The Determinants of the Probability of Entrenchment in Unlisted Moroccan Family Businesses (Application of Univariate Binary Models with Normal and Logistic Residues)

Outmane Soussi Noufail[1], Anass Mdaghri Alaoui II[1], Meryem El Alaoui Amine[2] & Mehdi El Alaoui Amine[3]

[1] University Mohammed V, Faculty of Law, Economic and Social Sciences, Rabat, Agdal, Morocco

[2] University Mohammed V, Faculty of Law, Economic and Social Sciences, Rabat, Souissi, Morocco

[3] University Hassan II, Faculty of Law, Economic and Social Sciences, Casablanca, Morocco

Correspondence: Anass Mdaghri Alaoui II, University Mohammed V, Faculty of Law, Economic and Social Sciences- Rabat, Agdal Avenue des Nations-Unies, B.P. 721 Agdal, Rabat, Morocco. Tel: 212-53-777-2732. E-mail: mdaghrianass@yahoo.fr

Abstract

One of the major extensions of econometrics in the 60s and 70s was undoubtedly related to the increasing use of the microeconomic data relating to economic characteristics of individual agents such as family businesses. In Morocco, this analysis provides a very interesting idea, and leads us to consider the management entrenchment as a typical phenomenon of the unlisted family businesses. Indeed, to put down roots family leaders who exhibit a longer duration of mandate and they tend to stay in the business sometimes even after the legal retirement age.

This paper proposes through the implementation of the dichotomous models, including logit and probit models to estimate the probability which affects entrenchment of leaders for 101 non-listed family businesses.

Keywords: family business, entrenchment of the leaders, Logit and Probit model

1. Introduction

Family businesses are the most widespread form of the private initiative as well in industrialized countries as in the developing countries. In fact, according to Allouche and Amann (2000), family businesses account for over two-thirds of companies in sphere of the Western countries. Thus, the contribution of these businesses to create wealth, jobs and competitiveness leaves no doubt about their importance and their superiority as compared with non-family businesses.

According to these authors, in the United State at least 90% of businesses are family and achieve between 30% and 60% of GNP and ensure the payment of half the total salaries. In France, 59% of the 500 largest industrial firms in French capital are family businesses (Allouche & Amann, 1995). Regarding Morocco, the weight of family businesses remains relatively little research aside from the some works of Saadi (1982). According to this author, small and medium-sized family businesses constitute 93.15% of total industrial companies and employ almost 50% of employees.

The researches on family businesses, a long time vilified, are being recognized today a significant revival of interest in different topics: the management of change (Sharma, 2004), relationships family / business (Aldrich et al., 2003), of the initial public offering (Astrachan, 2001), the management of leaders (Chrisman et al., 2012) or the predominance of family businesses (Allouche & Amann, 2000).

To clarify the entrenchment of the leaders in Moroccan family businesses, it come in the first place to clarify the factors that generates this entrenchment in these family businesses. In the second place, it is necessary to explain the entrenchment as a typical phenomenon family business whose leaders engaged in rooting strategies to counteract the internal and external control in these firms.

The works of Berle and Means (1932) that constitute the starting point of the research on the separation between the ownership and decision-making within firms, other studies have focused on mechanisms governing the relationship between between shareholders and managers. In this regard, the agency theory (Jensen & Meckling,

1976, 1979; Fama, 1980) has allowed elucidation of the control mechanisms and incentives that align the interests of the leaders with those shareholders to achieve efficient organizational management firms. Fama and Jensen (1983) argue that the board of directors can play this role since it allows control the leaders to mitigate the agency conflicts arising from the separation of ownership and control.

However, the theory of transaction costs has highlighted the nature of the contract between the leaders to a company. Indeed, Williamson (1985) explains how the reciprocity of contractual relations within firms may trigger savings in costs of transactions where opportunism is one principal factors. According to these theories, it is the separation of ownership and control that triggers the entrenchment of the leaders, while this finding is quite different in the unquoted family businesses.

The application of agency theory to the family business comes in the first place to distinguish between the unique characteristics of family businesses, and in the second place, the alignment of interests owners and managers that generally reduces interest's conflicts (Praet, 2013, p. 34), while the agency theory generally describes the conflicts of interest between owner and managers (Jensen & Meckling, 1976).

The entrenchment theory is based on the "opportunistic" nature that allows of the actors to have a considerable influence on the supervisory bodies. The entrenchment of the leader can be defined as the willingness of that leader to overcome, completely or partially, the control of shareholders and stakeholders in the firm to maintain and protect its position, increase its freedom of action or to increase his income. The leaders develop strategies allowing them of influencing stakeholders (shareholders, board of directors) and increase their power to dodge the control mechanisms that are imposed. In the same lines, entrenchment of leaders in the case of family businesses is confronted with problems of agency differently than non-family businesses (Chrisman, Chua, & Litz, 2004).

2. Entrenchment Leaders of Family Businesses: A Theoretical Application

2.1 The Concept of Family Business

The debate about the definition of family firms is active, mainly for reasons relating to the significant scope of objectives and types of family firms. Find a consensus on what a family business remains quite delicate even though the concept of the family business has been the subject of various research works in order to clarify this term. Litz (1995) Use two approaches that can identify the family business concept. For this author, "a business can be a family business where ownership and management are owned by the same family" (Litz, 1995, p. 101). At this point, the definition is further complicated by the non-precision the level of involvement of the founding family within the company and also by determining the real actors in the business.

Abdellatif et al., (2010) realize that "most definitions of the family business design at least three dimensions: the first when one or more families have a significant part of the business's capital, the second when members family keep extensive control over the company (e.g., distribution of capital, voting rights), and the last dimension is compared to the direct involvement of family members in the management of the business" (Abdellatif et al., 2010, p. 109).

For these authors the addition of other criteria differentiates definitions of family business, such as the ownership, he governance, the management and the number of family generations holding the business or also idiosyncratic resources arising from participation family members. Using these methods of family involvement, Astrakhan and Shanker (2003) provide three categories of operational definitions of family businesses. These categories can be important characteristics to describe family businesses according to their life cycle and the implication of the family and its members in the business.

According to these two authors, the first definition of the family business is based on the maintenance and control of the business by the family, and the influence on the management of the family business. This definition can accommodate a wide range of family business groups, according to Astrachan and Shanker (2003), nearly 24.2 million American family businesses, providing 62% of the labor force is 84 million employees and contribute to the U.S. national GDP with 64% of $ 5.9 Trillion.

Despite the absence of a definition taking unanimously by the authors specialized in this field, to adopt a widely accepted definition that the family business is owned and operated by a family. Of this postulate, some definitions on the family business were differentiated according to the level of family ownership and control, decision making of the company (Ireland et al., 2010, p. 69) and which show the influence of family members on the business and their families to demonstrate that it is this relationship which dissipates impact compared to a non-family business. However, the various work specific to the family businesses show that these firms have their specificities which theirs are clean and which distinguish them from other types of businesses and also that

differentiate family firms, which has led many researchers to analyze what is the family business and to explain the different aspects of this type of business.

Generally, the majority of articles that deal the definition of family businesses, emphasize the importance of family involvement (Astrachan, Klein, & Smyrnios, 2002), other authors, based on the essence of the family business in the sense that the definition is made from a theoretical point of view than the fact of family involvement in the business as a defining criterion.

Among these authors we find: Chrisman, Chua, and Sharma, 2005; Chua, Chrisman, and Sharma, 1999; in fact, the term "essence" has its origins in the works of Chua et al. (1999) state that "the essence of a family business consists of an elaborate vision by a dominant coalition controlled by one or a few families and intent of the ruling coalition to perpetuated through generations on a same family hands "(Chua et al., 1999, p. 25). From this point, the authors define the family business as a company under the control of the family for several generations.

Of course, other criteria is added to define the family business, for Anderson and Reeb (2003) a family business is defined when the founder of the family holds shares in the business and when there are members of family present the Board of Directors. While for Gomez-Mejia et al. (2007), a company is family business when the company is owned and managed by the same family. In this research, the definition adopted is the Litz (1995) definition: where the family and its members hold more than half of the shares and participate in the management of the family business.

2.2 Leader's Entrenchment of the Family Business

The obstinacy of the entrenchment of the leader is quite developed in family businesses. According Allouch and Amann (2000), the entrenchment solicits real strategic measures from the family leaders who want to develop business and stay in power. The trend of Moroccan family leaders to root is quite palpable and verifiable. Indeed, to take root, family leaders have a longer duration term in office and tend to stay in business after the legal retirement age. The desire of entrenchment is particularly visible among who neglect the issue of succession, identify themselves with an instinctive way to the business, and maintain a confusion of family and managerial roles.

2.2.1 The Will of the Family Leaders on the Entrenchment

However, if the strategic essence that characterizes the entrenchment of the leader is doubtless, the goals sought are subject to various debates. Charreaux (1997) argues that the seizure of power by the leader over a long period is to divert some of the organizational rents at the expense of other stakeholders in the business (shareholders, customers, employees, suppliers, government, and community). For others, the entrenchment of the leader is likely to create value for all rights holders because the accumulated experience of the leader throughout his term keeps the promise of profitable projects that must be protected from opportunistic behavior from other stakeholders.

The wages, the social position and the various benefits associated with the statute of the leader encourage this one to an active management of power but it is mainly due to the inherent dependency as an officer that the power dynamic is a stimulus every moment. This dependence is twofold: the division of labor implies that the leader relies on other managers or functional services, and the limited resources committed the leader to work with some parts of environment (shareholders, customers, suppliers, etc.) susceptible to exercise in return a disciplinary control through a dual mechanism effect: retaliation or disaffiliation stakeholders in their respective markets (end of cooperation with allied company, withdrawal of clients, sale of shares) and brandished the threat of dismissal by the Board of Directors.

According to Allouch and Amann (2000), the recurrent nature of specialization and relationships highly developed with customers that characterizes the family business reinforces the dependence of the family leader with respect to the company. Meanwhile, the health of the company is determined by the continuity of relational contracts that the leader has with the various stakeholders. In this sense, interpersonal trust, which helps to perpetuate the links–beyond the execution of contracts, is a dependency factor shared between the company and the manager. Picard–Stampford says that "the fusion of ownership and control with respect to a large proportion of family businesses do not expect that a leader gives up control of the company to a third party, even if it maintains with of close family ties" (Picard-Stampford, 2002, p. 60).

Indeed, one of the most fundamental variables that will justify entrenchment of the family leaders may be identification with the company. This is certainly not absent in non-family leaders, but taking considerable risk by the founder contributes to accentuate this identification. It is included in the missionary nature of the family

business which promotes confusion of values of the organization with those of its founder who established the missions, goals, strategies and corporate structures. As the missionary aspect can be developed by the following generations through the traditions and shared values by members of the family business. There are so many ways to retain power which include the control of the relational capital of the company.

2.2.2 The Influence of Control Mechanisms

The choice of a legal form to organize a direction to ensure a margin of the leader's maneuver determines the shape of the supervisory bodies. Indeed, through the role of punishment and control of the leaders, the directors of the company are likely to seriously impede the flexibility of the leader and its entrenchment in the company. However, the legal board authority of the officer may be offset by the influence of this leader on the directors.

A first way is to rely on a high proportion of inside directors on the board while outside directors focus on preserving their legitimacy outside of the organization. However, the influence of these outside directors is undervalued (they rarely have a portfolio and the property as equally for family's members) they have more seniority much lower than internal making them heavily infiltrated by family where they are not internal family's members.

The individuals who participate in boards of directors and increase the value of their human capital particular through the information they collect in these meetings, they can establish networks and prestige which they can withdraw from this situation. They must arbitrate between the benefits of their participation in boards of directors and the effectiveness of their control. Overzealous when holding boards can harm their reputation and deter nominating their leader. They have much to lose to oppose the decisions of the leader they must control. Thus, we can say that the leaders of family businesses benefit from their influences and powers on directors, both internal and external, to strengthen their strategy of entrenchment.

This dependence of internal and external administrators to the leader seems the question about the effectiveness of the control exercised by the board of directors which can give an optional role in the family business face of entrenchment's strategies of the family leader. However, other strategies can be used as a means of rooting (which is unique to family businesses); it is a root of the family council. However, according to Block et al. (2011), some problems related to the management entrenchment may arise in the case of family businesses where incompetent family's leaders maintain their position despite a very poor performance and augment this finding much more in the case of companies where the founding family followed by the next generation (Block et al. (2011, p. 242). In the same lines, the influence of entrenchment may exceed the leader of the family business and affect the entrenchment family since the officer was able to design his position because the board of directors was managing essentially by members of the family (Braun & Sharma, 2007).

2.3 The Leader Culture and Its Entrenchment

Organizational culture in the family business is often procreate by the founder of the company, the majority of authors (Denision et al., 2004; Holt et al., 2009; Discua Cruz et al., 2012), the entrepreneur provides a strong culture borrows from its family business in order to achieve his dream of creating this type of business. To do this, the entrepreneur does not hesitate to take risks by creating a family business where he spent not only lot of time but also effort and emotions for successful professional life often affected by his attachment to his family life.

According to Dyer (1986), the family business overlaps between two structures: family culture and the organizational culture of the business which interlock with each other. According to this author, the leaders of family businesses try to analyze the culture of the family and the culture of their business while assessing the strengths and weaknesses to overcome the potential problem. To do this, leaders of family businesses considering, to establish and implement the organizational goals and family goals in a coherent phases where they should not be afraid to initiate and manage change processes.

Indeed, Perreault (1993) stipulates that "organizational culture is shaped by entrepreneur's style" (Perreault, 1993, p. 54). According to this author, the leadership sees his style of leadership and command of his company through a continuum namely autocratic, democratic and laissez-faire. According to this author, the leadership conceives his style of leadership and command of his business through a continuum namely autocratic, democratic and laissez-faire. It should be stressed that any type of organizational culture implemented by the leader of the family business, only due to better profitability and be to the expectations of the owners affect the main features of which can make the leadership culture as one of the pillars of success.

Shein (2004), stipulates that organizational culture is shaped by the leader of the business in the sense that "culture is created through a common experience, but the leadership initiates this process by imposing his beliefs,

the values and assumptions at first ". In fact, according to Schein, organizational culture is made by the leader of the business where his experiences will be strongly shared which allows resolving the problems of the group essentially preserving the business of the external world and a better integration of those employees internally through essentially the organizational culture developed by the leader.

For Schein, the organizations are not made randomly of things, such organizations were made in order to achieve a specific purpose with well-defined via the very specific goals orientations. Indeed, Schein (2004) requires that "organizations are created either because one or more people have the impression that the coordinated and concerted action of a number of people can accomplish something that individual action can't do. (Schein, 2004 p. 226). Whereas Denison et al. (2004) argue that although in the context of the family business the role of culture becomes more complex, "the dominant role of the founder, not only during the creation of the business but also when the values and role motivations of the owners are introduced and become the pillars of culture in the family business" (Denison et al., 2004, p. 63).

However, the essence of entrenchment leadership in family business comes from the paternalism, aspect quite common in the case of family businesses. Chirico et al. 2012, confirmed "being a protective officer, have an attitude to preserve and inculcate the traditions in the business and not to bring change" Chirico et al. 2012 page 320, this may lead managers of family businesses to take an entrenchment more easily in their business.

3. Methodology of the Study

To estimate the probability of entrenchment of the leaders for unquoted family business (UFB), we can divide this study at two types:

-The descriptive analysis: preliminary descriptive step for all variables included in the study. Indeed, this analysis allows us to provide a description of each variable to have an idea about the trend of each of these variables; all variables used in this study have been described. It should be noted that the variables in this study are at the same time qualitative and quantitative.

-The multivariate analysis: in order to reject or retain the assumptions made in the theoretical part, the use of multivariate analysis is required. This last step can be considered the most important step because it allows the study to assess the effects of different variables included in the set. In this part of working, we present the binary models due to the nature of the variables used whose residues are distributed according to two alternative distributions. Econometric theory stipulates that it must specify the statistical distribution of the random term. For this purpose, if we specifies the logistic law it is estimated a Logit model. If a normal distribution is specified, it is estimated a Probit model. In practice, the models Logit and Probit are very similar in terms of statistical adjustment. There is no argument to select the first model rather than the second.

The models Probit and Logit are characterized by a Boolean variable i.e. coded in a binary with at the same time quantitative and qualitative explanatory variables. Therefore, we cannot use the usual methods of regression in the continuous case, particularly since–the variable Y taking only two values–the disturbance u must follow a discrete distribution, which is incompatible with the usual assumptions of continuity and residual normality.

In this case, the variable to be explained is the dichotomous qualitative denoted Y, also known as the dependent variable takes the value 1 if the unlisted family firm (i) (UFF) is characterized by a entrenchment of leader $_i = 1$, and 0 if the business does not have this characteristic, we will assume $y\_i = 0$, where y_i is a function of k characteristics specific to the leaders, and their business environments.

We observe the values which takes Y on a set of UFF indexed by i, such as i = 1, ..., 101. either, the 101 sample size. And Z is the latent variable underlying the phenomenon of entrenchment.

The model postulates a relationship of the type:

$$Z = Xb + u \tag{1}$$

where X is a set of variables called explanatory or exogenous, which may be continuous, qualitative and or discretized. In this case, it should be choose a reference situation.

The probability that individual i is in the state $y\_i = 1$ is:

$$P_i = P[Y_i = 1] = P[Z_i > 1]$$
$$= P[X_i\beta > -u]$$
$$= F(X_i\beta)$$

If we note F distribution function of $-u$, that is the function was defined by:

$$F(w) = P[- u < w].$$

The choice of the model concerns the choice of F. Two functions are usually used and will be handled here:

F = distribution function of the normal distribution (Probit model);

F = distribution function of the logistic distribution (Logit model).

1) **The Probit model** is one for which F is the distribution function of the standard normal distribution:

$$F(w) = \Phi(w) = \int_{-\infty}^{w} \frac{1}{\sqrt{2\pi}} exp(-\frac{t^2}{2})dt$$

This gives: $P[Y=1] = \Phi(X\beta) = \int_{-\infty}^{X\beta} \frac{1}{\sqrt{2\pi}} exp(-\frac{t^2}{2})dt.$

2) **The logit model** is one for which F is the distribution function of the logistic:

$$F(w) = L(w) = \frac{exp(w)}{1+exp(w)} = \frac{1}{1+exp(-w)}$$

This gives: $P[Y=1] = L(X\beta) = 1/(1+exp(-X\beta)).$

Besides, with these initial findings, we got to clarify our epistemological and methodological choices, we offer an overview in tabular form of the main choices made.

Table 1. Summary of epistemological and methodological choices

Mode of reasoning	Deduction with hypothetical-deductive approach
Method of data collection	Questionnaire administered by direct interview
Responses and validated	Questionnaires from 101 unlisted SMEs Moroccan Family

4. Unidimensional Analysis

4.1 Construction of the Key Variable of this Search

At this point, we come to one of the main objectives of our research namely the identification the variable that measures the degree of entrenchment of UFB leader which is nothing other than the dependent variable of the econometric work (Note 1).

4.2 Sample and Data

The empirical study is carried out through the administration of a questionnaire. The passage of the questionnaire items to assumptions effected by the operationalization of the variables retained in the research model.

The sample for the survey was drawn from an initial selection of businesses located in two biggest economic regions in Morocco. It is about the region of Grand Casablanca and Rabat-Salé-Zemmour-Zaer. These two regions have an important economic vocation for the country (the higher productivity in the country and their economic significance), in fact, the first region represents 19.8% of the national GDP and the second region represents 12% of national GDP (HCP, 2011). The choice of surveyed companies was randomly, which allowed us to have a sample of 101 unquoted family firms which can be enough to highlight the entrenchment in the unlisted family businesses in Morocco. The survey was conducted over several stages: the direct contact with leaders and / or their family members in order to have the maximum information about their businesses, also recourse to the stands and fairs organized essentially in Casablanca allowed us to have several meetings with the leaders of family businesses. The questionnaire (see Appendix) includes several questions ranging from the identification of the business, information on the leader: age, level of education his term, his opinion on the involvement of family members in company. Also like to know the values and cultural aspect that influences and helps maintain control of the leader on his business primarily through a distinct organizational culture of the family businesses. One of the major issues that arise is to what extent the results of this study can be make contributions in the context of family business research. These, are questions that must be answered in evaluating this research with the respect of two criteria, namely: validity and reliability.

Let us remind that the entrenchment of the leader of UFB is planned in three dimensions (Leader, business and the family entity), and each of these dimensions is evaluated by several variables, and each of these dimensions is evaluated by several variables.

The test of the validity of the construct was made by using the coefficient of the Pearson correlation to verify the validity of the constructed between: The values of the three dimensions (Note 2) which build the concept.

- ✓ The values of the three variables that assess the "officer" dimension;
- ✓ The values of the three variables that assess the dimension "business";
- ✓ The values of the three variables that assess the dimension "family organization";
- ✓ The value of each of these variables measuring these dimensions.

As regards the validity of the measuring instrument (validity of the content), it is important to verify if the data collected reflect the reality on the ground.

The internal coherence was measured by Cronbach's alpha (Note 3), this technique is often used to judge the consistency of the measurement scales. Indeed, to expect good internal consistency value of Cronbach's alpha varies between 0 and 1, more it is raised and approaches 1, more the scale is considered reliable.

The following table presents the results of alpha's calculation for the variables selected to measure the degree of leader's entrenchment in UFB.

Table 2. Cronbach's alpha coefficients for dimensions

Dimensions	Variables	Nb. d'items	Alpha de Cronbach	Alpha de Cronbach
Personal	Educational level	4	0,887	0,865
	Sex	2	0,833	
Structural	Generation of UFB	3	0,886	0,812
	The business climate	4	0,701	
	Sector of activity	3	0,854	
	Paternalism	2	0,711	
Family entity	Family cohesion	2	0,827	0,867
	Value of the Leader	2	0,889	
	Family Employed in the Council of company	2	0,745	

The calculated coefficients are very satisfying, all well above the minimum level, they are greater than 0, 70. Alpha of nine variables measuring the intensity of leader's entrenchment at UFB is very high (0.885). All variables used has a good internal coherence.

If Cronbach's alpha ensures the reliability of a measurement instrument, the first test must be completed by a test of the validity of the measuring instrument. Reliability is a necessary condition for validity (Note 4).

The validity of the research contained is ensured by the existence of a consensus in the research community about the use of a measuring instrument. Indeed, our research employed a measuring instrument commonly used: the questionnaire whose main dimensions are retained (Leader, business, family unit).

To achieve internal validity, we must put aside some biases identified. For this work, some biases are considered, for the check, we prepared a table outlining these biases. How to avoid these biases and prudence of the corrected are taken into account in this research.

Table 3. The various bias identified and proposed solutions to avoid them

Solutions to the reduction in bias	Nature bias	Description of bias
Data collection has been in 11 months	Relative bias to the research context	History effect
Data collection was made just a year before the end of this work		Effect of maturation
A single researcher conducted the interviews	Relative bias in data collection	Instrumentation effect
Representation of the sample is confirmed	Relative bias in the sample	Selecting Effect

The following table, shows a highly significant, positive and strong correlation between the three dimensions of component in the organizational structure of the UFB.

Table 4. Correlations according to the pearson test for dimensions

	Dimension	Personal	Business	family structure
Pearson correlation	Personal	1		
Bilateral meaning				
Pearson correlation	structural	0,330	1	
Bilateral meaning		0,002		
Pearson correlation	family structure	0,122	0,522	1
Bilateral meaning		0,000	0,000	
Pearson correlation	Entrenchment of leader	0,898	0,699	0,812
Bilateral meaning		0,000	0,000	0,000

The correlation coefficient between entrenchment of the leader (ED) and three dimensions is very high, the lowest binding to the characteristics of the family business with a coefficient of 0.699. This result confirms the theoretical trends which argue that the specific characteristics of the family business affect the intensity and degree of entrenchment of the leader.

This factor is even more important (0.812) for the family structure dimension. This result allows to assert that the leaders were able to establish a typical organization within the fabric of Moroccan family SMEs. And consequently the leader's determinants increase the intensity and promotes the ED.

5. Implementation of the Models to Univariate Logistic and Normal Residuals

To analyze the determinants of the probability of the entrenchment leaders, by retaining several explanatory variables simultaneously, we used the univariate models with normal and logistic residues. To do this, it is worth checking the linearity between the explanatory variables of a continuing nature. Furthermore, we investigated operator and has an adequate sample size N = 101, and it seems preferable not immediately postulate the existence of a linear dependence. It is essential to test the quadratic hypothesis even if to reject it if the coefficient of the quadratic term is not significant, or if the introduction of the variable square makes the unstable model (the case of the age for example). The discretization retainer is an interesting alternative solution because no functional form is supposed a priori. However, it does not allow to test the linearity of the dependency since we are in opposite to a linear function in the first case and in a step function (discrete) in the second. Therefore, it is recommended a third solution, more complex but more satisfactory, that is to approximate the dependence by means of a piecewise linear function. The construction of the explanatory variables is more complex, but the modeling is more flexible and probably better suited to the representation of a continuous phenomenon. It is also more easily interpreted and used to test the linear sub-hypothesis.

Indeed the construction of different variable has taken a common trend: the continuous variables are defined using a multivariate distribution; as an example the educational level of the leader (TRG), this variable takes the following values: Secondary Level (INSTR_1) Bachelor level (INSTR_2) Higher level (INSTR_3), and finally autodidact (INSTR_4). However it is natural to treat the problem of collinearity, because in this case it necessarily pose problems in the estimation of coefficients.

5.1 The Binary Models to Emerge the Factors Influencing the Probability Leader's Entrenchment

We begin with a descriptive analysis of UFB without entrenchment of their leaders, then we make a binary logit and binary probit to assess the factors that may influence the presence or absence of the entrenchment of the leader in UFB.

5.1.1 Profile of Unlisted Family Business without Entrenchment of the Leader

This is essentially the question that we answer in this paragraph, what resemble the Moroccan unquoted family businesses without entrenchment of the leader, what are their tendencies? Their structural and environmental characteristics? And yet, what their leaders look like? 101 unquoted family businesses visited, (42.6%) 43 of them do not have an entrenchment of the leaders, here's a preview image of these firms, against 58 (57.4%) of them have an entrenchment of leaders.

Size of the company:

Less than half of UFB without entrenchment are part to small business (with just 3 employees) but the other half correspond to important UFB, most of them are without entrenchment makes work 300 employees : the size of the firm has no significant effect on the entrenchment.

Table 5. Distribution of the UFB without entrenchment of the leader according to the size

Size	workforce	%
Number of employees between 10 and 50	21	48,8%
Number of employees between 51 and 100	8	18,6%
Number of employees between 101 and more	14	32,6%
Total	43	

The age of the UFB:

As for the age of the unlisted family business, we see a clear trend, since almost 74% of UFB are older than 10 years; as if the younger firms still needed time for their leader found the practice to be rooted to run their businesses and when they get older and their leader gain experience, the family firm cannot do without for them.

Table 6. Distribution of EFNC without entrenchment of leader depending to their age

Age	workforce	%
Under de 10 years	11	25,6%
11 à 30 years	19	44,2%
More de 30 years	13	30,2%
Total	43	

Environment:

Among the most important factors to be checked, it's there UFB environment. Can the difference of environmental, from stable to very turbulent, it may condition the practice of entrenchment of the leaders (EL)?

It is actually the case because more than 78% of SMEs without entrenchment appear unstable and uncertain environment, only 9 of them consciously deviate EL despite an average business climate of their environment.

Table 7. Distribution of EFNC without entrenchment of leader according to their environment

Environment	Effective	%
Business climate "good"	0	0%
Business climate "Medium"	9	21,4%
Business climate "Acceptable"	19	45,2%
Business climate "Bad"	14	33,3%
Total	43	

5.1.2 Portrait of a Leader without Entrenchment

Being a principal actor UFB, it is interesting to estimate the image of a leader who has decided not to take entrenchment in his business.

Age of leader:

The results of the univariate analysis describing the leader of an UFB without entrenchment, are very similar to the general trend of UFB's leaders in global. These leaders for most age between 40 and 60 years.

Table 8. Distribution of leaders without rooting depending on their age

Age	Number	%
Under 40 years	10	23,3%
41 à 60 years	29	67,4%
More 60 years	4	9,3%
Total	43	

His experience:

The leader without entrenchment in 63% of cases a person with more than 10 years of experience, this result

back to the age of the firm that also doesn't have an EL and which is also generally more than 10 years of seniority.

Table 9. Distribution of leaders based on their experience without entrenchment

Experience	Number	%
Under 10 years	16	37,2%
More 10 Years	27	62,8%
Total	43	

His qualifications:

Leaders EFNC without rooting have received an overwhelmingly superior training. With over 74% of those who are regarded as such are those who have had a university education.

The percentage of firms without entrenchment with leaders without training is 25% which is negligible; it should also be noted that no difference was found between autodidacts and having a secondary level.

Table 10. Distribution of leaders without entrenchment according to their level of education

Formation	Number	%
secondary level	5	11,6%
bachelor level	10	23,3%
university level	22	51,2%
Autodidacts	6	14,0%
Total	43	

6. Regressions Probabilistics and Logistics

The typology of selected models is binary dichotomous models, this model include the various dimensions of explanatory variables that model the dependent variable. It should be noted that the correlation testing is required, so we have made the chi-square test between qualitative variables. This last one allowed us to see that in order to study the eight variables, it is must to distribute them into three models.

Table 11. Summary of the three selected models

Model 1	Model 2	Model 3
Dimension leaders	Dimension firms	Dimension leaders
Dimension organization	Dimension organization	Dimension firms
Dimension environmental	Dimension environmental	Dimension organization
		Dimension environmental

Before presenting the regression results, it is necessary to test the quality of the research model, the chi-square test that allows to check the significance of the models.

This is to ensure the proper distribution of UFB that are part of the sample.

Table 12. Classification table

Planned Current	Family Business whit an entrenchment	Family Business without an entrenchment	%
Family Business whit an entrenchment	48	10	77,5%
Family Business without an entrenchment	13	30	56,7%
			77,3%

It appears from the table that the rate of good ranking is 77.3% for all UFB, this percentage was 77.5% for firms with entrenchment of the leader and it falls to 56.7% for firms not having an entrenchment of the leader.

The results show that just 10 of UFB with whit an entrenchment of the leader, were misclassified compared to a total of 58, similarly, 43 firms without an entrenchment are well distributed, there is 13 of them whose forecasts were wrong. Despite of this decline in the quality of the UFB without entrenchment, the percentage of 71 is adequate in accomplishing the binary model.

These results show that the binary model (in normal and logistical residues) chosen is significant.

After checking the quality of the binary logit model, we present in the following table, the significance of each model and its quality based on its two Chi two and R two.

Table 13. Tests of meaning of the three selected models

		Model 1	Model 2	Model 3
Meaning of the model	Chi two	38,151	39,254	53,053
	Degree of Freedom	19	21	27
	Signification (Prob)	0,005	0,009	0,001
Likelihood Functions	Log Likelihood	-49,814	-49,263	-42,363
	R Log Likelihood	-68,889	-68,889	-68,889
McFadden Pseudo R2		28%	29%	39%

It should be noted that the three models studied, the third model is most significant with a pseudo R2 of McFadden (39%). And the logarithms of likelihood shown in Table follows a chi-squared, and represent an acceptable variation.

The last stage of labor binary logit is the most important, as it will propose for each model, the variables that do have a significant influence on the existence of an entrenchment of the family member in a Moroccan UFB.

In the tables below, each model is studied separately using both regressions Probit and Logit, and assigning to each category of each variable two values: The β coefficients are the coefficients estimated by the maximum likelihood method (Probit / Logit). Marg (β) (marginal effects) that specifies for each model the weight effect of an explanatory variable on the variable to be explained, and the Wald z-statistic that indicates the degree of significance is mentioned by starfish (* **, *** significant at the 10%, 5% and 1%). Dichotomous regression results are presented in the Annex Tables (Note 5).

7. Outcomes and Result of the Econometric Models

7.1 Influence of Variables on the Establishment of an EF

The table below gives us a clarification as to reading the results of econometric models.

The age of the leader is the only socio-professional factor that has an impact of the establishment of the entrenchment in the Moroccan unquoted family business against the other four factors have no influence on the probability of observing entrenchment of the leader. The age of the family business and paternalism are both significant structural factors that increase the likelihood that a leader take entrenchment. While firm size and character drawing generation family business, do not seem to have any impact on that probability.

In addition, several variables of environment of the unlisted family business, such as the nature of business of the EF variables, taxation and competition increase the likelihood of rooting.

Table 14. Summary of estimated econometric models

Variables	Influence on the establishment of leaders entrenchment
Individual variables of the leader (social and professional)	
Age	**significant influence**
Education	no influence
sex	no influence
Experience of the Leader	no influence
Work hours of the leader	no influence
Individual variables of the UFB (structural)	
The age of the UFB	**significant influence**
Size of the UFB	no influence
Paternalism (cultural influence)	**significant influence**

Generation UFB	no influence
Variables related to the business organization (organizational)	
Family cohesion	no influence
Public value	**significant influence**
Personal value	no influence
Value of the business	no influence
Implication of family member in the board of directors Implication	no influence
of no family member in the board of directors	no influence
Environment Variables (The controls)	
Business Climate	no influence
Activity sector	**significant influence**
Fiscal	**significant influence**
Competing	**significant influence**
Consul	no influence

7.2 Main Findings of the Econometric Models

By combining the three models selected in our analysis (Model 1, Model 2 and Model 3) with the both estimates (Probit & Logit), we can asset that the estimation results of Model 3 (which meeting the other two models) challenge highlight the same influences as those observed by the first two restrictive models used in this analysis.

One result that surprises in this work is the complete absence of the influence of family cohesion which measures the college will take root in the UFB organization, or individual responses to our sample is not likely to create this value, since the accumulated experience of these leaders throughout their mandates retains its opportunistic behavior in relation to other family members.

By combining the three models selected in our analysis (Model 1, Model 2 and Model 3) with the both estimates (Probit & Logit), we can asset that the estimation results of Model 3 (which meeting the other two models) challenge highlight the same influences as those observed by the first two restrictive models used in this analysis.

One result that surprises in this work is the complete absence of the influence of family cohesion which measures the college will take root in the UFB organization, or individual responses to our sample is not likely to create this value, since the accumulated experience of these leaders throughout their mandates retains its opportunistic behavior in relation to other family members.

The "age" variable whether the leader or the business tends to maintain the presence of an entrenchment in the UFB. Indeed, the age of the leader has a negative effect, as younger leader is more the probability to take entrenchment is strong. In addition, starting with marginal effects, the weight of leaders who have an average age between 40 and 60 years, is lower than those whose age is less than 40 years. The probability of the presence of ED is multiplied by 0,36, even less, when the leader belongs to the age group 40–60, this divides (narrowed) those chances by 3,33.

In the same thought, the age of the business negatively affects the probability for the young UFB (under 10) and positively which are aged over 30 years. Their low weights are almost identical for the three models used, and when this is the case, the probability that the chosen UFB with ED is divided by 2.5.

Other variables of individual characteristics of the leader, whether the level of education, gender, experience and working hours of the leader in the UFB seem to have no influence on the probability of setting up of leaders entrenchment.

Also, the size as well as the typology of generation of the UFB does not seem to affect the probability of establishment of an ED in the Moroccan UFB. Indeed, all Moroccan unlisted family firms processed are small (i.e., a workforce less than 10 employees) or large which employs more than 100.

The fact, that a family member or employee involved in the Executive Board of the UFB does not differentiate the probability of non-presence of the entrenchment of the leader within the same structure. Indeed, the leader does not use its influence and power over employees both family members (internal) and external, since the strategy adopted by the leader does not consider these characteristics. This report does not affect the effectiveness of the control exerted by the family council, which gives it (the family council) an optional role in the unlisted family business in front of the strategy entrenchment of the leaders.

Environment variables challenge highlighted the likelihood of implementation of the entrenchment of the leaders in the UFB. Indeed, the sector activity of the UFB affects positively the presence of this likelihood. In fact, unlisted family firms operating in the secondary sector that positively influence the presence of entrenchment of leader. When it is about industrial unlisted family business par excellence, its weight is greater than the one who operates in the primary sector (exclusively agriculture and livestock) and tertiary (mainly operating in the distribution and insurance), the probability of the presence of the entrenchment of the leader is multiplied by 1,8.

The influence leader's organizational culture is one of the pillars of the success of its entrenchment in the unlisted family business. Indeed, when the leader diffuses through a continuum of different types of organizational culture (autocratic, democratic and laissez-faire), its weight is very significant and the associated probability of its entrenchment is multiplied by 0, 2. However, the leader of the UFB tries to ensure continuity (entrenchment) and make its exploitable resources to ensure an effective and efficient transfer to the future generations, which implies a very strong and significant impact on the strategy of his unlisted family business.

8. Conclusion

The application of agency theory (economic theory of organizations) in the Moroccan unlisted family business comes in first place to distinguish between the unique characteristics of family businesses, and a second hand, differentiate the personal characteristics of the leader, and finally joined the provision of these two actors.

The application of econometric techniques (regression with logistic and normal residues) approximated by microeconomic data (questionnaire), allowed us to draw in the first place the importance and influence of these variables, and in a second place their results has been helpful for the construction of the profile of leader who wants to ensure the continuation of his mandate within the unlisted family business.

Indeed, the will of the entrenchment among family leaders is not at all expressed by the leaders of the Moroccan unlisted family business. Among the control mechanisms that increase the likelihood of implementation of the leader's entrenchment distinguishes organizational culture of the leader himself with all forms that can diffuse.

This brings us to producing a function of the profile of the Moroccan unlisted family business. Still, it is very suitable for entrenchment ruler's will of the leader is a young one working in an "old" family business operating mainly in the secondary and tertiary sectors, and whose organizational culture is very well exploited by family organization, it has no observable meaning, whether composed mainly by family member or external employer. This explains why family cohesion to this effect is not directly stated by the leader intended for implementation of his entrenchment in the family business unlisted Moroccan.

References

Abdellatif, M., Amann, B., & Jaussaud, J. (2010). Family versus nonfamily business: A comparison of international strategies. *Journal of Family Business Strategy, 1*(2), 108–116. http://dx.doi.org/10.1016/j.jfbs.2010.04.004

Alain, P. (2013). Family firms and the divestment decision: An agency perspective. *Journal of Family Business Strategy,* (4), 34–4.

Alexandra, D., & Donata, M. (2014). Exploring what makes family firms different: Discrete or overlapping constructs in the literature? *Journal of Family Business Strategy, 5*, 169–183. http://dx.doi.org/10.1016/j.jfbs.2013.11.004

Allan, D. C., & Eleanor, H. S. L. (2012). Understanding entrepreneurial cultures in family businesses: A study of family entrepreneurial teams in Honduras. *Journal of Family Business Strategy, 3*, 147–216. http://dx.doi.org/10.1016/j.jfbs.2012.05.002

Allouche, J., & Amann, B. (2000). L'entreprise familiale: un état de l'art. *Finance Contrôle Stratégie, 3*(1), 33–79.

Anderson, R., & Reeb, D. (2003). Founding-family ownership and firm performance: Evidence from the S&P500. *Journal of Finance, 58*(3), 1301–1328. http://dx.doi.org/10.1111/1540-6261.00567

Astrachan, J. H., Klein, S. B., & Smyrnios, K. X. (2002). The F-PEC scale of family influence: A proposal for solving the family business definition problem. *Family Business Review, 15*(1), 45–58. http://dx.doi.org/10.1111/j.1741-6248.2002.00045.x

Braun, M., & Sharma, A. (2007). Should the CEO also be chair of the board? An empirical examination of family-controlled public firms. *Family Business Review, 20*(2), 111–126. http://dx.doi.org/10.1111/j.1741-6248.2007.00090.x

Daniel, D., Colleen, L., & John, L. W. (2004). Culture in Family-Owned Enterprises: Recognizing and Leveraging Unique Strengths. *Family Business Review, 17*(1), 61–70. http://dx.doi.org/10.1111/j.1741-6248.2004.00004.x

Daniel, T., Holt, M., Rutherford, W., & Donald, F. K. (2010). Advancing the Field of Family Business Research: Further Testing the Measurement Properties of the F-PEC. *Family Business Review, 23*(1), 76–88. http://dx.doi.org/10.1177/0894486509349943

Francesco, C., Mattias, N., Gianluca, C., & Edoardo, M. (2012). Simulating Dynamic Capabilities and Value Creation in Family Firms: Is Paternalism an "Asset" or a "Liability"? *Family Business Review, 25*(3), 318–338. http://dx.doi.org/10.1177/0894486511426284

Gomez-Mejia, L., Haynes, K., Nun˜ez-Nickel, M., Jacobson, K., & Moyano-Fuentes, J. (2007). Socioemotional wealth and business risks in family-controlled firms: Evidence from Spanish olive oil mills. *Administrative Science Quarterly, 52*, 106–137.

Gouriéroux, C., & Monfort, A. (1989). *Statistique et Modèles Econométriques*. Paris: Economica.

James, J. C. et al. (2012). An agency theoretic analysis of value creation through management buy-outs of family firms. *Journal of Family Business Strategy, 3*(4), 197–206. http://dx.doi.org/10.1016/j.jfbs.2012.10.003

Jensen, M. C., & Meckling, W. H. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics, 3*, 305–360. http://dx.doi.org/10.1016/0304-405X(76)90026-X

Joern, H. B., Peter, J., & Danny, M. (2011). Ownership versus management effects on performance in family and founder companies: A Bayesian reconciliation. *Journal of Family Business Strategy, 2*, 232–245. http://dx.doi.org/10.1016/j.jfbs.2011.10.001

Litz, R. (1995). The family business: Toward definitional clarity. *Family Business Review, 8*(2), 71–81. http://dx.doi.org/10.1111/j.1741-6248.1995.00071.x

Schein, E. H. (2004). *Organizational culture and leadership* (3rd ed.). The Jossey-Bass business & management series.

Sharma, P. (2004). An overview of family business studies: Current status and direction for the future. *Family Business Review, 17*(1), 1–37. http://dx.doi.org/10.1111/j.1741-6248.2004.00001.x

Notes

Note 1. See Annex No. 1 concerning the construction of the dependent variable.

Note 2. Variables related to the dimension relative to the environment of the family business are regarded as the control variables.

Note 3. The Cronbach's alpha is defined as follows: $\alpha = \frac{k}{k-1}(1 - \frac{\sum_{i=1}^{k} \sigma_{Y_i}^2}{\sigma_X^2})$ where k is the number of items, σ_X^2 is the variance of the total score and $\sigma_{Y_i}^2$ is the variance of the item i.

Note 4. Evrard et al., (2009).

Note 5. The calculations are processed using the Software Nlogit 5.0 (LIMDEP: Limited dependent variable).

Appendix A

Presentation of the Model Variables

Table A1. The construction of the dependent variable: EL (entrenchment of the leader)

EL	Code	Construction	%
Yes	1	If the leader is a shareholder and at least one family member is active in the Unquoted family business	72,27%
No	0	if not	27,73%

Table A2. Presentation of the explanatory variables

Panel A. Individual variables of the leader

Variables	Characteristics	Items
The age	Qualitative	Less than 40 years (AGE1)
		41 - 60 years (AGE2)
		More than 60 years (AGE3)
Educational level	Qualitative	Secondary level (INSTR_1)
		Bachelor level (INSTR_2)
		Higher level (INSTR_3)
		Autodidact (INSTR_4)
Sex	Qualitative	Man (1) / Woman (0)
Leader Experience	Qualitative	Less than 12 years / More than 10 years (DUREE_P10)
Work hours of leader	Qualitative	Least 8 hours / More than 8 hours (HEUR_W_P8)

Panel B. Variables associated with the family business

Variables	Characteristics	Items
Age of Unquoted Family Business	Qualitative	Less than 10 years (AGEENT1)
		11-30 years (AGEENT2)
		Over 30 years (AGEENT3)
Firm size	Qualitative	Number of employees between 10 and 50 (nbempl1)
		Number of employees between 51 and 100 (NBEMPL2)
		Number of employees 101 and more (NBEMPL3)
Paternalism (cultural influence)	Qualitative	Yes / No (CULTURE)
Generation of UFB	Qualitative	UFB first generation (GENER_1)
		UFB second generation (GENER_2)
		UFB third generation and +(GENER_1)

Panel C. Organizational variables

Variables	Characteristics	Items
Family cohesion	Qualitative	Good (=1) (COHES)
Public value	Qualitative	Yes / No (VALEUR_1)
Personal value	Qualitative	Yes / No (VALEUR_2)
Value of the business	Qualitative	Yes / No (VALEUR_3)
Implication of family member in the board of directors	Qualitative	Yes / No (IMPLIC_F)
Implication of no family member in the board of directors	Qualitative	Yes / No (IMPLIC_NF)

Panel D. Environment variables

Variables	Characteristics	Items
Business Climate	Qualitative	Good (CLIMAT_1)
		Average (CLIMAT_2)
		Acceptable (CLIMAT_3)
		Bad (CLIMAT_4)
Activity sector	Qualitative	Primary (SEC_PRIM)
		Secondary (SEC_SECOND)
		Tertiary (SEC_TERTIA)
Fiscal	Qualitative	Yes / No (IMPLIC_NF)
Competing	Qualitative	Yes / No (CONCUR)

Appendix B

Effects of leader characteristics on entrenchment in the UFB and marginal effects (*, **, *** significant at the 10%, 5% and 1%): Model 1, Model 2 and Model 3.

Table B1. Model 1

VARIABLES	Items	Model 1				Model 1 (Marginal effect)			
		MODELE PROBIT		MODELE PROBIT		MODELE LOGIT		MODELE LOGIT	
		β	Marg(β)	Z STAT	Marg(β)	Z STAT	Z STAT	β	Z STAT
Constant		-0,67	-0,39***	-3,02	-0,39***	-3,04	-0,63	-0,81	-0,45
Age (ref = âge3)	age1	-1,43**	-0,22**	-2,19	-0,22**	-2,22	-2,41	-2,40**	-2,37
	age2	-0,83*	0,10	0,6	0,08	0,47	-1,95	-1,45*	-1,93
Educational level (ref =	instr_2	0,35	0,23*	1,82	0,22	1,6	0,58	0,48	0,46
instr_1)	instr_3	0,88	0,03	0,27	0,01	0,11	1,63	1,35	1,46
	instr_4	0,13	0,09	0,63	0,09	0,69	0,27	0,09	0,11
Sex	sexe	0,33	-	-	-	-	0,62	0,58	0,67
Leader Experience	duree_p10	-	-	-	-	-	-	-	-
Work hours of leader	heur_w_p	-	-	-	-	-	-	-	-
Age of UFB (ref = âgeent3)	ageent1	-	-	-	-	-	-	-	-
	ageent2	-	-	-	-	-	-	-	-
Size of UFB (ref = nbempl3)	nbempl1	-	-	-	-	-	-	-	-
	nbempl2	-	0,21**	2,13	0,21**	2,08	-	-	-
cultural influence	culture	0,75**					2,00	1,25*	1,93
Generation of UFB	gener_1	-					-	-	-
(ref=gener_3)	gener_2	-	-0,02	-0,22	-0,03	-0,25	-	-	-
Family cohesion	cohes	-0,08	0,11	1,08	0,11	1,08	-0,21	-0,15	-0,25
Public value	valeur_1	0,38	0,08	0,90	0,08	0,89	1,09	0,63	1,08
Personal value	valeur_2	0,30	-	-	-	-	0,90	0,50	0,88
Value of the business	valeur_3	-0,45	-0,12	-1,11	-0,12	-1,11	-1,09	-0,75	-1,09
Implication of family member in the board of directors	implic_f	-	-0,14	-1,35	-0,14	-1,35	-	-	-
Implication of no family member in the board of directors	implic_nf	-0,49					-1,33	-0,84	-1,33
Business Climate (ref=	climat_2		0,01	0,08	0,01	0,06			
climat_1)	climat_3	0,04	-0,09	-0,76	-0,09	-0,76	0,08	0,04	0,06
	climat_4	-0,34	-0,01	-0,08	-0,01	-0,05	-0,75	-0,58	-0,75
Activity sector (ref=	sec_prim	-0,04	0,18*	1,80	0,18*	1,77	-0,08	-0,05	-0,05
sec_tertia)	sec_second	0,65*	0,16*	1,81	0,16	1,55	1,73	1,09*	1,69
Fiscal	fiscal	0,61*	-0,08	-0,77	-0,09	-0,85	1,73	0,96	1,56
Competing	concur	-0,29	0,13	1,16	0,11	1,00	-0,78	-0,54	-0,85
Consul	conseil_|	0,45	-	-	-	-	1,15	0,66	1,00
	emp_f_ma	-					-	-	-

Table B2. Model 2

| VARIABLES | Items | Model 2 | | | | Model 2 (Marginal effect) | | | |
| | | MODELE PROBIT | | MODELE LOGIT | | MODELE PROBIT | | MODELE LOGIT | |
		β	Z STAT	β	Z STAT	Marg(β)	Z STAT	Marg(β)	Z STAT
Constant		-0,81	-0,55	-1,60	-0,64	-	-	-	-
Age (ref = âge3)	age1	-	-	-	-	-	-	-	-
	age2	-	-	-	-	-	-	-	-
Educational level (ref = instr_1)	instr_2	-	-	-	-	-	-	-	-
	instr_3	-	-	-	-	-	-	-	-
	instr_4	-	-	-	-	-	-	-	-
Sex	sexe	-	-	-	-	-	-	-	-
Leader Experience	duree_p10	-	-	-	-	0,08	0,52	0,08	0,52
Work hours of leader	heur_w_p	0,29	0,52	0,48	0,52	-0,42***	-3,52	-0,4***	-3,62
Age of UFB (ref = âgeent3)	ageent1	-1,61**	-2,55	-2,8**	-2,44	-0,07	-0,66	-0,07	-0,65
	ageent2	-0,25	-0,65	-0,41	-0,64	-0,02	-0,21	-0,03	-0,29
Size of UFB (ref = nbempl3)	nbempl1	-0,08	-0,21	-0,19	-0,29	-0,05	-0,35	-0,05	-0,42
	nbempl2	-0,17	-0,35	-0,33	-0,42	0,115	1,04	0,121	1,11
cultural influence	culture	0,41	1,04	0,73	1,10	0,11	0,40	0,12	0,47
Generation of UFB (ref=gener_3)	gener_1	0,40	0,38	0,75	0,44	0,22	0,87	0,23	0,98
	gener_2	0,83	0,79	1,48	0,87	-0,07	-0,66	-0,06	-0,60
Family cohesion	cohes	-0,27	-0,64	-0,40	-0,58	0,18*	1,93	0,19**	2,01
Public value	valeur_1	0,65*	1,87	1,14*	1,90	0,11	1,16	0,11	1,13
Personal value	valeur_2	0,40	1,14	0,66	1,11	-	-	-	-
Value of the business	valeur_3	-	-	-	-	0,15	1,30	0,15	1,36
Implication of family member in the board of directors	implic_f	0,53	1,28	0,92	1,31	-0,07	-0,59	-0,06	-0,47
Implication of no family member in the board of directors	implic_nf	-0,26	-0,59	-0,35	-0,47				
Business Climate (ref= climat_1)	climat_2					-0,15	-1,38	-0,15	-1,35
	climat_3	-0,57	-1,30	-0,95	-1,26	-0,06	-0,48	-0,05	-0,41
	climat_4	-0,21	-0,47	-0,31	-0,41	-0,13	-0,80	-0,12	-0,77
Activity sector (ref= sec_tertia)	sec_prim	-0,45	-0,81	-0,73	-0,77	0,08	0,76	0,09	0,79
	sec_second	0,30	0,76	0,54	0,78	0,18*	1,91	0,20*	1,90
Fiscal	fiscal	0,68*	1,82	1,22*	1,90	-0,27***	-2,73	-0,3***	-2,84
Competing	concur	-1,02**	-2,32	-1,7**	-2,31	0,14	1,27	0,14	1,29
Consul	conseil_|	0,52	1,24	0,86	1,25	-0,15	-1,44	-0,14	-1,36
	emp_f_ma	-0,53	-1,44	-0,84	-1,36				

Table B3. Model 3

VARIABLES	Items	Model 3				Model 3 (Marginal effect)			
		MODELE PROBIT		MODELE PROBIT		MODELE LOGIT		MODELE PROBIT	
		β	Z STAT	β	Z STAT	Marg(β)	Z STAT	Marg(β)	Z STAT
Constant		0,33	-0,36***	-2,73	-0,37***	-2,95	0,33	0,33	0,33
Age (ref = âge3)	age1	-1,54**	-0,30***	-3,19	-0,29***	-3,11	-1,54**	-1,54**	-1,54**
	age2	-1,41**	-0,05	-0,28	-0,06	-0,36	-1,41**	-1,41**	-1,41**
Educational level (ref = instr_1)	instr_2	-0,21	0,11	0,74	0,09	0,59	-0,21	-0,21	-0,21
	instr_3	0,46	-0,08	-0,57	-0,09	-0,61	0,46	0,46	0,46
	instr_4	-0,33	0,08	0,61	0,09	0,66	-0,33	-0,33	-0,33
Sex	sexe	0,36	-	-	-	-	0,36	0,36	0,36
Leader Experience	duree_p10	-	0,07	0,46	0,07	0,46	-	-	-
Work hours of leader	heur_w_p	0,31	-0,38***	-2,96	-0,40***	-3,25	0,31	0,31	0,31
Age of UFB (ref = âgeent3)	ageent1	-1,74**	-0,13	-1,33	-0,13	-1,24	-1,74**	-1,74**	-1,74**
	ageent2	-0,57	0,01	0,11	0,00	0,04	-0,57	-0,57	-0,57
Size of UFB (ref = nbempl3)	nbempl1	0,05	-0,07	-0,53	-0,07	-0,54	0,05	0,05	0,05
	nbempl2	-0,28	0,16	1,56	0,17	1,62	-0,28	-0,28	-0,28
cultural influence	culture	0,68	0,11	0,45	0,12	0,53	0,68	0,68	0,68
Generation of UFB (ref=gener_3)	gener_1	0,50	0,19	0,77	0,21	0,89	0,50	0,50	0,50
	gener_2	0,83	-0,11	-1,06	-0,11	-1,06	0,83	0,83	0,83
Family cohesion	cohes	-0,47	0,10	1,02	0,11	1,10	-0,47	-0,47	-0,47
Public value	valeur_1	0,42	0,07	0,78	0,07	0,75	0,42	0,42	0,42
Personal value	valeur_2	0,31	-	-	-	-	0,31	0,31	0,31
Value of the business	valeur_3	-	0,13	1,15	0,13	1,16	-	-	-
Implication of family member in the board of directors	implic_f	0,57	0,01	0,07	0,02	0,21	0,57	0,57	0,57
Implication of no family member in the board of directors	implic_nf	0,03	-0,09	-0,76	-0,10	-0,81	0,03	0,03	0,03
Business Climate (ref= climat_1)	climat_2		-0,06	-0,46	-0,07	-0,51			
	climat_3	-0,40	-	-	-	-	-0,40	-0,40	-0,40
	climat_4	-0,25	-0,11	-0,75	-0,11	-0,71	-0,25	-0,25	-0,25
Activity sector (ref= sec_tertia)	sec_prim	-0,47	0,04	0,35	0,04	0,34	-0,47	-0,47	-0,47
	sec_second	0,17	0,19**	2,07	0,19*	1,87	0,17	0,17	0,17
Fiscal	fiscal	0,83*	-0,25***	-2,61	-0,26***	-2,83	0,83*	0,83*	0,83*
Competing	concur	-1,10**	0,11	1,00	0,10	0,86	-1,10**	-1,10**	-1,10**
Consul	conseil_|	0,47	-0,27***	-2,70	-0,26***	-2,70	0,47	0,47	0,47
	emp_f_ma	-1,16**					-1,16**	-1,16**	-1,16**

Copyrights