ENTREPRENEURSHIP UNDER SEVERE ADVERSE CONDITIONS: THE NORTHWEST MEXICAN CASE

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ABSTRACT

We analyzed the performance of marginalized subsistence microenterprises, through dichotomous logistic regressions by maximum likelihood. We tested 52,224 hypotheses, trying to find behavior patterns on microenterprises. The results show that performance is the result of a combination of factors related to the owners and the decisions made by them on their entrepreneurial environment, if measured as an approximation of the success/failure ratio. It is possible to know many of these variables before the business starts. In addition, some variables did not show the expected relation; this suggests that these projects deserve a different treatment than the formal micro and small enterprise. These factors may well influence the design of microenterprises' assistance programs, micro loans and the establishment of commercial areas that allow an "enhanced" micro entrepreneur profile.

JEL : C35, D12, D13, D14

KEYWORDS: Small business, marginalization, performance, logit, maximum likelihood.

INTRODUCTION

Microenterprises are of significant potential contribution to local economies (Iduarte & Zarza, 2005). However, many of these are not as active in regional development as expected, mostly because they were not created under a formal entrepreneurship vision; instead, they are more focused on personal or family economic survival (Del Cid, 2006) operating in a steady loss of capital and therefore being considered as subsistence microenterprises (Cohen, 2006). Part of the origin of this phenomenon in Latin American countries, is the contraction of labor markets that, in the absence of unemployment insurance, makes individuals turn to unregistered -and in that sense parallel and informal- economic activities in order to get the funds to meet their basic living needs (Mungaray, Ramírez, Aguilar & Beltrán, 2007).

Within this group, those who stand out are householders who opt to set up in their homes a local craft business with just the right value added to its products, to stay afloat. Severe restrictions stemming from lack of support and social and economic marginalization affect these social base small businesses. Nevertheless, these microenterprises can place themselves above the rest in some cases, when measured by sales volume or consumer preference, and against all odds, they have a long and profitable life (Alcalá, Mungaray & Ramírez, 2004). This is likely due to the inherent talent of the owners, and the search to meet their needs for economic self-sufficiency.

In this paper, we study the performance attributes of subsistence microenterprises that help to rise above social and economic marginalization in Mexico's northwest border region, through the determination of individual and interrelated impacts from variables of different nature. It was found that some variables concerning the organization of the microenterprise, but also some related to the proprietors –which in many cases are known even before the start of operations- are an accurate forecast of the microenterprise performance in terms of success/failure ratio. This constitutes a certainty factor that can help in setting

the appropriate conditions for an efficient regulation, including a potential future formalization and a more effective assistance and financial support.

We structure the paper as follows: first, we argue about the importance of entrepreneurs' behavior on microenterprise performance, especially when they are close to self-employment; this serves as a base to present the hypothesis and the objectives of the study. Then, we further detail the work model. After that, we describe the specific data treatment. The next to last section describes the main results and their interpretation. Last section shows the conclusions and final remarks.

LITERATURE REVIEW

The study of entrepreneurship originated several decades ago. The dualist school subscribed to the notion that the informal sector is comprised of marginal activities, distinct from and not related to the formal sector; these actions provide income for the poor and a safety net for them in times of crisis (ILO-PREALC-ILO, 1981). In accordance with this vision, the objective of an informal enterprise is to assure the survival of the workers and their families, in a clearly inferior sector than formality (Tokman, 1989; Harris & Todaro, 1970).

Later on, the structuralism school argued that in the informal sector, subordinated workers serve to reduce labor costs and, thereby, increasing the competitiveness of large firms that are part of a modern sector that is underdeveloped. This line of though suggest that the productive structure is segmented, allowing the coexistence of highly productive activities with those that are not as technical (Castells & Portes, 1989); the result of these actions are low wages and the worst labor conditions. According to this theory, the informal sector is a structural surplus of the employment market, caused by an implacable capitalist system. On the other hand, legalists' theories subscribes to the notion that the informal sector is comprised of brave micro entrepreneurs who choose to operate informally in order to avoid the costs, time and effort of formal registration. Under this view, government regulations are stifling private enterprise, especially micro and small enterprises (De Soto, Ghersi & Ghibellini, 1986). In a sense, it emphasizes transactions costs as a reasoned and voluntary element of decision to stay in informality (Bosch & Maloney, 2007).

The illegality school of thought made a similar postulation but with a persecutory slant. According with them, informal entrepreneurs choose deliberately to operate illegally in order to avoiding taxation, commercial regulations and other fees and costs of operating formally, even committing criminal acts (Maloney, 2004). These last two lines of thought are associated with neoliberal ideas. Finally, in recent years, a new theory has emerged in which all others are integrated, and consider that institutions are to blame for labor mobility and wage differences, thus causing multiple segments within labor markets (Piore, 1980; Fields, 2005).

This paper defines subsistence and informal microenterprise as unregistered household activities, owned and operated by own-account workers that may employ contributing family workers and unregistered employees on an occasional basis that creates scarce income for immediate consumption rarely used for reinvestment purposes (Del Cid, 2006). Though is not the one of the direct causes, global recessions like the ones experienced during 2008 and 2009, tend to accelerate the creation of subsistence microenterprises in marginal urban areas of the developing countries (Aguilar, Mungaray & Ramírez, 2009). This provides an opportunity to understand its scope and influence, focusing towards the differentiation between developing a real anti crisis resources and throwing money in low impact and populist aid programs. Parallel to theoretical approaches, it is common to identify two different types of micro entrepreneur's profiles when doing fieldwork in unregulated micro and small enterprises.

First, there are those who are not interested in modifying their operation methods. Second, those who are willing to deal with organizational restructuration that leads to the formalization of their operations and, as a result, to fulfill tax obligations to the Internal Revenue Service, however, they do not possess the knowledge or means to achieve it (Mungaray, Ramírez-Urquidy, Texis, Ramírez & Ledezma, 2008). In an imperfect sense, we associate the first group with the involuntary entrepreneurship that has no other purpose than to supplement the inadequate family income (Maloney, 2004). On the other hand, we relate the voluntary entrepreneurship with the second group because its members are willing to sacrifice current profits for higher future profits (regardless of the formalization or not of the microenterprise).

Moreover, there are also two types of starting up subsistence microenterprises: those who appear to have growing potential and those who do not (Bosch & Maloney, 2007). Although it is easy to recognize the bad projects, end up being difficult to identify and support the good ones when they exist. The problem arises by the fact that there is no agreement on the definition of "success" for most of these projects, in the sense that they could be considered as technically apt to invest in the formalization process. Given that there are grounds to reduce the informality phenomenon, Is it possible to contribute to the identification of entrepreneurs that want to and have the technical means to do so?

According to the objectives, there are many ways to measure the microenterprise performance using proxies for business success (Mungaray *et al.*, 2008). Among the monetary ones is usual to consider the evolution of financial criteria such as profitability, costs, sales or profits (Marroquín, 2008). Some authors (Robles, Saavedra, Torero, Valdivia & Chacaltana, 2001), stated that the main factors for determining small businesses health are utilities over sales, average work product and the rate of growth in the number of employees. Measuring the performance based on short-term economic and financial criteria usually provides suitable indicators of both present businesses aspects and growth potential. This is because, first, it is expected that a subsistence microenterprise operation must cease once the level of earnings has allowed it to reach its immediate goals, revealing an inefficient procedure in terms of microeconomic theory; and second, high profits are basic supports -though not necessarily sufficient- for the short term planning activities of the microenterprise.

Many factors can affect (either enhance or inhibit) the micro business development; much of them are related to the proprietor figure (Marroquín, 2008). More so, micro entrepreneur personality defines the business management style (Stokes & Fitchew, 1997). When a micro business is created by a few members of the same family -like in 50% of the time in Mexico (Mungaray *et al.*, 2008)- seems indisputable that economic, social, cultural and family decisions around the day by day of the owners will have a direct impact on the business development level. The main conjecture of this paper is that good financial performance of subsistence microenterprises that begin and develop under marginal conditions, without assistance programs, with poor market tactics and offering low value added, are the result of factors related to the individual characteristics and the simple decisions taken by the micro entrepreneur about his project.

DATA AND METODOLOGY

The input data correspond to socioeconomic information of 962 informal microenterprises surveyed by the Assistance and Teaching for Micro and Small Enterprises Investigation Center of the Universidad Autónoma de Baja California during 2006-2008. The collected data classified by convenience sampling method due to the logistical difficulties in trying to locate subsistence microenterprises. This caused an unavoidable slant towards the opinion of the micro entrepreneurs that actually cooperated, who are part of those with active micro companies at the time when the survey was conducted (it was difficult to obtain information of the extremely poor performance cases because they disappear very quickly). Finally, we treat the data as a cross section.

Table 1: Elements of the Dependent Variable

Variable	d Type	$\bar{d}$ Type	Dichotomous Criterion
Average Monthly Utilities (x)	-	-	-
Average Monthly Sales (y)	-	-	-
Return on Sales = $(x / y)*100$	Below the first quartile (Q_1)	Above the third quartile (Q_3)	Mean: 8.74%, $Q_1 = .47\%$, $Q_3 = 9.34\%$

Dependent variable is structured by the ratio of frequencies between low performance businesses (d type) and high performance businesses ($\bar{d}$ type) based on return on sales.

Table 1 shows the formation of the dependent variable, finally structured by the ratio of frequencies between low performance businesses (d) and high performance businesses ($\bar{d}$) based on return on sales (ROS). Looking for a higher differentiation between groups, the low performance ones include those sample cases smaller in value than the first quartile, and the high performance microenterprises include all observations higher in value than the third quartile, thus, both groups have the same data size (but not necessarily the same range size).

Table 2: Categorization of Independent Variables Related to the Owners

Abbreviation	Owners' Variables	a, b or c Types	$\bar{a}$, $\bar{b}$ or $\bar{c}$ Types	Dichotomous Criterion
S	Sex	Male	Female	-
A	Age	Lower than or equal to the criterion	Higher than the criterion	Median: 39 years old
MS	Marital status	Single (including widowed and divorced)	Married or cohabiting couples	-
NE	Number of economic dependents	Lower than the criterion	Equal or higher than the criterion	Median: 3 people
PB	Place of birth	South of Mexico	North of Mexico♦	-
HE	Highest educational level	Middle school completed	Above middle school	-
SE	Source of experience related to microenterprise management	Self learning	Guided through school, previous jobs or friends	-

♦*The northern states are Nayarit, Sinaloa, Chihuahua, Baja California, Baja California Sur, Coahuila, San Luis Potosí, Nuevo León, Aguascalientes, Tamaulipas, Durango and Zacatecas. The rest of the Mexican states as South.*

A list with the definition of the independent variables is in Table 2; data relevance and previous work determines the main selection of variables (Aguilar, Ramírez & Barrón, 2007). When dealing with grouped data no specification problems arise for an adequate sample size. We eliminated all highly correlated variables at a disaggregated level in advance. Since the calculation requires dichotomous data, if the variables are metric (continuous or discrete) in nature, the median is used to divide it.

Nominal qualitative variables of n (>2) categories are differentiated in a way that they provide balanced groups while also maintaining economic sense. About 56% of micro entrepreneurs interviewed were women, 51% had at most 39 years old and 69% were married o cohabiting couples. Concerning microenterprises, 62% are engaged in food production and retail food sales.

Through logit models, Goodman (1972) calculates individual and grouping multiplicative influence impacts of a pool of variables related to the occurrence or not of an event measured as observed proportions. Mamon and Marshall (1977) found and explained that certain agent behaviors are the result of a system of variables of both personal and environmental nature, from which it is possible to determine unilateral, bilateral and multilateral relations. This seminal work laid the foundations for recent literature but in any case explain the performance of microenterprises in Mexico.

Table 3: Categorization of Independent Variables Related to the Microenterprises

Abbreviation	Microenterprises' Variables	a, b or c Types	$\bar{a}$, $\bar{b}$ or $\bar{c}$ Types	Dichotomous Criterion
MA	Main activity	Food production and retail food sales	Other retail sales	-
IC	Initial capital	Lower than or equal to the criterion	Higher than the criterion	Median: 180 USD
ST	Sales tactics	Aspect related to pricing or service provision	Aspects related to quality of products	-
PM	Pricing mechanism	Market based	Cost based	-
CF	Credit facilities to clients	No	Yes	-
RPAP	Reinvestment as a percentage of annual profits	Not consistent with *ROS*♦	Consistent with *ROS*	Median: 50%
AD	Advertising	No	Yes	-
AE	Average age of employees	Lower than or equal to the criterion	Higher than the criterion	Mean: 31 years old
PF	Percentage of profits used for family purposes	Lower than or equal to the criterion	Higher than the criterion	Mean: 51%
TO	Time since opening	Lower than the criterion	Equal or higher than the criterion	Median: 2 years
HW	Hours worked by day (operating hours)	Eight hours or less	More than eight hours	-

♦ *Not being consistent with ROS for the microenterprise i occurs when* $ROS_i >$ *mean and* $RPAP_i \leq$ *median or when* $ROS_i \leq$ *mean and* $RPAP_i >$ *median. Consistent with ROS occurs when* $ROS_i >$ *mean and* $RPAP_i >$ *median or* $ROS_i \leq$ *mean and* $RPAP_i \leq$ *median. In the above calculation, we use the metrical version (non-dichotomous) of the ROS* and *RPAP* variables.

Based on Goodman (1972), we use an unsaturated model of dichotomous variables A, B, C and D whose types are $\{a, \bar{a}\}$, $\{b, \bar{b}\}$, $\{c, \bar{c}\}$ and $\{d, \bar{d}\}$ respectively and with a sample size of n observations. A "case" will be one of the eight possible combinations for the three independent variables A, B and C. The observed frequency for the case (i, j, k) with D as a dependent variable is noted by f_{ijkl}, where subscripts $i = a$ or $\bar{a}$, $j = b$ or $\bar{b}$, $k = c$ or $\bar{c}$ and $l = d$ or $\bar{d}$, indicate, respectively, the type taken by the variables A, B, C and D. We introduce the proportion of frequencies of a type d over a type $\bar{d}$ of the dependent variable

$$\omega_{ijk} = \frac{f_{ijkd}}{f_{ijk\bar{d}}} \tag{1}$$

which is named as the observed frequency ratio and will be considered as the functional form of the dependent variable (Goodman, 1972). The estimated frequency for the case (i, j, k) is called F_{ijkl} when D takes on the type l. So,

$$\Omega_{ijk} = \frac{F_{ijkd}}{F_{ijk\bar{d}}} \tag{2}$$

will be the estimated frequency ratio for the case (i, j, k). The model that combines, in the form of multiplicative form, all the impacts is:

$$\Omega_{ijk}^{D} = \gamma^{\alpha D} \gamma_i^{AD} \gamma_j^{BD} \gamma_k^{CD} \gamma_{ij}^{ABD} \gamma_{ik}^{ACD} \gamma_{jk}^{BCD}, \tag{3}$$

where γ_i^{AD}, γ_j^{BD} and γ_k^{CD} represent the individual impacts on Ω_{ijk}^{D}, associated to the variables A, B and C when their types are respectively i, j and k; whereas γ_{ij}^{ABD}, γ_{ik}^{ACD} and γ_{jk}^{BCD} show the related impact associated to the joint variables AB, AC and BC when their types are respectively ij, ik and jk. We set the term D at the end of the superscript to emphasize the dependent variable. Expression (3) is the more complex model but there are other $2^6 - 1 \equiv 63$ possible representations for individual and related

impacts in the three variable model that imply that at least one of the impacts is assumed with neutral effect, i.e., a value of one. In sum, all 64 variants will represent "the family" of hypothesis tests for the three variables model, which rotate to reach all possible combinations on the set of variables considered in the analysis. We can advise that (3), is in itself an equations system with as many equations as combinations without repetition exist in the triplet (i, j, k).

The maximum likelihood method leads to an appropriate solution of (3) because of the structure of the dependent variable (Powers & Xie, 2008), for which we express the formula as an exponential function as follows:

$$ln\left(\frac{p_{ijk}}{1-p_{ijk}}\right) = \beta^{\alpha D} + \beta_i^{AD} + \beta_j^{BD} + \beta_k^{CD} + \beta_{ij}^{ABD} + \beta_{ik}^{ACD} + \beta_{jk}^{BCD} \quad (4)$$

where the observed frequency ratio is now expressed in an "odds ratio form", considering that the relative frequencies for types d and $\bar{d}$, respectively, in the (i, j, k) case, are

$$p_{ijk} = \frac{f_{ijkd}}{\left(f_{ijkd} + f_{ijk\bar{d}}\right)} \quad (5a)$$

$$q_{ijk} = \frac{f_{ijk\bar{d}}}{\left(f_{ijkd} + f_{ijk\bar{d}}\right)}. \quad (5b)$$

and that $p_{ijk} + q_{ijk} = 1$. Also, the following equivalences has been taken into account to obtain the expression (4),

$$e^{\beta^{\alpha D}} = \gamma^{\alpha D},$$
$$e^{\beta_i^{AD}} = \gamma_i^{AD},$$
$$e^{\beta_j^{BD}} = \gamma_j^{BD},$$
$$e^{\beta_k^{CD}} = \gamma_k^{CD},$$
$$e^{\beta_{ij}^{ABD}} = \gamma_{ij}^{ABD},$$
$$e^{\beta_{ik}^{ACD}} = \gamma_{ik}^{ACD},$$
$$e^{\beta_{jk}^{BCD}} = \gamma_{jk}^{BCD},$$

To explore the adequacy of the model and the statistical significance of the parameters, we use the chi-square test based on the likelihood ratio,

$$\chi^2 RV = 2\sum_{i=1}^{2}\sum_{j=1}^{2}\sum_{k=1}^{2}\sum_{l=1}^{2} f_{ijkl} \ln\frac{f_{ijkl}}{F_{ijkl}} \quad (6)$$

that is used as a goodness of fit test (and not as a dependency test) allowing to realize the following left tailed hypothesis test

$$H_o: \textit{There are moderate similatiries between observed and estimated distribution}$$
$$H_1: \textit{There are high similatiries between observed and estimated distribution} \quad (7)$$

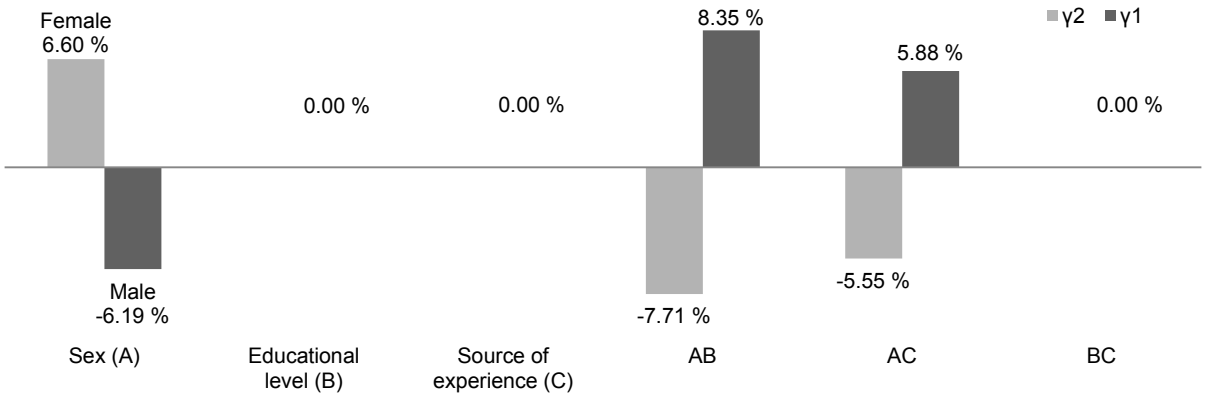
The statistical value of (6) together with the degrees of freedom, are used to calculate the $p\ value$ of the hypothesis, interpreted as the probability of obtaining a result as extreme as the one observed, when the alternative hypothesis is true. We compare the $p\ value$ with the critical value used for significance testing, i.e., $\alpha = .05$.

EMPIRICAL IMPLICATIONS

The exploratory econometric exercise evaluate complete "families" (64 variants) for all combinations of three independent variables (816 combinations for a set of 18 independent variables according to the *combinatorial formula*), resulting 52,224 estimates. In search of the most relevant variables we segregate those families with at least 20% of its variants satisfying the condition of $p\ value \geq .95$ and that 50% of them also complied with $p\ value \geq .75$. The filter allows the selection of 30 families on which we based the following analysis.

In a broad sense, there is a close relation of *highest educational level* to *sex*, *marital status* and *origin of experience*, in the case of variables directly linked to the owner and to *sales tactics* and *pricing mechanism* when referring to microenterprise decisions. In addition to previous relations, there is a strong connection between *marital status* and the *source of experience* but also to the microenterprises' *main activity*, *sales tactics*, *time since opening* and the *percentage of profits used for family purposes*. In addition, the *origin of experience* has close relation with the gender of the entrepreneur, and finds expression in the *main activity* of microenterprises and the way proprietors set prices. Below, we explain the type, sign and magnitude of the variables included according to econometrics tests.

Figure 1: The Most Significant Test on Sex / Educational Level / Source of Experience

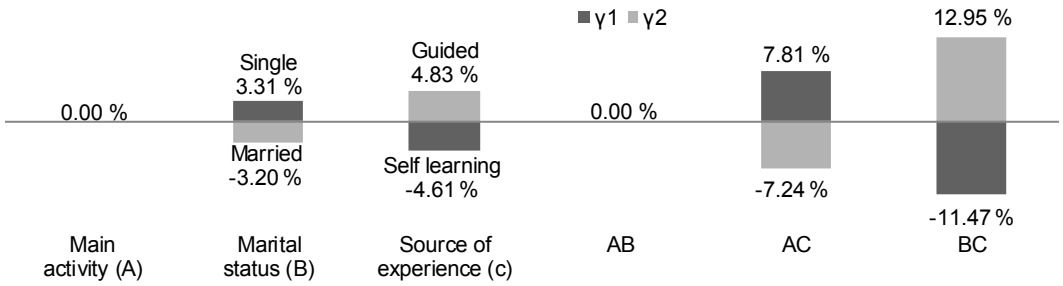


Additionally, the test yielded the following results: $\gamma^{\alpha D} = .9904$, $p\ value = .9737$**. *Shocks above the horizontal line increase success/failure ratio. Shocks below the horizontal line decrease success/failure ratio. The first three potential bars refer to individual shocks. The three last potential bars are interrelated shocks.*

Sex has a frequent and direct impact on the performance of the microenterprises. Specifically, women have higher success/failure ratio probability (Figure 1). Owners' age appears rarely in tests, but when evident, it always shows a direct impact on performance; having less than 39 years old when managing a business contributes to success. *Marital status* is one of the most frequent variables according to evidence; not often has a direct effect, but when it does, shows that single micro entrepreneurs are slightly more successful (Figures 2, 3, and 4).

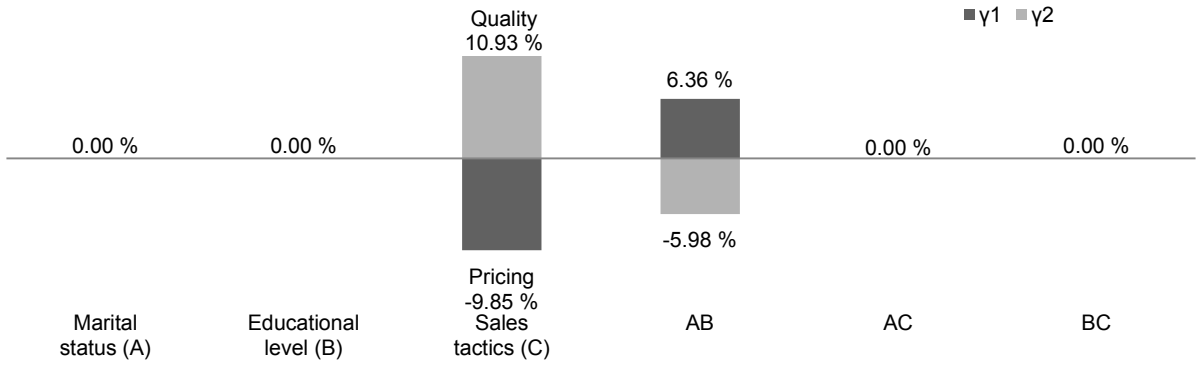
Typically, when the proprietor is married, the best alternative to ensure business continuity is to work beyond a typical workday. Equally, being single facilitate a good microenterprise results by not having the family commitments; therefore, owners may be able to focus more on the business performance without working overtime looking for short-term liquidity. Although it might seem paradoxical, the women entrepreneurs have a higher success rate when they had to play both mother and father roles (single women with three or more economic dependents).

Figure 2: The Most Significant Test on Main Activity / Marital Status / Source of Experience



Additionally, the test yielded the following results: $\gamma^{\alpha D} = 1.0004$, $p\ value = .9705^{**}$. *Shocks above the horizontal line increase success/failure ratio. Shocks below the horizontal line decrease success/failure ratio. The first three potential bars refer to individual shocks. The three last potential bars are interrelated shocks.*

Figure 3: The Most Significant Test on Marital Status / Educational Level / Source of Experience



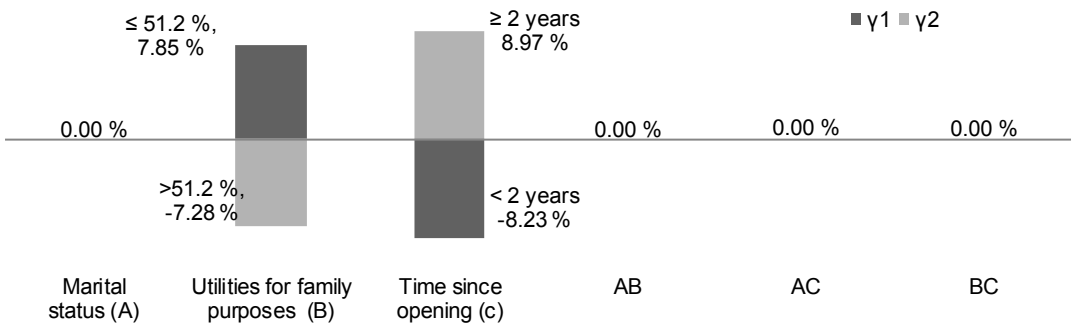
Additionally, the test yielded the following results: $\gamma^{\alpha D} = 1.0122$, $p\ value = .9784^{**}$. *Shocks above the horizontal line increase success/failure ratio. Shocks below the horizontal line decrease success/failure ratio. The first three potential bars refer to individual shocks. The three last potential bars are interrelated shocks.*

The *educational level* is the most often presented variable in the results; nevertheless, it rarely displays a direct impact; when displayed, is not entirely clear that the lack of basic education could be a barrier to success. In addition, it is uncommon that subsistence micro business with a minimum performance threshold are being led by someone with high school or higher education, maybe because those promoters would be looking to get higher revenues in others jobs (Figures 1, 3, and 5). The *means in which an owner learned* the production process and business management normally has no direct impact on performance but it is associated with the *highest study degree* and *pricing mechanisms*; nevertheless, having been driven, slightly increases the success probabilities over failure ratio (Figures 1, 2, and 5). Neither the *number of economic dependents* nor the *place of birth* have significantly alters the odd ratio.

The microenterprise's *main activity* is not a variable that predisposes success or failure in a direct manner but may be essential for others like *sex* or *marital status* to appear, reinforcing its individual effects (Figures 2, 3, and 4). *Sales tactics* has low incidence in the selected tests, but it shows a direct impact stating that -although these businesses serve markets with low purchasing power- product quality rather than pricing or credit facilities, will bring higher profits to microenterprises (Figures 3 and 6). The fact that 62% of the sample is food retailers probably have to do with this order of priorities. Provide *credit facilities to clients* directly affect the micro business performance (Table 4); it is simple, if subsistence microenterprises want to stay afloat in the market, they should not give credit to their clients. This may

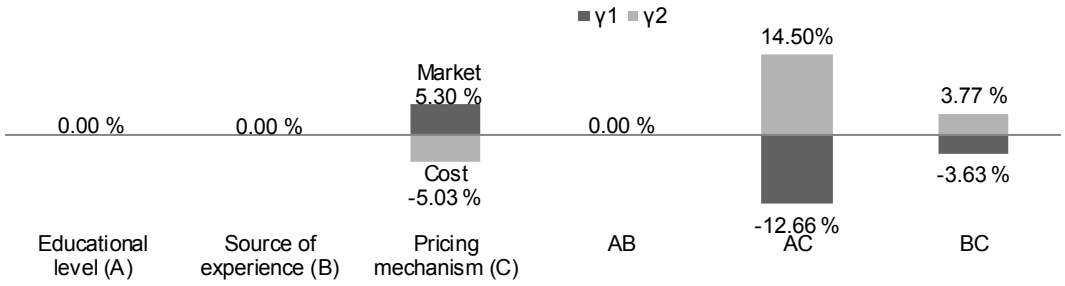
seem counterintuitive, but in countries with high poverty and inflation rates, and many people with unmet basic needs, the emergence of opportunistic behavior in interpersonal relationships is latent.

Figure 4: The Most Significant Test on Marital Status / Profits For Family Purposes / Time Since Opening



*Additionally, the test yielded the following results: $\gamma^{\alpha D} = .9739$, p value =.9802**. Shocks above the horizontal line increase success/failure ratio. Shocks below the horizontal line decrease success/failure ratio. The first three potential bars refer to individual shocks. The three last potential bars are interrelated shocks.*

Figure 5: The Most Significant Test on Educational Level / Source Of Experience / Pricing Mechanism

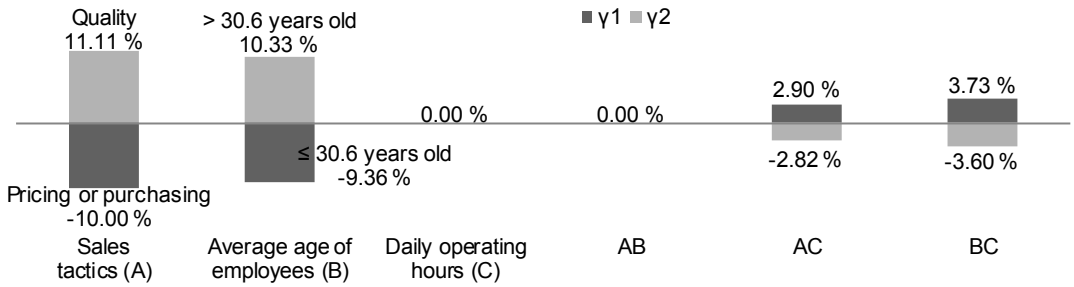


*Additionally, the test yielded the following results: $\gamma^{\alpha D} = 1.0029$, p value = .9650**. Shocks above the horizontal line increase success/failure ratio. Shocks below the horizontal line decrease success/failure ratio. The first three potential bars refer to individual shocks. The three last potential bars are interrelated shocks.*

The average age of employees is either a low incidence variable that somehow affects, directly or indirectly the success/failure ratio; when there is a direct influence, the variable acts in the sense that not so young workers have a slightly better opportunity to generate higher profits (Figure 6). *Reinvestment as a percentage of annual profits* is a variable of average importance in terms of its frequency (Table 4); however, as expected, this variable has close relation with the dependent variable through profit level. Those who use most of their income to cover family needs take the risk of having future financial problems or lack of capital. By investing less than 51% of utilities to cover family expenses, the success/failure relationship are increased (Figure 6). Therefore promoters face a critical trade off (the home-microenterprise dilemma) perhaps unwittingly; on any case, it has low relevance as a solely predictor of the microenterprise performance.

Use of advertising is a low frequency variable but usually it has a direct effect that reveals that in this kind of business, paid advertising does not always have a significant impact on income. Possibly a cheaper word-of-mouth advertising and a warm and personal customer service have replaced the lack of formal marketing activities, resulting in an implicit behavior towards benefit maximization (Table 4).

Figure 6: The Most Significant Test on Sales Tactics / Average Age of Employees / Daily Operating Hours



Additionally, the test yielded the following results: $\gamma^{\alpha D} = 1.0106$, $p\ value = .9648$**. *Shocks above the horizontal line increase success/failure ratio. Shocks below the horizontal line decrease success/failure ratio. The first three potential bars refer to individual shocks. The three last potential bars are interrelated shocks.*

Table 4: Summarizing Results of the 30 Families Selected

Variables included in test	Impacts (hypothesis)							Goodness of fit		
		Individual			Interrelated					
		A	**B**	**C**	**AB**	**AC**	**BC**	$\chi^2 - LR$	**df**	**Confidence level**
S, MA, MS	0.9933	-7.61	0	2.97	0.54	-7.05	0	0.010	3	0.961**
S, MA, HE	0.9862	-6.31	0	0	0	7.92	0	0.435	5	0.951**
S, MA, AE	0.9875	-4.92	0	-10.77	0	0	7.58	0.053	4	0.961**
S, HE, SE	0.9904	-6.19	0	0	8.35	5.88	0	0.179	4	0.990***
S, HE, ST	0.9996	-6.37	0	-10.15	8.40	0	0	0.145	4	0.957**
S, HE, CF	0.9816	-6.62	0	8.90	7.69	0	5.25	0.040	3	0.957**
MA, A, HE	0.9882	0	10.08	2.97	0	0	5.64	0.134	4	0.957**
MA, A, SE	0.9853	0	10.95	0	0	8.20	0	0.290	5	0.957**
MA, MS, SE	1.0004	0	3.31	-4.61	0	7.81	-11.47	0.017	3	0.971**
MA, MS, AD	0.9765	-5.34	2.30	5.67	0	13.70	2.74	0.001	2	0.959**
MA, MS, PF	0.9870	0	0	4.83	0	10.63	0	0.402	5	0.953**
MA, HE, PF	0.9870	0	0	4.83	0	10.63	0	0.332	5	0.957**
A, HE, SE	0.9953	9.52	0	0	5.92	0	0	0.417	5	0.951**
A, SE, PM	0.9874	11.11	0	0	0	0	-3.20	0.305	5	0.957**
MS, HE, SE	1.0002	0	0	0	5.66	-10.30	0	0.490	5	0.947*
MS, HE, ST	1.0122	0	0	-9.85	6.36	0	0	0.419	5	0.978**
MS, HE, *RPAP*	0.9992	0	5.84	0	9.59	-7.01	-4.82	0.176	3	0.923*
MS, HE, TO	0.9894	0	0	-8.30	7.05	0	0	0.443	5	0.949*
MS, SE, AD	0.9626	0	0	6.96	-10.43	0	0	0.297	5	0.957**
MS, SE, TO	0.9766	0	0	-7.96	-10.79	0	3.94	0.162	4	0.957**
MS, ST, CF	1.0006	0	-9.71	9	0	-1.81	0	0.311	4	0.939*
MS, CF, AD	0.9694	4.46	12.64	8.73	0	0	-3.86	0.112	3	0.943*
MS, *RPAP*, AD	0.9559	0	0	7.61	0	0	6.71	0.492	5	0.945*
MS, PF, TO	0.9739	0	7.85	-8.23	0	0	0	0.257	5	0.980**
HE, SE, PM	1.0029	0	0	5.30	0	-12.66	-3.63	0.080	4	0.965**
HE, SE, AE	1.0022	0	0	-10.65	1.51	7.55	0	0.040	4	0.961**
SE, ST, HW	1.0021	0	-9.67	0	8.08	-6.17	0	0.209	4	0.951**
SE, PM, *RPAP*	0.9883	0	0	6.22	0	0	7.72	0.207	5	0.959**
SE, PM, TO	0.9770	0	0	-7.89	0	0	0	0.829	6	0.943*
ST, AE, HW	1.0106	-10.00	-9.36	0	0	2.90	3.73	0.005	3	0.965**

$\chi^2 - LR$*: likelihood ratio; df: degrees of freedom. Impacts shown are only of type a, b or c and its interrelations.*

Microenterprise's age acts usually as a complement for other variables; when acts directly, occurs that in the short time since opening microenterprises are more susceptible to disappear. Having survived the second year of operations increases the possibility of staying alive in the market near future (Figure 4). *Pricing mechanisms* are a necessary support for others variables, but is not clear how it could be favorable for a microenterprise, whether to fix prices based on competition or on costs plus methods (Figure 5).

Surprisingly, the *initial capital* was not decisive for the microenterprises performance. Figure 7 summarizes the main statistical results of the 30 families selected.

CONCLUSIONS

This paper analyzes the factors that influence microenterprise performance when they emerge from socially and economically marginalized environments through logit models estimated by maximum likelihood. The study aims at determining the nature of the factors that occur with greater frequency and strength in entrepreneurship that emerges despite of and because of disadvantaged conditions in Mexico. We use socioeconomic data of 962 informal retail units provided by the Teaching and Assistance Center for the Investigation of the Micro and Small Enterprises (Baja California) for the years 2006 to 2008. We treat the data as a cross section allowing testing a wide range of hypotheses through unsaturated models of dichotomous variables. Results show that the profits of subsistence microenterprises could be partially determined by factors related to their owners and by the decisions made from them on a personal and entrepreneurial environment. We must highlight that it is possible to know many of these variables even before the project starts operating. The most common variables found are endogenous (usually -although not always- controlled), e.g., *educational level*, *marital status*, *source of experience* and *main activity*; most of them intrinsic characteristics of the proprietor and some own decisions. Subsistence microenterprise does not seem to depend crucially on external factors to find a guaranteed minimum niche market. In addition, other variables that do not fit like previous ones, but provide a direct impact on performance when they are present like *sex*, *owners' age*, *sales tactics*, advertising management and credit facilities to customers.

These findings are important to consider during the design of entrepreneurship support programs, micro credits and territorial distribution planning. The perception of subject of assistance, training and how the subsistence microenterprise are important because the *initial capital*, by itself, does not guarantee a good performance or that spend on advertising could be critical in this kind of microenterprises. Definitively, not all entrepreneurs are the same. This shows that there is an important opportunity to launch an industrial policy that considers success factors of subsistence microenterprises and raises awareness of their importance, especially for micro entrepreneurs. Perhaps they, individually, do not contribute to local development and economic expansion but ignoring them may be more costly in terms of national stability. It could also be possible focus limited resources on those projects that have a specific entrepreneurship profile thus ensuring that they can be able to consolidate themselves as an answer to a better lifestyle for their families (Aguilar *et al.*, 2009).

The lack of relevance of the data and of the robustness in some definitions are the main limitations of the paper, explained by an incomplete universe of variables because we use a secondary source of information and the questionable measure for microenterprise success considering the marginalization environment on which they operate. Further investigation on this matter will focus on alternative success measurements, not necessarily financial; and to the practical differentiation of an involuntary and a voluntary micro entrepreneur.

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