

# **Determinants of the Perceived Impact of Microcredits by Borrowers: A Quantitative Study in Venezuela**

## **Abstract**

This research was conducted based on surveys given to 232 micro-entrepreneurs who had received microcredits from three private financial institutions in Venezuela in 2012. We found that the average borrower declares monthly incomes substantially higher than the minimum wage, and that microcredits were perceived as being effective in improving a borrower's family income and other metrics related to his standards of living. The study makes use of a Constrained Generalized Ordered Probit model in which six dependent variables that measure the perceived impact of having received microcredits (in different areas of the borrower and his family's environment, in the community and in the business) are run against 18 potentially explanatory variables.

**Key words:** Microfinance, Constrained Generalized Ordered Probit, Venezuela

**Track:** Financial Markets, Investment and Risk Management

# **Determinants of the Perceived Impact of Microcredits by Borrowers:**

## **A Quantitative Study in Venezuela**

### **Introduction**

We know relatively little about the impact of microcredits than might be expected, given the enthusiasm for these types of loans in policy-making and donor circles (see Weiss and Montgomery, 2004). This paper attempts to close this gap by examining the impact of microcredits in different areas of the borrower and his family's environment, the community in which the microenterprise operates, and the business, and relates it to a series of explanatory variables. The work was carried out based on 232 surveys that were handed to micro-entrepreneurs who had received microcredits from three private financial institutions (Banguente, Banco Mercantil and Banesco) in the cities of Caracas, Maracay and Valencia (Venezuela) in 2012.

In emerging economies, microcredits represent a very particular financial activity, which has been characterized, among others, by the following elements: The amount of each credit is on average relatively low, credits are at short and medium term maturities and the interest rates charged are relatively high, although much lower than those that the usurer charges, microcredits tend to be used for the financing of working capital and be guaranteed through the creation of solidarity groups, the access to new and larger credits is possible only if the borrower displays a good performance in their payments, and the lender bank performs a frequent monitoring of the borrower and the approved loan disbursements are usually conducted only once a micro-entrepreneur has complied with the stipulated previous payments.

Venezuela is a country that has a population of 30 million people (2013) and a GDP of nearly 400 billion dollars (2013), which gives a per capita income of 13 thousand dollars. The Venezuelan economy turns around the oil industry, which represents more than one third of the total gross domestic product, contributes with more than 90% of the total export earnings of the country and around 50% of the revenue of the central government's budget. Venezuela is an urban country, with about 80% of the population living in urban and sub-urban areas and the remainder in rural zones. Despite the relatively high level of per capita income of Venezuelans, the distribution of income is highly unequal, leaving broad layers of the population in a situation of poverty and limited access to financial markets. For this reason, it is relevant to understand microfinance and its impact on the borrower, as well as the variables that can help explain such impact.

This work consists of the following sections. First, it presents the theoretical framework of the research. Subsequently, we discuss the data and the empirical methods used in the study. Then, the results are presented and their implications are discussed. Finally, the conclusions of the study are offered.

## **1. Theoretical Framework**

### **Impact of microfinance on the population: review of the literature**

The story and origin of modern microfinance services can be traced back to Bangladesh, where in 1976 Muhamad Yunus began a project of borrowing small loans to the poorest population he could reach. This effort eventually led to the creation of the Grameen Bank. Since then, microfinance has been defined as a set of financial services offered, in principle, to the poorest layers of the population, and its first service is the microcredit, which is a small loan given to micro-borrowers for an interest rate above the interest rate of the common formal financial sector, but commonly much smaller than that of the informal lending sector (typically, the usurer). The loan usually demands no collateral to the user, but instead uses other mechanisms to increase the likelihood of repayment, such as joint liability, peer monitoring, or constant methods of monitoring by the lender of the usage of the credit and the performance of the borrower's microenterprise (Armendáriz de Aghion and Morduch, 2005). Microcredits are offered by microfinance institutions (MFI's), which are often supported or owned by non-government organizations (NGO's) and, more recently, by commercial banks.

From the beginning of microfinance, a string of research was made in an attempt to measure its impact on the standards of living of the poor and on the profitability of the industry. According to Chu (2010) the business of microfinance should be able to produce a relatively high return to compensate for its inherently higher risks and costs in order to ensure sustainability. There are various financial profitability indicators used to measure the success of any business initiative, such as: Return on invested capital (ROIC), return on assets (ROA), internal rate of return (IRR) and net present value (VPN). In this regard, Cull, Demirguc-Kunt, and Morduch (2007) attempt to systematically examine financial performance and outreach in a large comparative study based on a dataset of 124 microfinance institutions in 49 countries. Cull et al. provide evidence for a trade-off between sustainability and outreach and stresses the importance of institutional design in determining the existence and size of such a trade-off.

To Al-Mamun, Wahab and Mazumder (2011) the access to financial services enhances employment and income and can help in the reduction of income inequality. This is because lower-income individuals are trapped in a vicious cycle of fragile health, fragmented families, inadequate infrastructure, little or no access to education, various forms of exclusion and difficulty in getting a job.

A study conducted by Hulme and Mosley (1996) and quoted by Al-Mamun, Wahab and Mazumder (2011), shows that customers who used microcredits to acquire capital goods received the most benefits in improving their incomes. Copestake et al. (2001) and Tedeschi (2008) also provide evidence to support the positive effects of microfinance on microenterprise

profits, because clients who get subsequent loans, on average, have higher returns in their businesses as well as increased household income.

On the other hand, other studies have found that microcredits have not provided a positive effect on micro-entrepreneurs due to factors such as extreme poverty, health problems of family members, lack of business skills, and lack of commitment to education for the children, which have affected the possibility of using the loans in activities that generate income. At the same time, there is uncertainty about the effectiveness of microcredits to achieve an increase in the *disposable* income of the borrowers. The weight of the quotas, which in the case of microcredits can be significant, due to the high interest rates that are applied to these types of loans, can have a large impact on the possibility of borrowers to be able to increase their income profile. These findings seem to contradict the established thinking that the access to microcredits improves the standards of living of borrowers (Pisania and Yoskowitzb, 2010). Furthermore, Weiss and Montgomery (2004) offer a revision of the literature concerning the impact of microcredits on alleviating poverty in Asia and Latin America and find scarce evidence that microcredits are being granted to the poorest sectors of these countries. Therefore, the regulation and the economic policies in which microcredits are framed will affect their success in helping relieve the poverty of borrowers (Olsen, 2010).

It can be argued that the study of the microfinance, from the point of view of the benefits that it may produce in the borrower, still needs a greater understanding, because there exists mixed evidence on its benefits. Due to this, one of the goals of this article is to understand whether microcredits have had an impact in different areas of the borrower and his family's environment, the community in which the microenterprise operates, and the borrower's business, using a survey that we handed to borrowers that have received microcredits provided by commercial banks in Venezuela. The second objective is to determine which variables could explain the impact of receiving a microcredit, in this case related to the characteristics of the borrower, his or her business and the credit that he or she has received.

### **Microcredit institutions in Venezuela**

This section describes the three private financial institutions whose microcredits are considered in the present work: Bangente, Banco Mercantil and Banesco. The financial mechanisms (formal and informal) commonly used by micro-enterprises in Venezuela include: resources from employment benefits (scheduled labor savings plans referred to in the law) received from a previous job, the support of relatives and friends, the usurer loans, and other informal microcredit mechanisms such as: "san," the "bag" and the "cooperative."

*El Banco de la Gente Emprendedora (Bangente) (The Bank of the Entrepreneurial People)*

Bangente opened in February of 1999, becoming the first Venezuelan Bank dedicated exclusively to finance micro-enterprises, providing them with a series of financial services ranging from loans to micro, small and medium-sized entrepreneurs to savings and current accounts and debit cards. The bank was created with contributions from the Corporación Andina de Fomento (The Andean Corporation), the Inter-American Bank of Development, Banco del Caribe, Profund Internacional, Grupo Social Cesap, the Gateway Social Foundation, Fundación Eugenio Mendoza, and the Fundación de Vivienda Popular. 50% of Bangente's partners are Venezuelan and the other 50% are foreign.

The mission of the bank is not to alleviate poverty, although the bank shares the idea that a microfinance industry should be developed to pursue that goal. Bangente is an institution for which the microfinance business must be profitable so that it can be sustainable over time. Bangente started operating with the initial presence of ten business advisers trained by experts from the ACCION international organization. The main task of these advisers was to guide the micro-entrepreneurs in the preparation of the financial statements. Bangente grants loans for the purchase of raw material, goods, machinery or equipment and to finance the renewing of the premises.

Most of the credits provided by Bangente are solidarity loans or joint loans, i.e. without a real guarantee. This type of credit brings together four or five borrowers, each of which assumes the risk for all. The credits are awarded with short deadlines so that the borrower will cancel them quickly and he can have access to new credits. The micro-entrepreneur can receive an individual credit once he has belonged to a joint group, and assuming that it has never fallen behind in fulfilling loan payments. In the case of the individual loans, Bangente requires the guarantee of a guarantor.

*Commercial Banks (Banco Mercantil y Banesco)*

The entrance of Banco Mercantil and Banesco, both Venezuelan commercial banks, to the business of the microfinances is subsequent to Bangente's entrance and occurred mainly as a result of the adoption, in November of 2001, of a new Banking Law in Venezuela. This law required commercial banks to initially allocate at least 1 percent of their total loans to microcredits to reach, in a period of two years, at least 3 percent. In the last decade, commercial banks in Venezuela have begun to assess microfinance not only for public relations reasons but also as a potentially profitable business.

In the case of Banco Mercantil, the credit for micro-enterprises is designed to finance production activities, services or trade, in two forms: individual credits, which are given to individuals and self-employees to finance individual initiatives, and joint credits, which are granted to finance working capital, the acquisition of assets or to improve premises to groups of entrepreneurs engaged in conjunction with the fulfillment of payment obligations. In the case of Banesco, microcredits are destined to: The financing of production, marketing and service activities (purchase of fixed assets, purchase of goods and

raw materials, and fixing of business facilities). The credits are directed to: Micro-entrepreneurs, people that are self-employed, and micro-enterprises.

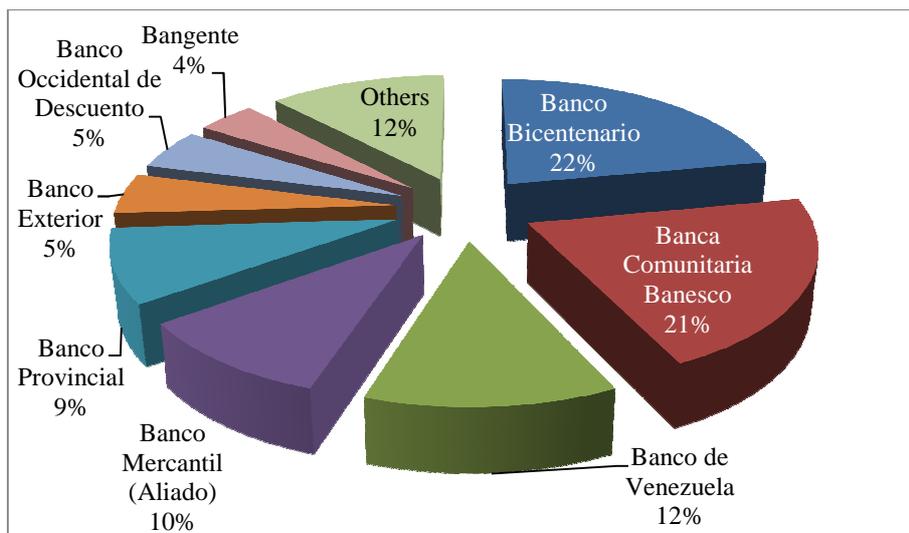
## 2. Data and Method

### *Survey procedure, sample and empirical strategy*

As we mentioned before, the following three banks were contacted in order to obtain a sample representative of beneficiaries of microcredits in Venezuela: Bangente, Banco Mercantil (Mercantil Aliado), and Banesco (Banca Comunitaria). According to the information provided by Sudeban, these three entities had an important participation in the total gross portfolio of microcredits in Venezuela for the year 2012, adding together a total share of about 35% of the total market for microcredits (Figure 1).

The sample was collected in the Greater Caracas; Maracay (Aragua State); and Valencia (Carabobo State), all cities located in the north of the country, surveying only those borrowers who had received and paid back at least one microcredit from any of these institutions (Table 1). The compilation was done by IESA graduate students, as part of their Master’s Thesis. In the majority of the cases, the survey was applied in some of the banking branches, but in other cases it was made through prior contact by telephone and arranging an appointment to visit the entrepreneur in his or her business. We were able to complete 232 surveys of microcredits beneficiary’s, distributed as follows: 105 of Bangente, 80 of the Banco Mercantil, and 47 of Banesco.

**Figure 1**  
Venezuela: Distribution of the microcredit gross portfolio (%), 2012



Source: Sudeban, 2012

**Table 1**

Distribution of the sample by zone and by bank

Bank	Sample, # of surveys	City or State	# of branches	How Borrowers were Contacted
Bangente	105	Center, Prado de María and Palo Verde (Caracas)	3	At the bank's branches
Mercantil Aliado	80	Propatria and Pérez Bonalde (Parroquia Catia) of the Libertador Municipality (Caracas)	2	Presence in the business and by telephone
Banca Comunitaria Banesco	47	Petare and Antímano (Distrito Capital), Gran Bazar (Maracay), and Center (Valencia)	4	At the bank's branches

Source: Own calculations

We measure the potential impact of microcredits in three main areas: The individual borrower and his family, the community to which he belongs and his business. Different variables can be considered within each one of them (Table 2).

**Table 2**

Potential impact of microcredits

Environment	Variables	Literature
Individual and families	Greater access to consumer goods, improvements in food consumption, health, and education; social recognition, self-esteem, confidence and respect, migration, and reduction in child labor	Al-Mamun, Wahab and Mazumder (2011) Becchetti and Conzo (2010), World Bank (2007), Mosley and Rock (2004), Littlefield, Morduch, and Hashemi (2003), Schäfer (2001), and Gulli and Berger (1999).
Community	Employment, corporate social responsibility, and participation	World Bank (2007), Mosley and Rock (2004), and Schäfer (2001).
Business	Improvement in business relationships with suppliers and customers, revenues, earnings, opportunities, bargaining power, and income diversification.	Al-Mamun, M., Wahab and Mazumder (2011), World Bank (2007), and Schäfer (2001).

Source: Own calculations

Given the above, the survey instrument was structured based on three modules (personal characteristics, business characteristics, and credit characteristics) that gathered descriptive information and that serve as the group of independent variables, and a fourth module used to obtain the perceptions of the micro-entrepreneurs in relation to the potential impacts of the microcredit on the business, on the individual and his family and on his community (dependent variables). More specifically, the four modules are:

Dependent variables (8):

Likert 1: The microcredit allowed me (i.e. the borrower) to improve my income and to invest it in improving the health and nutrition of my family.

Likert 2: The microcredit allowed me to improve my income and to invest it in improving the education of my children.

Likert 3: The microcredit allowed me to reinvest in my business to foster its growth and to improve it.

Likert 4: The microcredit allowed me to improve my income and to invest it in consumer goods (TV, computer, furniture, and home improvements).

Likert 5: The microcredit allowed me to reduce the cost of financing because now I do not have to borrow from the usurers.

Likert 6: The microcredit made it easier for my business to help my community since it provides a service that it did not exist before.

Likert 7: The microcredit allowed me to develop a business relationship with my customers and suppliers.

Likert 8: The microcredit allowed me to grow my business and to hire people from my community.

Independent variables (18 variables distributed in 3 categories):

1. Personal characteristics: Gender, age, marital status, prior employment status, education level, economic “weight,” type of housing, rate of housing overcrowding, weekly income and expenses, and use of earnings (10 variables)
2. Business characteristics: Economic activity, business location, business age, property type, sales variation and variation in the number of employees (6 variables).
3. Credit characteristics: Use and term of the credit (2 variables)

Finally, the regressions were controlled for each one of the banks.

### **3. Results**

Table 3 describes the characteristics of the explanatory variables in the sample. In the case of continuous variables it presents their averages, and in the case of discrete variables it shows the proportion of the different values. For the purposes of the analysis, we considered 200 surveys, after we filtered the original sample of 232 surveys for lost or incomplete surveys. In the case of personal characteristics of the borrowers, i.e. the first group of independent variables, it can be highlighted, among other variables, that 55% of the borrowers are men, 76% of borrowers have elementary education, 79% of borrowers own their homes, and that 75% of the borrowers express that they reinvest the profits in the business. Furthermore, the average weekly income of the borrowers was Bs. 3,855 (equivalent to US\$896 per week at the official exchange rate of Bs. 4.30 by dollar, current in the third quarter of 2012, or US\$296 per week calculated at the average parallel exchange recorded during that period). The minimum monthly wage in Venezuela was Bs. 2,047.52 at that time, that is, the average income of the borrowers were around eight times higher than the current minimum wage in Venezuela. This result is consistent with the evidence reported by Gulli and Berger (1999) for Latin America, and Weiss and

Montgomery (2004) for Asia and Latin America, where it was found that the majority of microcredits' borrowers could not be classified as extremely poor or even poor.

**Table 3**  
Description of the sample and average or proportions of the explanatory variables, based on 200 surveys

	Variable	Value	Media/proportion from ones	Std.	Min	Max
<b>Personal characteristics</b>	Gender	Male	0,55		0	1
		Female	0,45		0	1
	Age	Up to 45 years	0,48		0	1
		More than 45 years	0,52		0	1
	Marital status	Single, widow, divorced	0,41		0	1
		Married/free union	0,59		0	1
	Previous labor condition	Unemployed	0,07		0	1
		Informal economy or other business	0,30		0	1
		Employed	0,63		0	1
	Education level	Elementary	0,18		0	1
		High school	0,58		0	1
		Superior	0,24		0	1
	Economic weight	Up to two	0,49		0	1
		More than two	0,51		0	1
	Housing type	Rented and of a relative	0,21		0	1
		Own	0,79		0	1
Number of rooms	Up to two	0,37		0	1	
	More than two	0,63		0	1	
Number of people	Up to three	0,40		0	1	
	More than three	0,60		0	1	
Overcrowding index	No. of people/no. of rooms	1,38	0,61	0,33	5,00	
Weekly income	(Bolívares)	3854,70	0,98	1,00	5,00	
Weekly expenses	(Bolívares)	3461,54	0,82	1,00	5,00	
Use of earnings	Investment in the business	0,75		0,00	1,00	
	Others (all the other categories)	0,25		0,00	1,00	
<b>Business characteristics</b>	Deflated sales	(Bolívares)	2186,43		0,00	26510,13
	Credit amount	(Bolívares)	7382,47	16014,99	114,48	73015,20
	Sales variation	(Bolívares)	5,80	32,90	-140,28	220,79
	Business activity	Manufact./textile	0,18		0	1
		Services	0,12		0	1
		Foods	0,27		0	1
		Transportation	0,28		0	1
		Others	0,15		0	1
	Business location	Displacement to the house	0,12		0	1
		Transportation line	0,15		0	1
Own house or local		0,50		0	1	
Rented local		0,24		0	1	
Business age	(years)	9,22		1	41	
Business owner structure	Without partner	0,83		0	1	
	With partners	0,17		0	1	
<b>Credit characteristics</b>	Term	(months)	14,75	13,07	5	60
	Use of the credit	Increase or fixing the business	0,44		0	1
		Working capital or personal use	0,56		0	1
<b>Control variables</b>	Bank	Bangente	0,45		0	1
		Banesco	0,20		0	1
		Mercantil	0,35		0	1

Note: the official exchange rate was Bs. 4.3/\$ at the time the surveys were conducted, while the parallel exchange rate was Bs. 9/\$ on average.

Source: Own calculations

Table 4 presents the descriptive statistics of the dependent variables, which were measured as three Likert scales: disagree, indifferent and agree.

**Table 4**  
Description of the dependent variables (percentage), based on 200 surveys

	Disagree	Indifferent	Agree
Likert 1: The microcredit allowed me to improve my income and to invest it in improving the health and nutrition of my family	0.0952	0.1818	0.7229
Likert 2: The microcredit allowed me to improve my income and to invest it in improving the education of my children.	0.2424	0.2121	0.5455
Likert 3: The microcredit allowed me to reinvest in my business to foster its growth and to improve it.	0.0216	0.039	0.9394
Likert 4: The microcredit allowed me to improve my income and to invest it in consumer goods (TV, computer, furniture, home improvements)	0.4762	0.2035	0.3203
Likert 5: The microcredit allowed me to reduce the cost of financing because now I do not have to borrow from the usurers	0.2554	0.0649	0.6797
Likert 6: The microcredit made me it easier for my business to help to my community since it provides a service that it did not exist before.	0.1775	0.1688	0.6537
Likert 7: The microcredit allowed me to develop a business relationship with my customers and suppliers	0.0952	0.1602	0.7446
Likert 8: The microcredit allowed me to grow my business and to hire people from my community	0.5238	0.1169	0.3593

Source: Own calculations

#### *Measurement model*

Having the eight alternative dependent variables measured as Likert scales, we proceeded to estimate a family of probit model estimators for categorical dependent variables. The usage of this estimator is justified by the fact that, being Likert scales ordinal measures, the distance between numeric values on the scale is not particularly informative (i.e. only the order matters). Thus, statistical moments used commonly to describe the behavior of a variable, such as the (conditional) mean or standard deviation, are essentially of no use here. This eliminates the possibility of using Ordinary Least Squares (OLS) estimators, and makes it logical to search for a method that rather describes the distribution of the variable (Baum, 2006). Between the parametric estimators of conditional probabilities, we selected the family of probit models, which assume that error terms are normally distributed. For this, typically four estimators are considered: The multinomial probit model, the ordered probit model, the (fully flexible) generalized ordered probit model, and a constrained generalized ordered probit model.

The multinomial probit model ignores the ordered nature of the dependent variable. Thus, it is the least preferred method of the list, and it will therefore not be considered here. The ordered probit model is the simplest of the ordered models,

imposing the restriction that all slope parameters are equal among regression lines. This is commonly known as the parallel regressions assumption. However, the validity of this model relies on the error terms being homoscedastic. In cross-section data, this is a very unlikely scenario. The generalized probit model deals with heteroscedastic errors by allowing all the slopes of the equations to be different. Finally, an intermediate case between the fully generalized model and the ordered probit is considered. In this case, as in the fully generalized model, we admit the possibility of heteroscedastic errors, but instead of dealing with this by making all slopes different, we impose equality among variables that we believe do not cause a violation of the parallel regressions assumption. The constrained generalized ordered model has then the potential advantage of requiring fewer parameters to be estimated, having then more degrees of freedom in our regression.

To choose among these options, a Brant test was used to determine whether it is better to use an ordered probit or a fully flexible generalized probit model. Having rejected in all cases the null that the ordered model is better, we then had to choose between the fully generalized ordered probit and the constrained generalized ordered probit (see Table 5, results for Likerts 3 and 5 are not reported, see explanation in the next section). For this, we use the backward stepwise methodology suggested by for cross-sectional models.

**Table 5**  
Analysis of the goodness of fit of the Constrained Generalized Ordered Probit model

		Likert 1: It allowed me to improve my income and to invest it in improving the health and nutrition of my family	Likert 2: It allowed me to improve my income and to invest it in improving the education of my children	Likert 4: It allowed me to improve my income and to invest it in consumer goods (TV, computer, furniture, home improvements)	Likert 6: The microcredit made it easier for my business to help my community since it provides a service that it did not exist before.	Likert 7: It allowed me to develop a business relationship with my customers and suppliers	Likert 8: It allowed me to grow my business and to hire people from my community
<b>Number of observations</b>	Number of obs	200	200	200	200	200	200
<b>Goodness of fit of the model</b>	LR $\chi^2$	63,4	102,65	77,14	97,13	90,98	174,05
	Degrees of freedom	33	31	32	38	32	42
	Prob > $\chi^2$	0,0011	0	0	0	0	0
	Pseudo $R^2$	0,2037	0,2548	0,1831	0,275	0,3169	0,4567
	Log likelihood	-123,93877	-150,08706	-172,02416	-128,05646	-98,081743	-103,54535
<b>Test of parallel regression</b>	$\chi^2$	11,55	15	22,64	10,84	10,52	8,37
	Degrees of freedom	19	21	20	14	20	10
	Prob > $\chi^2$	0,9039	0,8228	0,3067	0,6987	0,9578	0,5928

Source: Own calculations

For the selected specification, the maximum likelihood method is used to find the parameters that maximize the probability of observing the sample obtained. One must bear in mind that we only have independent regressions and control variables that vary by individual and not by alternative. Therefore, estimated coefficients of the regression lines do not provide

information about the change in probabilities – as usual for all multinomial models- and may not even inform us necessarily about their sign. Because of this, it is reasonable to report the corresponding marginal effects, as we do in the next section<sup>1</sup>. For continuous regressions  $x_{i,j}$  a marginal effect of  $Z$  can be interpreted as a change in the probability of having an individual  $j$  choosing alternative  $i$  instead of the others when regression  $x$  changes marginally, *ceteris paribus*. For a discrete regressor with multiple categories – say  $K$  categories- we will have  $K - 1$  estimates of the effect of that regressor, one for each of a subset of  $K - 1$  possible categories. Therefore, in this case, the interest is how much higher is the probability of choosing alternative  $i$  (on the dependent variable) for individuals that have category  $j$  on the regression variable, compared with individuals with category  $k \neq j$  on the regression variable.

The procedure explained before was implemented with the statistical software program STATA, using the *gologit2* package developed by Richard (2006).

### *Estimation results*

Marginal effects are presented in Table 6. The Likert 3 scale “the microcredit allowed me to reinvest in my business to foster its growth and to improve it.” was not presented because the variability in the scale was minimal, and therefore we could not get a robust model for it. The Likert 5 scale "it allowed me to reduce the cost of financing because now I do not have to borrow from the usurers" was not presented in the table, since there was no statistical significance to any of the explanatory variables used.

## **4. Discussion of results**

Table 7, which is presented below, was prepared in order to facilitate the interpretation of the results. We then present the analysis and interpretation of the results according to the different groups of explanatory variables of the impact of the credit: personal, business and credit.

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<sup>1</sup> The coefficient estimations can be sent upon request to the authors.



**Table 7:** Summary of the effects

	It allowed me to:	Likert 1: Improve my income and to invest it in improving the health and nutrition of my family	Likert 2: Improve my income and to invest it in improving the education of my children	Likert 4: Improve my income and to invest it in consumer goods (TV, computer, furniture, home improvements)	Likert 6: The microcredit made it easier for my business to help my community since it provides a service that it did not exist before	Likert 7: Develop a business relationship with my customers and suppliers	Likert 8: Grow my business and to hire people from my community
<b>Economic sector</b>	Services		Decrease	Decrease		Increase	Net increase (ambiguous positive)
	Foods		Decrease				Ambiguous (positive)
	Manufacturing and textile	Increase		Decrease		Increase	Increase
	Others		Decrease	Decrease	Increase	Increase	Decrease
<b>Business location</b>	Base: own place or rented						
	Home		Decrease				Decrease
	Transportation lines				Increase	Increase	Increase
<b>Age of business</b>					Decrease	Increase	Decrease
<b>Type of business ownership</b>	Base: without partners						
	With partners	Decrease	Decrease		Increase		Decrease
<b>Strong variation in the number of employees</b>					Ambiguous (positive)	Decrease	Net decrease (ambiguous negative)
<b>Credit use</b>	Expansion or remodeling (vs. capital for work or for personal use)						
<b>Sales Variation</b>						Ambiguous (negative)	
<b>Use of earnings</b>	Others (vs. reinvest in business)			Increase	Increase	Increase	
<b>Gender</b>	Male (vs. female)	Increase	Increase		Decrease		Increase
<b>Age</b>	Up to 45 (vs. more than 45)				Decrease		Decrease
<b>Marital status</b>	With couple	Increase	Ambiguous (positive)		Decrease		Increase
<b>Number of family members (household)</b>	Up to 2 (vs. more than 2)						
<b>Housing type</b>	Rented (vs. own)	Decrease	Decrease	Decrease			
<b>Overcrowding index</b>		Increase			Decrease	Increase	Decrease
<b>Previous labor condition</b>	Base: Unemployed	Decrease					
	Other business or informal economy		Decrease	Decrease			
	Employed		Decrease				Decrease
<b>Education level</b>	Base: Elementary						
	High school						Decrease
	Superior	Decrease	Decrease		Increase		Net increase (ambiguous positive)
<b>Time</b>					Decrease		
<b>Familiar expenses/weight</b>			Ambiguous (negative)	Decrease	Increase		Decrease

Source: Own calculations

*Personal characteristics*

The borrower’s gender explains the impact of the microcredit in the community. More specifically, being a man increases the likelihood of considering that the business and its offerings have no impact on the community (versus being a woman). Being a man decreases the probability of perceiving no impact on the health and nutrition of the family, and on the children’s education. Finally, being a man increases the likelihood of perceiving an impact on the growth of the business and on the employment to the community.

Age is also significant with respect to the impact on the community, the result is that the probability that the participants perceive any impact or not occurs equally, that is, there seems to be no inclination. In the case of younger entrepreneurs (under 45 years old) the probability of perceiving an impact on the growth of the business and on the employment to the community decreases.

Having a couple/spouse or not also explains various impacts of the microcredit. First, borrowers who have a couple/spouse have a higher likelihood with respect to those who do not have one of perceiving an impact of the microcredit on the health and nutrition of the family, and on the growth of the business and promotion of employment in the community. Finally, this variable is also significant in the impact of the offer of the business to the community, increasing the likelihood of not perceiving impact when the borrower has a couple/spouse. The family “weight” or the people that are economically dependent on the entrepreneur do not have statistical significance to any of the potential impacts. Housing tenure explains the impact of the credit on the education of the children, the purchase of consumer goods and the offer of the business in the community. When the interviewee pays a rent it increases the likelihood of not perceiving an impact on the education of the children with respect to homeownership. In the case of the purchase of consumer goods, renters are less likely to perceive an impact on the consumer goods. Finally, for those borrowers who pay a housing rent the likelihood of not perceiving an impact on the health and nutrition of the family increase when compared to those that are homeowners. It could be extrapolated that once an entrepreneur eliminates housing payments, he can devote greater efforts to items such as education, consumer goods and health and feeding of the family, the products of the microcredit benefits.

In terms of the level of housing overcrowding, we find a reduction in the likelihood of not perceiving an impact on improving the health and nutrition of the family for those who have higher levels of overcrowding. Finally, higher levels of housing overcrowding increase the probability of an impact on the commercial relationship of customers and suppliers and decrease the probability of perceiving an impact on the growth of the business and the employment opportunities for the community. In general terms, it could be concluded that entrepreneurs who face higher levels of overcrowding in their homes are worried by basic needs such as health and food, and not by having any impact on the community.

The employment status before starting a business was also significant in explaining the impact of the microcredit. For instance, to have another business before beginning a new one in comparison with being unemployed before receiving the microcredit decreases the probability of being in agreement with the impact of the credit on the education of the children, and increases the likelihood of perceiving no impact in the purchase of consumer goods. Being employed compared with being unemployed decreases the likelihood of perceiving an impact on the health and nutrition of the family, on the education of the children and on the growth of the business. It seems that an employee's condition of the borrower of

owning a business previously versus being unemployed allows a certain standard of living where the basic needs are met, while the impact of the credit in areas such as health, nutrition and education of the children is not conclusive.

The education level of the borrower affects some of his or her perceptions. More specifically, for borrowers with high school education, the likelihood of perceiving an impact from the credit on business growth and on employment in the community decreases when compared to those borrowers that have less than elementary education. For entrepreneurs with the highest level of education (undergraduate or above) the probability of perceiving an impact on the education of their children and on the health and nutrition of their families decreases with respect to those having lower education. These results could be understood as that for the most educated parents (undergraduate or above) the education of their children and the health and feeding of their families is not dependent on the business, perhaps because it is not an option. While for the less educated borrowers, the children's education depends on the success of the business. On the other hand, possessing more education (higher education) increases the likelihood of perceiving no impact of the credit on the offer of the business to the community when compared to those with lower education levels. Finally, for the most educated, it highly increases the likelihood of perceiving the impact on the growth of the business and the employment to the community.

#### *Business characteristics*

The first business related variable that was significant in explaining the impact of microcredits on borrowers was the type of industry to which he belonged, using as a basis of comparison the transportation industry. More specifically, belonging to the services and to the manufacturing industry decreases the likelihood that an entrepreneur will perceive that a microcredit helps improve his standards of living through the purchase of goods. Belonging to the food industry and services, with respect to the transport industry, decreases the probability that the entrepreneur will perceive that the microcredit will impact the education of his children. On the other hand, belonging to the manufacturing industry increases the likelihood that the respondents will perceive that the microcredit allows them to improve the health and nutrition of their families. Belonging to the service and to the manufacturing industry increases the probability of borrowers perceiving a positive impact from the microcredit on the business relationship with their customers and suppliers. In general, it could be considered that the respondents tended to perceive a positive impact on the health, education of their children and relationship with their customers and suppliers when they belonged to the service and manufacturing industries when compared to belonging to the transportation industry.

The second business related variable that was significant was the location of the business. For those participants who developed their businesses at home compared with those that have an office or a store, the likelihood that they perceive the impact of the microcredit in the education of their children and on the business growth and employment to the community

decreases. On the other hand, borrowers that have a business in a transport line decreases the probability of not perceiving a positive impact in helping the community through the offer of the company and increases the likelihood of perceiving a positive effect on the business relationship with customers and suppliers and on the growth of the business and the employment to the community. It seems that entrepreneurs who work at home are those which tend to see less positive impacts in the microcredits, followed by those entrepreneurs that have a fixed working place and, finally, by those having a transportation line, which seem to perceive the greatest positive impacts.

Another variable that was significant was the age of the company. Entrepreneurs having older companies perceive a less positive impact of the microfinance in the support to the community through the offer of the company and the growth of the business and employment to the community. It could be extrapolated that to the extent that the company moves from its initial stage and consolidates, the entrepreneur feels that his organization will not have a greater impact in the community and that the business will not be able to grow further. Finally, older businesses decrease the likelihood of not perceiving an impact on their commercial relationships with customers and suppliers.

Companies with partners have a higher likelihood (with respect to those who do not have partners) to consider that the credit will not serve to support the education of their children. This seems logical, because with a higher quantity of partners it is more difficult to distribute the profits to the individual interests. Similarly, for those companies with partners, the perceived likelihood that the borrower does not receive benefits from the microcredit on the health and feeding of the family increases. The use of the earnings is also significant, to invest the earnings out of the business versus reinvest them in the business decreases the possibility of not perceiving the impact of the microcredit on the purchase of consumer goods, in helping the community through the offer of the business and the commercial relationship with customers and suppliers. It could be extrapolated that businesses that spend some of their profits in other applications other than the business consider that they have already developed some stability that allows them to maintain strong relationships with customers and suppliers and an impact on the community and, therefore, they can make personal expenses, in particular, in consumer goods.

#### *Credit characteristics*

The use that the entrepreneur gives to the credit is not significant in explaining any of the potential impacts. In the case of the sales variable it explains the impact of the microcredit on the commercial relationship with customers and suppliers, but without any trend, that is, with equal probability of perceiving an impact or not.

The term of the credit was significant for the case of the impact on the community through the offering of the business, increasing the likelihood of perceiving an impact at a greater term of the credit. In terms of expenditure, it is significant in

the case of the children's education, but without a trend, with equal probability to consider or not the impact. On the other hand, increased family spending decreases the probability of perceiving an impact on the purchase of goods and on the growth of the business and employment for the community.

## **Conclusions**

We found that the average borrower reported monthly incomes much higher than the minimum wage. This result is consistent with several studies on microfinance in Latin America, in which it was reported that most of the recipients of the microcredit in the region could not be classified as people in critical or extreme poverty. As regards to the first objective of this paper, the results allow us to conclude that microcredits were perceived by the borrowers as being effective in improving household income and in improving the health and feeding of the family, the education of their children, and reinvesting in the business (although it not facilitated the purchase of consumer goods), and they were also perceived as capable of reducing the cost of financing, helping to the community, develop a relationship with customers and suppliers, although they did not help to create employment in the community.

From the Constrained Generalized Ordered Probit model developed, we present the following conclusions enabling to achieve the second objective of the research, related to identify the explanatory variables of the impact of the microcredit:

- Micro-entrepreneurs who have families think that microcredits enable them to improve their health and nutrition.
- Micro-entrepreneurs who have their own home and that receive a microcredit perceive that they can dedicate more resources to meet other needs such as education, consumer goods and health and feeding of the family.
- Micro-borrowers who face high levels of overcrowding in their homes are worried by the basic needs such as health and food, and not for having any impact on the community.
- Microcredits do not impact aspects such as health, food and education of the children in the case of borrowers who were already employed or who already had a business at the time of receiving the microcredit (compared with those who were unemployed), presumably because these basic needs were already met before obtaining the loan.
- For parents having the highest education levels (undergraduate degree or above) the education of children and the health and feeding of the family is not perceived to be subject to the business, perhaps because it is not an option, but instead a decision, no matter what happens with the business. While for micro-entrepreneurs with a lower level of education, the education of the children depends on the success of the business.
- In general, it could be considered that the respondents perceive a positive impact of the microcredit on the health of the family, the education of the children and the relationship with customers and suppliers.

-Entrepreneurs who work at home tend to see a less positive impact from the microcredit, followed by entrepreneurs possessing an office or store and, finally, by those working in the transportation industry, which tend to perceive more positive impacts from the microcredit.

- It could be extrapolated that as a business moves from its initial stage and it becomes more consolidated, the entrepreneur feels that his organization will no longer have an increasing impact in the community and that the business will not grow further.

-It could be extrapolated that businesses spending some of the earnings to other applications other than the business, consider that they have already developed some stability that allows them to maintain strong relationships with customers and suppliers, and to have a greater impact on the community and, therefore, they can make personal expenses, in this case, in consumer goods.

Finally, the results of this study are of interest to both public policy makers in Venezuela and the finance system dedicated to microcredits. This is because through the knowledge of these findings it is possible, for example, to focus the efforts of the government to specific profiles of entrepreneurs that can claim the largest benefits from contracting microcredits. It is also possible for financial institutions dedicated to microfinance to modify the characteristics of the credits that they offer, for example, by extending the term of the microcredits that they offer.

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