

# Assessing the Need For Microenterprises in Mexico to Borrow Start-up Capital

by Heikki Heino  
and José A. Pagán

**Abstract:** Mexico's microenterprises employ about 20 percent of the working age population in the country, and the number of microenterprises has increased substantially over the last decade. Given the role these small business units play in employment and wealth creation, it is important to understand the profile of firms that resort to outside start-up capital to finance their operations. Using microdata from Mexico's National Survey of Microenterprises (Encuesta Nacional de Micronegocios, ENAMIN), we analyze the socioeconomic factors related to the need for outside start-up capital. The findings show that a relatively small number of socioeconomic factors—such as the background of the microenterprise owner, the characteristics of the microenterprise, the operational business sector, the geographical location of the microenterprise, and the future plans of the owner—have important implications for the policy makers as well as for the capital-assistance tools used in fostering a microenterprise-friendly economic, social, and operational environment.

## Introduction

Over the last few years, policymakers have become increasingly interested in understanding the factors associated with the provision of loans to microenterprises in developing countries, primarily because credit access has been recognized as an important tool for small business economic development and poverty reduction (Otero & Rhyne, 1994; World Bank, 1996).

At the end of 1995, about 26 billion dollars in loans to individuals and groups were outstanding by nearly 1,000 microfinance institutions in developing countries, including Mexico (World Bank, 1996). Private banks and cooperatives—which encompass the formal lending sector—were responsible for most of these loans (about 78 percent of the total loans outstanding). Nonetheless, informal lending sources—such as loans from friends or moneylenders—are still a substantial source of credit.

The economic significance of microenterprises is that they substantially contribute to the overall employment level in both developing and developed countries (de Wit, 1993). (Microenterprise is defined as a business with fewer than six employees or fewer than 16 in manufacturing sector. This definition is consistent with that employed in other studies in the development and microfinance literature, for example Sánchez, 1998, and Otero & Rhyne, 1994.) This economic importance—coupled with the electoral power of microenterprise owners—contributes to the increasing political power of microenterprise owners collectively in the fiscal and political process. It is also recognized that microenterprises represent the “backbone” of the local economies in less developed countries such as Mexico. In particular, the economic and social role of microenterprises is more important the less developed a country is (Liargovas, 1998).

In Mexico, about 6.6 million microenterprises existed in 1995—having grown from about 5.7 million (or 15.7%) since 1991. Further, in the same year, owners of microenterprises accounted for 20 percent of Mexico’s workforce (Sánchez, 1998). The economic importance of the microenterprise sector in Mexico has been recognized by scholars and policymakers (e.g., INEGI, 1994; Sánchez-Schwarz, 1996; Chaves & Sánchez,

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*Heikki Heino is University Professor of Finance, College of Business and Public Administration, Governors State University in University Park, Illinois.*

*José Pagán is Associate Professor in the Department of Economics and Finance, College of Business Administration, University of Texas-Pan American in Edinburg, Texas.*

forthcoming). In 1995, according to data from the National Employment Survey (Encuesta Nacional de Empleo, ENE), 38.7% of employed individuals worked in firms employing 51 or more workers, 7.9% were employed in firms with 16 to 50 employees, 3% in firms employing 11 to 15 workers, 6% in firms with 6 to 10 employees, 27.7% in firms with 2 to 5 employees, and 16.7% in firms with one worker (the owner) only. In total, 53.4% of those employed are working for microenterprises. This high employee concentration underscores the importance of microenterprises for the economy of Mexico.

Given the importance of microenterprises for employment creation in Mexico, the role of credit as seed capital for microenterprise development is an important economic and public policy issue. Although much has been written regarding factors that influence the supply of borrowed seed capital for microenterprises, both in general and in Mexico (see, for example, Evans & Jovanovich, 1989; Edwards, 1995; McCrary, 1991; and Liargovas, 1998), little has been written regarding factors that influence the demand for seed capital among microenterprises. This article sheds light on the factors that determine the demand for borrowed seed capital among microenterprises in Mexico. Factors examined include the owner's socioeconomic background, microenterprise specific characteristics, sector of operation, location of operation, and characteristics that predict microenterprise dynamics (contingency). Such an analysis further aids us in identifying the relationship between borrowed start-up capital and the creation of microenterprises and in identifying and formulating policy mechanism and investment strategies that the policy makers and private sector entities can pursue to increase the creation and survival of Mexican microenterprises.

The next section introduces the conceptual framework necessary for the formulation of the model used to analyze the data; we describe the survey methodology and data included in the sample. In the results section we discuss the findings of the data analysis and follow this with concluding remarks and policy recommendations.

## Methodology

To analyze empirically the factors related to the need for outside financing to start up a firm, a probit model can be used (Greene, 1997). The choice to borrow or not to borrow the start-up capital is a discrete choice; it involves an “either-or” situation. The decision is a choice between two alternatives, similar in nature to why some high school graduates decide to attend college and others do not. Assume that the decision of a microenterprise owner to select outside start-up financing is based on an analysis of the expected marginal benefits and the expected marginal costs of receiving these funds. That is, the owner of a microenterprise derives certain utility from the outcome of the choice. The probit model for discrete choice is a nonlinear (in the factors) statistical model that achieves this objective by relating the choice probability to explanatory variables in such way that the probability remains in the  $[0, 1]$  interval, and it estimates the probability of relating the explanatory variables to the need to seek outside seed capital.

The factors associated with the decision to seek outside start-up capital to become a microentrepreneur will be analyzed using microdata from Mexico’s National Survey of Microenterprises (Encuesta Nacional de Micronegocios, ENAMIN), conducted every two years by the Mexican National Statistical Institute (Instituto Nacional de Estadística, Geografía e Informática, INEGI). The survey was constructed by selecting 12,243 owners of microenterprises from urban areas (defined as an area with at least 100,000 inhabitants) and operating in four major economic sectors: manufacturing, commerce, services, and construction. Microenterprises were selected randomly from the last quarter of the 1993 National Urban Employment Survey (Encuesta Nacional de Empleo Urbano, ENEU). The survey examines reasons for becoming self-employed, income, capital structure, costs, enterprise problems, credit needs, migrant status, and employment patterns, among other factors. The ENAMIN definition of a microenterprise is consistent with the definition used by authors.

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The ENEU represents about 92% of the urban employed population that were at least 12 years of age in 1993. The 16 urban areas surveyed in both the ENEU and the ENAMIN were Cd. Juárez, Chihuahua, Cd. México, Guadalajara, León, Matamoros, Mérida, Monterrey, Nuevo Laredo, Orizaba, Puebla, San Luis Potosí, Tampico, Tijuana, Torreón, and Veracruz. A total of 10,434 individuals/business—of 41,389 households—were identified from these urban areas (85% of 12,243 owners). In addition, 386 individuals/businesses—from a total of 1,080 households—completed the survey from a supplemental sample of 18 smaller urban areas, totaling 10,820 microenterprise owners (total response rate of 88%). A stratified random sample probability method was used to select the self-employed and microenterprise owners from the urban areas.

The sampling unit in both the ENEU and the ENAMIN is the household. Households were selected through a three-step process. In the first stage, households were grouped according to socioeconomic status (high, medium, or low) into segments of usually five households. Within each segment, the sampling units were distributed proportionally to the total number of households. The second stage was then to select blocks of 20 to 50 households. A proper weighting factor was then applied so the results of statistical analyses could be generalized to the general population in the urban areas selected. Third, households with microenterprise owners were surveyed, either at the individual's home or in the business premises (person to person interview; not mail-in survey).

For the purposes of conducting statistical analyses and the testing of hypotheses—and following Sánchez (1998) and Maloney and Cuningham (1998)—variables can be constructed and classified into the following categories: characteristics of the microenterprise owner, characteristics of the microenterprise, sector of operation, location of residence or operation, and firm dynamics.

To test whether the need for outside financing depends on the measures stated above, data from the ENAMIN survey are used. Table 1 reports the definitions of the variables and descriptive statistics of the variables. Almost 40% of individuals in the sample reported a need for outside financing, which takes the form of either financing obtained from formal sources such as banks and cooperatives, or informal sources such as friends, family members, and other informal lenders.

**Table 1. Definitions and Descriptive Statistics**

<b>Variable</b>	<b>Mean</b>	<b>Std Deviation</b>
<i>Characteristics of the owner</i>		
Years of schooling	7.523	5.484
Age	43.511	13.303
Age squared/100	20.702	12.474
Married (1 = yes)	0.708	0.455
Female (1 = yes)	0.224	0.417
Migrant (1 = yes)	0.110	0.313
Involuntary entry into self-employment (1 = yes)	0.141	0.348
<i>Characteristics of the microenterprise</i>		
Years in business	10.567	12.607
Capital or equipment (in Pesos)	31.823	95.223
Labor (number of employees)	1.779	1.360
<i>Sector of operation</i>		
Commerce (1 = yes)	0.347	0.476
Service (1 = yes)	0.425	0.494
<i>Location of residence or operation</i>		
Center (1 = yes)	0.248	0.432
South (1 = yes)	0.139	0.346
North (1 = yes)	0.080	0.271
Border (1 = yes)	0.191	0.393
<i>Microenterprise dynamics</i>		
Permanence in the sector (1 = yes)	0.684	0.465
Plans to expand (1 = yes)	0.212	0.408
Sells directly to public (1 = yes)	0.902	0.298
Compliance with tax authorities (1 = yes)	0.459	0.498
<b>N</b>	<b>5,818</b>	

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The mean age of the entrepreneurs in the sample (consisting of responses with no missing values) of business owners was 43.5 years. These individuals reported an average of 7.5 years of schooling, most of them are male and married, and only about 11% have migrated recently to their current region of residency. Most microenterprise owners report to be conducting business in the service sector (42.5%) and the commerce sector (i.e., retail and wholesale trade; 34.7%). Slightly more than one fifth of respondents are in the manufacturing and construction sectors. From this total, roughly 6% are in the construction sector; and for the data analysis purposes, the construction sector respondents are merged with the respondents from the manufacturing sector. Slightly above 40% of the microenterprises in the ENAMIN sample are located in the Mexico City metropolitan area, with about 19.1% located in the metropolitan areas along the U. S.-Mexico border.

About two-thirds of microenterprise owners entered the sector to stay permanently, 21.2% plan to expand their current size of operations, and most of these businesses sell directly to the public as opposed to other businesses. About 54% of microenterprises can be classified as operating in the informal sector in the sense that they operate without complying with tax authorities (see Robaud, 1995).

### Results

Table 2 reports the results of the probit model. The values of the coefficients of the explanatory variables are grouped into categories: the characteristics of the microenterprise owner, characteristics of the microenterprise, sector of operation (the base sector is the combined manufacturing/construction sector), location of residence or operation, and the microenterprise dynamics. The partial derivatives shown in Table 2 capture the impact of a one-unit change in the independent variable on the probability of the owner of a microenterprise, indicating a want for outside seed capital (Maddala, 1983).

**Table 2. Probit Regression Results: Need for Start-up Financing**

Variable	Coefficient	Std Error	Partials <sup>a</sup>
Constant	0.885 ***	0.189	
<i>Characteristics of the owner</i>			
Years of schooling	-0.013 ***	0.004	-0.005
Age	-0.047 ***	0.008	-0.018
Age squared/100	0.035 ***	0.008	0.014
Married (1 = yes)	-0.051	0.041	-0.020
Female (1 = yes)	0.198 ***	0.048	0.078
Migrant (1 = yes)	0.016	0.055	0.006
Involuntary entry into self-employment (1 = yes)	0.164 ***	0.050	0.064
<i>Characteristics of the microenterprise</i>			
Years in business	0.008 ***	0.001	0.003
Capital or equipment (in Pesos)	0.001 ***	0.000	0.000
Labor (number of employees)	0.028 *	0.015	0.011
<i>Sector of operation</i>			
Commerce (1 = yes)	-0.275 ***	0.049	-0.108
Service (1 = yes)	0.036	0.046	0.014
<i>Location of residence or operation</i>			
Center (1 = yes)	-0.016	0.045	-0.006
South (1 = yes)	-0.057	0.056	-0.022
North (1 = yes)	-0.144 **	0.068	-0.057
Border (1 = yes)	0.129 ***	0.048	0.051
<i>Microenterprise dynamics</i>			
Permanence in the sector (1 = yes)	0.100 ***	0.039	0.039
Plans to expand (1 = yes)	0.237 ***	0.047	0.093
Sells directly to the public (1 = yes)	0.170 ***	0.059	0.067
Compliance with tax authorities (1 = yes)	-0.126 ***	0.041	-0.049
N	5,818		
Chi-squared (df = 20)	208.818 ***		
Veall and Zimmermann's Pseudo-R <sup>2</sup>	0.050		

\*/\*\*/\*\* significant at the ten percent, five percent, and one percent level, respectively.

<sup>a</sup>Evaluated at the mean values of the independent variables.



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Before discussing the main findings, note that the model fits the data well, as can be deduced from a Chi-square statistic of 208.818, suggesting that the null hypothesis of a zero vector of coefficients is rejected at the one percent level of statistical significance. Moreover, the Veall and Zimmermann's (1996) Pseudo-R<sup>2</sup> measures further reinforce this result.

The owners' need for outside start-up capital decreases with increasing levels of schooling and age. Age also proxies experience, following the method of calculation found in other studies (Davila, 1997; age less years of schooling less 16). An additional year of schooling decreases the probability of needing outside financing by roughly half a percentage point, and each additional year of experience (age) decreases the probability of needing outside seed capital by 1.8 percentage points. With increasing years of schooling and experience, the need for outside start-up capital diminishes with the assumable increase in personal wealth accumulation. Moreover, education may be used as a proxy for the more general ability to acquire savings and new capital (Nabi, 1989).

Female microenterprise owners are more likely to resort to outside financing for start-up capital. These results are consistent with those of other studies which have found that on average, self-employed females are older than their male counterparts, perhaps because they face labor market barriers that hinder their ability to accumulate funds to start a business. Female entrepreneurs are also less likely to be married than their male counterparts, and therefore could have less of a financial support network than male business owners (Pagán & Sánchez, forthcoming; Maloney & Cunningham, 1998).

If people start a business because they cannot find salaried employment or they were fired from the last salaried positions (involuntary entry into self-employment), the need for outside start-up capital seems to be important.

Business experience in years (not limited to the planned enterprise), stock of capital (in pesos), and the expected number of employees—i.e., characteristics of the microenterprise—are all

statistically significant and positively related to the need for outside start-up capital. It is reasonable to assume that the more business experience owners have the more personal wealth they have accumulated. The findings are consistent with the premise that there is a positive relationship between the probability of starting a business and the size of personal assets, as stated by Evans and Jovanovic (1989).

The expected number of paid employees is also positively related to the need for outside start-up capital. This finding is consistent with the economics and finance literature, which indicates that the rate of expected return either increases with firm size—measured by number of paid employees—or is fixed (constant) with the firm size (Evans & Jovanovic, 1989).

Microenterprise owners in the commerce sector are less likely to need outside financing when compared to those in all other sectors (relative to the manufacturing = base sector).

In the border region the probability for a start-up microenterprise needing outside financing is greater than in the central, south, or northern regions of Mexico.

With regard to microenterprise dynamics, if the owners of microenterprises indicate the desire for the future expansion of their firms (plans to expand) or that they are going to stay in the current place of business or residency (permanence in the sector), the likelihood of relying on outside start-up capital significantly increases when compared to owners who do not have these types of plans. Additionally, when owners of microenterprises are in compliance with authorities (legal, tax, and labor) then the likelihood of outside start-up capital reliance significantly falls.

### **Concluding Remarks and Policy Implications**

The largest percentage (66.8) of the individuals entering into self-employment through the creation of a microenterprise used personal savings to do so (Heino, 2000). The age of the owner, years of schooling, gender, involuntary entry into self-employment, years of owner's business experience, accumulated

capital, and planned size of the firm (as implied by the number of paid employees) are factors affecting the individual's need for outside start-up capital.

The sector of the operation as well as the geographic region of the microenterprise are similarly found to be statistically significant explanatory variables that affect the microenterprise owner's need for outside start-up capital. For example, owners planning to create a microenterprise in the Mexico City area are more likely to need outside capital to help them to get started, as compared with entrepreneurs in other areas of the country. Similarly, an entrepreneur entering into self-employment in the manufacturing and construction sector will more likely need outside start-up capital compared to an entrepreneur in the commerce sector.

Policymakers in both developed and less developed countries seem to use two basic policy measures to fuel the creation of microenterprises (Heino, 2000). The two policy tools used—in order to create an economic and social framework favorable to the birth and survival of microenterprises—rely on a variation of capital assistance for seed capital (e.g., globally subsidized loans, guaranty schemes, and direct financial support to nongovernmental organizations and on fiscal policy tools, organizing educational seminars, and other entrepreneurial training opportunities). The direct financial assistance approach without the increase in supportive policy actions that focus on incentives and services, structural improvements (not only in the capital markets), and cooperation between governmental (on federal, state, and local levels) and nongovernmental organizations seems to be increasing in importance. This conclusion furthers the belief that most, if not all, interventions by monetary or fiscal policy makers have a limited and at best short-term desired effect in the increasingly integrated global economies. It is also interesting to note that macro-level policy measures aimed to increase the competitiveness of the institutions in the informal credit sector could make micro-finance services very attractive to a large number of potential

microenterprise owners. This would allow the informal sector institutions to provide the same services as formal credit-sector institutions at a more affordable price and with greater flexibility, resulting in a more homogenous competitive environment to all start-up microenterprises. Theoretically, this should increase the expected demand by the potential owners of microenterprises for borrowed start-up capital; and this demand will lead to an increased creation of microenterprises (which would also lead to increasing economic benefits to the surrounding communities) when the cost of start-up capital incrementally approaches the cost of starting a firm with personal savings (i.e., cost equals the foregone interest income from savings account). The use of macro-level policy measures aimed to “equalize” the cost of start-up capital across formal and informal sectors—without balancing the policy measures with measures aimed to ensure the existence of efficient capital markets, in which participants, small and large alike, have free (without restrictions) and equal access to the markets—is thus a fundamental requirement in establishing an economic environment that fosters growth.

## Notes

In comparing formal sector borrowers to informal sector borrowers in Mexico, Heino (2000) found that a likely borrower from the formal credit markets differentiates from the likely owner of the microenterprise who borrows from the informal credit sector in the average years of schooling (formal sector borrowers are 66.2% more educated in terms of school years), the number of paid employees (formal sector borrowers have more), age (formal sector borrowers are older), and tax compliance (formal sector borrowers are more likely to be in compliance with tax laws).

The ENAMIN survey also asked microenterprise owners why they started their businesses (the sample is weighted and it is equivalent to the responses of 3,060,243 microenterprise owners). About 24% of microenterprise owners said that they became self-employed in order to gain more independence; and 37% became entrepreneurs because the expected income from self-employment is greater than the income from a salaried position. Almost 36% went into business to complement family income, 10% started a business to follow family tradition, and 8% became entrepreneurs because no other employment opportunities were available.

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