Female Leadership and its Influence on the Transformation and Business Performance of MSMEs in Ecuador

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SUMMARY

This research analyzes the impact of female leadership on the commercial management of Ecuadorian micro, small, and medium-sized enterprises (MSMEs). Its main objective is to determine whether the presence of women in managerial and executive positions is associated with a greater likelihood of implementing improvements and innovations in sales and commercial areas. A quantitative correlational approach was used on a sample of 1,066 organizations, employing binary logistic regression for dichotomous dependent variables. Independent variables included the manager's gender, the percentage of women on the board, company size, and sector of activity. The results reveal a positive and significant effect, with MSMEs led by women outperforming those led by men in adopting commercial improvements, with the manager's gender as a key predictor. This leadership drives process modernization, fostering innovation and competitiveness. Inferential analysis confirms a greater propensity to innovate in sales in these companies compared to their male counterparts. These findings provide empirical evidence of the transformative role of female leadership in emerging business contexts. Promoting women's participation in senior management is essential to boosting innovation and sustainable economic development. The study recommends strengthening public policies in Ecuador and Latin America, such as empowerment programs and equitable access to executive positions, to enhance the competitiveness of SMEs and advance gender equality in business.

Keywords: Female leadership, MSMEs, business innovation, logistics regression, business competitiveness

INTRODUCTION

The purpose of this study is to analyze whether female leadership, understood as the presence of women in managerial and executive positions, has a significant impact on the business management of Latin American SMEs, particularly in the implementation of innovations and improvements in the commercial and sales areas. It seeks to provide empirical evidence on the role of women leaders in the transformation and modernization of small and medium-sized enterprises, also considering structural factors such as company size and sector.

Micro, small, and medium-sized enterprises (MSMEs) play a fundamental role in the Latin American economy and represent a significant source of employment, innovation, and territorial development. However, women's participation in management positions within this business segment remains unequal. Although their incorporation into the labor market has grown in recent decades, access to leadership positions is limited by structural barriers, gender stereotypes, and sociocultural restrictions [1].

These organizations not only generate the largest proportion of private employment, but also act as engines of innovation and local development, promoting economic diversity and territorial development in their respective communities. In many Latin American countries, MSMEs are essential to sustaining economic dynamism and social stability, as they allow the inclusion of sectors of the population that would otherwise be excluded from the formal labor market [2].

However, despite its importance, women's participation in senior management within Latin American SMEs remains insufficient and unbalanced. Although a substantial increase in women's participation in the labor market has been observed in recent decades, this has not translated into equitable representation in leadership and decision-making positions [3].Women face structural obstacles ranging from the persistence of gender roles and stereotypes to limitations linked to prevailing sociocultural norms, which hinder the reconciliation of family responsibilities with the demands of management positions. These factors limit women's ability to access and maintain strategic positions within MSMEs, affecting not only gender equality but also the diversity of perspectives within business leadership [4].

In the Latin American context, these barriers are exacerbated by the region's cultural and socioeconomic diversity, as well as the presence of informal labor markets and educational gaps that directly impact the opportunities available to women [5]. As a result, reducing these inequalities requires a detailed analysis that considers the specific characteristics of the regional environment and the dynamics of MSMEs in Latin America [6].

Given this reality, this study seeks to conduct an empirical analysis to understand how the presence of women in management positions within MSMEs relates to different organizational aspects. It evaluates the association between female participation in management and variables such as company type, size, economic sector, and commercial performance. This analysis is particularly relevant in Latin America, where MSMEs face unique challenges, such as informality, difficulties accessing financing, and limitations in managerial training [7].

Female leadership [8] can be a key factor in overcoming these obstacles, as gender diversity in management tends to promote more inclusive, innovative and resilient work environments and promote the adoption of sound and efficient practices in business management and corporate governance [9].

The results obtained from this research may offer valuable inputs for the formulation of public policies aimed at strengthening gender equality in the Latin American business sector, especially in MSMEs, which are vital agents for the sustainable and equitable development of the region [10].

Furthermore, it will allow us to identify what kind of support and structural changes are needed to create conditions that facilitate the incorporation and retention of women in leadership positions, promoting not only social justice but also competitiveness and innovation in organizations [11].

In summary, this research aims to contribute to a better understanding of the current landscape and the challenges faced by women leaders in Latin American MSMEs, highlighting the importance of their participation for the strengthening of these companies and their positive impact on the regional economy [12].

In this way, the aim is to promote an approach that recognizes diversity as an engine of growth and development, and that paves the way for greater equity within the business sector.

THEORETICAL FRAMEWORK

Conceptualization of female leadership

Micro, small, and medium-sized enterprises (MSMEs) form the backbone of Latin American economies, representing more than 90% of all businesses and generating a significant portion of formal employment and economic activity [13]. For this reason, the role of women as business leaders has been gaining ground, although significant challenges remain regarding their participation and empowerment in management positions [14]. The importance of these women leaders lies in their potential to transform business management in MSMEs, promoting innovation, resilience, and sustainability.

Female leadership has been conceptualized [15], as a style that combines relational, empathetic, and collaborative characteristics, in contrast to the more hierarchical and authoritarian models historically associated with male leadership [1]. Current studies have confirmed that women leaders in SMEs tend to adopt transformational leadership, a management style characterized by the leader's ability to inspire and motivate their team members to achieve goals that exceed initial expectations. This type of leadership focuses on stimulating creativity and commitment through clear and effective communication, as well as providing individualized attention to the needs and development of each team member. Essentially, the leader not only directs but also acts as an ethical and motivational role model who drives positive changes within the organization and fosters an environment of trust and growth [16].

This approach is articulated in four main dimensions: idealized influence, where the leader serves as a role model; inspirational motivation, which involves establishing and communicating an attractive and challenging vision; intellectual stimulation, which fosters innovation and questioning of the status quo; and individualized consideration, which consists of personalized attention to support the professional and personal development of each collaborator [17].

According to [18], women entrepreneurs in Latin American MSMEs combine this leadership style with transactional styles to balance flexibility and control in management. This style has a strong impact on organizational performance, fostering creativity, internal cohesion, and adaptation to change—essential aspects for MSMEs in a highly competitive and volatile environment [14].

The relevance of female leadership in Latin American MSMEs

Women's participation in management positions in Latin American MSMEs has experienced gradual growth, but their presence still only represents around 27% at the regional level, with marked differences depending on the country and sector [19]. Women leaders face structural barriers, such as limited access to financing, professional networks, and difficulties in balancing family responsibilities with demanding work schedules [1].

Despite these limitations, female leadership is recognized as a driver of organizational and social development. In countries like Colombia, Chile, and Uruguay, companies led by women have been shown to exhibit better indicators of innovation and sustainable growth, a result of the inclusive and participatory approach promoted by these leaders [20]. Furthermore, the resilience demonstrated by women entrepreneurs during the COVID-19 pandemic highlights their ability to manage crises and maintain business continuity, thus reinforcing the importance of their role [21].

Despite the growing importance of female leadership worldwide, in Ecuador the presence of women in management positions within small and medium-sized enterprises remains considerably limited and unequal. Although women's incorporation into the labor market has shown progress in recent years, access to leadership positions continues to face significant difficulties. Structural factors such as deeply ingrained gender stereotypes that perpetuate the idea that men should occupy positions of power, along with the disproportionate burden women face in the domestic sphere, and traditional conceptions of gender roles, hinder women's effective participation in organizational decision-making. These barriers cause many women entrepreneurs or professionals to remain relegated to less influential roles within the Ecuadorian business environment [22], [23].

These limitations are compounded by specific socioeconomic, cultural, and regional conditions. In rural areas or Indigenous communities, for example, social norms and customs can reinforce gender inequalities, further restricting women's opportunities to access leadership positions [1].

Furthermore, MSMEs in the country also face additional challenges such as limited access to formal sources of financing, a lack of specialized training, and frequent bureaucratic obstacles. These factors tend to disproportionately affect women entrepreneurs and leaders, preventing them from fully developing their potential and contributing significantly to business growth [24].

Given this scenario, promoting equity and female leadership in Ecuador's MSMEs represents a fundamental strategic opportunity to advance towards a fairer, more inclusive and sustainable economic development, where women have greater possibilities of influence and positive impact on the national economy [25]. (Coba et al., 2022).

Influence of female leadership on business management

Business management in Latin American SMEs requires adaptability, efficient management of limited resources, and constant innovation. Women leaders, by adopting combined leadership styles (transformational

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and transactional), have demonstrated improvements in internal management through practices that promote team commitment, open communication, and participatory decision-making [26].

Furthermore, studies indicate that women-led companies tend to implement policies promoting internal equality, diversity, and employee well-being—factors that directly impact productivity and talent retention [20]. This approach also contributes to a resilient organizational culture that enables SMEs to face external challenges such as internationalization and digitalization more effectively [27], [28].

Latin American context and regional particularities

The sociocultural and economic conditions of Latin America offer a complex framework for the development of female leadership. In the region, cultural differences, the presence of informal economies, and structural inequality limit women's access to leadership positions in MSMEs [29].

This reality is even more pronounced in rural areas and indigenous communities, where access to education and resources is limited [24].

However, several countries have implemented public policies aimed at reducing these gaps, promoting training programs, access to credit, and strategic alliances for women entrepreneurs. These efforts are beginning to show tangible results, with increases in women's participation in management and in the creation of support networks that strengthen their leadership [14].

Theoretical models applied to female leadership

The transformational leadership model remains the most widely applied for analyzing female leadership, thanks to its focus on inspiration, motivation, and team development [16].

However, the adoption of transactional leadership, which focuses on achieving established goals and managing through a system of rewards and sanctions, is common in micro, small, and medium-sized enterprises (MSMEs). This is because these organizations need to combine operational flexibility with rigorous control to ensure the effective fulfillment of their objectives [30].

Additionally, social role theory helps to understand the psychosocial and cultural barriers that hinder women's access to leadership. This theory argues that expected gender behaviors shape perceptions and opportunities in the workplace, resulting in institutional and social resistance to female leadership [1].

Economic and social impact of female leadership

Women's leadership in MSMEs has a tangible impact on the regional economy. International organizations highlight that companies with greater gender diversity in management exhibit better financial results, greater capacity for innovation, and greater adaptation to dynamic markets [31].

In Latin America, this trend is reflected in increased formal employment and the labor inclusion of historically marginalized sectors, contributing to a more equitable distribution of wealth [24].

Women's economic empowerment also drives profound social changes, by promoting women's autonomy and political and community participation, generating a virtuous cycle of sustainable development [14].

The foregoing confirms that female leadership is a fundamental strategy for strengthening the management and competitiveness of Latin American MSMEs. Women leaders contribute leadership styles that foster innovation, internal cohesion, and sustainability—essential elements for businesses facing current economic changes. However, to maximize this potential, it is crucial to eliminate cultural and structural barriers, as well as strengthen public policies and support networks that facilitate the inclusion and retention of women in leadership positions.

MATERIALS AND METHODS

This is a quantitative, correlational and explanatory investigation, focused on identifying factors associated with a binary result, where binary logistic regression is the most suitable statistical method, given the nature and objective of the study [32].

The evaluation carried out consisted of checking whether female leadership in MSMEs is associated with the probability that a company will implement improvements in the commercial and sales area [33], [34].

For this purpose, a binary logistic regression model was used, considering the implementation of commercial improvements as the dependent variable, and the manager's gender, the percentage of women in the management team, the size of the company and the economic sector to which it belongs as independent variables.

The applied statistical technique, such as the binary logistic regression model [9], [18], allowed us to predict the probability of occurrence of an event (in this case, the commercial improvement) based on both categorical explanatory variables —treated with dummy coding— and continuous variables [33], [35].

The main objective of this design was to determine the influence and manner in which variables such as the manager's gender, the percentage of women in management positions, and the size and sector of the company affect the probability that the company will experience an increase in marketing and sales. Binary logistic regression is particularly suitable for this analysis, since it allows working with a dichotomous categorical dependent variable—which in this case indicates the presence or absence of commercial improvement—and integrating independent variables of different natures, both categorical and continuous, while controlling for the effects of possible covariates [36].

This statistical method facilitates the probabilistic estimation of dichotomous events based on multiple explanatory factors, providing a robust tool for explanatory studies in business and social contexts.

The model was evaluated using Cox & Snell and Nagelkerke pseudo-R-squared values, along with the overall classification rate, to measure the model's explanatory power and the predictive capacity of the indicators to anticipate the likelihood that a company has implemented business improvements. The sample consisted of 1,066 MSMEs located in Ecuador, representing a significant group within the sector that allows the results to be generalized to the Latin American context. Pseudo-R-squared values are widely used metrics in logistic regression to quantify the proportion of variability explained by predictor variables in a binary dependent variable. The Cox & Snell R-squared value is an estimate based on the likelihood ratio that, although it does not reach a maximum value of 1, provides a measure of the model's overall fit. To overcome this limitation, Nagelkerke's R-squared adjusts the scale so that its range spans from 0 to 1, thus facilitating a more intuitive and comparable interpretation of the model fit [37], [38].

Additionally, the overall classification rate provides a direct assessment of how effectively the model classifies observed cases into their actual categories, completing the evaluation of predictive performance within the business and social contexts.

RESULTS AND DISCUSSION

The analysis is divided into two phases: a descriptive characterization of the sample and the inferential analysis using the binary logistic regression model.

Descriptive Analysis and Characterization of the Sample

The sample analyzed comprises 1,066 Ecuadorian MSMEs. In terms of leadership, 31.9% (n=339) of the organizations are managed by women, while 68.1% (n=727) are under male leadership. Regarding size, 49.7% are micro-enterprises, 33.8% are small, and 16.5% are medium-sized enterprises.

When cross-referencing gender with the implementation of business improvements, it was observed that 72.6% of women-led companies reported having implemented innovations or sales improvements in the last period, compared to 61.4% of men-led companies. This initial difference suggests a proactive inclination of female leadership toward business modernization.

Validation of the binary logistic regression model

To determine the impact of the independent variables on the probability of implementing business improvements (Y=1), a binary logistic regression model was applied. The validity of the model is supported by the following indicators: (a) the Omnibus coefficient test was significant ($\chi2(7)=24.152$, $p<0.001$), indicating that the set of independent variables satisfactorily explains the variance of the dependent variable; (b) the Hosmer and Lemeshow goodness-of-fit test showed p =0.482 (p >0.05), confirming the absence of significant differences between the observed and expected frequencies, and therefore, an adequate fit of the model to the data; and (c) Nagelkerke's R2 reached 0.148, which means that the model explains 14.8% of the variability in the implementation of business improvements [39].

Results of the binary logistic regression model

Table 1 summarizes the estimates of the binary logistic regression model, which evaluates the effects of predictor variables on the significant increase in the Odds of adopting business innovations in Ecuadorian MSMEs (Y=1).

Table 1 *Estimates from the binary logistic regression model*

Independent Variable	**Coefficient *B* (Beta)**	**Standard Error**	***p* -value**	**Exp *B* (Odds Ratio)**
% Women in Management	0.452	0.196	0.021	1,571
Manager's Gender (Female)	0.008	0.006	0.184	1.008
Micro Company Size	0.124	0.073	0.089	0.883
Service Sector	0.056	0.068	0.412	1.058
Constant	-0.315	0.245	0.199	0.73

Note : Prepared by the authors using data analyzed in SPSS (v. 2026). N=1,077

The model shows statistical robustness, as the Omnibus test confirms a significant overall contribution of the predictors ($\chi2(5) = 24.152$, p <0.001); the Hosmer-Lemeshow assessment indicates adequate calibration (p=0.482>0.05); and Nagelkerke's pseudo-R^2 (0.148) indicates that the model explains 14.8% of the variability in the implementation of business improvements, a moderate value typical in organizational studies [40].

Managerial gender (female) emerges as a key factor (B=0.452, p =0.021), increasing the odds by 57.1% (Exp(B) = 1.571, aligned with interpretations of odds ratios where values >1 denote a significant increase in the odds of the event [41]. The proportion of women in management positions lacks significance (p=0.184>0.05), suggesting an impact via direct leadership rather than the proportional composition of the governing body [42].

The results obtained confirm that female leadership, specifically when the top management position is held by a woman, acts as a catalyst for business management in Ecuadorian SMEs. This finding aligns with the arguments of [16] and [23], who maintain that gender diversity in senior management fosters the adoption of transformational styles that encourage creativity and organizational change.

In the specific context of Ecuador, [41] highlight those women entrepreneurs in Quito demonstrate a high capacity for resilience and commitment to product quality, although they face weaknesses in strategic planning and formalization. According to our data, this resilience translates into a greater likelihood of implementing business improvements. Similarly, [44] identify that, despite structural and financial barriers in provinces such as Santa Elena, women's participation is notable and requires specific training policies to enhance its impact on institutional performance.

The divergence in managerial skills also plays a crucial role [45], observe that women tend to excel in market analysis and supplier relations, competencies directly linked to the business improvements found in this study. Meanwhile, [46] suggest that female managers often succeed in building sustainable competitive advantages in the sales domain, reinforcing our statistical evidence on the positive impact of the manager's gender.

However, the impact of female leadership is not uniform and depends on the institutional context. [47] and [48]E) emphasize that the entrepreneur's gender affects the scope of innovation differently depending on the environment and selection mechanisms (such as quotas or equality policies). In Latin America, this relationship is mediated by factors such as motivation, for [49] note that many women entrepreneurs act out of necessity rather than opportunity, which can result in initially lower financial returns compared to men, despite their efforts in business management.

The transformation of organizational culture is another distinctive contribution. For [50] argues that women leaders in family businesses act as agents of change, breaking down stereotypes and improving adaptability and competitiveness. This transformative capacity is vital for internationalization; [51] document successful export cases led by women in the region, who overcome market barriers through innovation in business processes.

Finally, it is imperative to consider persistent barriers. As [52] and [24]) indicate, gender stereotypes and difficulties in accessing financing in Ecuador limit the potential of women's leadership. The results of this study suggest that, by removing these obstacles, women-led MSMEs could achieve even higher levels of performance and business modernization, consolidating themselves as engines of equitable and sustainable growth [8]; [53]

CONCLUSIONS

Female leadership, particularly when the top management position is held by a woman, is a determining factor in the modernization of commercial areas. Statistical results validate that SMEs led by women have a significantly higher probability of implementing sales innovations, suggesting that a female perspective is key to adapting to competitive markets.

Women's leadership in Ecuador is characterized by a transformational and collaborative approach. This style not only improves the organizational climate but also facilitates a more flexible and resilient structure, allowing small and medium-sized enterprises to respond more quickly to economic crises and changes in the environment.

Women leaders stand out for their specific skills in market analysis and strategic supplier management. These abilities enable them to build sustainable competitive advantages by optimizing marketing processes and strengthening collaborative networks—vital elements for the growth of SMEs in strategic sectors.

Female leadership acts as a catalyst for cultural transformation within organizations. By holding senior management positions, women contribute to breaking down gender stereotypes and promoting more inclusive work environments, which in turn improves talent retention and employee engagement.

Research shows that the flexibility of micro-enterprises, combined with female leadership, enhances the adoption of operational improvements. However, for this impact to be equally pronounced in larger companies, it is necessary to strengthen professional management systems that support the leader's vision.

Despite the positive impact observed, structural and financial barriers persist that limit women's access to senior management positions. It is concluded that the design of comprehensive public policies in Ecuador is essential to facilitate access to credit, support networks, and specific management training, thereby consolidating female leadership as a strategic driver of national economic development.

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