates your trust in your group mates
-

7. To what extent do you trust in your group representatives?

VERY HIGH HIGH REGULAR LOW VERY LOW

8. Please give us an example which illustrates your trust in your group representatives
-

9. To what extent do you trust in your local authorities?

VERY HIGH HIGH REGULAR LOW VERY LOW

10. Please give us an example which illustrates your trust in your local authorities
-

11. Does your group have some practices of self-help and reciprocity, and interchange in kind, labor or time?

12. Please list these practices of self-help and reciprocity, and interchange

13. How intensive are these practices of self-help and reciprocity, and interchange in your group and community?

VERY HIGH HIGH REGULAR LOW VERY LOW

14. Does your group have rules, norms and sanctions written or unwritten to help the group's functioning?

15. To which extent are these rules, norms and sanctions observed by the group's members?

VERY HIGH HIGH REGULAR LOW VERY LOW

16. Can you provide some examples about rules observation?

17. In which community groups or organizations does your group participate?

18. Which of these groups are in hierarchical (vertical) relationship?

19. How intense is your participation in these groups in terms of your group attendance to the organizations' activities?

VERY HIGH HIGH REGULAR LOW VERY LOW

20. Can you provide some examples about the community groups' participation?

21. In which regional or external organizations does your group participate?

22. Which of them are hierarchical or vertically related?

23. How intense is your group participation in these organizations in terms of attendance to the organizations' activities?

VERY HIGH HIGH REGULAR LOW VERY LOW

24. What are some examples of your group's participation in regional or external organizations'?

25. Does your group have relationships with private (NGO's) and/or public (governmental) institutions? Which ones?

26. How intense is your group's participation with these institutions in terms of programs, projects, and activities?

VERY HIGH HIGH REGULAR LOW VERY LOW

27. Can you provide some examples about your group's participation with NGO's and governmental institutions?

28. What do you think of the saving box mission?

Cultural capital

29. What are the advantages of being in a female/male/mixed saving box group?

30. Are there any disadvantages of being in a female/male/mixed saving box group?

31. In mixed groups were or are there women in charge as your group representative?

32. Is there a formal system for community/volunteer work in your community and group?

Current situation of the saving box

33. Are the group's members currently saving?
34. Are they currently paying interest?
35. Are they repaying loans?
36. Is the saving box issuing loans?
37. Are the representatives keeping records?
38. Is the group meeting on a regular basis?
39. How does your saving box keep records?
40. How can group members be sure that those records are correct?
41. Which have been the most important events in the saving box life cycle?
42. How have you interacted as a group before these events?
43. What impacts or consequences have these events and interactions had in your group?
44. Can you identify these key stages in your group?
 - a) Seed capital provision
 - b) Technical advice
 - c) No technical advice
45. In general, how do you explain the saving box's current situation?
46. If the saving box is not working, when did it stop and why?

Financial capital

47. Ranked by importance, what are the sources of money in your group's households?

Built capital

48. Does your group have material resources such as buildings, warehouses, machinery, equipment, vehicles, etc. Please list them

Human capital

49. Has some member in the saving box group been benefited with new knowledge and skills acquired by training or technical advice to manage the saving box? How many?
50. How many people have served as treasurer of your saving box?
51. How often does the saving box rotate or change Treasurers?
52. Has fraud or mismanagement occurred in the saving box? If yes, what do you think was the main reason?
53. Does the Treasurer receive economic compensation or preferential treatment in retribution to his/her job?

Political capital

54. Does the group participate with or in political parties?
55. Does the group participate with or in the local government?
56. Does the group participate in political decision making at local level?
57. To which extent has your group and representatives influenced political decision making at the local level?

VERY HIGH HIGH REGULAR LOW VERY LOW

58. Can you provide some examples about your group's and members' influence in political decision making at the local level?
-

59. How strong is your group's negotiation power with public and private institutions?
60. How are the group's representatives elected?
61. Are there opinion leaders who are not formal leaders of the group?

Vulnerability context

62. What are the main shocks faced by the group members in the community (floods, droughts, cyclones, deaths in the family, violence), seasonality (crop production, job market), and trends and changes (population, environmental change, technology, markets and trade, and globalization) during the last five years?

Interviewer _____

Date ____/____/____

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