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Factors of Innovation in Family Businesses in Mexico

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Abstract
This study aims to examine whether family firms are more effective in implementing innovation strategies than nonfamily firms. Based on work by Carney (2005) and Ansoff (1985), we consider the specific characteristics of the strategic innovation process that takes place in family firms, namely, parsimony, personalism, and particularism. These features were used to identify some attributes of ownership, strategic management, and governance structure in family firms that contribute in the materialization of innovations into new businesses, products and processes. We use an ANOVA test to compare innovation results in a broad sample of 1,496 Mexican non-listed firms, mainly SMEs, and a logit model for regressing innovation factors onto innovation results among family firms. The findings indicate that Mexican family firms outperform nonfamily firms in innovation, highlighting the role of ownership, strategy, and governance. This evidence informs recommendations for family business practitioners on designing organizational structures that enhance innovative capacity.

Keywords: Innovation; strategic management; governance structure; family firms; SMEs; Mexico.

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Factores de innovación en las empresas familiares en México

Resumen
Este estudio tiene como objetivo examinar si las empresas familiares son más eficaces en la implementación de estrategias de innovación que las empresas no familiares. Con base en los trabajos de Carney (2005) y Ansoff (1985), consideramos las características específicas del proceso de innovación estratégica que ocurre en las empresas familiares, a saber: parsimonia, personalismo y particularismo. Estas características se utilizaron para identificar algunos atributos de la propiedad, la gestión estratégica y la estructura de gobierno en las empresas familiares que contribuyen a la materialización de innovaciones en nuevos negocios, productos y

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procesos. Utilizamos una prueba ANOVA para comparar los resultados de innovación en una amplia muestra de 1,496 empresas mexicanas no cotizadas, principalmente PyMEs, y un modelo logit para la regresión de los factores de innovación sobre los resultados de innovación entre las empresas familiares. Los hallazgos indican que las empresas familiares mexicanas superan a las no familiares en innovación, destacando el papel de la propiedad, la estrategia y el gobierno. Esta evidencia fundamenta recomendaciones para profesionales de empresas familiares sobre el diseño de estructuras organizacionales que mejoren la capacidad innovadora.

Palabras clave: Innovación; gestión estratégica; estructura de gobierno; empresas familiares; PyMEs; México.

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1. Introduction

The importance of a family firm seems to be a constant fact in the socioeconomic fabric of most countries (Instituto de Empresa Familiar & Red de Cátedras de Empresa Familiar, 2015; Neubauer & Lank, 1998; Fundes, 2011). In Latin America, family enterprises account for approximately 70% of all firms, generate 40% of the GDP and provide 50% of total employment (Davis, 2006). Research in Mexico shows that 83% of companies are family firms, contribute with 60% of GDP and provide 67% of total employment (San Martín Reyna & Durán Encalada, 2017).

This research aims to find how family ownership, management, and governance influence the type of innovation strategy at each company. To analyze strategies, we follow a modified version of the product-market approach proposed by Ansoff (1985) that divides strategic decisions into categories such as penetration, entering new markets, introducing new products, or diversifying into new businesses. In Ansoff´s classification, innovation has an important role in a company's strategy because it helps to offer new products and services in existing markets, and to enter a new type of business, whether related or unrelated to the business where the company currently operates.

Accordingly, innovation strategies and management refer to an organization's effort to discover and to make improvements to existing processes and systems, including new products, processes, and businesses (Cooper & Kleinschmidt, 1987; Dervitsiotis, 2010). As part of a corporate strategy, these actions are relevant for creating and maintaining competitive advantage for firms (Gudmundson *et al.*, 1999; De Massis *et al.*, 2024). However,

only in the last decade have scholars dedicated some attention to examining innovation in family firms until now (Calabro *et al.,* 2019).

Existing family business research aligns mainly with a negative association of family ownership with innovation because of several characteristics usually attributed to family firms, mainly risk aversion (Block, 2012; De Massis *et al.*, 2013; Kotlar *et al.,* 2020). Family firms tend to adopt a cautious and historically anchored approach, which often results in lower levels of innovation when compared to non-family enterprises (Columbus, 2014).

However, recent scholarly research has proposed that innovation in family firms is paradoxical, since family firms dedicate fewer resources to innovation initiatives but have a higher rate of transforming innovation inputs into outputs than nonfamily firms (Chrisman *et al*., 2015; De Massis *et al*., 2024; Universidad de las Américas Puebla, 2016). Thus, there is an emerging opinion that family firm actors have unique intentions, motivations and discretion, and their behavior is a consequence of specific goals, resources, and governance structures (Chrisman *et al*., 2013; De Massis *et al*., 2014). Moreover, family governance can result in the unfolding of distinctive resources (Habbershon & Williams, 1999) used in ways that affect innovation processes and outcomes within family firms. Some frameworks, such as the behavioral agency model (BAM) attempt to explain family firms' interest to innovate under conditions where socioemotional wealth (SEW) is under threat (Chrisman & Patel, 2012; Gómez-Mejía *et al*., 2023; Patel & Chrisman, 2014; Sciascia *et al*., 2015).

Thus, the issue of whether family enterprises show greater or lesser innovation relative to non-family firms continues to be debated, as empirical findings remain mixed and inconclusive (Audretsch *et al*., 2025; Craig & Moores, 2006; Morck *et al*., 2000).

In order to contextualize the association between family businesses and innovation, this study examines the issue among private family firms in Mexico. We aim at answering two related questions: First, are Mexican private family firms more innovative than nonfamily firms? Our study included a survey of a representative sample of 1,496 firms nationwide to answer this research question. Second, are there any factors that contribute to capitalizing

on family firms' growing strengths, such as closeness to customers, or the design, quality, and variety of products, to support innovation strategies? (International Family Enterprise Research [IFERA], 2014).

In this first section, we set up the study's objective and justification. In the second section, we examine literature related to corporate strategy and innovation, innovation in family firms, and the variables that prior studies have found important for explaining innovation in family firms. This review helped us to formulate two main hypotheses. Then, in the methodology, we describe the composition of the sample, the data collected, the main variables, and the statistical techniques used to test the hypotheses. The fourth section summarizes the results of the study, and the fifth and last section of this report contains a final discussion and the conclusion, including some limitations and ideas for future research.

2. Literature review

2.1. Strategy and Innovation

Innovation serves as a crucial strategic asset that can help firms secure, develop, and sustain a competitive edge in their markets (Kleinschmidt & Cooper, 1991; Porter, 1990). In fact, innovation is an important component in Porter's (1985) classification of generic strategies as a relevant factor for competing in an industry, mainly when innovation is chosen as a differentiation strategy over cost leadership. Therefore, Basco (2014) found that family firms which balance their family and business-oriented decision-making achieve a better performance if they pursue a product/reputation differentiation strategy. This allows family firms to offer a superior product or service, supported by a long-term perspective, attention on product and market development, an intimate relationship with customers, as well as a substantial capacity to deal with risk and uncertainty (Basco, 2014, 2017). Similarly, Westhead (1997) found that family firms release a wide range of new products and services to achieve superior competitive advantage as compared to nonfamily firms.

The implementation of innovation is the action through which a business decides to introduce new products and services (Ernst, 2002) or a new business model (Chesbrough,

2010) and then begins integrating and using it into its regular business activities and processes (Hannan & McDowell, 1984). Thus, innovation activities in the context of a company can adopt various forms.

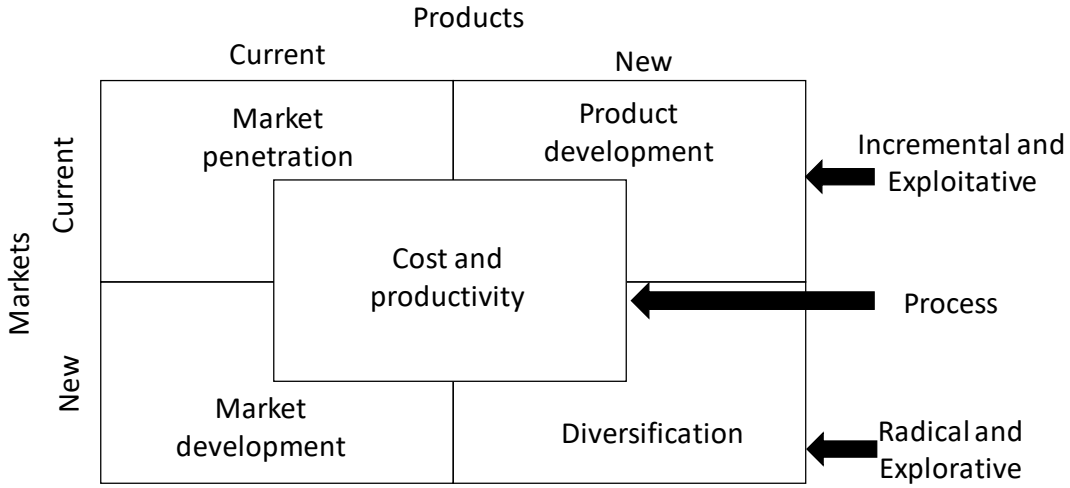
Innovation can follow two main lines: Product innovation and process innovation (Dervitsiotis, 2010; Utterback & Abernathy, 1975). Moss *et al*. (2014) also make a distinction between explorative and exploitative types of innovation. Explorative innovation involves an organization's focus on investigation, experimentation, discovery, and risk-taking (March, 1991). Even though commonly costlier in the short term, exploration is crucial to long-term performance as breakthroughs may take a long time to be fulfilled (Bierly & Daly, 2007). On the other hand, exploitation is concerned with an organization's actions to refine, implement, produce, and increase proficiency (March, 1991).

Another key distinction is the one that exists between incremental and radical innovation (Bessant *et al*., 2005; Tidd & Bessant, 2013). Companies may limit their risk exposure and resource use by offering incremental innovations —products or services that provide slight improvements over existing customer offerings. Alternatively, a more ambitious approach involves creating and commercializing entirely novel offerings that deliver new functionalities or significantly reduce costs compared to existing solutions.

Ansoff's (1985) "product-market growth vector" scheme provides a way to connect corporate strategy and innovation. According to this author, an enterprise can grow by implementing any of four strategies. The first one, market penetration, focuses on growing by making more efforts in the current market with the current products or services. The second strategy, product development, focuses on creating new products or services to sell in the current market(s). The third one, market development, may take two directions: new market segments or geographical areas. Finally, the fourth strategy, diversification, assumes that product/services, as well as markets, are new. Observing the innovation types given above, product development reflects an exploitative or incremental type of innovation, while business development identifies better with an explorative or radical type of innovation.

Additionally, Freije Uriarte & Freije Obregón (2002) propose an instrumental strategy based on cost and productivity, which involves cost reductions and increases in productivity. This instrumental strategy focuses on introducing new operative, organizational, or marketing concepts and methods, which may be regarded as innovation in processes, according to the categories of innovation reviewed above. These innovation processes can overlap with efforts related to the other types of generic strategies mentioned by Ansoff's (1985) in his classification. The following figure combines Ansoff's (1985) product-market growth vector matrix and Freije Uriarte & Freije Obregón's (2002) instrumental strategy, to show their relationship with innovation types:

Figure 1. Generic and Instrumental Corporate Strategies and Types of Innovation



Source. Adapted from Ansoff (1985), Freije-Uriarte and Freije-Obregón (2002)

2.2 Innovation in Family Firms: A Negative Association

Innovation has been associated negatively with family firms (Naldi *et al.*, 2007). Some significant empirical findings show that family ownership influences adversely R&D investment (Anderson *et al*., 2012; Broekaert *et al*., 2016; Chen & Hsu, 2009; Ellul *et al*., 2010; Munari *et al*. 2010; Muñoz-Bullón & Sánchez-Bueno, 2011; Patel & Chrisman, 2014). There

are three main reasons that explain this negative association: Risk aversion, loss of control, and insufficient resources (Gómez-Mejía *et al*. 2023; Kotlar *et al*. 2020).

A common barrier for innovating within family businesses is the unwillingness to engage in risky initiatives, which are frequent in innovation (Levinson, 1987; Morris, 1998). Family firms are normally risk averse (Naldi *et al*., 2007) and hesitant to invest in new initiatives (Cabrera-Suárez *et al*., 2001). Families tend to follow a more conservative strategy, with high liquidity ratios and low financial leverage, a decision that goes against investments in innovation (Matzler *et al*., 2015).

The scarcity of the required skills within the family, and hesitation to relinquish control to nonfamily members with such abilities are other vital factors that deter innovation activities (García & Calantone, 2003; McDermott & O'Connors, 2002). From this perspective, family businesses may be less prepared to engage in innovation, particularly collaborative efforts, as such initiatives require professional skills that are not always present within the organization (Donnelley, 1988). Consequently, it is often necessary for family firms to relinquish equity stakes to external stakeholders, such as institutional investors or venture capitalists, to support growth or innovation initiatives (Gómez-Mejía *et al*., 2011). In some cases, family managers prioritize maintaining control and influence, even if that means forgoing the potential financial gains that could come from investing in research and development (Kotlar *et al*., 2013).

Additionally, due to their aversion to seeking external financial support, family firms often face capital limitations that restrict their capacity to pursue innovation (Carney, 2005). In general, family firms' limited resource availability, be it human, physical or technological, associated with their smaller size, leads these firms to innovate less than non-family businesses (Muñoz-Bullón & Sánchez-Bueno, 2011).

Regardless of the several factors mentioned above, the behavioral agency model (BAM) suggests that risk inclinations and behaviors influencing decisions vary depending on the specific situation that decision-makers face (Gómez-Mejía *et al*., 2007; Wiseman & Gómez-

Mejía, 1998), meaning that owners are loss adverse rather than risk adverse. That is, whenever owners stand up to losing family control and the nonfinancial gains deriving from there, they will allow for considerable performance hazard (Berrone *et al*., 2010; Berrone *et al.,* 2012.). Nonfinancial benefits, derived from socioeconomic wealth (SEW), include business aspects that satisfy the family's influence and continuation of the lineage, such as status, reputation, and family heritage (Gómez-Mejía *et al*, 2007; Zellweger & Astrachan, 2008; Zellweger *et al*., 2012). Thus, Chrisman & Patel (2012) say that, regardless of the degree of family participation, the importance of transgenerational control sustainability can differ among family firms, and this discrepancy causes a mixed landscape in R&D investment (Chrisman *et al*., 2016; Hadjielias *et al*., 2025). Also, Sciascia *et al*. (2015) suggest that when the family's total wealth is not closely tied to the firm's future strategic development, such a family can be expected to have a willingness to invest in risky, innovative activities to grow, and their desire to preserve SEW will likely decrease.

2.3. Innovation in Family Firms: A Positive Association

We initiated this section showing a paradox: That the innovation outputs of family firms are superior despite their inferior inputs (Chrisman *et al*., 2015; Durán *et al*., 2016; Pemartín, *et al*., 2024; Smith & Lewis, 2011). To examine this paradox, we based our review on of Carney's work (2005), who described some of the main characteristics of the strategic process that difference family firms.

Personalism, parsimony, and particularism, the main features of family firm strategies (Carney, 2005), may shape products or processes innovation in several ways. Even though family businesses are likely to have a lower predisposition to embrace innovation than nonfamily firms, once they decide and are willing to adopt innovation, their personalized control brings down the obstacles to the adoption of the innovation and its actual utilization (De Massis *et al*., 2015). Discretion relates to the ability of the family to conduct, assign, build in, or dispose of their company's resources as mediated by family ownership, management and participation in governance (Ahmad *et al*., 2021; De Massis *et al*., 2014). Willingness prompts family company owners to get involved in idiosyncratic behavior that leads them to

drive the firm's operations in directions that deviate from those accepted and followed by nonfamily firms (Chrisman *et al*., 2015; Hambrick & Finkelstein, 1987). This behavior is mainly due to autonomous motivation (Gagné & Deci, 2005; Ryan & Deci, 2000), collective orientation (Donaldson, 1990; Zahra *et al*., 2008), and high trust (Gusenbauer *et al*., 2023; Schoorman *et al*., 2007) that characterize family firms' members. These characteristics promote a culture in which members act as committed stewards who identify closely with the business and are motivated to advance collective interests, thereby fostering innovation through high levels of decision-making autonomy (Davis *et al*., 1997). The personalization of authority, stemming from the concentration of ownership and management that identify family firms, explains the lack or minimal formalization and the prevalence of innovation autonomous management in family firms. This fact confers owner-managers a large amount of authority and power within the organization, who maintain managerial discretion (Hambrick & Finkelstein, 1987).

The propensity of family firms toward parsimony (Carney, 2005) implies a cautious protection of resources that reduces their willingness to experiment with new business opportunities that are radical and expensive, because they may deplete the valuable resources needed for more promising and secure ventures (Nohria & Gulati, 1996). Therefore, family firms prefer to drive their efforts towards incremental innovation. In their research, König *et al*. (2013) found that family firms pursue discontinuous innovations in contrast to nonfamily firms, but once they decide to incorporate them, implementation and integration take place quickly. Families may possess distinct capabilities that allow them to be more competent in their innovation efforts than nonfamily businesses (Bergfeld & Weber, 2011; Carney, 2005; Habbershon & William, 1999). Hence, despite their inferior input, it is feasible that their innovation output is superior.

Additionally, frugality influences how family firms access and apply external knowledge and technology for innovation, and how they structure their innovation processes to prioritize efficiency and cost-effectiveness (Ireland *et al*., 2002; Koka & Prescott, 2002). This tendency toward frugality often shapes innovation governance in family businesses, favoring lean organizational frameworks and minimal bureaucracy. In terms of innovation type, Broekaert

et al. (2016) suggest that family firms exhibit more organizational adaptability than their non-family counterparts. Thus, family firms prefer to invest less in R&D than nonfamily firms due to control (Chrisman & Patel, 2012; Patel & Chrisman, 2014) and parsimony reasons (Carney, 2005). Nonetheless, when family businesses opt to innovate —whether driven by declining performance or a long-term strategic view— they are just as capable and responsive as non-family firms (Broekaert *et al*., 2016).

In terms of particularism, the distinctive objectives of the family owners may influence the result of the innovation process (Carney, 2005). Family managers regard their enterprises as a means to cover their needs for belonging, security, social contribution, and position within the family (Gómez-Mejía *et al*., 2007; Miller *et al*., 2008). The commitment to their business, transgenerational succession aims, and socioemotional wealth interests create a favorable inclination on family members to pursue a particular behavior (Baltazar *et al*., 2023; Chrisman *et al*., 2012; Gómez-Mejía *et al*., 2007). It also involves a high degree of freedom in setting up objectives and decisions regarding operations, tactics, or strategies (De Massis *et al*., 2014). The discretion of the family business aligns to the family owners' goals and intentions (De Massis *et al*., 2015).

Thus, family ownership may be a determinant in the decision to innovate. Based on these more recent arguments, which support a positive relationship between family firms and innovation, and mainly innovation results, we propose the following hypothesis:

H1: *Family firms show more innovative results than non-family firms.*

2.4. Characteristics of Innovation in Family Firms

While choosing to innovate is a strategic decision (Sirmon & Hitt, 2003), the actual innovation outcomes depend on a combination of strategic positioning, processes, activities, and capabilities (Matzler *et al*., 2015). This implies that the family's involvement is essential in effectively mobilizing their unique resources and competencies.

According to Moss *et al*. (2014), aligning current strategies with past ones —rooted in managerial intention— is a critical determinant of family business success, particularly for small firms, or those in fast-changing and resource-rich environments. Furthermore, the relationship between innovation strategic consistency and performance is more substantial for family firms than for nonfamily firms. Lumpkin & Brigham (2011) use the long-term orientation of family businesses —futurity, continuity and perseverance— to support these findings (Erdogan *et al*., 2020). The use of simple and intimate management systems, communication, and collaboration reduces information asymmetries within the business and eases the use of intuitive understanding commonly associated with innovative activity (Mintzberg, 1979; Schulze *et al*., 2002). The long-term nature and open culture of family firm ownership allow these companies to commit the assets needed for taking risks to innovate (Ahmad *et al*., 2021; Gusenbauer *et al*., 2023; Hall *et al*., 2001; Salvato, 2004; Zahra *et al*., 2004).

These arguments point out the important role of strategic management and planning in supporting innovation activities. Following Chua *et al*. (2012), we classify the strategic means that family firms must use to transform distinctive behavior into goals (Chrisman *et al*., 2012), resources, capabilities (Habbershon *et al*., 2003), and governance structures (Carney, 2005).

The firm's resource-based framework (RBV) states that a firm-specific bundle of valuable, rare, inimitable, and non-substitutable resources can explain firm differentiation (Barney, 1991). The interplay between the family and business systems, and individual family members produce characteristic systemic conditions and backing that create a collection of unique resources and capabilities, known as "familiness" (Chua *et al*., 1999; Habbershon & Williams, 1999; Habbershon *et al*., 2003). Thus, family firms' higher human, social, and financial capital stocks allow them to achieve competitive advantages (Sirmon & Hitt, 2003).

All these resources support a family's power to act and become the basis of capabilities that family owners need to deploy to pursue their goals and lead the company in the desired direction (Finkelstein & Hambrick, 1990; Hambrick & Finkelstein, 1987). That is, the

resources and capabilities those family owners require and use to lead the firm towards innovation (De Massis *et al*., 2015).

Family businesses' most relevant and persistent resources reside in the family members' social, emotional, and human capital (Chrisman *et al*., 2016). Prior research proposes that distinct human and relational capital advantages and a dispersed socially complex tacit knowledge among family firms may represent valuable intangible resources (Cabrera-Suárez *et al*., 2001; Habbershon & Williams, 1999). These resources are likely to have a positive influence on innovation output. Human capital is assumed to be a basis of competitive advantage because it mingles with attributes such as commitment to business, honesty, close relationships, affection (Horton, 1986), and motivation (Ward, 1997). Additionally, the more protective behavior shown by family managers entails lower staff turnover, employee loyalty, and personal commitment (Brinkerink, 2018). This situation contributes to generating and preserving valuable and unique skills and knowledge through accumulated experience, leading to increased innovation output (Matzler *et al*., 2015). Therefore, for this study, to measure the strength of human capital as a source of resources and capabilities for strategic management, we include the level of education of the family members that participate in the firm and the availability of a plan to prepare future managers, whether family or nonfamily.

Corporate governance boards contribute to firms with essential resources that comprise human capital (experience, competence, and reputation) and relational capital (a network of relationships with other businesses and external entities) (Hillman & Dalziel, 2003). Family representation on the board offers the added benefit of close ties to both ownership and management, facilitating cohesive leadership and aligned objectives (Braun & Sharma, 2007). This increasing cohesion and commitment "foster the reassessment of beliefs, generating a greater understanding of the collective view and aiding family firms to re-frame and renegotiate their perspective on a regular basis" (Zahra *et al*., 2007, p. 1073). Greater family involvement in leadership and governance enhances the ability to leverage family-specific resources. In innovation contexts, the family plays a central role in determining how and to what extent these assets are managed and used (Habbershon & Williams, 1999;

Sirmon & Hitt, 2003). The family's decisions significantly influence the firm through strategical or operational management and their advising or monitoring role on the board (Matzler *et al*., 2015). The features of internal and external social capital in a family business may influence the characteristics of the innovation process. For example, familiarity in personal communication may ease the organizational response and managerial policies used to coordinate the diverse participants involved in innovation activities or foster agreed inter-organizational forms of innovation (Audretsch *et al*., 2025; Casprini *et al*., 2017; Deman *et al*., 2018; De Massis *et al*., 2015).

Given the strategic management and planning of resources and capabilities, and the governing bodies that a family firm may have regarding innovation strategies, we can formulate the following hypothesis:

H2: *In family firms, ownership, strategic planning and management, and governance bodies affect positively innovation outcomes.*

2.5. Control Variables

Size is normally associated with greater availability of resources, so we can expect that, as family firms become larger, there might be a higher propensity to carry out innovation initiatives (Tan *et al*., 2009; Tether, 1998). Similarly, the advancement of an organization's lifecycle, alongside the aging of its leadership generation, fosters a context where innovation is enhanced by a substantial repository of accumulated experience (Lee & O'Neill, 2003).

Finally, specific economic sectors provide different opportunities and risks for innovation according to their technological dynamism, competition, and economic and social evolution (Chen & Hsu, 2009; Miller *et al*., 2007).

3. Methodology

First, for this work we consider a company as a family business when a family or several related families own more than 50% of its property, and at least one family member is also a member of the top management team (TMT), usually the CEO.

Our sample in this research included of 1,496 family and nonfamily firms. It is a stratified sample that considers the economic contribution or GDP of the 32 Mexican states, with a 95% statistical confidence and an error rate of less than 5%. We collected this sample from the 2019 National Statistics Directory of Economic Units (DENUE) of the National Institute of Statistics, Geography, and Information (INEGI) in Mexico (The National Statistical Directory of Economic Units, DENUE in Spanish, is updated comprehensively every 5 years, coinciding with the collection of the Economic Censuses by INEGI). We designed a questionnaire based on the one used by the PwC International Survey Unit and PwC Network[3] that is applied in 35 OECD countries, and including information of the study carried out by the Spanish Institute of Family Business[4]. The survey was conducted during 2024, by distributing the questionnaire through the online software Qualtrics®, and complemented with phone calls. The questionnaire was answered by company owners and managers (response rate: 55%). For this study's purpose, we collected data about ownership, strategic management practices, and governance bodies.

We used the percentage of ownership to establish a difference between family and nonfamily firms and to measure the level of family ownership within family firms. In order to find the indicators of strategic management, we collected information about the existence of a strategic plan and a professionalization plan for all managers as well as the level of education among family members working in the firm.

For the presence of a governance structure, we considered the existence of business and family governance bodies. We included top management teams (TMT), a board of directors, and shareholders meetings within the business bodies. On the family's side, we looked for a family council, assembly, or a family protocol.

For the information related to innovation, we considered three different types of innovations. The first relates to the products or services innovations the firm undertook in the last three

[3] The PwC survey is applied to small and medium-sized family businesses in 35 countries: Austria, Bahamas, Bahrain, Barbados, Belgium, Brazil, Canada, Cyprus, Denmark, Egypt, Finland, France, Germany, Ireland, Italy, Kuwait, Jamaica, Japan, Jordan, Malta, Netherlands, Norway, Oman, Russia, Saudi Arabia, South Africa, Spain, Sweden, Switzerland, Syria, Trinidad and Tobago, Turkey, United Arab Emirates, United Kingdom and United States.
[4] Instituto de la Empresa Familiar: La Empresa Familiar en España (2015).

years. We considered the following definition for product innovation (goods or services): "The introduction of a good or service that is new or significantly improved concerning its characteristics of intended uses. It includes significant improvements in technical specifications, components, materials, incorporated software, user friendliness or other functional characteristics" (OECD, 2005, p.48).

The second type of innovation indicates whether the firm has entered new businesses or industrial sectors in the last three years. This innovation at the level of product innovation occurs when a firm starts to supply another market, besides its current market(s), even though other firms may already be supplying a similar product to these other markets (Stoneman *et al*., 2018).

Finally, process innovation refers to a nontrivial change in processes implemented in the last three years that are novel to the institution introducing the changes, and that have an essential role to play in seeking competitive advantage (Slaughter, 1998; Stewart & Fenn, 2006). These changes could have taken place in (1) manufacturing, logistics and other operation processes, (2) organizational and other working method processes, and (3) marketing-related processes, such as promotion, commercial channels, pricing, and packaging[5].

This study uses an ANOVA test for hypothesis 1, using the mean of three innovation initiatives in family firms compared to nonfamily firms.

Given that the independent variables in hypothesis 2 are measured on qualitative scales and the dependent variable is binary, we employed a logit regression model. According to Novales (1993), such models are suitable for estimating the likelihood of an event occurring, specifically when the dependent variable takes the value Yi = 1, based on the logistic distribution. Furthermore, Gujarati (2004) highlights that logit models are widely used to build probability models involving dichotomic outcomes. We avoided to use Ordinary Least

[5] To clearly distinguish innovation from continuous improvement, we clarified to respondents that the latter refers to a set of practices aimed at enhancing performance by simplifying production processes, eliminating inefficiencies, and improving customer service, often through increased employee empowerment and reduced bureaucratic constraints (McLaughlin & Kaluzny, 1990).

Squares (OLS) due to the assumption of linearity among explanatory variables. Since the logit model is based on a logistic distribution, we applied maximum likelihood estimation (MLE), which yields β coefficient estimators that are consistent, efficient, and asymptotically normal (Verbeek, 2008). Accordingly, our regression analysis is grounded in the following logit model:

$$Innovation = b + b_1\, own + b_2\, stratplan + b_3\, profplan + b_4\, educlevel + b_5\, tmt + b_6\, boardir + b_7\, shameet + b_8\, famcon + b_9\, famassem + b_{10}\, famprot + b_{11}\, size + b_{12}\, age + b_{13}\, gen + b_{14}\, sector + \varepsilon$$

Where:

- *own:* % of family ownership (%)

- *stratplan:* existence of a strategic plan (yes = 1, no = 0)

- *profplan:* existence of professionalization plan (yes = 1, no = 0)

- *educlevel:* percentage of family members in the firm with a bachelor's degree or a similar education level.

- *tmt:* existence of a top management team (yes = 1, no = 0)

- *boardir:* existence of a board of directors (yes = 1, no = 0)

- *shameet:* existence of a shareholders meeting (yes = 1, no = 0)

- *famcon:* existence of a family council (yes = 1, no = 0)

- *famassem:* existence of a family assembly (yes = 1, no = 0)

- *famprot:* existence of a family protocol (yes = 1, no = 0)

- *size:* firm size (natural logarithm of the number of employees)

- *age:* age in years since foundation (number)

- *gen:* generation in charge (1st, 2nd, or 3rd)

- *sector:* industrial sector (1 = construction, 2 = manufacturing, 3 = commerce, or 4 = service)

- innovation = innovation in businesses, products/services, or processes in the last 3 years (yes = 1, no = 0)

4. Results

First, we will describe the demographic data of the sample, which is made up of 1,238 family firms and 258 nonfamily firms, as seen in Table 1:

Table 1. Demographic Data

		Family firms		Nonfamily firms	
Data		**Number**	**Perc.**	**Number**	**Perc.**
Size (employees)	1-10	707	57.1%	117	45.3%
	11-50	364	29.4%	71	27.5%
	51-100	92	7.4%	23	8.9%
	101-250	39	3.2%	14	5.4%
	251-500	36	2.9%	33	12.8%
Age (years)	0-4	180	14.5%	62	24.0%
	5-9	235	19.0%	35	13.6%
	10-19	345	27.9%	74	28.7%
	More than 20	478	36.8%	87	33.7%
Generation	First	877	72.0%	144	71.3%
	Second	290	23.8%	39	19.3%
	Third	45	3.7%	16	7.9%
	Fourth	4	0.3%	3	1.5%
	Fifth	2	0.2%	0	0%
Sector	Commerce	538	43.0%	98	38.0%
	Construction	74	6.0%	10	3.9%
	Manufacturing	155	13.0%	28	10.9%
	Services	471	38.0%	122	47.3%

Source. Own elaboration

Nonfamily firms tend to be larger, regarding the number of employees; however, there is higher proportion of older family firms. The largest sector among family firms is commerce, while the services sector is the largest in the case of nonfamily firms. The descriptive statistics of the variables are shown in Table 2:

Table 2. Descriptive Statistics

	Family firms		Nonfamily firms	
Variable	Yes	No	Yes	No
Innovation in business	51.40%	48.60%	46.10%	53.90%
Innovation in product	66.68%	33.20%	61.20%	38.80%
Innovation in process	78.10%	21.90%	70.50%	29.50%
Strategic plan	29.40%	70.60%	39.90%	60.10%
Profesionalization plan	29.80%	70.20%	37.60%	62.40%
Level of education				
(higher education)	66.10%	38.40%	55.30%	41.90%
TMT	50.60%	49.40%	52.30%	47.70%
Board of directors	31.50%	68.50%	43.40%	56.60%
Shareholders meeting	22.90%	77.10%	31.40%	68.60%
Family council	29.50%	70.50%	19.00%	81.00%
Family assambly	22.30%	77.70%	17.10%	82.90%
Family protocol	7.30%	92.70%	8.10%	91.90%

Source. Own elaboration

Family firms tend to be more innovative than nonfamily firms considering all types of innovation. On the other hand, the practice and implementation of strategic management — strategic plan, professionalization plan, and level of education— tend to be more common among nonfamily firms. In relation to corporate governance, it is clear that nonfamily firms exceed family firms in terms of business and property bodies, whereas family firms have more family bodies than nonfamily ones.

Table 3 compares the percentage of family and nonfamily firms with innovation initiatives. First, we show the ANOVA test results for innovation in new businesses or sectors; then, the results for innovation in products; and finally, the results for innovation in processes

Table 3. ANOVA Test on Types of Innovation Comparing Family and Nonfamily Firms

		Sum of squares	df	Root mean squares	F	Sig.	
InnBuss*Firm	Inter-groups (combined)	0.588	1	0.588	2.354	0.125	
	Intra-groups	373.379	1494	0.25			
	Total	373.967	1495				
InnBuss*Firm	Inter-groups (combined)	0.66	1	0.66	2.938	0.087	*
	Intra-groups	335.794	1494	0.225			
	Total	336.454	1495	1.223	6.885	0.009	***
InnBuss*Firm	Inter-groups (combined)	1.223	1	0.178			
	Intra-groups	265.29	1494				
	Total	266.513	1495				

* Significant at 0.1
*** Significant at 0.01

Source. Own elaboration

These results lead to accepting H1 in two cases, as family firms seem more innovative in products and processes than nonfamily firms. This difference is not statistically significant for business innovation, although more frequent in family firms.

We acknowledge that the higher number of family businesses compared to nonfamily businesses may have affected the results of the ANOVA test, mainly the population variance (Hair *et al.,* 2010). Therefore, we used the test for two samples of equal size for robustness purposes. To do so, we randomly chose an equivalent sample size for nonfamily businesses. The results in Table 4 confirm the findings supporting H1.

Table 4. ANOVA Test Between Family and Nonfamily Firms on Types of Innovation (Equal Sample Size)

		Sum of squares	df	Root mean squares	F	Sig.	
InnBuss*Firm	Inter-groups (combined)	0.095	1	0.095	0.38	0.538	
	Intra-groups	128.578	514	0.25			
	Total	128.672	515				
InnBuss*Firm	Inter-groups (combined)	0.775	1	0.775	3.422	0.065	*
	Intra-groups	116.434	514	0.227			
	Total	117.209	515				
InnBuss*Firm	Inter-groups (combined)	0.938	1	0.938	5.006	0.026	**
	Intra-groups	96.31	514	0.187			
	Total	97.248	515				

* Significant at 0.1
** Significant at 0.05

Source. Own elaboration

For examining hypothesis 2, we ran the logit regression model only for family firms. Tables 4, 5 and 6 show the results of the regression of innovation —businesses, products, and processes— on family ownership, strategic management, and governance structure, respectively.

Table 5. Regression analysis of innovation related to new businesses regarding family ownership, management and governance

NB	Coefficient	z-	P-value
own	0.3605	2.49	[0.013]**
stratplan	0.3905	2.74	[0.006]***
profplan	0.2695	1.91	[0.056]*
educlevel	0.7108	4.45	[0.000]***
tmt	0.2582	1.97	[0.049] **
boarddir	0.1048	0.68	[0.499]
shamett	0.9566	0.57	[0.567]
famcon	-0.2444	-0.16	[0.872]
famassem	-0.2947	-1.79	[0.073]*
famprot	0.0567	0.23	[0.819]
lsize	0.1249	0.88	[0.376]
age	0.0098	0.16	[0.872]
gen	-0.0241	-0.23	[0.815]
commerce	0.0163	0.12	[0.901]
building	0.4041	1.54	[0.124]
manufacture	0.1823	0.93	[0.353]
_cons	-0.1410	-3.57	[0.000]
***Significant at 1%			
**Significant at 5%			
*Significant at 10%			

Source. Own elaboration

This regression shows a significant relationship between those variables related to strategic management *(stratplan, profplan, and educlevel)* and business innovation. Concerning the corporate governance variables, there were two significant associations with business innovation, the top management team *(tmt)* and the family assembly *(famassem).* The only exception for hypothesis 2 was ownership, a result consistent with hypothesis 1. Therefore, these results partially confirm hypothesis 2.

The regression results for innovation regarding new products or services on the variables mentioned above are shown below:

Table 6. Regression Analysis of Innovation Related to New Products Regarding Family Ownership, Management and Governance

NB	Coefficient	z-statistic	P-value
own	0.6249	2.06	[0.040]**
stratplan	0.5035	3.15	[0.002]***
profplan	0.5113	3.24	[0.001]***
educlevel	0.4542	2.74	[0.006]***
tmt	0.2283	1.63	[0.103]
boarddir	0.1946	1.14	[0.253]
shamett	0.0851	0.46	[0.644]
famcon	0.1057	0.64	[0.521]
famassem	-0.0504	-0.03	[0.977]
famprot	-0.1189	-0.42	[0.673]
lsize	0.0722	0.47	[0.638]
age	0.0113	0.17	[0.861]
gen	0.0635	0.58	[0.565]
commerce	-0.2116	-1.50	[0.134]
building	-0.7325	-2.76	[0.006]***
manufacture	-0.0716	-0.34	[0.736]
_cons	-0.6023	-1.86	[0.062]*
***Significant at 1%			
**Significant at 5%			
*Significant at 10%			

Source. Own elaboration

In this case, the three groups of variables show a significant relationship with product innovation. First, ownership is consistent with hypothesis 2. In the case of strategic management, all three, stratplan, profplan, and educlevel have this association. Only top management team (tmt) shows a significant relationship with product innovation regarding corporate governance variables. As for control variables, the construction sector shows a significant negative association with product innovation. These results lead us to accept hypothesis 2 for products innovation. Table 7 shows the results for innovation related to processes:

Table 7. Regression Analysis of Innovation Related to New Processes Regarding Family Ownership, Management and Governance

NB	Coefficient	z-	P-value
own	0.7166	2.09	[0.036]**
stratplan	0.7426	3.64	[0.000]***
profplan	0.6899	3.50	[0.000]***
educlevel	0.2819	1.46	[0.144]
tmt	0.3117	1.88	[0.059]*
boarddir	0.0826	0.41	[0.683]
shamett	-0.0559	-0.25	[0.799]
famcon	-0.0373	-0.19	[0.846]
famassem	-0.0531	-0.26	[0.797]
famprot	0.0349	0.09	[0.925]
lsize	0.2883	1.56	[0.118]
age	-0.1252	-1.65	[0.099]*
gen	0.2398	1.76	[0.079]*
commerce	0.4755	2.95	[0.003]***
building	0.3305	1.03	[0.301]
manufacture	0.8249	3.03	[0.002]***
_cons	-0.2735	-0.73	[0.463]
***Significant at 1%			
**Significant at 5%			
*Significant at 10%			

Source. Own elaboration

These results confirm hypothesis 2 for processes innovation. The relationship between family ownership and processes innovation can be accepted. Two strategic management variables, *stratplan* and *profplan,* show a significant relationship with this type of innovation. The top management team *(tmt)* is again the only variable within the corporate governance variables that shows a significant relationship with process innovation. Within the control variables, family firms in the manufacturing and commerce sectors, as well as the generation variable, show significant positive relationships, while company age shows a significant negative association with processes innovation.

5. Conclusions

Except for business innovation, family firms appear to be more innovative than nonfamily firms. These results indicate, as other authors have commented (Gusenbauer *et al*., 2023; König *et al*., 2013; Nohria & Gulati, 1996), that family firms are better prepared to carry out innovation, which tends to be more incremental rather than radical, or exploitative rather than explorative. It can be reasonable to assume that innovation related to entering into new businesses or industrial sectors would require family firms to embark upon a riskier path involving the elaboration and commercialization of completely new products and services, offer entirely new features to customers or significantly lower costs compared to the options they replace. Even though we do not have information about R&D investment at the surveyed companies, we can argue that the critical role of discretion and better use of limited but valuable resources by family firms would explain why they tend to be more innovative than nonfamily firms (Ahmad *et al*., 2021; Hambrick & Finkelstein, 1987).

Strategic planning or management is a crucial variable for achieving any innovation result. It shows the importance of having a process that allows companies to devise where and how, as a business, they want to enter into the future. The strategy typologies by Ansoff (1985) and Porter (1985) help in understanding the innovation strategic moves undertaken by these firms. We should be aware that any effort for implementing a strategy does not necessarily mean that family firms set up a full formal plan or hire strategy specialists to lead this process. On the contrary, given their smaller size, and the potentially limited availability of resources, they maximize the use of their resources by using the professional capacities and abilities of family members themselves, as well as introducing an education plan for all members of the company, family and nonfamily ones. Here we would like to highlight that according to the descriptive statistics shown in Table 2, family firms, as a group, show a lower use of strategic and professionalization plans than non-family firms. This clearly suggests that their innovation output is superior despite the inferior input.

Considering governance bodies, our results highlight the role of top management teams in all cases of innovation. Because most of these companies are SMEs with a high ownership

concentration, we would not expect that more formal bodies, such as boards of directors or shareholders meetings, would play a relevant role because either they do not exist or have a limited influence in the decision-making process of these family firms. Again, even though the presence of TMT in family firms tends to be lower than in nonfamily firms, the teams' task in undertaking innovation initiatives is very relevant in all types of innovations.

These results demonstrate the limited role of family governance bodies (family council and family assembly), as well as family protocols, on innovation. Despite the more significant presence of these family-related bodies and instruments in family firms compared to nonfamily ones, their contribution seems irrelevant to making innovation decisions. Only in the case of businesses innovation does the importance of family assembly seem significant. This fact might mean that when family firms have to make more radical or explorative decisions, it may compromise their resources and wealth, and it becomes essential to have a wider acceptance of family members, reflecting the importance of SEW concerns.

The size of the companies does not impact innovation, reflecting that family firms do not need to be large to display a greater strategic management of their resources. Curiously, the generation in charge appears to influence process innovation but not age, implying that these two variables do not correlate in our sample. Thus, the experience accumulated by the succession of different generations positively affects innovation in firms' processes.

From the findings of this study, we can extract some helpful, practical recommendations for family firms. They should put more effort into implementing strategic planning, considering the particularities of such planning in family firms. Some of these particularities refer to the need to implement a parallel type of planning that considers both business and family concerns (Carlock & Ward, 2001; Craig & Moores, 2010). This parallel process may be a means to capitalize on the human and emotional capital available and integrate them into management teams to reinforce the company's growth. We should remember that decision-making in these SMEs is likely to be highly centralized. However, as companies begin to make decisions to grow and widen their activities in different segments and lines of businesses, it becomes necessary to increase the integrated participation of those members responsible of

different functional areas at the firm. Their contribution is evident in entering new businesses, providing more products and services, and making processes more efficient and productive. In particular, the role of TMTs in process innovation is a necessary step in creating a platform that allows high management centralized family firms to evolve into more professional and institutional decentralized structures. According to our findings, innovation process contributions are evident in the manufacturing sector, where possibilities for making this type of decisions seem more obvious given the companies' diverse and complex processes.

Among the main limitations of this research we find the inability to measure and examine closely the actual level of innovation at firms. Neither was it possible to examine how these innovations impact family firms' performance. Additionally, our data reflects only snapshots of the variables involved, potentially arising criticisms that question the causality among them. Nevertheless, our findings are one of the first contributions to this field and confirm that family firms in Mexico, as in other more advanced economies, are now more prepared to follow differentiation strategies rather than base their company strategy only on cost leadership (Basco, 2014; Westhead, 1997).

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