Success and failure factors in the succession of local family businesses: an approach for Mexico

Juan Miguel Feliciano Vega Hernández[1]

Abstract

Family businesses are important to the Gross Domestic Product (GDP) and employment of any economy. For example, in Spain they generate approximately 58% of GDP and 67% employment; in Mexico, these companies employ about 25 million people (Empresa, 2022). Hence the importance, for these companies to survive over time and in the following, generations. The objective of this work is to identify the components of the organization and operation that allow the generational permanence of Mexican family businesses. For this, a questionnaire of 20 reagents was constructed, applied to 35 Mexican family businesses with more than 10 years in the market, whose owners are heads of families between 55-65 years old. From categorizing the answers of the questionnaire with Likert scale, a logit model is adjusted that throws the probability of succession of the family business. The results show that academic preparation and values as intrafamilial variations were significant; implying that the more education the next head of the company has will be crucial for the company's permanence within competitive markets; While there are different values that have a negative impact on the probability of permanence of the family business.

Key Words

Family businesses; academic preparation; values; permanence in the market; employment.

Introduction

Family businesses have successfully positioned themselves in the market, for example, in the United States, 9 out of 10 companies are family businesses, which is why they stand out as number 1 worldwide in this sector. In the European Union, family businesses generate close to

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[1] Professor at the Faculty of Business of La Salle University, Mexico City. jvega@lasallistas.org.mx

60 million jobs; where for Spain, these companies generate approximately 58% of GDP and 67% of their employment (Empresa, 2022). In Latin America, Brazil, Chile and Mexico stand out, but the latter is not only the leader in Latin America, but also the fifth country in the world with the largest number of family businesses (Voice of companies, 2021). In particular, Mexican family businesses generate about 85% of GDP, being a key factor in the generation of employment and wealth in the country (El Heraldo de México, 2022).

In addition, part of the success of family businesses lies in their democracy, equitable distribution of benefits, and commitments among their members; coupled with the values of solidarity and cooperativism, essential in the operation of this type of company. The family spirit is important, since it implies a close relationship and equal treatment of customers and employees. The family dialogues and creates unity, knows how to distribute roles and jobs in a harmonious way, which is why it motivates the participation and commitment of its members. Thus, the business logic of family businesses can be understood and, in this way, their profitability can be assessed (Carrasco-Pérez et al., 2022).

In this way, the participation of a potential worker, seen as a social service, professional internship or training, in this type of company is essential for their future job placement and participation in the labor market. Therefore, through labor insertion or as a special employment center, family businesses can be seen as socially essential companies, which, based on legal employment regulations, will have an arduous participation in the labor market.

Hence the importance for these companies to survive over time and in the following generations. That is, the businessmen, before being active leaders or founders in the organization, are members of a family, which they will take care of and many times, will have to put it before; before other business objectives of his life. This should be considered at the time when best practices are implemented within the organization; so maintaining a family generation within a company is essential. Despite the fact that the literature says otherwise, generational succession is important, as mentioned by Macías (2021) for an analysis of companies in northern Mexico.

In addition, over time family businesses have been the pillar of the economy in most countries. Where, a family business is a type of business, which is owned by a group of people related by blood ties or affinity, in whose management one or more of these people are involved and who intend to transfer the company to the following generations, that is, they want the company to last over time (Carrascosa, 2021). In addition to that, the family business is an organization in which, regardless of the size and the actions that are carried out, most of the properties belong to one or more families and show solidarity between them.

As if that were not enough, the family business is an organization in which, regardless of the size and the actions that are carried out, most of the properties belong to one or more families and show solidarity between them. In this sense, Duran et al. (2016) highlight that family businesses

have a degree of concentration of wealth, family control in the business and importance of non-financial objectives, which prevents them from investing more compared to other types of companies. Therefore, the need to evaluate and compare behaviors, values and perceptions is highlighted, among other elements of the organizational culture, which help to manage and solve problems, for the permanence of family businesses.

In this work, based on a questionnaire of 20 self-designed items, applied to Mexican family businesses with more than 10 years in the market (paint dealers-family businesses), whose owners are heads of family between 55-65 years of age, the organization and operation requirements that allow the generational permanence of Mexican family businesses are deduced. In order to deduce our model, we constructed, in addition to the independent variables, the objective (dependent) variable defined as the risk of family succession.

We highlight the construction of the dependent variable, it was considered: the operational processes of the family business and how important it is to present accounting financial statements, and through a Likert-type scale the nomenclature is determined 1: It is not important 2: unimportant 3: neutral 4: important 5: very important. The dependent variable was formed binary for better analysis.

Based on this, we estimate a logit model that shows the probability (risk) of succession of the family business. The results indicate that academic preparation (X_1) and moral and/or ethical values (X_4) were significant in the risk of permanence in the family business. That is, the more academic preparation the next owner and/or family member of the company has, the greater the probability that the company will survive in the market. While, worrying about the fact that the next family owner of the company is married, who he is married to, among other values, have a negative impact on the permanence of the company.

The work is structured in six sections, where the first section corresponds to the introduction. The second section corresponds to the review of the literature, in particular it was useful to justify the independent variables related to the family succession of the company. The third section shows the necessary methodology for our purposes. The fourth section corresponds to the construction of variables, as well as the results of the econometric analysis. In the penultimate section, we compare our results with what has been done in the literature, deducing a discussion about it; coupled with the contributions mentioned. Finally, the conclusion is shown, highlighting the contribution, the recommendations, as well as the limitations and future work.

Literature review: family businesses

Family businesses have a default identity trait characteristic of a family of their own, that is, recognizing themselves as family members and having a sense of belonging that can boost the positioning of the family business in the market. Such a sense of belonging has been applied to

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the concepts of polarization (Esteban and Ray, 1994), which can even support some reform, tax policy (Andrade, 2016) or avoid conflicts (Esteban and Ray, 2008).

Identity ties in a family business condition the inclusion of all workers and new members by default. Such inclusion gives the opportunity to recognize other talent some unfamiliar companies might deny. For example, In this sense, Trujillo and García (2018), commenting on illiterate people in Jalisco and the discrimination they suffer in labor matters by public institutions, concludes that, by being excluded due to their conditions, they are denied the opportunity to showcase their skills and experiences. In this line, Narváez (2021) highlights the ties of family identity that show the Yasuní region in Ecuador, commenting that by recognizing and respecting their ancestors, he motivates the region so that it does not give in to the whims and control of the government. or private companies and thus exploit the natural resources of the area.

Regarding the "rejection" of the indigenous region with the companies or authorities mentioned by Narváez, such rejection could be mitigated if the authorities come up with a project where "the family" as such does not disintegrate. For example, Weinberg (2019) mentions the processes and strategies that the Argentine government carried out to get closer to the Qullamarka indigenous community; which already functioned as an organization. Process that caused some indigenous communities to recognize themselves as family farmers (companies), modifying their link with the government.

The foregoing shows that the focus and family nucleus has been taken beyond companies, for example, indigenous organizations, regions and public institutions. However, the family importance has been manifested in other topics, as mentioned by Sánchez and Jiménez (2021), which through a qualitative analysis applied to Spanish political parties in the 2019 elections; pointing out that, despite the differences in family ideologies and political parties, there are common features of the parties with family pragmatics.

At present, nepotism is frowned upon, a large part of the companies that are listed on the stock market and personal signatures prohibit it, even so, within family businesses it is carried out by different factors since they enter into challenges, loyalty and multigenerational thoughts. that transform the family business, coming to confront each other for their own interests. Due to the above, for Belausteguigoitia (2015) he affirms that some of the members of the family are part of the payroll, more to respond to a need, than, for some benefit to the company, in the same way he comments that when this type of promotion or benefits depends on the blood relationship that exists between the family, so it is very difficult for companies with these characteristics to achieve success.

Finally, the relationship between the members of a family business, whether they are related or not, entails friendship ties between more sincere collaborators and support in any circumstance than in other types of companies. The above, due to the simple fact of recognizing themselves

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as a family. That is, in the face of any random circumstance such as the pandemic, the ties between collaborators of these family businesses maintain harmony. For example, Alonso, Sáenz and Sanz (2020), based on a sample of 1008 children in 8 regions of Spain, highlight the bonds of identity, values, learning and, above all, of fraternal "rescue", that these children had with their grandparents, during the time of COVID-19.

The family is above all an emotional institution and therefore family businesses are a mixture of family customs and business needs, demonstrating the loyalty and trust that must exist within the family nucleus. Some authors affirm and agree that a solid family business constitutes an important competitor in the market, not so much because it works better but because it consolidates an intangible network of emotions and customs. This type of situation provides the business family with the strength to be able to overcome the risks within the competitive market (Le Van 2003).

Due to the above, one of the main characteristics of family businesses is the close relationship that exists in the family business itself and family life – business family, for Grajales (2022) affirms that one of the main problems within family businesses is based on the family hierarchy, and as a second problem, consider emotional conflicts. Therefore, having some family relationship is classified as generational conflicts, between the first line of consanguinity and especially gender (Herrera Bernal and Vázquez Gutiérrez, 2021). Likewise, these emotions make up the main drawbacks within the family business, since they consider that emotion works above reason, taking into account the fraternity of the family nucleus, they face feelings and productivity, impacting on the results, in this area. It should be noted that most of the time you want to order or put management or work positions according to the family organization chart (Proaño Quezada, 2017).

Success and failure

It is important to highlight that each family is unique and that success can be achieved through the combination of different factors and good practices, in the same way they can face great challenges, and run the risk of failing.

Therefore, the entrepreneurial spirit is always prone to making mistakes, especially intimes of rapid changes or adaptation that require tests to find the best solution, innovation, in its processes. To be successful, it is necessary to reach a common goal by reducing, the number of errors and the making of bad decisions, especially learning from their own mistakes, In this sense for (Colina and Albites 2020) companies must face the remains of the postmodern world, where uncertainty, chaos, and uncertainty intervene. globalization, focused on the changes generated by technology, the crisis, and social-cultural models, (Argón 2010) affirms that the success or failure of the company depends on the type of strategies that are taken, depending on the

context, that is to say that It will depend on market conditions and situations. For their part, Ahmad, Siddiqui and Alsamh (2020) comment that for a family business to remain and succeed in the market, the company's participation insocial causes is necessary.

Failure is related to multiple factors such as the lack of processes, indicators, planning and execution problems, however, for Wijaya and Wijaya (2019) they affirm that failure occurs from the first to the second generation due to lack of strategies. raised, as the succession itself ignores issues of leadership, entrepreneurship, and knowledge. For example, in this sense, García (2016) in his geographical study, affirms that, in Spain during the recession period, macroeconomic factors are strengthened negatively, leading companies to fail, bringing with it economic contagion in the the construction.

The lack of professionalization within family businesses is linked to experience and knowledge since they can limit their skills, the lack of innovation and adaptation, this has a negative impact, so it is important to invest in hiring and development of trained university professionals, to establish structure and efficient processes.

For Martín (2023) comments on the labor insertion of university students, analyzing the experience of professional practices and their lobar trajectories, recognizing the objectives and needs that the company requires to achieve common objectives. The importance of personnel development within organizations, especially to build competitive advantages, is fundamental in human talent, developing new challenges and skills that respond to market needs (Hernández et al., 2004).

Characteristics and importance of family businesses

We reiterate the economic importance that families have in the economy, as such, and in the social economy. That is, economically they generate more than 50% of GDP in any economy and in terms of employment they lead the way. Regarding the issue of social economy, it highlights its work climate and identity among its collaborators, which links them to one of the concepts of corporate social responsibility (CSR).

Mexican family businesses tend to be younger and smaller than their international counterparts, showing a percentage similarity in the participation of the second generation. Also, non-family businesses are comparatively well below the percentages of third-generation family businesses. That is why, in Mexico, the lack of strategic planning has prevented capitalization and continuity and, above all, they tend to have more competitive advantages than international companies. For Pacheco-Ornelas (2005), competitive advantages are based on the adequacy of their own resources and capabilities. These consist of close relationships with customers, the reputation they maintain among them locally, and knowledge of the market, additionally, they tend to

compete with low costs, unlike others that seek to differentiate themselves by quality, variety, or design.

That is, there is a difference in various ways between a normal Small and Medium Enterprise (SME) and a family business, that is, Villarreal-Segoviano (2012) comments that SMEs have certain attributes that can be used to position themselves internationally, By promoting these advantages, they will have efficient operations, so that the activities themselves project the creation of value within the companies, leading to the consolidation of the business. For their part, Jaimes-Bolívar and Albornos-Arias (2021) comment that the life of family businesses is largely limited to the generational transition, the average 30% survive one generation, 15% to a third, and 1 % to the fourth.

Another important aspect is to emphasize the ability of the owners to decentralize decision-making, since in most cases in Mexican family businesses they are made between 2 or 3 managers; covering an approximate average of 4-5 areas, such as general management, management, operations, finance, marketing, human resources, among others. It is worth mentioning that the growth of the company will demand managerial areas that will be attributed to family members with or without professional experience. One of the challenges of family businesses is to understand and know when they should make organizational changes and make decisions that do not affect their level of productivity Londoño-Patiño (2020).

The succession of the family business is important due to the economic implications on the GDP and employment of any economy. The conditions for permanence are various, ranging from identity, family recognition, company trajectories, its history, member commitment, values, disciplines, among others. For example, Kaveski and Beuren (2022), through a structural equations model applied to 10 family businesses and 116 officials of these, mention the importance of motivation and organizational culture, on the control of the official, which originates in an affective commitment towards the members.

For their part, Aragón, Arango and Llanos (2021), through a Bayesian network analysis, measure the risk in the financial stability of Mexican households, where they argue that credit management and the way in which the home is essential for said stability; Finally, they suggest the promotion of financial education for members of this family nucleus.

Historically, family businesses have also been positioning and maintaining themselves in different areas, as explained by Garazi (2021); which analyzes the family businesses that owned hotels in the mid-1950s. Commenting that the permanence of these hotel companies was mainly due to the knowledge and clarity of its members about: the division of labor, commitment and obligations, their remuneration and their rights.

As mentioned above, the owner or leader of the family business knows that he must take care of the company as he does his family, so by default the board of directors will trust him in his

performance. In this sense, Cortés, Ramírez and Betancourt (2018), through a panel applied to 104 Colombian companies, analyze the relationship between family control and the financial performance of companies; concluding that, when a family is the main controlling shareholder, companies have higher performance, but when two or more families are the ones that control the business, the performance may be zero.

Methodology

An econometric model is a simplified representation between different variables that explain a particular phenomenon, allow studying complex phenomena and making predictions about the future behavior of the variables, given that reality is very complex, the model will focus on the most relevant variables to study. , thus allowing greater understanding and simplicity.

Therefore, it is important to know, what are the elements that affect the permanence of the Mexican family business? Likewise, how do the decision criteria define a permanence risk model? And to what extent does a risk model influence decision making? These questions will help us to better understand the analysis, focusing only on Mexican family businesses, since, in an econometric analysis, one wants to show the importance or not of a variable, such importance must meet two conditions: i) the intuitive part that reflects the expected theoretical analysis and, ii) the statistical significance that shows the minimum error of explanation made by the independent variable on the dependent one. In this way, we proceed to estimate linear models as in (1),

$$Y_i = a_0 + a_1 X_{1i} + a_2 X_{2i} + \cdots + a_k X_{ki} + U_i \qquad (1)$$

Where $Y_i = a_0 + a_1 X_{1i} + a_2 X_{2i} + \cdots + a_k X_{ki} + U_i$ is the variable explained through the explanatory and observed variables $X_1, X_2, \ldots, X_k$, and where i is an index that refers to the observation. Finally, U_i is a disturbance that considers factors that cannot be controlled, such as a crisis, a war, a drought, among other unexpected events. In this way, , U_i is a random variable that is normally distributed, with mean 0 and constant variance, that is, , $U_i \sim N(0, \sigma^2)$. Additionally, U_i, the have to be independent.

The type of models in which a stochastic disturbance term or stochastic error term is considered is called the population regression function (Gujarati and Porter, 2004), and it is what is of interest to estimate. Finally, one of the assumptions that must be fulfilled in model (1) is that the explanatory variables $X_1, X_2, \ldots, X_k$ must not be strongly correlated. In this way, it is required that an explanatory variable X_i does not have to show a relationship with any explanatory variable X_j or any combination of these, for all $i \neq j$.

Linear probability model

When the dependent variable is qualitative, in the sense that Y_i represents an attribute, whether it is risky or not risky (family businesses). For example,

$$Y = \begin{cases} 1, & \text{if it possesses the attribute} & with\ prob = \ p \\ 0, other\ case, & with\ prob = \ 1-p \end{cases}$$

Thus, we want to estimate the average behavior of binary Y from some explanatory variable, that is,

$$Y_i = \beta_0 + \beta_1 X_{1i} + u_i \qquad (2)$$

Is being estimated,

$$\hat{Y} = E(Y|X), \qquad (2)$$

Thus, when Y represents a qualitative variable of "success" and "failure", which is nothing more than a Bernoulli distribution, which takes two values: 0 and 1. And since the expectation is according to,

$$E(Y) = \sum_{i=0}^{1} i\, P(Y=i) = 0*(1-p) + 1*p = p \qquad (3)$$

Therefore, according to (2) and (3) what you are estimating in a linear probability model (LPM) is the probability of possessing the attribute or not.

A couple of problems that arise in estimation (2) are:

i) The outputs, or estimated values can be negative or greater than 1, that is, the dependent variable, negative values and greater than 1. One of the solutions is to set 0.001 to the negatives and 0.999 to those greater than 1, so as not to lose the values. degrees of freedom.

ii) The other is that the disturbances u_i comply with,

$$u_i = \begin{cases} 1 - \beta_0 - \beta_1 X_{1i}, & si\ Y_i = 1 \\ -\beta_0 - \beta_1 X_{1i}, & si\ Y_i = 0 \end{cases}$$

So it would be violating the assumption of normality.

Problem ii) can be solved by applying the central limit theorem especially when the sample is large. Problem i) we can eliminate the values that fall outside the range 0 and 1, but if there are

too many we would be losing degrees of freedom for the estimation. As a possible solution, in order not to lose information, it is to set 0.001 to negatives and 0.999 to those greater than 1, even though our estimate is not so "certain".

To avoid such complications, a probability model that solves above all problem 1 is the logit model that estimates the probability when $Y = 1$, from,

$$P_t = E(Y = 1|X_1, X_2, \ldots, X_k) = \frac{1}{1+e^{-z_t}} = \frac{e^{z_t}}{1+e^{z_t}} \qquad (4)$$

Where $z_t = a_0 + a_1 X_{1t} + a_2 X_{2t} \ldots + a_k X_{kt}$. Notice then, that $\lim_{z_t \to -\infty} P_t = 0$ y $\lim_{z_t \to \infty} P_t = 1$.

However, model (4) is not linear in the explanatory variables, $X_1, X_2, \ldots, X_k$. To make it linear we do some algebra getting $\frac{P_t}{1-P_t} = e^{z_t}$, and applying logarithms,

$$L_t = \ln\left(\frac{P_t}{1-P_t}\right) = z_t = a_0 + a_1 X_{1t} + a_2 X_{2t} \ldots + a_k X_{kt} \qquad (5)$$

Model 5 is called logit (Gujarati and Porter, 2004). After the estimations, the marginal effects of $X_1, X_2, \ldots, X_k$ on the probabilities can be found, which will be shown in the final results section.

Analysis and results

To build the logit model, we first built the dependent and independent variables, based on a 20-item questionnaire of our own design, whose results are classified with a Likert-type scale.

Questionnaire and construction of variables

Participants from Mexican family businesses with more than 10 years in the market (paint dealers-family businesses) are determined, where the heads of the family are the owners of the business, people between 55 and 65 years of age. The survey was carried out considering in general the following characteristics:

i)   Decision criteria: the business owner and head of the family;

ii)   Academic Preparation: of the head of the family, since the lack of knowledge in the entrepreneurial area can make mistakes that lead the company to not have sufficient profitability;

iii)   Symbolism: the symbol is a content to communicate emotions and abstract realities in addition to using fantastic and subjective irrational representations. The importance of

these within the company lies in the sense of belonging which makes them identify and have a better commitment to the processes within the business;

iv)   Values: They are main virtues or qualities that characterize a person. An action or an object that is considered typically positive or of great importance for a social group, in the company are those characteristics that define a company and that serve as the axis for its growth. It is very important to consider the values within family businesses since it is considered part of the formation of the family nucleus, which determines certain characteristics related to the family business.

Thus, the dependent variable is identified as:

Y: Risky Company, it was considered, how important it is to have operational processes in the family business and how important it is to present accounting financial statements.

And the independent ones are justified according to:

X_1: Academic Preparation (PA), it is taken into account how important a university degree is to have a family business, if they consider having a plan of objectives for the company, and the importance of the personnel having university studies.

X_2: Symbolism (S), it is determined how important luck is in sales, if any ritual is performed to attract sales, if it is important to put images or symbols of good luck, a religious altar and how important are the dates of birthdays or anniversaries of the family / company.

X_3: Belief system (SC), taking into account how committed they feel to the family business, whether they consider it important to have a succession plan for the business, the importance of the family, the business, and sharing family business projects.
X_4: Moral and/or ethical values (V); These determine how important it is to contain growth plans, the capital in the hands of the family, consider a board of directors for the company, recognition of success towards employees, and how they consider if a family member steals.
Table 1 shows the 20 reagents that characterize the variables in detail.

Table 1. Items, variables and categories

Items	Questions	Relationship between questions	Category

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		and variables	
1	Do you consider a university degree important to have a family business?	x1	PA
2	Do you think it is important to have a plan of objectives for your company?	x1	PA
3	How important is it to have operational processes in your family business?	y	R
4	Is it important to present accounting financial statements?	y	R
5	How important is it that your staff have university studies?	x1	PA
6	How important is luck in sales?	x2	S
7	Do you consider it important to perform a ritual to attract sales?	x3	S
8	Is it important to put images or symbols of good luck?	x4	S
9	Do you consider a religious altar important?	x5	S
10	How important are the dates of birthdays or anniversaries of the family / company?	x2	S
11	How committed do you feel to the family business?	x3	SC
12	Do you consider it important to have a succession plan for the company?	x4	SC
13	How important is family to you?	x5	SC
14	How important is the business to you?	x6	SC
15	Is it important to share the projects – businesses with the family?	x7	SC
16	Do you consider it important to have growth plans?	x4	V
17	How important is it to have the capital in the hands of the family?	x4	V
18	Is a board of directors important for your family business?	x4	V
19	Is it important to you to recognize the success of your employees?	x4	V
20	How would you consider if a family member steals from the company?	x4	V

Source: Own elaboration.

Based on the answers, a Likert scale is applied to classify the final database. The general classification for the variables is:

1. It is not important

2. Unimportant

3.Neutral

4. Important

5. Very important.

Investigation

We want to analyze which factors show a correlation with the probability of succession of the family business (Y). Table 2 details the variables that were considered and that the literature supports these possible correlations.

Table 2. Description of the variables of the model		
Literal	Variable	Description
Y	Shows the risk of family permanence of the company	It is a binary variable, whose construction was based on considering Likert values on two questions: i) How important is it to have operational processes in the company? ii) Is it important to present accounting financial statements?
X_1	Academic preparation	Its construction is based on the average Likert values that correspond to the questions referring to the theme of the variable; Do you consider a university degree important to have a family business? (see questions table 1)
X_2	Symbolisms	Its construction is based on the average of Likert values that correspond to 5 questions referring to the subject of the variable; How important is luck in sales? (see questions table 1)
X_3	Belief Systems	Its construction is based on the average of Likert values that correspond to 5 questions referring to the topic of How important is family to you? variable (see questions table 1)
X_4	Values	Its construction is based on the average of Likert values that correspond to 5 questions referring to the topic of How would you consider if a family member steals from the company? variable (see questions table 1)

Source: Own elaboration

To define the binary value of Y, it was considered that $Y = 1$ if both answers in Table 1 were affirmative, otherwise the value of Y was 0. The final values of both Y and the independent ones are shown in Table 3 of the appendix. For the values of the independent X_i, $i = 1,2,3,4$ the quantitative values of each of the responses were averaged according to the aforementioned Likert scale. In addition, the reliability value (Cronbach's Alpha) is 0.72, which gives the scale we use a reliability (see table 3).

Although the purpose is to show a logit model, let us first apply an LPM (line probability model) to determine the possible significant variables for the estimate of Y, such an estimate is shown in table 4. Note that only academic preparation was significant to explain the probability of permanence of the family business (see table 3).

Table 4. Estimation of the risk of permanence of the family business.

y	coef.	Std. Err.	t	P > ltl
x1 academic preparation	0.2652843	0.110.191	2.4	0.023
x2 symbolism	– 0.1686862	0.1046383	–1.61	0.117
x3 belief system	0.1209983	0.1373634	0.88	0.384
x4 values	– 0.3989436	0.2199329	–1.81	0.080
Cons	1.146612	0.8633297	1.33	0.194

Source: Own elaboration

In such a calculation, the variable values could be considered as a possible explanatory variable, since its probability of error is 0.08; This means that it is marginally significant.

What, if discarded, is the possible correlation of family permanence with the variable X_3 belief system, since its explanation error is very high (0.385).

Based on the above, we have the following model considering the two "marginally" significant variables,

$$\hat{Y} = 1.507 + 0.3129X_1 - 0.4081X_4 \qquad (6)$$
$$P_{value} \qquad (0.003) \quad (0.072)$$

It is observed in (6) that the academic preparation (X_1) continues to be significant, the values variable improving its significance $(P_{value} = 0.07)$, but the symbolisms variable loses significance with respect to what is shown in table 4. We could stay with this model, but when running the model the variables: academic preparation (X_1) and values (X_4), the model is much more complete and in intuitive terms richer (see signs). The estimated model is,

$$\hat{Y} = 1.559 + 0.30732X_1 - 0.517X_4 \qquad (7)$$

$$P_{value} \qquad\qquad (0.004) \qquad (0.019)$$

The penultimate column of table 5 in the annex reports the outputs through the linear probability model (LPM), where 4 observations greater than unity are observed. Based on what was explained in the methodology, we applied the logit model shown in Table 5.

Table 5. Estimated logit for (7).

y	coef.	Std. Err.	t	P > |t|
x1 academic preparation	1.707412	0.6734424	2.54	0.011
x4 values	-2.915457	1.338402	-2.18	0.029
cons	6.08686	4.559994	1.33	0.182

Source: Own elaboration

The marginal effects after the logit (estimate of 5) are shown in table 6, where it is observed, according to the LPM and (5), that the two marginal effects of academic preparation and values are significant on the probability of family permanence.

Table (6) shows that, overall, a boss with good academic preparation and "little" concerned about the values increases the probability of remaining in a family by 0.714. However, the individual effects are not positive, for example, the more prepared the head of the family is, the probability of family permanence increases by 0.34; while, if the directive wonders why the head of the family is not married, to whom he is married, if he baptized his children (values) and therefore they doubt if they maintain the family succession, then these doubts make the probability of family permanence falls at 0.59.

Table 6. Estimation of the logit model for the permanence of the family business, controlled by academic preparation and values.

Permanence	Marginal effects	P_{values}

Academic preparation	0.348		0.008
Values	-0.594		0.02
Marginal effects after logit	Pr(test acceptance) (predictive)= 0.714		
Proofs	Wald: p> $\chi^2 =$ 0.0052	Pseudo $R^2 =$ 0.233	Specificity and Sensitivity: 0.74

Source: Own elaboration

Regarding the statistical tests, in principle it is proven that:

H_0: Both coefficients are equal to zero and the variables are not important for the model,

H_1: Both coefficients are different from zero and the variables are important for the model.

The joint probability shows that $p > \chi^2 = 0.052$, so H_0 is rejected and the variables as a whole are significant for the model.

The specificity and sensitivity analysis yields a value of 0.74 which, according to Hosmer and Lemeshow (2000), a value between 0.6 and 0.8 means that the model considerably discriminated against incorrect data that could be taken as correct. The only weak significance test would be the Pseudo R^2, since a value close to 0 shows a very weak fit for the estimated probabilities and a value close to 1 would be a very good fit; as the value is 0.233 we could speak of a slightly low setting. However, the model with the two explanatory variables is good and it is enough to see it in individual significance.

1. **CONTRIBUTION AND DISCUSSION**

Our contribution highlights pros and cons for the family succession process, such as the values and academic preparation of the future owner and family of the company. Similar studies, such as that of Hillen and Lavarda (2020), highlight innovation as the main factor in family succession, because the new family member must have a vision of what their competitors are doing and innovate to stay in the market.

It is important for any successful Mexican family business to take into consideration these factors related to its size, the sector in which it operates, as well as its own future strategies; but also both endogenous and exogenous variables, such as the variables raised in this study, particularly academic preparation and values, important factors for continuity and permanence in the market. Although our results support that dwelling on values is counterproductive for

family permanence; Arenas-Cardona and Rico-Balvín (2014), comment on the importance of raising awareness among businessmen, for the recognition of the important role that family businesses play in economic activity as generators of wealth and employment, awareness that is crucial for permanence of these companies.

Conclusion

Most Mexican family businesses do not have generational or planning processes to transfer the leadership or direction of the company itself, nor have they defined the person within the family who could assume this responsibility, this leads us to include nepotism and favoritism for family succession, regardless of the merits
own. This type of practice has harmful effects on the company, and more so when applied to positions of maximum responsibility, whether due to appreciation, trust or the years they have been friends with. Therefore, the consequences of poor performance will impact the company's losses, in addition to generating internal family problems of various kinds. Therefore, it is recommended, given the results of the investigation, the professionalization of the company so that employees are hired based on criteria and objectives of training, capacity and experience.

The success or failure of the companies will depend on the circumstances in which each one of the companies finds itself, due to the different factors that represent the family nucleus and its administrative processes, in the first place, the needs, and the relevant knowledge to organize and distribute the organization building an environment conducive to applying the innovative knowledge that will lead to success.

In the data obtained, the academic preparation shows a great correlation with respect to the values, it is evident that it will be part of the good criteria and the good actions that will be carried out within the companies. Resulting in better stability both in the company and in the family. Thus, it is important to point out that these characteristics make the company consolidate and have better results by minimizing the latent risks for the continuity of the company, which is what was sought from the beginning in this investigation: continuity from generation to generation, decreasing the risks.

In this way, it is worth mentioning that the variables raised, despite the fact that the symbolisms and belief systems, together with the significant ones of the model: academic preparation and values, derived a forceful strategy for the permanence of the companies and especially the valuation of results; Likewise, it should be noted that these variables have always been related to the success of any family business, at least for Mexico.

As a limitation of our work, we can say that, although the belief systems were not a significant variable, but it is essential for the proper development of the activities; Since the vast majority of workers need to believe or entrust themselves to some belief or symbolism in order to fully develop their activities. The results give us a great importance with respect to the risks that this may have, which means that greater weight must be given to something intangible such as an idea, a belief or the very thoughts that lead us to carry out the activities of a company. different and efficient way. This is, logical that being human beings, it is admitted to use a series of interpretations or various levels of spirituality, a materiality that is applied both at work and in the family. Its rational content allows its analysis and evaluation, so it does not have to be constituted as a separate category; since the way of relating is important to establish company-family behaviors, providing a greater commitment to their duties and responsibilities. Therefore, although they are two totally different systems (company system and family system), we cannot separate them or set them aside due to the characteristics mentioned.

In this way, we can ensure the assessments of each of the variables. Obtaining results attached to the crises and current problems of Mexican family businesses, being able to optimize the results for the integration of the processes and strategies that must be carried out so as not to be affected in both their family and business performance. Likewise, it is important to point out that the companies studied are companies that have been in the market for more than 10 years and that their founding owners are between 55 and 65 years of age and that put their own assets at risk, which means that decisions are made by themselves without having criteria that help the good performance of the company. Therefore, the suggestions made, based on the results obtained from the risk model, must be taken into account to reduce the risk of bankruptcy and improve generation transition only for this population. That is, part of the results in the risk model obtained indicate various structures or processes that require great care for their implementation, since we do not want to see the integrity of the family affected or put the business at risk, within the market there are or there were family businesses that due to lack of knowledge and tact are currently bankrupt.

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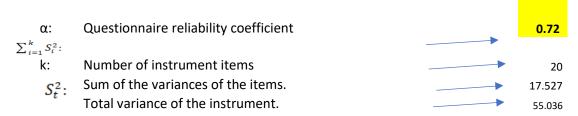
APPENDICES

Table 3. Results of the survey.

ENCUESTADOS	¿Consideras importante un título universitario para tener una empresa familiar?	¿Te parece importante tener un plan de objetivos para tu empresa?	¿Qué tan importante es tener procesos operativos en tu empresa familiar?	¿Es importante presentar estados financieros contables?	¿Que tan importante es que tu personal tenga estudios universitarios?	¿Qué tan importante es la suerte en las ventas?	¿Consideras importante realizar algún ritual para atraer las ventas?	¿Es importante poner imágenes o símbolos de la buena suerte?	¿Consideras importante un altar religioso?	¿Qué tan importante son la fecha de cumpleaños o aniversarios de la familia / empresa?	¿Que tan comprometido te sientes con la empresa familiar?	¿Consideras importante contar con un plan de sucesión de la empresa?	¿Qué tan importante es para ti la familia?	¿Qué tan importante es para ti el negocio?	¿Es importe compartir los proyectos - negocios con la familia?	¿Consideras importante tener planes de crecimiento?	¿Qué tan importante es tener el capital en manos de la familia?	¿Es importante un consejo directivo para tu empresa familiar?	¿Te parece importante reconocer el éxito de tus empleados?	¿Como considerarías si un miembro de la familia roba a la empresa?	SUMA
E1	1	5	5	1	1	4	3	3	4	5	5	5	5	5	5	5	5	1	5	1	74
E2	4	5	5	4	3	3	4	3	4	4	4	5	5	5	5	5	4	4	5	5	86
E3	1	5	5	4	1	5	5	4	1	4	5	5	5	5	5	5	3	5	5	1	79
E4	1	5	5	5	3	1	1	1	1	4	5	5	5	5	4	4	5	4	4	2	70
E5	3	5	5	5	3	2	2	1	4	4	4	4	5	5	3	5	2	4	4	1	71

E6	1	4	4	4	0	4	0	2	2	4	4	4	0	4	0	4	4	4	4	2	55
E7	1	5	5	5	3	3	1	1	1	5	5	5	5	5	3	5	3	5	5	1	72
E8	4	5	4	5	3	2	2	1	1	4	4	4	5	5	3	5	3	4	5	5	74
E9	4	5	5	5	4	3	1	1	1	4	4	4	4	4	4	4	4	4	5	1	71
E10	3	5	5	5	4	3	1	1	1	3	5	5	5	5	3	5	3	5	5	1	73
E11	3	5	5	5	3	2	1	1	1	3	5	4	5	5	5	5	4	5	5	1	73
E12	4	5	5	5	3	3	2	2	4	5	5	5	5	4	4	5	3	5	5	1	80
E13	4	5	5	5	4	3	4	3	3	4	5	5	5	5	4	5	5	4	5	3	86
E14	5	5	5	5	5	4	1	3	4	5	5	5	5	5	4	5	4	4	4	3	86
E15	5	4	4	5	3	2	2	2	4	4	5	5	5	5	5	5	4	4	5	1	79
E16	2	5	5	5	4	3	1	1	1	4	5	5	5	5	5	4	2	5	5	1	73
E17	5	5	5	5	3	4	3	3	5	3	5	5	5	5	5	5	5	5	5	2	88
E18	3	4	4	5	4	3	2	1	2	4	4	5	5	4	4	4	4	5	4	2	73
E19	3	5	5	5	3	3	3	3	3	5	4	5	5	5	4	5	4	4	5	1	80
E20	5	5	5	5	4	2	2	2	3	4	5	5	5	5	5	5	4	5	5	1	82
E21	3	5	5	5	4	2	1	1	1	5	5	0	5	4	4	5	3	4	5	1	68
E22	1	5	5	5	3	3	1	1	1	3	3	5	5	5	4	5	4	5	5	1	70
E23	3	4	5	5	4	4	4	3	3	4	4	4	5	4	4	5	4	4	5	5	83
E24	4	5	5	4	3	3	4	3	4	4	4	5	5	5	5	5	4	4	5	5	86
E25	1	5	5	5	3	1	1	1	1	4	5	5	5	5	4	4	5	4	4	2	70
E26	1	4	4	4	0	4	0	2	2	4	4	4	0	4	0	4	4	4	4	2	55
E27	4	5	4	5	3	2	2	1	1	4	4	4	5	5	3	5	3	4	5	5	74
E28	3	5	5	5	4	3	1	1	1	3	5	5	5	5	3	5	3	5	5	1	73
E29	4	5	5	5	3	3	2	2	4	5	5	5	5	4	4	5	3	5	5	1	80
E30	5	5	5	5	5	4	1	3	4	5	5	5	5	5	4	5	4	4	4	3	86
E31	2	5	5	5	4	3	1	1	1	4	5	5	5	5	5	4	2	5	5	1	73
E32	3	4	4	5	4	3	2	1	2	4	4	5	5	4	4	4	4	5	4	2	73
E33	5	5	5	5	4	2	2	2	3	4	5	5	5	5	5	5	4	5	5	1	82
E34	1	5	5	5	3	3	1	1	1	3	3	5	5	5	4	5	4	5	5	1	70
E35	4	5	5	4	3	3	4	3	4	4	4	5	5	5	5	5	4	4	5	5	86

VARIANZA	2.000	0.144	0.144	0.733	1.244	0.824	1.607	0.949	1.890	0.427	0.333	1.119	1.062	0.193	1.217	0.170	0.715	0.733	0.170	1.853
SUMATORIA DE VARIANZAS	17.527																			
VARIANZA DE LA SUMA DE LOS ÍTEMS	55.036																			

$$\alpha = \frac{K}{K-1}\left[1 - \frac{\sum S_i^{\,2}}{S_T^{\,2}}\right]$$

α:	Questionnaire reliability coefficient	→	**0.72**
$\sum_{i=1}^{k} S_i^2:$			
k:	Number of instrument items	→	20
$S_t^2:$	Sum of the variances of the items.	→	17.527
	Total variance of the instrument.	→	55.036

RANGE	RELIABILITY
0.53 a menos	zero reliability
0.60 a 0.65	Reliable
0.66 a 0.71	Very trustful
0.72 a 0.99	excellent reliability
1	perfect reliability

Our instrument is of excellent 0.72 reliability

Source: own elaboration.