



III COLOQUIO PREDOCTORAL IBEROAMERICANO

Influencing Factors on Productive Micro Credit in Brazil

Por

FELIPE ZAMBALDI
Doctoral Candidate

Advisor
Prof. Dr. Francisco Aranha

Fundação Getulio Vargas
Escola de Administração de Empresas de São Paulo
Brazil

SUMÁRIO

INTRODUCTION	3
1 INTRODUCTION AND RELEVANCE	3
2 OBJECTIVES	5
2.1 FIRST STAGE	5
2.2 SECOND STAGE	6
2.3 OBJECTIVE OF THE SURVEY.....	6
2.4 SECONDARY DATA SOURCE	6
3 KNOWLEDGE REVIEW	7
3.1 MICRO CREDIT.....	7
3.1.1 <i>Productive Oriented Micro Credit</i>	8
3.2 CREDIT RATIONING.....	8
3.2.1 <i>Risk of Delinquency</i>	8
3.2.2 <i>Transaction Cost</i>	9
3.2.3 <i>Conclusion of the Credit Rationing Theory</i>	10
3.2.4 <i>Formulation of Hypotheses</i>	10
3.3 ORIENTED PRODUCTIVE MICRO CREDIT AS SPECIAL MODALITY OF CREDIT GRANT11	
3.4 COSTS OF ENTRY AND ADAPTATION	11
4 METHODOLOGY AND RESEARCH STRATEGY	12
4.1 OPERATING THE INDICATORS.....	12
4.1.1 <i>First Stage</i>	12
4.1.2 <i>Second Stage</i>	12
4.2 HYPOTHESES TESTS.....	12
4.2.1 <i>First Stage – Hierarchic Linear Model of Logistic Regression</i>	12
4.2.2 <i>Second stage – Time Series Regression</i>	14
5 PROJECT FLOW CHART	16
BIBLIOGRAPHIC REFERENCES	17

INTRODUCTION

This research is featured as part of the project called **Program of Integrated Research: Micro credit for Low Income Families of the Municipality of São Paulo**, a program officially supported by Gvpesquisa, under the tutorship of Professor Francisco Aranha. The group involved in the project consists of three professors, five doctorate students, and two graduate students, currently taking their Master's at FGV-EAESP.

The program is mostly concerned with the identification of resources as well as the characterization of the target families at low income standards, in view of their social and economic levels plus the consumption potential; methodologies for assessment and granting credit to such segment; the ends to which the families are willing to use the funds; the implications and the limitations of using such funds; and impacts upon the welfare of the borrowers. In light of that context, the following Doctorate Thesis is proposed:

1 INTRODUCTION AND RELEVANCE

According to the Global Report issued by the Entrepreneurship Monitor (2002), it is estimated that, in Brazil, one out of seven income earning citizens, engaged in some type of entrepreneurial activity in the year 2002. According to data containing in Annual List of Social Information released by the Labor and Employment Ministry in 2000, 93% of all the job generating corporations in the country were those of small and micro size, responsible for about 20% of the Gross Domestic Product (GDP) and 53% of formal jobs in Brazil (SEBRAE, 2000).

The entrepreneurial activity shows potential for innovation in management and marketing, mainly concerning small size enterprises therefore meeting the demands of the sections with low concentration of commercial and productive activities (SCHUMPETER, 1961). Credit is paramount for the micro entrepreneurial activity for its economic contribution to the development of small productive units. (LUCAS, 1995).

The oriented productive micro credit, a type of credit which aims to meet the demand for financing given to small productive units (BANCO CENTRAL DO BRASIL, 2004), is regarded as a means of granting access to the credit system to poor families therefore enabling them to develop and maintain small enterprises (PARENTE, 2002) as well as fostering economic activity. (KHANDLER, 1995).

Although Brazil shows an estimated demand of about 8,2 million of entrepreneurs for oriented productive micro credit (CHRISTEN, 2001), and social and economic conditions that point to the necessity of offering those services (MEZZERRA, 2002), only 2% of such demand are met (BRUSKY, 2002; BRUSKY

e FORTUNA, 2002). The poor do not have the guarantees required to give access to loans, which irretrievably excludes them from the credit market. (ROCHA, 2001).

Some of the explanations to the weak performance of the Brazilian micro credit are: unstable macro economic environment, inadequate and traditionally characterized by the lack of support to micro credit; the absence of a successful case that could be a model for business practices and development of self-sufficient micro credit, or worthy of attracting funds and fostering investment from the private sector (SCHONBERGER, 2000; HAUS, WINOGRAD e SALLES, 2002).

There are Brazilian micro credit programs that operate at low rates of delinquency, but are faced with high costs originated from surveying agencies that are in turn, pressed upon by the costs imposed by credit brokers, such is the case of Crediamigo of Banco do Nordeste, an operation sponsored by the government (MOURA e DURKIN, 2003). The issue of the cost of the micro credit productive programs in the country is not only about the surveying costs; to grant small loans at large scale means higher operational costs than those regularly given through the usual means of our financial system. (NAQVI e GUSMÁN, 2004). The interaction between the rate of risk and the transaction costs leads to a credit rationing situation, considering that as far as the lines of credit are concerned, the outcome of the increase in offer is smaller than that of the rationing (RAY, 1998). The theoretical definition of credit rationing, and its implications, will be discussed further in item 4.2. of this project.

Although granting credit to low income entrepreneurs is not warranted by the sheer potential for generating profit as we know it, it does meet the purposes of social inclusion and utilitarian solidarity which motivated the creation of many of those programs (JUNQUEIRA e ABRAMOVAY, 2005). They aim at reaching the level of a sustainable operation, that means to thoroughly cover the costs generated by the procedure, (MOURA e DURKIN, 2003), even if not operating at the ideal return, as shown by international experiences such as the one with the Grameen Bank em Bangladesh (PARENTE, 2002). Created in 1976, the Grameen Bank consists of a loan system on mutual trust, collective participation and e innovation (PEPALL, 1998), showing results that indicate accomplishment of sustainable operations as well as expansion. (KHANDLER, 1995); There are over de 160 replications of the Grumman Bank, in more than 40 countries, with distinction to the experience made in Bolivia (CHRISTEN, 2001; GONZALEZ-VEJA *et al*, 1997).

For the micro credit institutions, the current challenge is to decrease the imperfections that prevent poor families from having access to credit and to make structural changes concerning distribution of funds to urban and rural dwellers. (BRUSKY, 2002; CHRISTEN *et al*, 2001). Therefore, this project seeks to understand the existing differences in the criteria applied when granting credit to low income entrepreneurs through oriented productive micro credit and the traditional programs of productive credit, as well as to verify the sustainability of

oriented productive micro credit within the Brazilian context, therefore configuring questions relevant for research.

2 OBJECTIVES

The project is divided in 2 stages with distinct objectives, which shall be presented as follows.

2.1 First Stage

The main purpose of this project is to verify the existing differences in the criteria applied when granting credit to low income entrepreneurs through oriented productive micro credit and the traditional programs of productive credit for small enterprises, focusing on the differentiation classified by initiatives from the private sector and the governmental agencies. This main objective will be addressed in the first stage of the project..

Illustration 1, as follows, systematically synthesizes the relations issued in the first stage, whose theoretical formulation will further be explained in detail in item 3.2.4:

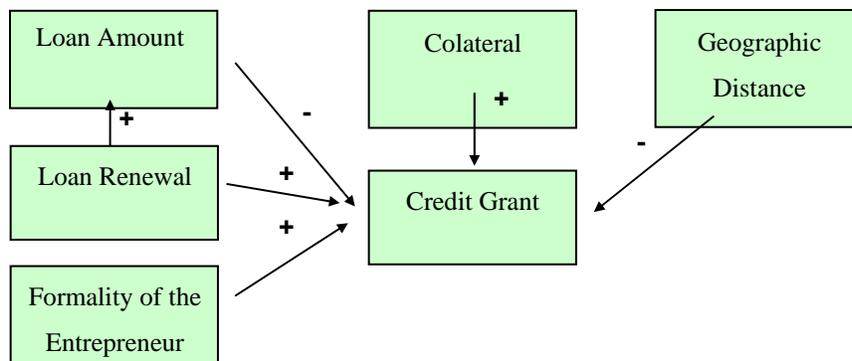


Illustration 1: Relations between the Variables Considered in the First Stage of the Survey

Source: the author (2005).

2.2 Second Stage

As a second objective, there is the specific case of a Brazilian program of oriented productive micro credit, Microinvest, during its active participation in the market, that is, since October 2003, examining the conditions that make it a sustainable program, with growing return, aiming at surveying the its operational viability. Such objective shall be approached in the second stage of the project.

Illustration 2, as follows, systematically synthesizes the relations issued in the second stage, whose theoretical formulation will be shown further, in item 3.4:

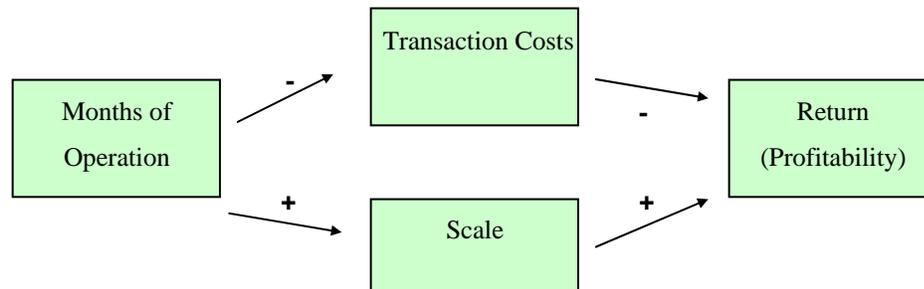


Illustration 2: Relations between the Variables Considered in the Second Stage of the Survey

Source: the author (2005).

Ahead, the objective of the survey as well as the data source that will be used in each stage.

2.3 Objective of the Survey

The objective of the first stage of the survey is represented by the whole of productive credit applications in traditional markets of small and medium size, and in markets of oriented productive micro credit, focusing on the comparison. Yet the universe presented in the second stage is concerned with programs of oriented productive micro credit, as we know them.

The data source to be used is described as follows.

2.4 Secondary Data Source

Three applications for loans from Brazilian programs of productive credit will be used as sample units of the first stage:

- 1) Microinvest, a joint venture between Unibanco group and the World Bank for granting oriented productive micro credit with profit interest, representing a sustainable program with growing profitability. The feature of such program is warranted by the access to data made available to the researcher, besides being a program widely present in the states of São Paulo, Rio de Janeiro and Rio Grande do Sul, regions that concentrate a large portion of the economically active population of the country. Besides, it is one of the main initiatives in Brazil of oriented productive micro credit for the private sector.
- 2) Crediamigo, the program of oriented productive micro credit of Banco do Nordeste and sponsored by the Government, is responsible for 60% of the offer for this type of credit in Brazil. It is of paramount importance to rely on data provided by Crediamigo, since it is the largest Brazilian program of oriented productive micro credit, being the biggest of the public sector.
- 3) The program of traditional credit for small and middle size entrepreneurs of a large wholesale bank whose identity will be preserved. This program must be featured in the survey for control purposes, since it will accurately show the universe of regular credit grant in the country, working as a reference for differentiating the criteria upon granting oriented productive micro credit. It is an institution with large-scale national operation.

The intention is to cast draw 400 random sample cases of each program, considering the amount of credit applications available. Applications will be selected as of October 2003, which is the date that Microinvest officially started its operation, saving the other programs for further analysis so that observations can be compared under equivalent time standards. The collection will be done consulting the secondary data available in the programs data bank; however, to ensure the reliability of the variables, around 30% of the proposals are paper based, in order to facilitate the accuracy check of the typing as well as the criteria used when conveying information to the data bank.

In the second stage, accounting data form Microinvest will be used organized by the months of the operation.

3 KNOWLEDGE REVIEW

Next, the main concepts used in this survey, the inter relations and their theoretical implications as well as the hypothesis to be probed along the project.

3.1 Micro credit

According to the president of the World Bank, James D. Wolfesohn, “micro credit is the offer of financial services to those usually excluded from the traditional financial system.” (JANSSON e TABORGA, 2002); the term “excluded” refers to

low income individuals, with few assets and practically no access to traditional credit tools (SEN, 1998; PARENTE, 2002). Micro credit grants poor families the means to reduce the risks of becoming even poorer, likely below the bread line (BARNES, 2001), representing an additional aid in diversifying the source of income and the acquisition of assets for those families. (PARENTE, 2002).

3.1.1 Productive Oriented Micro Credit

Lucas (1988), 1995 Economics Nobel Prize winner, states that micro credit means a relevant contribution for the development of small productive units, being that, the smaller the enterprise, the larger inflow of capital will be in terms of marginal contribution. Likewise, Khandler (1995) supports that focus of micro credit must be the development of small productive units are formal or informal.

The Brazilian Central Bank establishes that micro oriented productive credit is the credit aimed at entrepreneurs owners of productive units with less than 5 employees and annual revenues of less than 220 thousand Reals (BANCO CENTRAL DO BRASIL, 2004). Such is the definition adopted for the target the public which consists the subject matter of this project.

3.2 Credit Rationing

Next, are the theoretical formulations of credit rationing and their implications. They constitute the theory basis for the research hypothesis proposed in the project.

3.2.1 Risk of Default

Stiglitz and Weiss (1981) argue that the credit market experience an excess level of demand where credit institutions are mainly concerned with the interest rate over the amount loaned and the default risk that the contracts of credit represent. The authors argue that, in the instance when the demand for credit surpasses the offer, high interest rates will mostly attract borrowers with great likelihood for delinquency, and whose ventures will hardly reach satisfactory levels of profitability to cover the cost of capital investment.

Becker and Murphy (2001), in turn, point that the interest rate works as a restriction of credit device when considering the risk aspect: the smaller the rate, the smaller is the indication of risk, therefore more selective and less inclusive in terms of offering is the credit grant. The more determined and less fearful borrowers, however, accept high interest rate loans, which makes the credit institutions become skeptical about likelihood of payment. That is a case of

adverse selection, resulting from a market with distinct borrowers whose affordability levels lead to the unknown. (AKERLOF, 1970). Besides the skepticism concerning the affordability, there is also the moral risk (MILGROM e ROBERTS, 1992) – the likelihood that the borrower will pay back or even use the funds to ends not informed to the lending institution. (RAY, 1998; TASIC, 2004).

Among the obstacles which prevent the national microcredit programs to expand, we observe the traditional financial institutions reluctance to include non-regular borrowers in their credit portfolio, because the poor can't provide many collateral guarantees, and that really excludes them from the market. (ROCHA, 2001, DICHTER, 2002). One of the main problems faced by microcredit programs is the of credit modeling, specially when they are compared to regular programs. There is some risk resulting from the lack of information about de credit behavior of the poor, particularly related to the way the resources provided by the lending activities will be applied – the so called moral hazard – and payment decisions or capacity (TASIC, 2004).

59% of the rejected lending proposals to small enterprises in 1999 were due to insufficient collateral guarantees or documentation (SEBRAE-SP/Fipe, 1999), mostly for irregular business (IBGE, 1999). Credit behavior indicators regarding those enterprises are needed, particularly those which aren't related to documents and guarantees that are usually unavailable (TASIC, 2004).

3.2.2 Transaction Cost

There are ways to ensure the fulfillment of payment, even if it means to soften the requirements such as documents and information; the purpose is to incentive the payment of credit contracts (MACHO-STADLER e PÉREZ-CASTRILLO, 2001); in general, if the relationship between the borrower and lending institution tends to be reenacted, or if the institution is able to punish in case of breach of contract for delinquency, or even, if it can prevent him from being given new loans by divulging his bad reputation, the borrower will still be granted with incentives to fulfill his debts. (MACHO-STADLER e PÉREZ-CASTRILLO, 2001). However, such incentives inevitably lead to further information and monitoring expenses (MACHO-STADLER e PÉREZ-CASTRILLO, 2001; RAY, 1998).

A way of incentive is to grant small loans, that besides being less risky, encourage the borrowers to get new loans (RAY, 1998). Furthermore, the renewal of small loans tends to establish a long-term relationship between lender and borrower, encouraging the borrower to rebuild his credibility becoming eligible for bigger loans. This is strategy of inclusion with low cost of information and monitoring. (RAY, 1998).

There are also the operational costs, which lead to the specifics of the assets that are concerned with the given market, as example, transport,

dependence on human capital, brand and length of the contracts.(WILLIAMSON, 1985). Concerning the low-income markets in particular, cost of de infrastructure, distribution and information stand out as worth of attention. (PRAHALAD, 2005).

In conclusion, there are costs concerned with ownership rights, which lead to the sheer capacity of enforcing punishment upon the borrower in case of delinquency (BROLLO, 2004); the least formal properties are owned by the borrower, the least eligible for punishment he will be, therefore raising the costs involved in enforcing the sanctions against the borrower. (BROLLO, 2004). The judiciary system also influences the ownership costs (RAY, 1998).

3.2.3 Conclusion of the Credit Rationing Theory

To sum it up, the issue of the micro credit transaction cost, combined with the skepticism caused by the risk of delinquency, brings on the rationing credit offer in the market.(RAY, 1998), since to fully meet the demand for oriented productive micro credit would mean to forego higher costs at a risk rate, way above the one considered ideal for maximum return. (STIGLITZ e WEISS, 1981). The formulation of hypothesis is therefore based upon the theory of credit rationing.

3.2.4 Formulation of Hypotheses

In view of to the microeconomic theory of credit rationing, the following hypotheses are raised:

H1: In traditional credit markets, informal entrepreneurs show higher risk of delinquency as well as cost of information; therefore showing, poor likelihood of landing a loan.

H2a: The higher the intended loans, the smaller the likelihood obtain credit;

H2b: Once there are previous loans fully paid for, the likelihood to obtain credit increases;

H2c: Once there are previous loans fully paid for, the volume of credit grants tends to rise up to a certain limit.

H3a: First-time borrowing entrepreneurs with no credit history represent higher costs of information selection, thus have smaller likelihood to obtain credit.

H3b: Considering the need for quest for non registered information, the bigger the geographic distance between the enterprise and the lending institution, the bigger the costs of sending it, and the smaller the likelihood to grant credit.

H4: In case an entrepreneur can't afford to provide formal collateral, the costs concerned with property ownership as well as the risks of delinquency will be raised, lowering the likelihood to obtain credit.

3.3 Oriented Productive Micro Credit as Special Modality of Credit Grant

On the other hand, the decision to bestow credit is also influenced by the sheer nature of credit institutions, as many micro credit providers are geared to utilitarian solidarity and practices of social inclusion, and not necessarily to efficiency in terms of profit (JUNQUEIRA e ABRAMOVAY, 2005). Such institutions might forego higher transaction costs to ensure fulfillment of payment by promoting inclusion to borrowers with no traditional collateral, which in turn, makes credit rationing not an attempt to optimize profit but the lack of means to do so. Such situation which, leads to the very characterization of oriented micro credit as a especial modality of credit grant, might cause the results originated from the assessment of the hypotheses shown above to vary according to the program in question. In the eventual existence of the magnitude of such potential variation in the criteria to grant credit lies the main purpose of this survey and represents the investigation to be conducted in the first stage of this project.

3.4 Costs of Entry and Adaptation

According to the classical micro economic theory, the credit for low-income entrepreneurs would be therefore impossible, on account of its cost and risk, imposing rationing to the market (STIGLITZ e WEISS, 1981). However, some programs which operate under the philosophy of utilitarian solidarity and social inclusion have shown results pointing to expansion and self sufficiency, like the case of Grameen Bank from Bangladesh and BancoSol from Bolivia (CHRISTEN, 2001; GONZALEZ-VEJA *et al*, 1997). Therefore, it is assumed that those programs forego initial costs of entry and adaptation (WILLIAMSON, 1985), initially operating at a slightly lower level than the ideal profit; such costs, however, would be resulting from a non monotonic function in the time line, that is, they would rise to a certain point, until the information and the infra structure of assistance available in the market would be sufficiently satisfactory to press down the costs, so as to justify the inclusion of new clients by promoting growing profits as the operation scale rises (RAY, 1998). Therefore, it is inferred that the program of oriented productive micro credit can be operated at a level bellow the maximum point of profit, aiming at reaching a better profitability in the future, as its cost per single credit decreases (RAY, 1998). One last hypothesis is therefore established.

H5a: On account of a non monotonic cost function of entry and entry and adaptation (learning process), growing at first and later decreasing from a certain point, the transaction costs of a program of oriented productive micro credit start decreasing from a point of inflexion, causing a positive impact upon the profitability of the program.

H5b: from a certain point of expansion throughout the length of the operation, a program of oriented productive micro credit presents earnings in scale, causing positive impact in its profitability.

The second stage of the project is based on the investigative work conducted to address those hypotheses.

4 METHODOLOGY AND RESEARCH STRATEGY

Next, the procedures suited for operating the indicators and for testing the hypotheses proposed in the project. Quantitative methods were chosen, since the conclusions are expected to be general. Similarly to the first stage, secondary data will be provided by Microinvest.

4.1 Operating the Indicators

4.1.1 First Stage

The research in its first stage is based on the existing variables when foreseeing credit denial; informality, collateral; renewals; amount of loan; and geographic distance from the lending institution. Access to the pieces of information depends on how they are stored on the lending programs databanks, because they are secondary data. Those programs collect the data, and their responsables agree to provide the data listed on this project. Variables from different sources must be treated and standardized, in order for us achieve results we can trust.

4.1.2 Second Stage

In the second stage, the indicators to be operated are: operation length of Microinvest in months; profitability over each R\$ 1,00 loaned; cost per each R\$ 1,00 loaned; and the scale of the operation, represented by volume of loans.

4.2 Hypotheses Tests

The statistics techniques selected to be used as tests of the hypotheses proposed in this project are presented as follows.

4.2.1 First Stage – Hierarchic Linear Model of Logistic Regression

To test the hypotheses from H1 to H4, the statistic technique of logistic regression will be used. The models of regression establish a relation between a

response variable and one or more variables be independent or explanatory (FREES, 1996). In the case of logistic regression, the response variable dichotomic; therefore, the technique can be used to describe the relation between the occurrence or not of an event of interest and a group of explanatory variables (FREES, 1996). In the research contest proposed in this project, the variable encompasses the grant or the denial of credit to an entrepreneur, concerned with a group of observed characteristics of entrepreneur. The likelihood of granting can be determined during the period of observation. In this project, the amount of 1 response variable will be given to each client whose application has been accepted; to those clients whose application has been denied the amount 0 is given (THOMAS e STEPANOVA, 2002).

The model of logistic regression will be used with the following variable explanatory:

1. Formality of the enterprise (categorical);
2. Amount requested (continuous)
3. Number of renewals (continuous)
4. Presentation of Collateral (categorical)
5. Geographic Distance (ordinal)

There will be variables of control related to the risk of delinquency; Moura e Durkin (2003) found that commercial sector is riskier than the service and industry sectors. Tasic (2004), in turn, proves that the bigger the number of installments of a credit contract, the bigger the risk of delinquency, and that loans for cash flow are riskier than those granted for acquisition of assets. Therefore, the control variables to be featured in the regression are the following:

6. Activity sector (categorical)
7. number of installments (continuous)
8. Purpose of the loan (categorical)

However, in order to adequate the equation coefficient of logistic regression to the types of programs pointed by economic sociology, the Hierarchic Linear Model will be used. The Hierarchic Linear Models are used when it is intended to evaluate more than one hierarchic level of observations, being considered one hierarchic level the gathering of observations in one particular category; in this case, the goal is to evaluate the grant of credit by cross checking the individual characteristics of the borrowers, as well as the influence played by the type of programs, characterizing a two level hierarchic model (RAUDENBUSH e BRYK, 2002).

It is hoped that the coefficients of regression be different for the programs of oriented productive micro credit in comparison with the traditional of the wholesale bank, and also for the non profit oriented programs comparing to those focusing solely on profit. Therefore, through the hierarchic model with binary response, the hypotheses from H1 to H4 and their variations proposed in item 4.3 of this project will be evaluated.

A third hierarchic level is to be included in the model, concerning the length of the program operation, as a categorical variable, for control purposes, since the level of experience of the program might influence the decision to grant credit or not. For control purposes, a fourth level is being planned, concerning the region of the request, taking into account the concentration of formal enterprises, distribution of income and the ratio of economic active population which greatly varies in Brazil (BROLLO, 2004). The whole model also implies the control of the interest rates practiced by the programs included in the survey.

4.2.2 Second stage – Time Series Regression

In order to test the hypotheses **H5**, the Microinvest program is to be tested separately, through a time line series (CHATFIELD, 2004), with program profitability (profit per R\$ 1,00 loaned) as response variable. Time line series correspond to sequential values of one variable to be analyzed, aiming at forecasting and identifying the tendencies (CHATFIELD, 2004). Each case represent an observation at a given moment, which must be observed in equivalent intervals; in this project, the interval will be measured by the months that Microinvest worked in the market. The sequence of dependent variable values (profitability in the proposed cases) is an essential component in the time line series. (CHATFIELD, 2004).

The variables considered in the second stage are:

- a. Time in months of activity (continuous)
- b. Scale of Operation (continuous)
- c. Cost per R\$ 1,00 loaned (continuous)
- d. Profit per R\$ 1,00 loaned (continuous)

The Microinvest case shows some peculiarities that must be controlled; the company has improved its scope by taking advantage of the distribution network of the Fininvest shops, a branch for personal loans to low income public of the Unibanco conglomerate. The acquisition of small partnerships that work with granting credit to micro enterprises throughout the existence of Microinvest, like RioCred, for example, point to increases in the assimilation scale, regardless of the time of operation. The grant methodologies, such as loans to individuals or groups, for example, can also influence the scale and the cost of operation, regardless of time, as well as the inclusion or the departure from areas benefited by the program. In conclusion, the spread of each operation, represented by the difference between the final fee charged per loan and the cost of implementing the program must be controlled. Therefore, the following controlled variables are presented in the second stage:

- e. Monthly Index of loans accomplished by Fininvest (continuous)

- f. Operation acquisition in the month (categorical)
- g. Alteration in the methodology adopted to Grant credit in the month (categorical)
- h. Number of regions chosen in the month(continuous)
- i. Spread practiced by the program in the month (continuous)

4.3 Summary

The following tables present a summary regarding each hypothesis and their corresponding analysis methods.

Table 1. First Stage Summary (the author, 2005)

Hipotesis	Variable	Effect	Method
H1	Informal Enterprizes	Lower credit probability	Hierarchical Logistics Regression
H2a	Increase of the demanded amount of credit	Lower credit probability	Hierarchical Logistics Regression
H2b	Credit renewal	Higher credit probability	Hierarchical Logistics Regression
H2c	Credit renewal	Higher amounts provided	Hierarchical Logistics Regression
H3a	First credit	Lower credit probability	Hierarchical Logistics Regression
H3b	Spatial separation	Lower credit probability	Hierarchical Logistics Regression
H4	Collateral providing	Lower credit probability	Hierarchical Logistics Regression

Table 2. Second Stage Summary (the author, 2005)

Hypothesis	Variable	Effect	Method
H5a	Time	High profitability due to transaction costs reduction as a function of learning and adaptation	Time Series Regression
H5b	Time	High profitability due to transaction costs reduction as a function of an increase of scale	Time Series Regression

5 PROJECT FLOW CHART

This research project is supposed to reach its conclusion by February 2007. For this, the following stages will be covered:

1. Conclusion of the bibliographic revision: it is necessary to access more knowledge on the theoretical framework approached in the survey, especially the explanatory variables of granting credit and its treatment. It is intended to exploit secondary data to improve the comprehension of how the variables manifest themselves in the context of the issue. Deadline: November de 2005.
2. Preparation for data collection stage: in this stage, the procedures to establish the range of research and sampling composition will take place. Deadline: January 2006.
3. Collection, pre-tests and data treatment: the collection of data itself will take place. Once the data is collected, they will be tabulated, and an explanatory analysis will be conducted indicating the transformations and treatments needed, and will be accomplished, as well as the possible need for collecting new variables and observations, and its execution. **Deadline:** July 2006.
4. Data analysis: the formulated hypothesis will be tested, and the first considerations will be elaborated concerning the project results and the guidelines for publications. Deadline: November 2006.
5. Final considerations and editing the conclusions: The final general conclusions will be established. Deadline: January 2007.

6. Editing the final document: finally, the final document of the project will be edited. Deadline: February 2007.

BIBLIOGRAPHIC REFERENCES

AKERLOF, G. The Market for "lemons": quality and uncertainty and the market mechanism. Quarterly Journal of Economics, vol. 84 (August), pp. 488-500. 1970.

ARRUDA, K. F. O marco legal do Terceiro Setor e o microcrédito, Revista de Administração Municipal, IBAM, Ano 46, no. 229, Maio/Junho 2001, p. 10-13.

BANCO CENTRAL DO BRASIL. Seminário de Microcrédito, Goiânia, 2004.

BARNES, C.. Microfinance Program Clients and Impact: an assessment of Zambuko Trust, Zimbabwe, AIMS Paper, 2001.

BECKER, G.; MURPHY, K. M. Social Economics: market behavior in a social environment, Harvard University Press, 2001. BUETT, T. Técnicas de Gestão Microfinanceira, PDI/BNDES, 2002.

BROLLO, F. Crédito Imobiliário e Déficit de Moradias: uma investigação dos fatores econômicos e institucionais do desenvolvimento habitacional no Chile e no Brasil, dissertação de mestrado apresentada à FGV-EESP, 2004.

BRUSKY, B. Prospecting the FUNDAF Market: an overview of demands, competition, and client satisfaction, Consultative Report, 2002.

CHATFIELD, C. The Analysis of Time Series: an introduction, CRC Press LLC, Boca Raton, Florida, 2004, 6th edition.

CHRISTEN, R. P., Commercialization and Mission Drift: the transformation of microfinance in Latin America, CGAP, 2001.

DICHTER, A. The Mystery of Brazilian Microfinance and Recommendations for Improving Credit Markets For the Poor in Brazil. Master Thesis, Harvard University, 2002.

FREES, E.H. Data Analysis Using Regression Models – the business perspective, Prentice Hall, 1996.

GONZALEZ-VEGA, C.; SCHREINER, M.; MEYER, R. L.; RODRIGUEZ, J.; NAVAJAS, S. BancoSol: the challenge of growth for microfinance organizations, OECD, 1997.

HAUS, P.; WINOGRAD, A.; SALLES, R. Regulation of Microfinance in Brazil, PDI/BNDES, 2002.

INSTITUTO BRASILEIRO DE GEOGRAFIA E ESTATÍSTICA, IBGE Regional Accounts, 1999.

JANSSON, T.; TABORGA; M. The Latin American Microfinance Industry: how does measure up? Inter-American Development Bank, 2002.

JUNQUEIRA, R. G. P.; ABRAMOVAY, R. A Sustentabilidade das Microfinanças Solidárias, Revista de Administração da USP – volume 40, nº 1, jan. fev. mar, pp19-33, 2005.

KHANDLER, S.R., Grameen Bank: performance and sustainability, World Bank Discussion Paper, 306, Washington, D.C, 1995.

KING, G.; KEOHANE, R. O.; VERBA, S. Designing Social Inquiry. Princeton, Princeton University Press, 1994.

LUCAS, R. On the mechanism of Economic Development, Journal of Monetary Economics, 22(1), 1988.

MACHO-STADLER, I.; PÉREZ-CASTRILLO, J. D. An Introduction to the Economics of Information: incentives and contracts, Oxford University Press, New York, 2001.

MEZZERRA, J., Microcredit in Brazil: the gap between supply and demand, Microbanking Bulletin, November, 2002.

MILGROM, P; ROBERTS, J. Economics, Organization and Management, Prentice Hall, 1st ed, 1992.

MOURA, M. J. S; DURKIN, S. An empirical analysis of the Bank of Northeast experience, University of Chicago Social Sciences Magazine, sep, 2003b.

NAQVI, F. B.; GUSMÁN, G. F. Microfinanças em Foco, RAE executivo, volume 2, número 4 – nov 2003 a jan 2004.

PARENTE, S. Microcredit as a Financial Market Mechanism to Reduce Poverty, Master thesis, MIT, 2002.

PEPALL, J., Bangladeshi Women and the Grameen Bank, Science from the Developing World, August 4, 1998.

PINHEIRO, A. C.; MOURA, A., Segmentação e uso de informação nos mercados de crédito brasileiros. Textos para Discussão do BNDES, Rio de Janeiro, 2001.

PRAHALAD, C. K., The Fortune at the Bottom of the Pyramid: eradicating poverty through profits, Wharton School Publishing, 2005.

RAUDENBUSH, S. W.; BRYK, A. S. Hierarchical Linear Models: applications and data analysis methods, Advanced Quantitative Techniques in the Social Sciences Series, Sage Publications, 2nd ed, 2002.

RAY, D. Development Economics, Princeton University Press, 1998.

ROCHA, F. G. Microcrédito: o caso do Vivacred. Revista de Administração Municipal, IBAM, Ano 46, no. 229, Maio/Junho 2001, p. 21-26.

SCHONBERGER, S., Microfinance Prospects in Brazil, Sustainable Development Working Paper, The World Bank, 2001.

SCHUMPETER, J.A., Teoria do Desenvolvimento Econômico, Editora Fundo de Cultura, Rio de Janeiro, 1961.

SEBRAE, Dados Relativos à Participação das Micro e Pequenas Empresas, Segundo o Critério de Classificação de Porte, Baseado no Número de Empregados, 2000.

SEBRAE-SP / FIPE. A questão do financiamento nas MPEs do Estado de São Paulo, São Paulo, 1999.

SEN, A., The Concept of Development, Handbook of Development Economics, Volume 1, Edited by H. Chenerey and T.N. Srinivasan, 1988.

STIGLITZ, J.; WEISS, A.. Credit rationing in markets with imperfect information. American Economic Review, vol. 71, pp. 393-410. 1981.

TASIC, I. Crédito às Micro e Pequenas Empresas: Assimetria de Informação e Análise da Realidade Brasileira, Prêmio IPEA 40 Anos, 2004.

THOMAS, L. C.; STEPANOVA, M. Survival analysis methods for personal loan data. Operations Research, v.50, nº 2, p.277-289, 2002.

WILLIAMSON, O. The Economics Institutions of Capitalism, Free Press, New York, 1985.