

Sustainable Micro-Credit in a Nicaraguan Non-Governmental Organization

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Preface

This thesis could not have been written without the help of Cipres. During the fieldwork, I was welcomed and taken care of, and they showed a keen interest in helping me to obtain the necessary information. I especially want to thank Jose Miguel Sandoval, vice president of Cipres, for organizing my stay, and German Jiménez for taking me around to many of the regional offices and cooperatives. I also want to thank all the employees at the regional offices and cooperatives for all the relevant information, for showing me around and in explaining how they work. The questionnaires could not have been done without the informants and their openness and willingness to participate and sharing their stories. They made a big impression on me and gave me a special motivation for writing the thesis.

I also want to mention my Spanish teacher Theresa Alfonso at the Dariana Spanish School in León, who helped me with the questionnaire, and Rosalba Ortiz at the Development Fund Norway, for getting me in touch with Cipres.

A special thanks is dedicated to my supervisor Karl Ove Moene at The University of Oslo, for all his remarks, patience and helpful comments on the thesis.

Summary

The thesis is built around a Non-Governmental Organization in Nicaragua that offers micro-credit to its members, and investigates how access to credit affects the borrowers. It is an NGO that has a focus on development in rural areas and the thesis looks at how micro-credit can be beneficial both for the lender and the borrower in this specific context.

Cipres consists of mainly farmers living in rural Nicaragua, who are organized in cooperatives on community level. The cooperatives are again organized under eight regional offices. The organization of the members is important in understanding the concepts behind the micro-credit, and how problems related to offering credit to poor people are met.

Cipres offers credit both through specific projects and through their own circulating fund in every cooperative. The projects are funded by Cipres, the government or international NGOs. They support projects of production of Nicaraguan staple foods such as beans, maize and rice, other vegetables, coffee, tobacco, animal breeding or other types of projects. Through these projects, the member families can receive credit to initiate production on their own. The same is for the circulating fund in the cooperative, but this fund is much smaller, and covers a smaller range of activities and lower lending amounts.

When asked about the effects of micro-credit on the social development level among the members in Cipres, it is obvious that it has had a positive impact. Levels of income, predictability of income, quality of housing, amount of production equipment, ability of sending children to school, quality of life and access to health services have risen for about 74% of the informants.

Access to basic services has also risen, but the conclusions are more difficult to interpret, when taking into account the general development level on the community level.

When Cipres is offering micro-credit to its members, there are several factors to take into account. Moral hazard and adverse selection problems can arise because of asymmetric information between the lender and the borrower. It is however shown how this can be solved by monitoring among the members in community-based cooperatives. There are also problems concerning incentives for repayment and the threat of losing clients to other institutions offering micro-credit. A solution that can secure for this is by offering progressive lending, that gives incentives both to repayment and a long-term commitment of the borrowers. The thesis also covers the problem with risk in agricultural production. The farmer meets a wide range of risk factors in production, and this must be taken into consideration both by the lending institution and the farmer. The farmer can self-insure through product- and income diversification, and Cipres can offer flexible repayment conditions to ease the economic shock for the farmers in case of for example extreme weather conditions. This is shown in a simple model.

Table of Contents

PREFACE	2
SUMMARY	3
1. INTRODUCTION	7
2. RURAL FINANCE AND MICROFINANCE	9
2.1 MICROFINANCE	9
2.2 RURAL FINANCE IN NICARAGUA	10
2.2.1 CREDIT AND POLITICS	11
2.2.2 MICROFINANCE IN NICARAGUA	12
3. CIPRES AS AN INSTITUTION	14
3.1 THE ORGANIZATIONAL STRUCTURE	15
3.2 REGIONAL OFFICES: CENTRALS/UNIONS	15
3.3 COOPERATIVES	19
3.4 MEMBER/ FARMER	21
3.4.1 MEMBERSHIP IN CIPRES	21
4. AGRICULTURAL PRODUCTION AND INCOME AMONG FARMERS IN CIPRES	22
4.1 AGRICULTURAL PRODUCTION	22
4.2 INCOME AND PLANNING	23
5. ORGANIZATION OF CREDIT SCHEMES IN CIPRES	25
5.1 PROJECT FUNDING	25
5.2 CIRCULATING FUND	27
5.3 THE PROCESS	27
5.4 COLLATERAL	29
5.5 NON-COMPLIANCE AND CONSEQUENCES	29
6. CREDIT AND LOCAL SOCIAL DEVELOPMENT	31
6.1 METHOD OF RESEARCH	31
6.2 THE INFORMANTS	32
6.3 SOCIAL DEVELOPMENT INDICATORS	33
6.4 BASIC SERVICES	37

6.5 MODIFICATIONS	41
7. MICRO-CREDIT; A THEORETICAL APPROACH	43
7.1 ASYMMETRIC INFORMATION	43
7.1.1 MORAL HAZARD	43
7.1.2 ADVERSE SELECTION	44
7.1.3 MONITORING IN COOPERATIVES.	45
7.2 PROGRESSIVE LENDING	46
7.2.1 THE DYNAMICS OF PROGRESSIVE LENDING	47
7.3 RISK AND INSURANCE	48
7.3.1 RISK IN AGRICULTURAL PRODUCTION	48
7.3.2 INSURANCE	49
7.3.3 A MODEL OF INDIRECT INSURANCE THROUGH FLEXIBLE REPAYMENT CONDITIONS	51
8. CONCLUSION	57
REFERENCES	58

1. Introduction

This thesis takes a closer look at a non-governmental organization in Nicaragua that offers micro-credit to its members, and investigates how access to credit affects the borrowers.

If a micro-credit contract is made in such a way that it induces a high risk of loss for the borrower in the long run, it will neither be a sustainable agreement for the borrower, but nor for the lender. The borrower will not want to commit for a longer period of time, and the lender will make a contract with strict short run considerations, and at the same time risk losing clients. How can a lending institution obtain a long-term and fruitful relationship with the borrower without losing economically? And how does micro-credit influence sustainable social development among credit recipients in rural areas?

Fieldwork

The thesis is based on a seven weeks fieldwork in Nicaragua during June and July 2008. During the stay I worked with a Nicaraguan non-governmental organization called Cipres, or Centre for Rural and Social Promotion, Investigation and Development¹. They work mainly in rural areas, with the aim of improving the level of life of their member families, through focusing on higher production, commercialization, investigation and development. One of their tools is to offer micro-credit to their members.

During the stay, I got a good impression of the work Cipres is doing, and have chosen to use the organization as an example of a micro-credit lending institution. The thesis will therefore be built around this organization. I investigate how work with credit can be done in a situation where the lender has the same goal as the recipients; gaining development, and not economic profit. A necessary condition is however that the organization must be economically efficient.

¹ Centro Para la Promoción, Investigación y el Desarrollo Rural y Social

While being there, I worked both with workers at the national office in Managua, seven of the eight regional offices, and many of the local cooperatives. This work was important in understanding the organization and their routines. However, I spent most of my time with the farmers and members of the organization, doing a questionnaire and talking with them about the micro-credit and how it had affected them.

Because Cipres has a focus on rural areas, I look at aspects that are specific to small and medium-scale farmers living in rural areas in Nicaragua.

The background for choosing this theme is knowledge of and former stays in Nicaragua and Central America, and a keen interest in development and microfinance. I have also worked with the youth group of The Development Fund Norway (Utviklingsfondet), which has Cipres as one of their main partners in Nicaragua.

2. Rural Finance and Microfinance

Rural finance is of crucial importance when treating issues of poverty and development in rural areas (The International Fund for Agricultural Development (2009) and The World Bank (2008)). The World Bank emphasizes the need for finance in order to achieve economic growth, inclusion and participation of all members of the rural population in economic development, as well as reduction of vulnerability to economic, physical and other shocks to the production. The reason is that credit is a necessary tool for both households and enterprises to be able to gain productivity growth and generate more income in the future.

2.1 Microfinance

Microfinance became worldly recognized as “banking for the poor” when Muhammad Yunus and Grameen Bank received The Nobel Peace Prize for their work with micro-credit in 2006. Credit unions and cooperatives around the world have however worked with microfinance for many decades. In literature it became a concept in the 1970s, when organizations and banks began developing a framework for working with finance for the less developed population (Robinson 2001:52).

Jonathan Murdoch (1999) defines microfinance as institutions

“(...) serving clients that have been excluded from the formal banking sector”,

while The Consultative Group to Assist the Poor, CGAP (2009), defines it on their homepage, as

“Microfinance offers poor people access to basic financial services such as loans, savings, money transfer services and microinsurance”

Microfinance is the broader definition of all financial services, while micro-credit includes only the lending aspect. This thesis will focus on micro-credit.

The recipients of micro-credit are small and medium-sized farmers or entrepreneurs. The lending amounts are often much lower than in the traditional banking sector, and this together with the often unsecure financial situation of the borrowers, makes micro-credit different from traditional credit. The loans are often associated with greater risk of repayment, because of low income levels among the borrowers, none or low collateral requirements, as well as asymmetric information concerning the production and economic situation of the borrower. Poor people also often lack of sufficient education and/or reading and writing skills, which require a closer follow-up from the lending institution.

To offer poor people credit, it also requires a lending strategy that is specific to coping with problems related to this. It is done in a number of ways, and each micro-credit institution works differently. Group lending is however one of the innovations of microfinance that has received most attention (eg. Stiglitz (1990) and Chatterjee and Sarangi (2004)). It includes mutual control and risk sharing among neighbours in small credit groups. Another common innovation is dynamic incentives/ progressive lending, where the credit amount increases with the number of successful repayments. Yet another is to offer the borrowers flexible repayment schedules (Morduch 1999).

Microfinance can be offered both by governments, private financiers and banks, as well as Non- Governmental Organizations. For practitioners on the right political side, such as many private institutions, it is a way of achieving poverty reduction while gaining profit, and for left-side practitioners, it can be a way of enhancing local development (ibid).

2.2 Rural Finance in Nicaragua

Nicaragua is the second poorest country in Latin America and lies in Central America, between Costa Rica in the south and Honduras in the north. The country has an economy based on agricultural production, and a population where close to 43% live in rural areas (Rural Poverty Portal 2009).

2.2.1 Credit and Politics

Nicaragua has a turbulent recent history, with the Sandinista revolution marking an important year in 1979. The Sandinista revolution was a social revolution led by peasants and people living in rural areas. It gave rise to political unrest and a civil war in the 1980s, before the opposition formed a new party, the Nacional Opposition Union-UNO², and won the elections in 1990. In 2006 Daniel Ortega, one of the main figures of the Sandinista revolution, was elected President for the Frente Sandinista Liberación Nacional (FSLN). The type of government in Nicaragua has had an important influence on the level of credit and financial services given to the rural population.

In 1978, 4% of peasants received credit ment for agricultural purposes, while in 1985 the number was 31%. Following the Sandanista revolution, the banking system was nationalized, and there was an enhanced focus on giving credit to small and medium sized farmers. This was the first time they had been given access to credit. During the mid-1980s, however, Nicaragua experienced economic recession. It was partly because the banks charged too low interest rates on producer loans, to keep up with the high inflation rate. Because of this, the banks were unable to repay their own loans, and this contributed to hyperinflation at the end of the 1980s. Following this the non-traditional credit markets experienced growth in Nicaragua in the 1990s. Their aim was the less developed part of the population, in contradiction to state and private run commercial banks (Jonakin J. and L. Enriquez 1999).

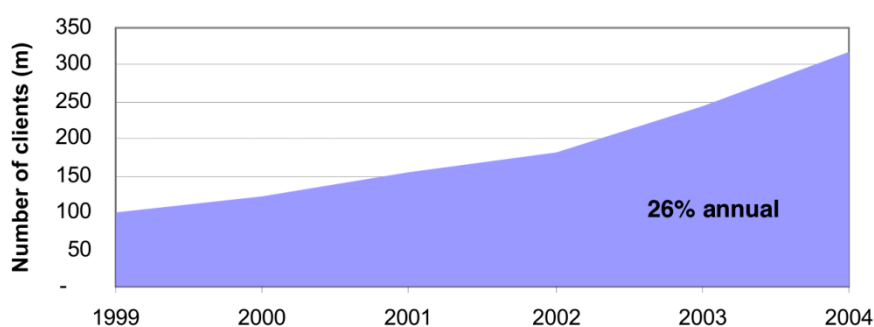
Nicaragua became dependent on loans from The World Bank and The Interntational Monetary Fund in the 1980s. Because of structural adjustment plans following these loans, the country led a more market-based strategy. This also affected the banking sector and the former state-led credit institutions, which now became privatized again, but this time under the supervision of central authorities (La Superintendencia). It resulted in higher collateral requirements, and fewer peasants

² Unión Nacional Opositora- UNO

receiving credit. Over the period 1991/92 to 1997/98 the total amount of credit given by the National Development Bank (BANADES), dropped by 50% in nominal terms (Jonakin J. and L. Enriquez 1999).

2.2.2 Microfinance in Nicaragua

There has been a rapid increase in microfinance clients in Nicaragua over the last decade. In 2005 there were around 300 microfinance institutions in Nicaragua. There were two regulated finance companies, seven private unregulated corporations, one hundred non-governmental organizations and one hundred and ninety cooperatives. The growth over the last decade has been substantial. As Figure 2-2 shows, there was an average annual growth of 26% between 1999 and 2004 (CGAP 2005).



Source: SIBOIF, ASOMIF, CCFN

Figure 2-2 Growth of number of credit clients in Nicaragua from 1999-2004.

There are several associations of microfinance institutions (MFI's) in Nicaragua. They work with coordination of member organizations, publishing relevant data, political influence and arranging training. The largest association for NGOs is the Nicaraguan Association of Microfinance Institutions, ASOMIF³, where twenty-two of the hundred NGOs are members. Cipres is however not a member of any microfinance association.

³ Asociación Nicaragüense de Instituciones de Microfinanzas

In 2002 the non-profit and non-commercialized credit institutions had a market share of 74% of all the microfinance loans in Nicaragua. This signifies the largest percentage share in Latin America (Lanuza 2004).

3. Cipres as an Institution

Cipres was founded in 1990 and has now got 43 employees. The organization works with development, hunger and poverty related issues in rural areas as well as investigation on agricultural subjects.

Cipres had 3049 member families by July 2008, and all members must belong to a cooperative. The members are of all types of professions, but most live in rural areas or small towns, and work with agriculture, livestock or both. There is one member per family, and there are both men and woman participating. It is part of Cipres' politics, to include women on all levels of the organization. The gender distribution is 54% males and 46% women (Fecodesa 2008), and the education level stretches from illiterates without any schooling, to University graduates.

The organization collaborates with various Nicaraguan Universities in agricultural investigation projects. In 2008 they were working on a project of crossing plants to make them more resitant to extreme weather and plant disease, and projects on biodigestion and water cleaning.

In December 2007 Fecodesa, Federation of Cooperatives for Development⁴ was founded, and Cipres as an organization became only a part of the federation. The thesis will focus on Cipres as the organization it has been, because by July 2008 the change had only been implemented to a very small extent.

The organization is politically independent, but it is built on socialist principles.

⁴Cipres changed in December 2007 its status from being an organization, to becoming an NGO *within* a federation, Federación de Cooperativas para el Desarrollo, Fecodesa. Before the recent government with Daniel Ortega/Frente Sandinista Liberación Nacional, an NGO could not be part of an institution. This has now changed, and Cipres was therefore able to form Fecodesa. The funding of Fecodesa had been a long term goal for Cipres, because as a federation, it stands stronger in political issues and influence. The organization, Cipres, will persist, but gradually become a smaller part of the federation over time.

3.1 The Organizational Structure

Cipres is organized as an umbrella, and the centre of administration or national office, is situated in Managua. The level below the national office consists of the regional offices, or what they call a Central/Unión. Each regional office consists of five or more cooperatives. The cooperatives constitute of member families living in rural areas. I will not go further into what Cipres does at the national office, because they only have a coordinating role.

Below is an organizational chart, showing how the different levels are linked together. The rest of this chapter explains each level more thoroughly.

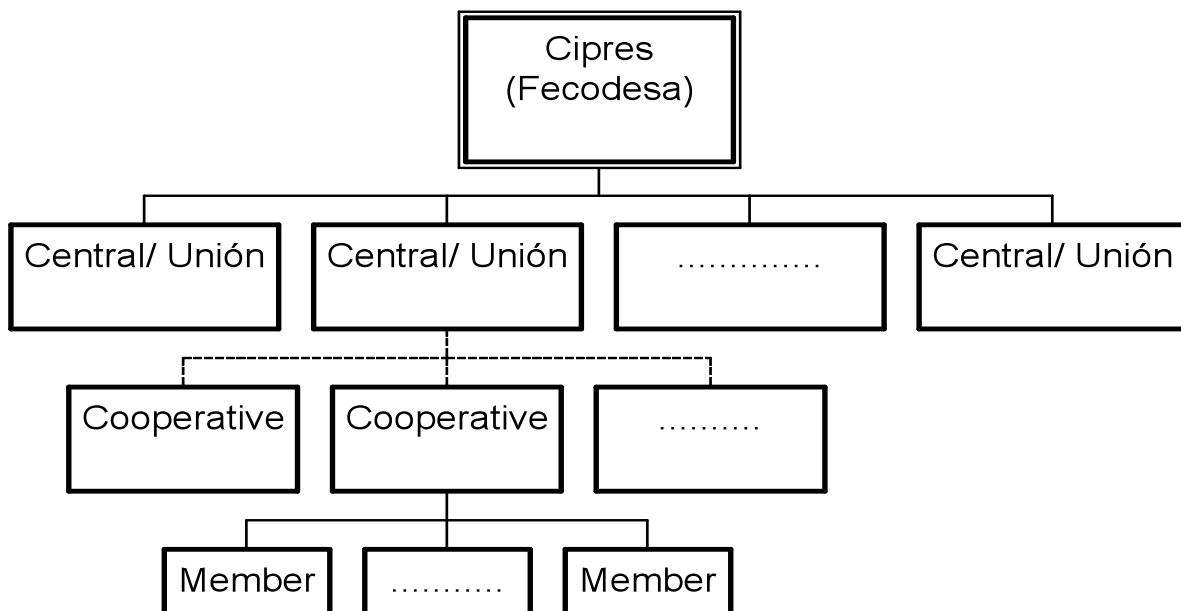


Figure 3-1: Organizational structure

3.2 Regional Offices: Centrals/Unions

There are eight regional offices in Cipres. They are mainly situated in the North-Western part of Nicaragua, except for one that covers the area of the Departamento de Río San Juan, close to the Costa Rican border in the south. See Figure 4-2 below.

Each Central/Unión must consist of at least five cooperatives, and are of varying sizes. Unión de Cooperativas Departamental de Río San Juan is the best-developed

regional office, with 639 members and 25 cooperatives. The smallest is Unión de Cooperativas de Peñas Blancas, with 127 members.

Each central/union has a coordinating role of the belonging cooperatives, and when cooperatives apply for funding of projects, the applications are first sent for revisitation by the central/union. If several cooperatives apply for the same type of funding, the applications will be put together and sent as a common application. The central/union is also from where most of the members receive credit.

Most centrals/unions have their own office and/or a farm, where employees or members of the cooperatives work. In some centrals/unions they also offer their members to work instead of paying the entrance fee when becoming a member.

There is a difference between a central and a union. The central is a regional office that constitutes of cooperatives that produce the same type of products, for example only staple foods or livestock and other animal breeding. A union is a regional office that consists of cooperatives with members of several professions and product varieties.

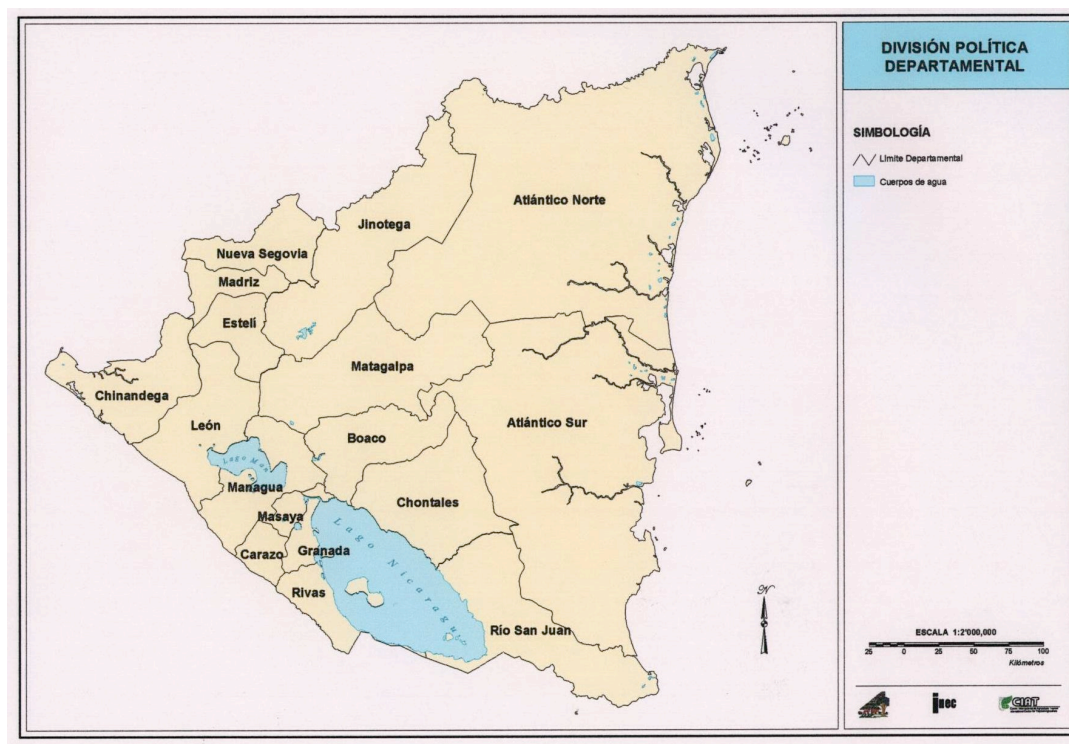


Figure 4-2: Map of Nicaraguan political departments.

Estelí region/ Pueblo Nuevo:***Central de Cooperativas de Pueblo Nuevo (CECOOP)***

In this region the main areas of production are beans, maize and chicken. The central has 290 members and a well-run office with five employees. They also have a farm with five employees (not members of Cipres). The central and the farm also often host students, who work there as part of their practical training. On the farm, the employees, the students and some from the cooperatives work with a seed improvement project, production of certified seeds and ecological fertilizers and animal breeding. It is a well-known central among farmers in the area, and from the office in Pueblo Nuevo they sell the chicken, seeds and fertilizers to farmers. In June-July 2008 they sold it at a price below market price, because of unusual high world market food prices (International Monetary Fund 2009).

Matriz region/Palacagüina:***Central de Cooperativas Multisectoral de Palacagüina (COOPAL)***

The central works closely with Central de Cooperativas de Pueblo Nuevo (ten minutes away), and also has a farm where they produce and sell vegetables and chicken. The central has three employees and several members working there. The number of members in the central is 291.

Matagalpa region/Tuma-La Dalia: Unión de Cooperativas de Peñas Blancas (UCOPB) and***Jinotega region/Jigüina: Unión de Cooperativas de Jinotega (JIGÜINA)***

These two unions share the same office in Matagalpa. There are two employees and the unions have a total of 376 members. The members mainly produce beans and maize and some other vegetables. They also have cooperatives that export coffee and malanga (a potato-like vegetable). The region has experienced a growth in agriculture over the last few years because of climate changes, and now has nine months of rain every year as well as three harvests annually.

Estelí region/Condega:***Unión de Cooperativas de Las Segovias (UCOSE)***

The union was founded in April 2008, and was still in the process of getting their judicial papers in order in July 2008. When this is done, they will be one of the

largest centrals/unions with 305 members. The cooperatives that form this union have exported coffee for many years and have business agreements with several local agents. They produce and sell tobacco to a local factory, and they also have arrangements with the supermarket in Estelí, which sells their coffee. They have equipment that enables them to do the whole coffee processing work themselves.

Chinandega region/Somotillo:

Central de Cooperativas de Mujeres de Somotillo (CECOMUSO)

The central consists of 286 women and one man, and lies in the dry region of the North- West, close to the Honduran border. The region suffers from an unfriendly climate and experiences the effects of the climate changes with severe draught combined with random hurricanes and huge amounts of rain. The soil is not nutritious enough to absorb large amounts of rains, which makes the situation difficult for the farmers. Consequently, this is one of the poorest regions in the country (Rural Poverty Portal 2009). The members mainly produce what they consume, and have a production focused on beans, maize and other basic foods.

The cooperative has one employee, and they have a farm where they produce and sell cashew nuts and chicken.

Río San Juan region/San Carlos:

Unión Departamental de Cooperativas de Río San Juan (COOPERIO)

This union is the best-developed union in Cipres, and they cover a large area in the tropical region of the South. Among the population in the region, they are known as COOPERIO, and not Cipres. The union has a regional office with eight employees in San Carlos, and a local office in Boca de Sábalos with two employees.

As mentioned above, this union constitutes of 25 cooperatives and 639 members. The cooperatives work within a large variety of sectors; agriculture (beans, maize, oranges, cocoa, rice), livestock, tourism, transport (a cooperative of taxi drivers), commerce (small shops), palm tree oil etc. This is the union that has the longest experience in working with micro-credit.

León region/León: Central de Cooperativas Manos Unidas (CECOMUN)

This central has 861 members and is the largest central in Cipres. It was not visited during the field work.

3.3 Cooperatives

Cipres consist of 112 cooperatives of varying sizes, and each cooperative must consist of at least five members. The members need to have a base in the same local community, and work within the same area of production. Often farmers produce more than one good, but within the cooperative they have a focus on one or a few products. There are also womens cooperatives and cooperatives for certain types of professions, eg. tourism or transportation.

Reaching the market with their products is a large problem among rural farmers in Nicaragua. By organizing themselves in cooperatives it is easier to gain market access, because it enables them to focus production on a few products and sell them together through the cooperative.

The cooperatives are very different from each other, and trying to explain how they work can be confusing as there are few common principles. For the sake of easier understanding, they are here divided into categories; exporting cooperatives, local market cooperatives and project-oriented cooperatives.

Exporting Cooperatives

The cooperatives that export their products to foreign countries are the most professional ones. For example do some cooperatives in the Matagalpa and Rio San Juan regions export malanga to Costa Rica. In Rio San Juan there is also a cooperative that produces palm trees and sells the berries to an Austrian company that does the processing work of making palm tree oil. Other examples of exported products are coffee and tobacco to the United States and Spain.

Each farmer sells his production to the cooperative at the current market price. The cooperative has agreements with another company, who buys from the cooperative as

a whole. By doing it this way, the farmers get access to a market they otherwise would not have been able to reach. If the cooperatives are able to do the processing work themselves, it raises the value of the sales substantially. An example is Cooperativa Multisectoral Nueva Esperanza in the region of Estelí/las Segovias (Mid-North), which produces coffee. It is one of the largest and most experienced cooperatives in Ciper, and they process their coffee within the cooperative before they sell it.

Local Market Cooperatives

These cooperatives sell their products jointly on the local market. It can be the vegetable market in the closest town or city, or they might have an arrangement with the local supermarket to sell their products. Many cooperatives work in this way. An example is Cooperativa Juan Carlos Morales in the La Dalia/Matagalpa region. They produce staple foods, and sell it on the local market in La Dalia.

Project-oriented Cooperatives

These cooperatives work with production that they have started after receiving funding for a project. The projects are specified through the central/union, and they apply for funding from either official sources or other instances. An example is that some farmers produce certified seeds. The seeds are either sold on the market or through the cooperative to a fair price for the farmers. Another example is a women's cooperative that is initiating production of natural medicine. The women would not have been able to work with this without being organized in the cooperative. The fact that they are all part of the same community, gives a snowball effect in the sense that more and more women want to participate in the cooperative because they see their neighbour who is "just the same as them", joining. These women have found a demand for the products in the local community, and by organizing themselves in this way, it gives many women the opportunity of getting an additional income outside their traditional farm work.

Another example is where farmers or other groups of professionals, such as within tourism or transport, gather in cooperatives because it enables them to apply for funding together as a group.

3.4 Member/ Farmer

3.4.1 Membership in Cipres

To be able to become a member, one need to apply formally, stating basic information about the household. Usually there is an admission fee. How large the fee is, depends on the cooperative. Some charge a higher sum to become a member and no annual fee, while some charge a small fee every year. Some have a payment arrangement where you pay as much as you are capable of according to your income, and in some cooperatives the members can participate in the daily work of running the cooperative instead of paying. The admission fee from all the members is invested in the Fondo Revolvente, or the Circulating Fund of the cooperative.

Being a member in Cipres requires active participation in the organization. It is not an organization that is solely based on micro-credit, but it works with a wide range of activities within agriculture. The members can to some degree chose how active they are, but are expected to participate in the work of the cooperative.

4. Agricultural Production and Income Among Farmers in Cipres

4.1 Agricultural Production

Granos basicos is the staple food in Nicaragua, and includes beans, maize, sorghum and rice. In rural areas granos basicos is also often the only food, because of low prices and easy storage. A large part of Nicaraguan peasants have these goods as their main area of production and income (Jonakin J. and L. Enríquez 1999), and they are also important export commodities. Some peasants have differentiated their production and hold other varieties in addition, but most produce at least enough granos basicos to cover their own consumption.

Other important varieties in agricultural production are tomatoes, chile, oranges, cocoa, palm tree berries (used in production of palm tree oil and biofuels), grapes, malanga and yuca (similar to potato). Which ones are suitable to produce depend on the region and the climate, the altitude and the soil in the area. What signifies these products is that they pay more when sold than the granos basicos, but they cannot be stored over longer periods of time. Many cooperatives in Cipres work with export of such goods.

Nicaragua is one of the largest coffee producers in the world. The main area of coffee production is the Mid-North (Matagalpa, Estelí and Jinotega). Because of a high altitude and long periods of rain every year, the climate is particularly suited for coffee production. Coffee pays more than granos basicos, and some cooperatives export coffee to Spain and the United States, branded fair trade and ecologically produced.

Some regions where Cipres have regional offices (Estelí and Matriz) are particularly suited for production of tobacco. The farmers produce tobacco leaves, and sell them through the cooperatives to a local factory that produce ecologically branded cigars for export. Cigars are also one of the largest exporting sectors of the country (Food

and Agriculture Organization of the United Nations 2009), and the country is known worldwide for the high quality.

In addition to agricultural products, many farmers breed animals, such as cows, pigs and chicken. Cows are useful in many ways and are considered to be a good investment. They can be used in agriculture, as food, in producing dairy products and are often used as a way of saving. Pigs and chicken are used for eating, and chicken is also kept because of the eggs.

4.2 Income and Planning

For the farmers in Cipres, the income is only generated a few periods during the year, and many do not have an income between the harvests. This means that when they estimate their income, it will often be done on a year-to-year basis. Especially in the Northern regions, June and July is considered to be the most difficult months of the year. The period between the harvests is longer, and they must therefore spread the income from the last crop over a longer period of time.

In general the number of harvests per year is two, but it varies with the climate. Some areas have one harvest, which is considered to be little and some have three, which is considered to be very good. In some areas the climate has changed over the last decade, and this has had an effect on the number of harvests. The hurricane Mitch in 1998 affected many farmers in Nicaragua, and made damages to the soil quality in the Pueblo Nuevo region that still affects the production level of many farms. Many farmers living close to the river had to move because of flooding, and now cultivate on less nutritious land than what they did before the hurricane. In the Chinandega region, many farmers also still struggle with the devastations made by hurricane Felix in 2007.

After every harvest, they need to decide what to do with the crop. They must consider what will be their level of consumption the coming months until the next harvest, and then decide how much to sell and how much to keep. In addition, they would want to save a fraction in case of sudden costs, like medical expences, housing materials etc.

Investments are primarily based on short run considerations, because of the low level of income. Many live on subsistence level, which means that they cannot afford to lose in one period to be able to gain in the next period. The loans they receive from Cipres cover costs of good quality seeds, fertilizers and other costs that needs to be done in order to get a good harvest. There is a big difference in the size of the crop with and without these initial investments.

5. Organization of Credit Schemes in Cipres

Cipres works with offering credit to their members in two different ways; either through projects or through the cooperatives. In the central/union they have a fund for the projects, and in the cooperatives they have a circulating fund.

5.1 Project Funding

The fund in the central/union is the largest fund, and mainly consists of money from external credit donors. The largest credit donor is the Fund for Rural Credit⁵, which is part of the government and works solely with rural credit. It has grown in size with the recent FSLN government, and mainly offers credit to agricultural and livestock projects. The centrals/unions also receive credit from other branches of the government, such as the Nicaraguan Institution for Investments⁶ and the Ministry of Agriculture and Forestry⁷. The Venezuelan Bank of Economic and Social Development/BANDES⁸ gives credit to projects with livestock and animal breeding, and the Development Fund Norway⁹ also supports specific projects. One of the main reasons for Cipres to organize themselves like they do is to make it is easier to gather groups of farmers who can participate in the projects and apply for funding.

When the centrals/unions receive credit from these institutions, they are charged a low interest rate. The Fund for Rural Credit has an interest rate of 5% or 9% yearly (depending on the type of project), and BANDES has a 9% interest rate. The centrals/unions set an interest rate a little higher than this when they give the loans to the farmers.

⁵ Fondo de Credito Rural

⁶ Financiera Nicaragüense de Inversion

⁷ Ministerio Agropecuario y Forestal

⁸ Banco de Dessarrollo Economico y Social de Venezuela

⁹ Utviklingsfondet

As an example one can assume that Fund for Rural Credit gives a loan to a central/union based on the project application they have received. They set an interest rate and a repayment plan depending on what type of project it is. Agricultural loans give a low interest rate and a repayment schedule of just a few months. This is because the loans are given ahead of every season, and the scheduled repayment date is when the harvest is over. Loans to cattle and animals are usually higher, and have a longer repayment time than agricultural loans. This is due to a longer time span associated with breeding animals compared to crop harvesting. The central/union sets a higher interest rate than the Fund for Rural Credit, to cover the administrative costs, and the costs of running the central/union. They also set a smaller repayment time, because it takes some time before and after receiving the credit, to hand it over to the farmers and receiving it back. Figure 5-1 shows the steps:

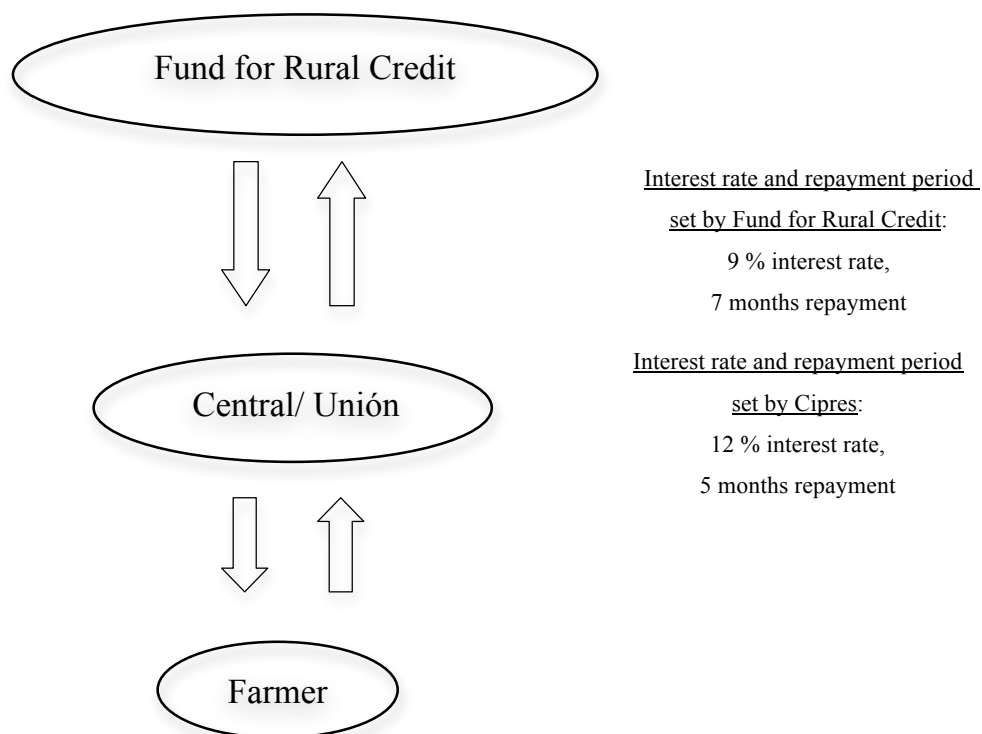


Figure 5-1: Project interest rate and repayment period, using Fund for Rural Credit as an example.

5.2 Circulating Fund

The fund in the cooperative is usually what they call a Fondo Revolvente or a Circulating Fund. All cooperatives have such a fund. This fund is much smaller in economic size than the projects, and forms a part of the economy of the cooperative. The fund is in some cooperatives used to give small loans to the farmers/members of the cooperative, and can also be used to invest in the cooperative itself, for example by buying production equipment or animals. One example is where the cooperative buys a calf. It gives the calf to one of the farmers, who have to give a calf back to the cooperative when it has grown big and fertile. When the cooperative receives the new calf, the farmer keeps the cow and a new farmer will get the calf with the same obligation of giving one back. This continues until everyone has received a cow. Then the cooperative sells the last one, and places the money back into the fund. They will then have increased their income, because the cost of buying a calf is lower than what they get from selling a fully-grown cow.

The Circulating Fund gets money from several sources, which differ from every cooperative. In general the fund is built on the entrance fee of the members when they become part of a cooperative, private contributions (in at least one cooperative you can only borrow seven times as much as the value of your contribution), financial support from Cipres and profit from sales from the cooperative.

The Circulating Fund can also give small credit loans to their members, but not all cooperatives have this arrangement.

5.3 The Process

To be able to apply for a loan you need to be a citizen of Nicaragua and be in possession of an ID card with a national insurance number. Additional requirements that depend on the cooperative, are that the loans must go to agricultural purposes, that you must be a member of a cooperative (a few centrals/unions give loans to non-members, but this is generally not the case), the loans must be investments in

something that gives a future income and/or that you must own the land where you produce.

The farmer applies for a loan, based on how much land he has or how much income he assumes to get from investing the money. Cipres has a standard for calculating how much crop a certain amount of land will give. The standard is 6000 C\$¹⁰ per manzana¹¹ for beans and 4000 C\$ per manzana for maize. To calculate how much they can receive, in some cooperatives the loans can get *translated* into the value of beans and maize, if the loans are for other purposes than this.

When the application form is filled out, they give it to the cooperative. A committee, consisting of the president and the vice president of the cooperative, the treasurer and the secretary decides whether the applicant is accepted or not. If the applicant is accepted and it is a loan to the Circulating Fund, the application stays here. If it is a loan to a project, the application will be sent to the central/union. The reason why this decision is made in the cooperative is that they often know the applicant, and can give a better assessment of the application and the person who applies. Especially in small communities, the cooperatives know who are trustworthy and not.

When the loans arrive at the central/union, the rest of the work is done there. Before the applicants can receive the loan, there will be someone from the central/union that pays them a visit where they live, to assure that what they write in the application is correct. He then checks the information on the amount of land, type of production and if the address is correct. The loans are given out within eight days of the application, which is a short period of time compared to other lending institutions. This is also mentioned among the interview objects as one of the most important favourable sides of lending in Cipres.

¹⁰ The exchange rate varied around 1 US\$ = 20 C\$ (Nicaraguan Cordobas) = 5 NOK during June-July 2008.

¹¹ One manzana is approximately equal to three hectares of land.

The applicant must go to the central/union to receive the loan, which is given out as a check that they must bring to the bank. At the office of the central/union is also where they go to make their repayments. Some loans have repayment schedule where they pay a little every month, and some pay everything at the end of the period. If they pay ahead of time they get a smaller interest rate, based on how many days early they are.

5.4 Collateral

In general they need collateral that is worth two times the value of the loan, 2:1. If they are registered as not having repayed on time earlier, they might need to have larger collateral, for example 3:1 or 4:1.

There are variations in what will be accepted as collateral. Some centrals/unions only accept land, either their own or of a family member/neighbour that gives her land as collateral for you. Some accept anything that Cipres can have an interest in, such as land, agricultural equipment or animals, while another accept the value of your crop as collateral. In some cooperatives you have your contribution to the cooperative when becoming a member as collateral, while in others anything that has a value when sold, like television, electrical equipment or other valuables are accepted.

5.5 Non-Compliance and Consequences

In general, Cipres do not have problems with non-compliance of the loans. In this survey, 99.68% of all the loans had been repayed. From February to April 2008, Unión Departamental de Cooperativas de Rio San Juan had an average of 2.92% outstanding loans¹². Even though non-compliance is not considered to be a large problem in Cipres, they have routines for what will happen if somebody is unable to repay their loans.

¹² See Attachment I

First the farmer will be called in to a meeting with representatives from the central/union and the cooperative. There they get a chance to explain themselves, and the background for their lack of payment. Weather conditions (hurricane, draught, heavy rains), plant disease or other unanticipated factors can be reasons for a smaller crop than what had been suggested, and thereby also a lower income. Together the loan recipient and the representatives then make a new repayment plan. The interest rate will increase, often at a growing rate according to how long it takes before they pay it back. In Union Departamental de Cooperativas de Rio San Juan, they also have a penalty payment of 5% of the total loan.

If the person does not show up to the meeting, or do not pay according to the renewed schedule, it becomes a judicial matter. If this happens, their collateral can end up being taken.

One special case is the Central de Cooperativas de Peñas Blancas: Here they hardly have any problems of repayment, even though they do not have very strict rules for this. If a person cannot repay the loan after the harvest, he gets the opportunity of paying it back after the next harvest. This central is the smallest in size of all the centrals/unions, and the members have the advantage of knowing each other very well. They see each other on a daily basis, so noone can lie or hide the truth. They also have a smaller economy than many other centrals/unions, and can only give small loans, between 2000 C\$- 6000 C\$. Other centrals/unions that do not know each member that well have stricter rules.

6. Credit and Local Social Development

6.1 Method of research

The method of research was a questionnaire¹³. The questions were asked orally, both because I wanted to make sure that they understood the questions, but also because many do not have proper reading and writing skills. I also wanted them to feel free to tell me their stories.

The questionnaire was made to get an impression of their economical situation, their thoughts around economic issues, and to get as much information as possible about their experience with receiving credit from Cipres.

I experienced that many of them are not used to the same way of thinking as we are. Some had difficulties in answering some of the questions, and I also experienced that some changed what they told me during the conversation. As a consequence, some of the questions will not be treated in the thesis, because I cannot be sure that they properly understood the questions. A few questions were added or modified after the first few interviews, to improve the fit of the questions.

When choosing a questionnaire as a method of research, I was aware of the limitations this would give. I could not include their stories or their thoughts. It also gave limitations as to find out more about the scope of their experience with credit. The questions are made to find out whether marginal change in their lives had occurred, not how large the change had been, if there had been any.

Another limitation is that I only talked to members of Cipres (except for four people that had received credit from a cooperative in Cipres, even though they were not members). Ideally I would have talked to equal amounts of members and non-members in every area, and compared them with each other. It was, however,

¹³ See Attachment II

difficult just to encounter enough members from Cipres. In rural areas they live within large distances, and many of the members I was not able to visit where they lived, because they often do not have house specific addresses and the public transport in many rural areas is poor.

Most of the members I met at the offices of the central/union or cooperatives, when they were making a loan application or a repayment. I also visited many centrals/unions with German Jiménez, a consultant for Cipres, who was doing work where he gathered many of the members in meetings. Then I was able to do the questionnaire at the same time.

I also want to add that lingual difficulties might have influenced my understanding on some answers, as I am not perfectly fluent in Spanish and I did not have a translator. If I was unsure, however, I asked the questions several times and asked them to explain what they meant in another way.

6.2 The informants

The informants were selected on the background of accessibility and willingness to participate, and with the aim of getting a representative selection of gender, age and type of production.

Of the selection of interview objects, 70.3% worked within agriculture and 39% with livestock or other types of animal breeding. 26% had other types of employment.

The gender distribution was 43% females and 57% males. They lived in households with an average size of 5.7 people, and with an average of 4.6 children. This does not mean that there were many households with only one parent, but rather that some households had up to 13 children. Often the household included more relatives than just the family as well, as it is normal for aunts, uncles and grandparents to live together in the same house.

The informants had received credit between one and twenty times from Cipres, but with an average of 4.42 loans per household. The loans had an average monthly interest rate of 1.9%.

6.3 Social Development Indicators

Social development indicators are chosen to include factors that are needed for long-term social development, and that give a good indication on whether the general situation has become better or not. These factors are; the income level (based on short run considerations up to one year), predictability of income, the savings rate, ability of sending their children to school, the quality of housing, amount of equipment in production and quality of life. I also looked at access to basic services, and this is treated separately in chapter 6.4. The informants were asked to compare their situation before and after receiving credit from Cipres, and Table 6-3 gives a summary:

Variable	Better/higher	The same	Worse/lower	N
Income level	62.2	21.6	8.1	37
Predictability of income	73.3	20	6.67	30
Savings rate	84.4	6.25	9.37	32
Ability of sending children to school	82.1	17.9	0	28
Level of health care	78.4	18.9	2.7	37
Quality of housing	64.9	29.7	5.4	37
Amount of equipment in production	69.7	30.3	0	33
Quality of life	75.7	24.3	0	37
Average	73.8	21.1	4.03	

Table 6-3: Social development factors influenced by micro-credit

Income and production factors

The income level among 62.2% of the informants is higher after receiving credit. 21.6% has an unchanged income level, and 8.1% have a lower income than before. If

we compare the income level with the *predictability* of income, we see that the predictability of income has become better for 73.3% of the informants. That means that for 11.1% of the informants, the predictability has become better without the income becoming higher. This can be understood as a better consumption smoothing and a more stable production and consumption pattern.

On a question concerning expectations of future income, 94.4% say that they expect their income in the future to become higher than what it is today. When looking at the correlation level between those who have experienced a positive trend in their income level, and those who have positive expectations for their future income, the correlation level is 0.32. That is a lower correlation than what would normally be expected, and shows that many have a positive view on their future income even though they are experiencing a negative trend now. What is the reason for this is difficult to say.

When asked about whether their income covers their necessities, the correlation with the income level is 0.21. This tells us that it is not always rationality and their actual income level that decides their opinion about their own situation. It opens for individual differences and subjective considerations about their own situation. Some of the informants could say that they had all they needed because they did not go hungry all the time, while other would say that they could have been better off with more production equipment, and therefore did not have an income that covered their necessities.

When it comes to the production equipment, almost 70% have a higher level, and 30% have the same level as before. None of the informants owned a tractor or other large mechanical production equipments before receiving credit, while two owned at least one large production equipment, after receiving credit. The increase in production equipments are hence of the smaller sized ones. Many cooperatives do however offer their members to lend a tractor, so in this manner several have gotten access to a tractor without actually owning it.

Saving

In Cipres, 87.5% of the informants save. At the same time, 84.4% say that their savings rate have been raised after receiving loans. This is an important aspect when considering sustainable development.

The fact that a person saves does however not necessarily imply development. There could be a constant level of average savings over a specified period of time, but it does not necessarily mean an increasing level. Let us assume that we have three different trends of the savings rate over time. The first is a situation where the savings rate was low in the beginning, but rising over time. The second is where the saving rate was high in the beginning, and gradually becoming lower over time. The third is a situation where the savings rate varies year by year, and where the average level is non- increasing. It is only in the first situation that we will experience development (Sato and Samreth 2008). This coincides with the fact that the levels of savings have risen for almost 85% after receiving credit from Cipres.

Social factors

82.1% say that their ability of sending children to school has become better after receiving loans. For 17.9% it has had no effect, while none say that it has become worse. Schooling is considered an expense in Nicaragua, because the children need to have uniforms at primary school (and some secondary schools), good shoes and books. For poor families with many children, this can be very costly. The ability of sending children to school is hence directly linked to the income level of the household.

When asked about the level of access to health care, 75.7% of the informants have good access, while 21.6% have got access sometimes, and 2.7% have never got access to health care. It is apparent that for almost 80% of them, the level of health care has risen after receiving credit. That is a substantial increase.

Among the informants, there is a relatively high number who owns their own land or house in a country that has a long history of problems related to landlessness of peasants. Before the loans, 78.4% owned their own land/house, and the percentage

level rose to 97.3% after receiving credit. By finding the t-values, one can consider whether the change is statistically significant or not. To do this, one needs to assume a normal distribution of the possible answers concerning land/house ownership before and after receiving loans. To be significant on the 95% level, the t-value must be larger than 1.96, and for the 99% level, it must be above 2.58. The larger the t-value is, the stronger is the result. For the case of ownership of land/house, the t-value is 2.898. That means that the change is statistically significant both at the 95% and 99% significance level.

The quality of housing has also increased for 64.9%, while for almost 30% it has not changed. This can however also be influenced by how the household prioritize their income. For some, they might have a house that is basic, but in good shape, while others might have had very bad housing conditions before, and chose to improve this when receiving credit.

Quality of life with receiving credit has also increased for over 75% of the informants. Quality of life was not defined for the informants, so they could interpret it in their own way. This is because quality of life does not have a proper definition, and is individually understood.

An aspect that does not seem to have been influenced by the credit is membership in social or political organizations. Only 16.2 % says that they have become members of at least one new social or political organization after receiving credit.

General conclusion

From Table 6-3 we can see that on average 73.8% consider their situation to be better after receiving micro-credit. We also see that 21.1% consider their situation to be the same as before they received credit, while only an average of 4.03% are experiencing a decline in their situation. It is therefore a natural conclusion to state that the micro-credit has had a positive impact on the social development level among the members of Cipres.

6.4 Basic Services

Access to basic services is also a factor of importance for local development. The reason for looking at both the household and the community level is to try to correct for the general tendency in the community, and focus on changes following the loans.

When the informants were asked about portable water in the household, it meant whether they have installed their own source of portable water or not. In addition, if a household has got access to a basic service within a community, by definition, the community has got access to it as well.

In this section it is important to note that the percentages and conclusions are based primarily on the answers of the informants in Cipres. I did not have a control group of non-members that have received credit or official statistics on access to basic services in the different communities. Table 6-4.1 gives the percentage values of access to basic services among the informants and how it has changed:

	1	2	3	4
Basic service HOUSEHOLD	Before credit	After credit	% change	t-value
Portable water	44.4	63.9	43.9	2.497
Electricity/lights	72.2	83.3	15.4	1.673
Conventional phone	8.3	13.8	66.3	1.00
Cell phone	36.1	75	107.7	4.249
Television	66.7	91.7	37.5	3.416
Basic service COMMUNITY	Before credit	After credit	% change	t-value
Portable water	64.9	72.2	11.2	1.357
Electricity/lights	75	91.7	22.3	2.646
Conventional phone	25	44.4	77.6	2.907
Cell phone	52.8	88.9	68.4	4.448
Television	77.8	97.2	24.9	2.907

Table 6-4.1: Access to basic services before and after receiving credit, household and community level

Household level, before and after receiving credit

We see from column (1) that before receiving credit, the informants had some level of basic services. Access to electricity and television stands out as two services that many were in possession of, while the level of conventional phones in the household was low. A possible explanation for this can be the poor telephone infrastructure on the Nicaraguan countryside, as well as the initial costs of installing it in the household.

In column (2), we see that all the numbers are higher than in the corresponding percentage in column (1). What is puzzling, however, is that there is a higher percentage level on television than electricity/lights. Normally, you would need access to electricity to have a television. The reason for getting this result can be misunderstanding of the question, for example by only answering "yes" on the question concerning electricity if they have lights (lamps) in the house. Some do however have a television but no lamps. Another explanation can be battery-driven televisions, or that they connect to the neighbours' access to electricity to watch television. We see that almost 92% of the informants have got a television, which is a very high number, taking into account that they are small to medium-sized farmers with low incomes.

Column (3) shows the percentage change between (1) and (2). We see that in all cases, the percentage change is positive. The largest percentage rise is for cell phones, with 107%. The reason can be that it becomes more easily obtainable for poor people to own a cell phone, because of low prices and telephone companies who are reaching further and further into the rural areas. It also involves low initial costs, and with a prepay phone card, it is easy to manage and adjust the costs in using it. The change in access to conventional phones has also got a high percentage increase, but is still at a low level.

By looking at the t-values in column (4), it can be seen that the changes in access to portable water, cell phone and television are statistically significant. Cell phone stands out with the strongest result, with a t-value of 4.249. Conventional phone and

electricity/lights are not statistically significant. Electricity/lights however lies just below 1.64, which is the limit for being significant at the 90% significance level.

Community level, before and after receiving credit

On the community level, the access to basic services is quite high. We see that access to cell phones has increased substantially, with 52.8% of the communities having access to it before, and 88.9% after. The change in access to cell phones has a t-value of 4.448, which means that the change is statistically significant. By looking at the t-values, we see that we see that the change is statistically significant for all factors, except for portable water, which has only experienced an 11.1% increase.

When looking at the community level, we do not know the reasons for the changes. Cipres does not have any community programs, and we cannot conclude that offering credit to households within a community will increase the social development of the entire community. What can be said however, is that there has been a general positive trend in access to basic services in the communities, and use this as background information when considering the changes in the households' access to basic services.

Community versus Household level, before and after receiving credit

From Table 6-4.1 it is obvious that in all cases, there are higher levels of access to basic services on the community level than the household level. This is not a surprise, as the interviews are done in rural areas with high poverty rates and inequality among the population. By looking at the table it is also obvious that the informants have better access to basic services than the poorest part of the population, which shows that they have a certain level of development also before they receive credit. Whether this influences the effect of receiving micro-credit, is not treated in this thesis.

Table 6-4.2 shows how the difference between access to basic services in the household versus the community, have changed.

	5	6	7
Basic service	BEFORE % difference (Household- Community)	AFTER % difference (Household- Community)	Difference, %-points (5)- (6)
Portable water	-20.5	-8.3	-12.2
Electricity/lights	-2.8	-8.4	5.5
Conventional phone	-16.7	-30.6	13.9
Cell phone	-16.7	-13.9	-2.8
Television	-11.1	-5.5	5.5

Table 6-4.2 Difference between access to basic services, household versus community, before and after receiving credit.

Column (5) shows the situation before receiving credit. From the first row it is apparent that 20.5% of households within communities where at least one household had access to portable water, did not have the same access in their own home. When looking at the numbers for electricity, we see that almost all the informants living in communities with access to electricity also had access in their own home. The smaller the difference is, the more equal is the development level in the community and the household. The difference must by definition be negative in column (5) and (6), because the household cannot have access to a basic service without there being access in the community. Column (6) shows the same as (5), but after receiving credit. Column (7) shows the percentage point change between (5) and (6). A negative number means that the change in access has been larger for the households than the community, which gives an indication that the changes actually come from receiving credit, and not because of a general development on the Nicaraguan countryside. A positive number means that some communities have gotten access to a service, without the household having the same access in his home.

The table shows that for access to portable water and cell phone the difference has gone down, while for electricity, conventional phones and television it has gone up. It can be interpreted in the way that people prioritize portable water and cell phones, but

this conclusion is somehow weak, as electricity and television are basic services that many have access to both before and after receiving credit.

General conclusion

As a general conclusion, one can say that by looking separately at the household and the community level before and after receiving credit, there has been a substantial increase in the access to basic services. Especially cell phones stands out as a basic service with a large increase both on the household and community level. When considering the difference between the change in the household and the community, the difference becomes smaller for cell phones and portable water, while there are more communities that have gotten access to conventional phone, television and electricity/lights, without the households getting the same access.

6.5 Modifications

It is necessary to include some remarks on the result. There can be factors other than the credit that can have influenced these development factors, such as a general rise in the development level and technological progress. Nicaragua has had an annual GDP growth of 3.2% since 2001, and a reduction in extreme poverty from 17 % in 1998 to 15 % in 2005 (World Bank 2009).

In addition, during June and July 2008 the world market food prices peaked together with record high petroleum prices (E24 2008). These are external factors that have an impact on the economy of the peasants in Nicaragua through higher production and consumption costs. Even though higher food prices give a higher income when their production is sold, many live on subsistence level, and do not produce enough to cover the additional costs on other products. The impact will differ from region to region and family-to-family, according to the level of dependence of transportation and other petroleum costs, as well as the level of consumption over production. Some areas in Nicaragua have experienced a growth in the economy because of suitable weather conditions and a high world demand, while other areas suffer from these changes. The North- Eastern region of the country is severely affected by the climate

change, and this has a large effect on the production and the predictability of production and income of the population (mostly farmers) living in the area (OXFAM International 2009). Cipres does not have any cooperatives there.

7. Micro-Credit; A Theoretical Approach

This section is dedicated to a theoretical understanding of some of the problems that MFIs encounter when offering micro-credit to farmers in rural areas and how these problems can be resolved. It is based on problems that comply specifically with Cipres.

Moral hazard and adverse selection problems arise as a consequence of asymmetric information between the lending institution and the borrower. Monitoring in cooperatives can however be one way of coping with these types of problems. Another problem is the threat of borrowers going to other MFIs, and where the lending institution ends up losing his client. This can be solved by what is called progressive lending.

At the end of the chapter, risk in agricultural production is explained, and a simple model of insurance through flexible repayment conditions is presented.

7.1 Asymmetric Information

7.1.1 Moral Hazard

Moral hazard is what is known as incomplete information about the decisions and choices made by the borrower (Bardhan and Udry 1999: 81). The borrower decides how much work effort he puts into production, and as the size of the crop depends on his effort, the lender is unable to predict his income. The borrower can therefore state a high value of production in his loan application, to be able to obtain more credit. That creates a problem for the lender, because many borrowers will then end up not being able to repay their debts. The higher the asymmetry level of information is, the lower is the probability of repayment (Lanuza 2004).

Let us assume that the credit recipients or the farmers in this case, can choose between a low and a high effort in production. A low effort will give a low expected production, and a high effort will give a high expected production. It can be written as $EU(x_h) > EU(x_l)$, where EU is expected utility of production, and x_j denotes

production in case of high or low effort level, $j = h, l$. When signing a credit contract, the lender has to consider how much income it is reasonable to expect that the borrower will obtain, and thereafter decide how much he can borrow. The problem arises when there is a "worst" case and a "best" case of the income level, which depends on the behaviour of the farmer. The lender can only make a contract on the "best" case income if he is certain that the farmer will obtain this production level. He must therefore make the loan conditions in such a way that it is also in the interest of the farmer to give a high effort level (Bardhan and Udry 1999).

7.1.2 Adverse Selection

Adverse selection and heterogeneous clients will also create problems in credit markets. Each individual is different, and the lender needs to take that into account when considering the loan application and the lending conditions. In a situation with asymmetric information, the lender does not have sufficient information to be able to make a contract that is specific to each borrower's character. Adverse selection can also be a situation where the borrower has information about his soil, which influences the probability that he will obtain a certain production level.

Let us assume that there are two farmers, Farmer 1 and Farmer 2, who own the same amounts of land. Farmer 1 makes reasonable business decisions, where he takes all necessary considerations before the season starts. He ends up with a high production that we call x_1 . Farmer 2 does not make the right considerations before the season starts, eg. he begins planning too late, makes bad investment decisions or puts the seeds in the ground later than what he should have done. This results in a low production, x_2 , where $x_1 > x_2$. The lender does not have information about who the two different types of farmers are, so when he makes the contract, it is either based on a belief that they both behave in the same way, or he does not know which borrower has which characteristic, and makes a random guess. If the lender makes a contract and offers credit, K , according to some standard function of the amount of land (T), $K = f(T)$, he will offer equal amounts of credit to both farmers. Farmer 2 will then receive more than what he would have gotten if the lender knew his characteristics.

This can result in a loan where Farmer 2 is not able to repay, and the lender ends up losing the credit.

7.1.3 Monitoring in Cooperatives.

Close social ties between the borrower and the co-signer are essential in order to reduce the default risk (Bauer 2004).

To meet the problems of moral hazard and adverse selection, the lending institutions need to seek a way of ensuring that their members are honest and trustworthy in their repayment and loan application. They also want to make sure that they make good investment decisions. A traditional investigation of each client will lead to high monitoring costs per loan, because of the small lending amounts.

A solution is to organize their members in credit cooperatives, agricultural cooperatives or joint-liability credit groups, where the members monitor each other within the group. By organizing in cooperatives, the lending institution can take advantage of the fact that their members meet on a regular basis and know each other well. In this way, members who do not behave appropriately or according to their agreements will risk social sanctions and exclusion from the other group members. It will therefore create incentives for good behaviour, repayment and trustable information in the loan applications. It is also apparent that the smaller the groups are, the more efficient is the monitoring (Huppi and Feder 1990). In Cipres, the larger cooperatives have stricter lending conditions and collateral requirements than the smaller cooperatives, because perfect monitoring becomes more difficult to obtain if the cooperatives are large.

The cooperatives also have a risk pooling function. By giving the members the responsibility of managing the cooperative, they can share the credit risk among themselves. If some do not repay their loans, the whole cooperative will jointly suffer from the consequences, through a lower pool of credit and/or other services. It can also result in stricter lending conditions. When considering new entrants into the cooperative, they will therefore only accept people they trust, to become members of the cooperative (ibid).

Small joint-liability credit groups of four to six people are not commonly used in Nicaragua and Latin- America (Bauer 2004, Lanuza 2004), and this is neither the case for Cipres. Hence, I will neglect this aspect of micro-credit here.

7.2 Progressive Lending

One important aspect of micro-credit is that it often includes a long-term relationship between the lender and the borrower, and includes more than one loan. Of my selection of interview objects, they had borrowed between one and twenty times over a period of up to ten years.

Progressive lending is also an aspect that creates incentives of repayment. It means that the size of the loan increases with the number of loans and successful repayments. Because the borrower will have an opportunity of increasing the loans in future periods, it creates an incentive to behave well in earlier periods (Stiglitz and Weiss 1980). This can also be seen as a threat of restrictions on future credit. If one fails to repay the loan in one period, he can be faced with punishment from the lender, either by facing a higher interest rate on the next loan, being banned for some period, not being able to lend as much the next time or facing a higher collateral demand.

The first loan is usually low, because of the problem with credit constraints of the borrower. He often lacks what is needed to obtain credit in traditional commercial banks, and this in itself can create incentives of repayment, because of few outside options.

In Nicaragua they have a national system where information about all unpaid traditional loans is listed. If someone becomes “black listed” in this system, it will be difficult for them to receive credit elsewhere. Cipres is not a part of this system, and therefore needs to use other mechanisms to ensure repayment and long-term commitment. By demanding collateral, they can cope with this type of problem, but because of the varying degree of the use and value of collateral among the

cooperatives, it is also preferable to include other mechanisms, such as progressive lending.

7.2.1 The Dynamics of Progressive Lending

de Aghion and Morduch (2005:123-124) presents a simple model to show how the dynamics of progressive lending work. They assume a borrower in a two period game that initiates production after receiving credit, at a cost, b . It is assumed that he cannot produce anything without receiving credit. The value of the investment at the end of the period will have risen to some level higher than the initial cost, $g > b$. If the borrower is only going to produce in one period, there exists no incentive for him to repay his debt at this point, because he loses nothing. If the lender has an arrangement where the possibility of borrowing in the second period is dependent on a successful repayment in the first period, the borrower faces the choice between not repaying today and thereby not receiving credit in the future, or repaying today and getting access to credit in the second period. The same lack of incentives for repayments also compounds to the second period however, because in a two-period situation, the game ends there. It is assumed a discount factor, δ , on the value of credit because people are generally more interested in the value they have in the present than in the future. It is also assumed a probability, ψ , of receiving a new loan in the second period even though the repayments are not done in the first period. If the borrower does not repay his loan in the first period, his total expected return is $g + \psi\delta g$. If he decides to repay in the first period, he will obtain an expected return of $g + \delta g - R$, where R is the gross repayment including interest rates. The ψ is neglected because if he repays in the first period, he will for sure receive a loan in the next period. To make it interesting for the borrower to repay the loan in the first period, his total expected return with repayment must be at least as high as the total expected value without repayment in the first period, $g + \psi\delta g \leq g + \delta g - R$. In a definite game with two periods, the problem ends with an equilibrium solution where the borrower repays in the first period if the loan is high enough, but does not repay in the second. By extending the amount of periods to an indefinite game, however, the credit institution

can assure repayments in all periods if he offers to increase the lending amounts in the future in such a way that it will always increase the expected value.

7.3 Risk and Insurance

7.3.1 Risk in Agricultural Production

Farmers, especially in poor, rural areas in developing countries, are in a delicate position where they are extremely vulnerable to shocks. The uncertainty in agricultural decision-making is complex and must be treated in a full farm context.

The different risk aspects can be divided into groups. *Production risk* includes all types of risk that directly influence the size of the crop or the livestock. Examples are weather conditions or animal and plant disease. *Price or market risk*, include transport and petroleum-related prices, food prices and world supply and demand for agricultural products. *Institutional risk* includes political risk and the type of government policy. That can affect export and import restrictions of commodities that the farmers sell as well as access to intermediate goods needed for production. It can also affect tax and subsidy levels and credit arrangements offered by the government. *Relationship risk* includes the risk of the breaking of contracts by business partners. *Human or personal risk* concerns the farmers themselves, such as illness and death, or maltreatment of animals. *Financial risk* involves credit and interest rate risk. This only occurs if at least a part of the production is financed through borrowed capital (Hardaker et.al 2004:7).

In agriculture, the probabilities of extreme outcomes, both in a positive or a negative direction can be large, especially in areas suffering from extreme weather variations. Nicaragua lies in the Mexico gulf, a part of the world that is severely affected by the climate change. Every rainy season between June and October the number of tropical storms combined with draughts involves huge fluctuations in the income of the farmers, and therefore also difficult to predict their income.

Fluctuating weather conditions makes it difficult for the farmer to ensure a crop close to the expected level. Over time, the average crop will also tend to be lower than the expected level. This is because the devastations from severe disasters are seldom compensated by the same value of positive "surprises" (Hardaker et.al 2004: 11). Problems like these can occur if the farmers or the credit institutions operate with the level of production in "good" years without extreme weather, as the expected production level.

Risk averse consumers and expected utility

A risk averse farmer or agent has a utility of expected wealth (X) higher than the expected utility of wealth, $U(EX) > EU(X)$. As his wealth increases, he seeks to minimize his risk by choosing the safer alternative. This means that his utility function has a positive, but concave shape (Varian 2003:225).

If a situation has more than one possible outcomes, and there is a given probability of both outcomes, it is common in credit market theory to use expected utility as a measure of the utility of wealth of the consumer (LeRoy and Werner 2001, Sandvik 2003). Hardaker and Lien (2005) explains expected utility as an average, weighed by the probabilities of the utility of the different outcomes, $EU = pU(x_1) + (1-p)U(x_2)$, where p is the probability measure, $p \geq 0$.

With a von Neuman-Morgenstern expected utility, the probabilities are known.

7.3.2 Insurance

To cope with risk and problems of fluctuating and unsecure income levels, the farmers need to insure in some way.

With access to financial services, this can be done through buying a microinsurance against bad crops or death and health insurance (de Aghion and Morduch 2005). A type of insurance that is gaining growing interest is insurance against extreme weather (Morduch (2002), World Bank (2007)) However, none of these are offered by Cipres, and will not be treated further.

Farmers can also self-insure through their production and savings decisions, or the credit institution can indirectly insure their clients through particular lending conditions. A model below will further describe how Cipres offers this type of insurance.

Self- insurance

Farmers often engage in what is called self-insurance. One example is through savings. The farmers can for example save money or a part of the production. If they are met by increased or unanticipated expences, they can sell the production and spend the money. Another way of saving is through investments in livestock. If they buy a calf at a certain price one year, it will become more valuable as it grows bigger, and can be sold at a higher price later. A problem with the last two types of saving is the market risk. The prices can be fluctuating, and if these drop substantially, the farmers can end up losing on their investment. Livestock is more often used as a long-term saving, because it takes some time before the animals grow large. It is also something that many keep in addition to other types of savings, because it is used for practical purposes in production, and will therefore only be sold if it is absolutely necessary.

When it comes to self- insuring the crop, some preparations can be done to cope with risk both before and after the harvest season, *ex- ante* and *ex-post*. Ex-ante factors can be diversification of production or income- generating activities. Product diversification means that if one type of plant is more resistant to heavy rains and other plants more resistant to draughts, the farmer will through differentiation securing his production at a minimum level in either case. Diversification of income-generating activities can be to engage in off-farm work, or having a buffer saving. *Ex-post* activites are done after a crisis has occurred, and can include insurance, savings, selling livestock or other valuable farm assets, or lending from family or friends (Bardhan and Udry 1999: 94-95). A problem with the community based insurance through lending and borrowing is that the whole community is often affected at the same time.

7.3.3 A Model of Indirect Insurance Through Flexible Repayment Conditions

This model aims to explain more thoroughly how Cipres offers their members a type of insurance through flexible repayment arrangements. For Cipres such insurance will induce higher risk of repayments, but by offering better credit conditions than other micro-credit institutions, it will contribute to securing a long-term commitment of their members. According to the informants, the flexible repayment arrangement is one of the main reasons why they chose to receive credit from Cipres and not any other credit institution. All micro-credit institutions are neither capable of offering this type of insurance, because it requires good knowledge of agricultural production as well as closeness to and monitoring of their members and the climatic situation in the area.

The base case scenario shows the behaviour and demand for credit for a risk averse farmer. The next looks at how the farmer adjusts in a situation where he faces a probability of degradation of the land, and Cipres offers to postpone repayments. After that follows a section on how the amount of credit and insurance is affected if the farmers become more vulnerable to climatic volatility.

Base Case

Let us assume that the happiness of the farmers can be explained by utility. In a very simplified form, we can say that utility depends on the size of the harvest, H , the size of the credit, K , and the price of credit, namely the interest rate, i . For now, I assume that the interest rate is constant. The utility is assumed to look like the following:

$$U = U(H, K, i) = \frac{1}{1-\mu} (H - iK)^{(1-\mu)} \quad (1)$$

Let us assume that the farmers are risk averse, and have a constant relative risk aversion. This means that the form of the marginal utility function can be written $U'(x) = x^{-\mu}$.

Utility of the farmer has a positive relationship to the size of the harvest. The farmer will however not be in favour of raising the level of the harvest infinitely, so there is a positive relationship between U and H , but to a decreasing degree. The interest rate has a negative relationship with utility, because if it increases, the cost of receiving a loan goes up. The level of credit is what we will investigate further.

I assume that the level of the harvest is dependent on the amount of credit and the amount of land, T (terrain). Credit will improve the harvest through investments in fertilizers, good quality seeds, and equipment necessary to utilize the soil better. The amount of land is positive with regards to the harvest size, as one cannot produce anything without land. How much land the farmer has, is considered to be constant and exogenously given. The expression of harvest will hence be a function of credit and land:

$$H = F(K, T) \quad (2)$$

Both factors will marginally raise the harvest, but to a declining degree; $\frac{\partial H}{\partial K}, \frac{\partial H}{\partial T} > 0$ and $\frac{\partial^2 H}{\partial^2 K}, \frac{\partial^2 H}{\partial^2 T} < 0$. I also assume that production cannot be zero, meaning that $H = F(0, T) > 0$. Inserting this into (1) yields:

$$U = \frac{1}{1-\mu} [F(K, T) - iK]^{(1-\mu)} \quad (1')$$

As a base case I want to see how an increase in credit affects the utility level of the farmer, in a situation where there are no constraints on credit. I do this by finding the partial derivative of utility with respect to credit. The first order condition will be

$$\frac{\partial U}{\partial K} = [F(K) - iK]^{(-\mu)} (F' - i) = 0 \quad (3)$$

In an optimal allocation, the farmer will adjust such that his marginal production is equal to marginal cost, ($F' = i$). This is where the first order condition will be equal to zero. F' reflects the marginal change of utility if credit increases. It is positive, which

indicates that because of increased production it will always be positive for the farmer to receive more credit, as long as the net benefit is at least zero.

Insurance in Case of Degradation

I will now look at a situation where the credit institution, here Cipres, offers a type of insurance on credit. They have a special repayment arrangement, where the farmers can postpone their repayment if they have gotten a low harvest and are unable to pay their debt at the scheduled date. If this happens, Cipres will call in to a meeting with the affected farmer, where he can explain himself. Then they will make a new repayment schedule. How strict Cipres behaves, vary from region to region, but here I will only consider a short run case, where the farmer does not lose anything if there is a bad harvest. I will look away from the moral hazard aspect where p is endogenously given by the effort of the farmer, and assume that every farmer does his best. This is because Cipres do generally not have any problems with repayment. They have a follow-up on all loans, and all credit applicants are expected to make detailed investment plans that must be accepted by Cipres before they receive their credit.

I assume that the harvest has two possible outcomes: degradation or no degradation of the crop. p is the probability of degradation, and $(1-p)$ is the corresponding probability of no degradation. p is exogenously given, and includes the probability of extreme weather conditions, illness of plants or farmers or other random factors that influence the harvest.

In case of no degradation, I assume that the farmers get a utility like the expression in (1), marked with an n for no degradation. This is a situation where the farmers get a good harvest. In case of degradation, I assume that the farmers get a low harvest, marked with a d for degradation. θ_s is a constant, which measures the productivity of each state, $s = d, n$. I assume that $\theta_d < \theta_n$.

An expression of expected utility will then be given as:

$$EU = p(U_d) + (1-p)(U_n)$$

I insert for the utility in case of degradation and no degradation:

$$EU = p \left[\frac{1}{1-\mu} [\theta_d F(K) - i_d K]^{(1-\mu)} \right] + (1-p) \left[\frac{1}{1-\mu} [\theta_n F(K) - i_n K]^{(1-\mu)} \right]$$

I assume that $i = i_n$ in case of no degradation, $i = i_d$ in case of degradation. Because Cipres can offer to expand the repayment plan if something happens to the harvest, I assume that the interest rate in case of degradation is zero, $i_d = 0$. This means that in the short run they will not have to repay their loan, so $i_d K$ is dropped:

$$EU = p \left[\frac{1}{1-\mu} [\theta_d F(K)]^{(1-\mu)} \right] + (1-p) \left[\frac{1}{1-\mu} [\theta_n F(K) - i_n K]^{(1-\mu)} \right] \quad (4)$$

Maximizing EU with respect to credit gives the maximizing problem:

$$\text{Max} EU_K = p \left[\frac{1}{1-\mu} [\theta_d F(K)]^{(1-\mu)} \right] + (1-p) \left[\frac{1}{1-\mu} [\theta_n F - i_n K]^{(1-\mu)} \right]$$

$$\frac{\partial EU}{\partial K} = p [\theta_d F]^{(-\mu)} \theta_d F' + (1-p) [\theta_n F - i_n K]^{(-\mu)} (\theta_n F' - i_n) = 0 \quad (5)$$

$$\frac{p}{(1-p)} = - \frac{[\theta_n F - i_n K]^{(-\mu)} (\theta_n F' - i_n)}{[\theta_d F]^{(-\mu)} \theta_d F'}$$

$$\frac{p}{(1-p)} = - \left[\frac{x_n}{x_d} \right]^{(-\mu)} \frac{(\theta_n F' - i_n)}{\theta_d F'} \quad (6)$$

$\frac{p}{1-p}$ is the relative probability of degradation. It will always be positive, because p is

between zero and one. The term $\left[\frac{x_n}{x_d} \right]^{(-\mu)}$ measures the relative production. $\frac{(\theta_n F' - i_n)}{\theta_d F'}$

is the relative marginal production. Because of the negative sign on the right side of (6), it requires that $\theta_n F' < i_n$. This means that when the farmer is maximizing expected utility with respect to credit, he will end up at a lower credit level than in the base case, where we ignored the probability of the different outcomes.

From (4), we see that in case of an increased p , the probability weighted expected production level in bad times, will go up, if all other factors are kept constant. But since the production levels in each case are different, $x_d < x_n$, the total expected utility, EU , will decline. A necessary condition is that the difference between x_d and x_n is large enough to outweigh the change in p . I assume that this is the case, because otherwise there would not be any incentives to offer or receive credit.

Increased Probability of Extreme Weather Conditions; Effects on the Level of Credit and Insurance

Because Nicaragua lies in an area that is notably affected by the climate changes, I want to look at a situation where the probability of bad weather and degradation of the land, rises. How does this affect the credit and interest rate decisions of the lender? From (5) we have that

$$\frac{\partial EU}{\partial K} = p[\theta_d F]^{(-\mu)} \theta_d F' + (1-p)[\theta_n F - i_n K]^{(-\mu)} (\theta_n F' - i_n) = 0$$

I use this to consider a marginal rise in p , on the level of credit:

$$\frac{\partial K}{\partial p} = \frac{EU_{Kp}}{-EU_{KK}} \quad (7)$$

Differentiating (5) with respect to a marginal rise in p yields

$$EU_{Kp} = [\theta_d F]^{(-\mu)} \theta_d F' - [\theta_n F - i_n K]^{(-\mu)} (\theta_n F' - i_n)$$

When considering the direction of the change in credit, we have to look at the size of EU_{Kp} . By definition, the total value of the denominator is positive because of the shape of U. If the change in marginal utility of production in case of degradation is smaller than in case of no degradation, $[\theta_d F]^{(-\mu)} \theta_d F' < [\theta_n F - i_n K]^{(-\mu)} (\theta_n F' - i_n) \rightarrow EU_{Kp} < 0$, the value of (7) will be negative. That implies a higher credit level. If $EU_{Kp} > 0$, it implies a lower credit level. The optimal level of credit, K^* , will hence be where the change in marginal utility of production in case of degradation is equal to the change in case of no degradation:

$$[\theta_d F]^{(-\mu)} \theta_d F' = [\theta_n F - i_n K]^{(-\mu)} (\theta_n F' - i_n) \quad (8)$$

Cipres' role

What can Cipres do in this situation? In this model, Cipres' only decision variables are the credit and the interest rate. Above we get the result that the worse the effects of the climate changes are on the size of the crop, the less credit is optimal to offer. Since it is obvious that the climate changes in the Central American region is not a preferable situation for many of the farmers in the area, this implies that in the long-run, Cipres will stop offering credit. That is not a sustainable micro-credit system.

What Cipres can do, however, is to lower the interest rate. By lowering i_n , the value of $[\theta_d F]^{(-\mu)} \theta_d F' = [\theta_n F - i_n K]^{(-\mu)} (\theta_n F' - i_n)$ will have a higher value, and K^* increases.

It is important to note that this is a very simplified answer, and that offering credit is not the only solution to the increased probability of degradation of land. In the real world, there are more than two possible scenarios, and Cipres can work with lowering the scope of devastations if a crisis incure, meaning to obtain a higher value on the left side of (8). This can be for example be done through diversification of production or investigation on seeds that are more persistent to extreme weather. By doing this, they contribute to minimizing the costs for the farmers if something has already occurred, and thereby also increase the probability of repayment of the loans.

8. Conclusion

This thesis has explained how an NGO in Nicaragua works with micro-credit, and investigated how this has influenced the credit recipients. It has looked at aspects that are specific to rural areas and showed that credit must be adjusted to the borrower in order to obtain a long-term sustainable relationship between the lender and the credit recipient.

It has been seen that micro-credit has had a positive impact on the local social development among the members of Cipres, especially concerning income-related factors, social factors and saving. Access to basic services has also increased following the credit. The successfulness is influenced by the lending conditions and organization of Cipres, which motivates the credit recipients to stay in the organization over time. There have however not been a control group of farmers outside of Cipres, so the conclusions must be put into this specific context.

Moral hazard and adverse selection problems arising from asymmetric information between the lender and the borrower, is solved by organizing the members of Cipres in cooperatives and taking advantage of the close relationship they have with each other. Cipres also offer progressive lending as a motivation to stay in the organization. The risk aspect of agricultural production is important in Nicaragua, and Cipres also consider this when arranging contracts. By offering flexible repayment arrangements, it will work as a type of income insurance in case of climatic difficulties.

Overall, there is in the interest of the lender to offer lending conditions that motivates the borrower to be loyal. In the long run this will give both satisfied clients and lenders.

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Attachment I

Análisis de Registros Cartera por Cobrar

EVALUACION DE MOROSIDAD DE LA CARTERA GLOBAL

Impreso : 10/08/2008
Hora : 11:29

Fecha de Corte : 30/04/2008

CARTERA AFECTADA				Amortizaciones			PERDIDA		CREDITOS	
ANTIGUEDAD	ANTIGUEDAD	MULTIPLES	TOTAL	% RIESGO	VENCIDAS	ESTIMADA	TOTAL	MUJERES		
0 0 dias (Limpios)	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0	0	
1 1 a 30 dias	140.142,22	282.070,18	422.212,40	1,00	96.198,73	4.222,12	12	4		
2 31 a 60 dias	113.727,40	135.636,88	249.364,28	2,00	92.542,35	4.987,29	10	2		
3 61 a 90 dias	27.320,82	0,00	27.320,82	10,00	22.820,82	2.732,08	0	8		
4 91 a 180 dias	124.934,64	0,00	124.934,64	25,00	67.172,99	31.233,66	5	4		
5 181 a 360 dias	110.074,60	46.517,76	156.592,36	50,00	58.962,10	78.296,18	8	0		
6 361 a mas dias	4.600,78	0,00	4.600,78	100,00	4.600,78	4.600,78	2	0		
TOTALES :	520.800,46	464.224,82	985.025,28		342.297,77	126.072,11	37	18		

CREDITOS TOTALES :	675	NUMERO DE CREDITOS :	698
STOP DE CARTERA TOTAL :	9.348.899,75	499,00 en 283,00 Hombres	
% DE MORA TOTAL :	3,66 %	199,00 en 122,00 Mujeres	
CARTERA AFECTADA >30 DIAS :	2,63 % = C\$ 246.099,04	CREDITOS AFECTADOS :	60,00
CARTERA AFECTADA TOTAL :	3,66 %	41,00 en 36,00 Hombres	
PERDIDA POTENCIAL :	1,35 %	19,00 en 18,00 Mujeres	
CARTERA CORRIENTE :	8.828.099,29	CREDITOS RESTRUCTURADOS :	32,00
% CARTERA CORRIENTE :	94,43 %	CREDITOS PRORROGADOS :	0,00
CARTERA RESTRUCTURADA :	1.111.275,13		
% CARTERA RESTRUCTURADA :	11,89 %		
CARTERA PRORROGADA Y/O RESTITUCION DE PLAZO :			
C\$:			

INFORMACION DE DIRECTIVOS

DIRECTIVOS CON PRESTAMOS :	0	SALDOS VENCIDOS DE DIRECTIVOS :	
PRESTAMOS A DIRECTIVOS :		CARTERA AFECTADA :	
PRESTAMOS A DIRECTIVOS EN MORA :		% CARTERA AFECTADA :	
CARTERA EN LA DIRECTIVA :			

Página 1 de 1
Sistema de Cartera y Cobro "SISTEMATICOMP"

Análisis de Registros Cartera por Cobrar

EVALUACION DE MOROSIDAD DE LA CARTERA GLOBAL

Impreso : 08/04/2008
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CARTERA AFECTADA				Amortizaciones			PERDIDA		CREDITOS	
ANTIGUEDAD	ANTIGUEDAD	MULTIPLES	TOTAL	% RIESGO	VENCIDAS	ESTIMADA	TOTAL	MUJERES		
0 0 dias (Limpios)	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0	0	
1 1 a 30 dias	65.502,79	0,00	65.502,79	1,00	63.335,21	655,03	2	4		
2 31 a 60 dias	101.353,65	0,00	101.353,65	2,00	35.358,47	2.027,07	4	2		
3 61 a 90 dias	29.300,05	0,00	29.300,05	10,00	18.633,42	2.930,01	2	2		
4 91 a 180 dias	77.357,89	51.917,76	129.275,65	25,00	54.191,24	32.318,91	6	0		
5 181 a 360 dias	15.538,10	6.566,00	22.104,10	50,00	15.538,10	11.052,05	5	0		
6 361 a mas dias	344,39	0,00	344,39	100,00	344,39	344,39	1	0		
TOTALES :	289.396,87	58.483,76	347.880,63		187.400,83	49.327,46	20	8		

CREDITOS TOTALES :	633	NUMERO DE CREDITOS :	667
STOP DE CARTERA TOTAL :	10.345.028,88	475,00 en 279,00 Hombres	
% DE MORA TOTAL :	1,81 %	192,00 en 122,00 Mujeres	
CARTERA AFECTADA >30 DIAS :	1,20 % = C\$ 124.065,62	CREDITOS AFECTADOS :	29,00
CARTERA AFECTADA TOTAL :	1,81 %	20,00 en 19,00 Hombres	
PERDIDA POTENCIAL :	0,48 %	9,00 en 8,00 Mujeres	
CARTERA CORRIENTE :	10.055.632,01	CREDITOS RESTRUCTURADOS :	0,00
% CARTERA CORRIENTE :	97,20 %	CREDITOS PRORROGADOS :	0,00
CARTERA RESTRUCTURADA :			
% CARTERA RESTRUCTURADA :			
CARTERA PRORROGADA Y/O RESTITUCION DE PLAZO :			
C\$:			

INFORMACION DE DIRECTIVOS

DIRECTIVOS CON PRESTAMOS :	0	SALDOS VENCIDOS DE DIRECTIVOS :	
PRESTAMOS A DIRECTIVOS :		CARTERA AFECTADA :	
PRESTAMOS A DIRECTIVOS EN MORA :		% CARTERA AFECTADA :	
CARTERA EN LA DIRECTIVA :			

Página 1 de 1
Sistema de Cartera y Cobro "SISTEMATICOMP"

Análisis de Registros Cartera por Cobrar

EVALUACION DE MOROSIDAD DE LA CARTERA GLOBAL

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ANTIGUEDAD	CARTERA AFECTADA				Amortizaciones VENCIDAS	PERDIDA ESTIMADA	CREDITOS	
	ANTIGUEDAD	MULTIPLES	TOTAL	% RIESGO			TOTAL	MUJERES
0 0 dias (Limpios)	0.00	0.00	0.00	0.00	0.00	0.00	0	0
1 1 a 30 dias	154,976.80	166,253.37	321,230.17	1.00	114,267.17	3,212.30	12	3
2 31 a 60 dias	73,035.22	0.00	73,035.22	2.00	61,635.22	1,460.70	2	10
3 61 a 90 dias	106,353.65	0.00	106,353.65	10.00	46,974.03	10,635.37	5	2
4 91 a 180 dias	79,531.38	46,517.76	126,049.14	25.00	66,614.76	31,512.29	5	2
5 181 a 360 dias	38,664.66	0.00	38,664.66	50.00	31,164.66	19,332.33	7	0
6 361 a mas dias	344.39	0.00	344.39	100.00	344.39	344.39	1	0
TOTALES :	452,906.10	212,771.13	665,677.23		321,000.23	66,497.38	32	17

CREDITOS TOTALES :	648		NUMERO DE CREDITOS :	670	
STOP DE CARTERA TOTAL :	9,746,243.95			477.00 en 280.00 Hombres	
% DE MORA TOTAL :	3.29 %			193.00 en 122.00 Mujeres	
CARTERA AFECTADA >30 DIAS :	2.12 %	= C\$ 206,733.06			
CARTERA AFECTADA TOTAL :	3.29 %				
PERDIDA POTENCIAL :	0.68 %		CREDITOS AFECTADOS :	50.00	
CARTERA CORRIENTE :	9,293,337.86			32.00 en 29.00 Hombres	
% CARTERA CORRIENTE :	95.35 %			18.00 en 17.00 Mujeres	
CARTERA RESTRUCTURADA :			CREDITOS RESTRUCTURADOS :	0.00	
% CARTERA RESTRUCTURADA :			CREDITOS PRORROGADOS :	0.00	
CARTERA PRORROGADA Y/O RESTITUCION DE PLAZO :					
C\$:					

INFORMACION DE DIRECTIVOS

DIRECTIVOS CON PRESTAMOS :	0	SALDOS VENCIDOS DE DIRECTIVOS	
PRESTAMOS A DIRECTIVOS :		CARTERA AFECTADA :	
PRESTAMOS A DIRECTIVOS EN MORA :		% CARTERA AFECTADA :	
CARTERA EN LA DIRECTIVA :			

Attachment II

Questions:

- 1) Name
- 2) Name of cooperative + central
- 3) Age
- 4) Gender
- 5) Sivil status- Married/not married
- 6) Occupation
- 7) Number of children
- 8) Number of children living with you
- 9) Number of people in the household

- 10) Source of income: Agriculture, Commerce, Livestock/Animals, Remittances, Other(what?), None
- 11) How many earns an income in your household?
- 12) What is your monthly income?
- 13) What is the monthly income of the household?
- 14) Are you able to predict your income; tomorrow, next week, next month, next year, no.
- 15) After receiving the loan, your ability to predict you income is; Easier, The same, Worse
- 16) Do you receive remittances? From family members abroad, from Nicaragua, Other(specify)
- 17) Range in order of priorities, how you spend your income; Food, Clothes, Housing improvement, Schooling, Production/Inputs, Other(health, electricity, water etc)

- 18) Do you save?
- 19) Your possibilities of saving after receiving loans, are: Better, The same, Worse

- 20) How many times have you received loans from Cipres?
- 21) How much did you receive each time?
- 22) What did each of your loans go to?
- 23) Where you able to repay every loan according to the repayment plan?
- 24) How long was the repayment time scheduled to?
- 25) What was the monthly interest rate?

- 26) Is your experience with credit what you expected it to be? Yes, No
- 27) How did you get in contact with the financier?
- 28) Do you consider your income to increase in the future, after investing the money?
- 29) Did you receive teaching in how to invest your money?
- 30) In what form?
- 31) Have you received credit from another financial institution? Which one? How much? How many times? For what?
- 32) Why did you want to borrow from Cipres?

- 33) Do you know how to read? Write?
- 34) Level of schooling?
- 35) If you have children- how many of them go to school?

- 36) How many boys? How many girls?
- 37) What is the level of schooling of each of you children?
- 38) The school is; Public or Private?
- 39) How much does it cost to send one child to school for one year?
- 40) The possibilities of sending your children to school after receiving loans, are;
Better, The same, Worse
- 41) Have you got access to health care?
- 42) Your access to health care, after receiving loans, are; Better, The same, Worse
- 43) Have you been a member of a civil or political organization before receiving loans?
- 44) Did you become a member in a new organization after receiving loans?
- 45) Access to basic services; Portable water, Electric lights, Conventional telephone,
Cell phone, Television
- i) before the loan; in the household
- ii) before the loan; in the community
- iii) after the loan; in the household
- iv) after the loan; in the community
- 46) For agriculture: Did you have; Tractor, Desgranador(for corn), Recolector(for beans),
Seeds, Fertilizers:
- i) before the loans?
- ii) after the loans?
- 47) For commerce: Did you have your shop before receiving the loan?
- 48) What did you improve after receiving the loans?
- 49) Before receiving loans, your house, farm or the place you live, where;
Rented, Your own property, Owned by a family member, Other(specify)
- 50) After receiving loans, your house, farm or the place you live, is;
Rented, Your own property, Owned by a family member, Other(specify)
- 51) Your quality of life with the credit is; Better, The same, Worse