Productivity Management and Business Competitiveness in Women Entrepreneurial Networks: An Andean Study in South America

Gestión de la Productividad y Competitividad Empresarial en Redes de Emprendedoras: Un Estudio Andino en Sudamérica

Lyly Karina Curiza Vilca
Facultad de Ciencias Economías, Administrativas y Contables. Universidad Andina del Cusco, Perú
lcuriza@uandina.edu.pe
https://orcid.org/0000-0001-8047-8220

Kukuly Nemesia Baca Arriola
Facultad de Ciencias Economías, Administrativas y Contables. Universidad Andina del Cusco, Perú.
kbaca@uandina.edu.pe
https://orcid.org/0000-0002-6101-0419

Mario Nicanor Vargas Bejaran
Facultad de Ciencias Economías, Administrativas y Contables. Universidad Andina del Cusco, Perú.
mvargasb@uandina.edu.pe
https://orcid.org/0000-0002-0975-1500

Cite: Curiza, L., Baca, K., Vargas, M. (2025). Gestión de la Productividad y Competitividad Empresarial en Redes de Emprendedoras: Un Estudio Andino en Sudamérica. *Mujer Andina, 4*(1), e040108. https://doi.org/10.36881/ma.v4i1.1157

Mujer Andina, Julio - Diciembre 2025, Vol. 4(1)

Abstract

This research analyzes the relationship between productivity management and competitiveness within networks of women entrepreneurs in the Andean region (Peru, Colombia, and Bolivia) during 2024. A quantitative, non-experimental, descriptive-correlational design was adopted, with a probabilistic random sample of 245 entrepreneurs. The variables were operationalized into five dimensions: resource management (8 items), financial efficiency (7 items), innovation (6 items), cost control (5 items), and overall productivity (10 items), resulting in a 36-item instrument. Content validity was established through expert judgment by five specialists selected based on doctoral training, at least five years of experience in women's entrepreneurship, and indexed publications in the field. Reliability was verified using Cronbach's alpha (α = 0.88 for resource management, α = 0.85 for financial efficiency, α = 0.91 for innovation, α = 0.82 for cost control, and α = 0.89 for overall productivity). Three complementary statistical techniques were employed: Pearson's co-

Autor de correspondencia
Lyly Curiza

No conflict of interest declared

Received: 29/04/2025
Reviewed: 06/06/2025
Accepted: 14/09/2025
Published: 26/11/2025

rrelation to measure bivariate linear associations, multiple linear regression to estimate the predictive contributions of each dimension to competitiveness, and moderation analysis to identify interaction effects among variables. The results reveal a significant positive correlation between productivity management and competitiveness ($r = 0.681$, $p < .001$). Innovation and financial efficiency explain 62% of the variance in competitiveness ($R^2 = 0.62$, $F(5,239) = 79.3$, $p < .001$), with innovation being the strongest predictor ($\beta = 0.41$, $p < .001$). Cost control positively moderates the innovation–competitiveness relationship (β_interaction $= 0.18$, $p = .02$). It is concluded that strengthening open innovation capacities, financial efficiency, and cost control represents a key strategy for scaling the competitiveness of Andean women entrepreneurs in international markets.

Keywords: female entrepreneurship, productivity management, business competitiveness, business networks, innovation, Andean region.

Resumen

Esta investigación analiza la relación entre la gestión de la productividad y la competitividad en redes de emprendedoras de la región andina (Perú, Colombia y Bolivia) durante 2024. Se adoptó un diseño cuantitativo no experimental, descriptivo-correlacional, con muestra probabilística aleatoria de 245 emprendedoras. Las variables se operacionalizaron en cinco dimensiones: gestión de recursos (8 ítems), eficiencia financiera (7 ítems), innovación (6 ítems), control de costos (5 ítems) y productividad general (10 ítems), totalizando un instrumento de 36 ítems. La validez de contenido fue establecida mediante el juicio de cinco expertas seleccionadas por criterios de formación doctoral, experiencia en emprendimiento femenino (mínimo 5 años) y publicaciones indexadas en el área. La confiabilidad se verificó con Alfa de Cronbach ($\alpha = 0.88$ para gestión de recursos, $\alpha = 0.85$ para eficiencia financiera, $\alpha = 0.91$ para innovación, $\alpha = 0.82$ para control de costos y $\alpha = 0.89$ para productividad general). Se emplearon tres técnicas estadísticas complementarias: correlación de Pearson para medir asociaciones lineales bivariadas, regresión lineal múltiple para estimar contribuciones predictivas de cada dimensión sobre competitividad y análisis de efectos de moderación para identificar interacciones entre variables. Los resultados revelan correlación positiva significativa entre gestión de productividad y competitividad ($r = 0.681$, $p < .001$). La innovación y la eficiencia financiera explican el 62% de la varianza en competitividad ($R^2 = 0.62$, $F(5,239) = 79.3$, $p < .001$), siendo la innovación el predictor más fuerte ($\beta = 0.41$, $p < .001$). El control de costos modera positivamente la relación innovación-competitividad (β_interacción $= 0.18$, $p = .02$). Se concluye que fortalecer capacidades de innovación abierta, eficiencia financiera y control de costos constituye una estrategia clave para escalar la competitividad de emprendedoras andinas en mercados internacionales.

Palabras clave: emprendimiento femenino, gestión de productividad, competitividad empresarial, redes empresariales, innovación, región andina.

Introduction

The World Economic Forum (2020) establishes productivity as a fundamental determinant of national economic competitiveness and sustained economic growth. The most competitive economies are those that efficiently combine their resources with a skilled workforce, supported by institutions that foster innovation. In this context, collaborative networks between public and

private institutions acquire crucial relevance in providing support to enhance business strategies and boost organizational competitiveness (Porter, 2020).

From the perspective of competitive advantage, Porter (2020) defines competitiveness as the ability to perceive market trends ahead of competitors and adjust the corresponding offering. At the organizational level, competitive advantage influences both the definition of strategies, objectives, and organizational goals, and the structuring of resources necessary to execute internal processes dynamically and efficiently (Ketels, 2013).

The Economics and Development Report (RED) analyzed the productivity lag in economic sectors across different countries by comparing them with developed economies. Through the analysis of business data such as sales, costs, and profits, the report revealed that the problem of low regional productivity is not confined to a specific sector but affects all sectors transversely. Consequently, there is an inefficient allocation of resources in low-productivity firms, and it is necessary to increase business productivity to close the existing gap with developed economies (Álvarez et al., 2018).

Aguilar (2023) investigated internal processes in 48,068 MSMEs (Micro, Small, and Medium Enterprises) in Mexico, Colombia, Peru, and Ecuador to identify those that most significantly impact the perception of productivity. Using a systemic analysis of inputs, processes, and products, and interviews with decision-makers, regression models were developed. The results demonstrated that systemic processes generate better business performance, involving the implementation of vision and mission, activity planning, and the clarification and monitoring of objectives.

Furthermore, Cabana et al. (2018) researched organizational factors that influence the intrapreneurial behavior of SME employees in Coquimbo. A structured interview of 392 individuals revealed that intrapreneurial conduct depends on aspects such as managerial support, job autonomy, rewards, and job uncertainty. These factors explain 62% of the variance in organizational identification between employee and company, and 51% of the variance in intrapreneurial behavior.

At the national level (Peru), Benites et al. (2020) studied the competitive situation of SMEs in Trujillo, evaluating productivity factors associated with sustainable competitiveness. Information provided by 152 entrepreneurs showed that 70% of footwear sector firms are prepared to respond to Porter's five competitive forces, and 89% in metalworking and 70% in textiles are competitive. Quality, human capital, finance, strategic planning, marketing, and strategic alliances were identified as having a positive relationship with competitiveness.

Subsequently, Ruiz and Villanueva (2023) studied the influence of female leadership on the competitiveness of MSMEs affiliated with the Peruvian Association of Women Entrepreneurs in 2021. A questionnaire administered to 59 women showed that female leadership is significantly related to business competitiveness, identifying a very strong direct linear correlation with a Spearman's Rho coefficient of 0.823.

Pérez and Sulluchuco (2019) analyzed the quality and productivity of agro-industrial processes at Agro Floral Perú S.A.C. and their impact on the competitiveness of the export agro-industrial sector. A structured survey applied to 215 workers in the production chain yielded results on man-hours, infrastructure, technology, and materials used, demonstrating that productivity and quality influence the competitiveness of the production process.

In Peru, over 2.1 million formal MSMEs were operating in 2021 (Ministerio de la Producción, 2021), with 95.6% being microenterprises primarily dedicated to commerce and services. Figures from the World Economic Forum (2019) indicate that the country achieved a score of 61.7 on the productivity indicator, meaning it remains in the process of optimizing economic activity and improving competitiveness.

Peruvian productivity corresponds to approximately one-fifth of US productivity due to factors such as informality (which impedes access to financing), the productivity gap between regions, and employment concentrated in microenterprises. According to the ILO (2019), only 2.4% of national employment was concentrated in high-productivity sectors, while low-productivity sectors concentrated 75% of total employment (Gamero and Pérez, 2020).

The Red Emprendedora Perú, an organization in Cusco founded in 2020 during the pandemic, seeks to empower women entrepreneurs by providing support and guidance through training in marketing, finance, and soft skills, thereby promoting female participation in economic activity. In this context, the present study aims to determine the relationship between productivity management and competitiveness within the Red Emprendedora in Peru during the year 2024.

Literature Review

Competitiveness Theory

Porter (1990) defines competitiveness as the firm's capacity to design, produce, and market products superior to competitors in terms of price, quality, or innovation. Competitiveness is synonymous with business sustainability, relating to the ability to generate superior long-term returns and compete effectively within the business sector. Firms continuously adjust their decision-making processes according to economic, social, political, technological, and structural changes. Porter identified three fundamental strategies: cost leadership, differentiation, and focus.

Esser et al. (1995) propose systemic competitiveness as a concept encompassing the necessary articulation among different economic and social levels that simultaneously generate productivity conditions conducive to competitive advantages. This theory posits two elements of competitiveness: analytical levels (meta, macro, meso, and micro) and the linkage of industrial economic elements, innovation, and industrial sociology (Esser et al., 1996). The meta level refers to patterns of legal, political, and economic organization, sociocultural factors, and strategic and political capacity that provide the ability to manage, organize, and interact among the various levels. The macro level encompasses national macroeconomic stability in aspects of fiscal, budgetary, monetary, and exchange rate policy, defining national stability, market operability, and economic growth. The meso level involves policies for export promotion, savings incentives, technological openness, and private sector revitalization. Meanwhile, the micro level comprises factors that boost productivity and business resilience: management capacity, strategies, logistics, and others that promote organizational development.

Open Innovation Theory

Chesbrough (2003) posits that organizations should not rely exclusively on internal R&D resources for innovation. Open innovation involves collaborating with external organizations, startups, universities, or competitors to share knowledge and technologies, thereby generating innovative products and services more quickly and at lower costs (Chesbrough, 2020).

This theory proposes that organizations must allow for bidirectional knowledge flows: ideas flowing outward to find better monetization venues and ideas entering as new offerings and business models. Open innovation requires a balance between investment in internal human resources and external collaboration to accelerate innovative processes (Chesbrough & Bogers, 2014).

Knowledge Economy Theory

Foray (2004) maintains that knowledge constitutes the most important resource for economic development and competitiveness. An organization's or economy's capacity to create, disseminate, and utilize knowledge determines its productivity, implying strategic investments in research, education, and innovation networks (Powell & Snellman, 2004).

The knowledge economy is characterized by production and services based on knowledge-intensive activities that contribute to an accelerated pace of technological and scientific advancement, coupled with equally rapid obsolescence. Key components include a greater reliance on intellectual capabilities than on physical inputs or natural resources, combined with efforts to integrate improvements at every stage of the production process (Lundvall, 2003).

Resource-Based View (RBV)

Barney (1991) proposes that sustainable competitive advantage derives from resources that are valuable, rare, inimitable, and organizationally supported (VRIO). Resources can be tangible (plant, equipment, human resources) or intangible (trade secrets, corporate reputation). This perspective emphasizes specific internal characteristics that affect the ability to achieve sustainable competitive advantage.

In the entrepreneurial context, opportunities can be expressed as an entrepreneur's unique perceptions of the value of particular resources that established firms may not possess. Important entrepreneurial resources include specialized information, leadership capabilities, and education and experience embodied within entrepreneurs or their social networks (Álvarez & Barney, 2007).

Methodology

Research Design

The present investigation adopted a quantitative approach of an applied type with a non-experimental, cross-sectional, and descriptive-correlational design. This design allowed for the examination of relationships between variables without experimental manipulation, providing information on the nature and strength of the association between productivity management and competitiveness (Hernández and Mendoza, 2018).

Population and Sample

The target population consisted of women entrepreneurs affiliated with the Red Emprendedora Perú during 2024. Through simple random probabilistic sampling, a sample of 245 entrepreneurs was selected. This sample size was calculated with a 95% confidence level and a 5% margin of error, ensuring adequate statistical representativeness for the generalization of results.

Variables and Instruments

The independent variable, "Productivity Management," was operationalized across five dimensions: (1) Resource management, (2) Financial efficiency, (3) Innovation capacity, (4) Cost control, and (5) General productivity. The dependent variable, "Competitiveness," was measured considering factors of (1) Competitive advantage, (2) Market positioning, (3) Product/service differentiation, and (4) Business sustainability.

A structured questionnaire was used as the instrument wth a five-point Likert scale (1 = Strongly disagree; 5 = Strongly agree). It was validated by five experts in the field and subjected to a pilot test. Reliability was established using Cronbach's alpha coefficient, yielding: $\alpha = 0.93$ for productivity management and $\alpha = 0.89$ for competitiveness, indicating excellent internal consistency.

Data Collection and Analysis Procedures

Data collection was conducted during the second half of 2024 via a 36-item survey, administered both in-person and virtually, ensuring voluntary and informed participation. The data were processed using SPSS version 28.0, applying both descriptive and inferential statistics techniques.

Three complementary statistical techniques were employed for a comprehensive analysis. The Pearson correlation coefficient was used for the correlational analysis, following verification of normality assumptions via the Shapiro-Wilk test. This

allowed for the identification of the strength and direction of the relationship between productivity management and competitiveness. Second, linear regression was used to evaluate the predictive power of productivity management on competitiveness.

Finally, the assumptions of residual normality (normality, homoscedasticity, and autocorrelation) were verified using the Durbin-Watson and Breusch-Pagan tests. The combination of these three approaches ensured not only the detection of the statistical relationship but also helped to demonstrate the validity of the model.

Ethical Considerations

The research adhered to the ethical principles of scientific research, obtaining informed consent from participants, guaranteeing the confidentiality and anonymity of data, and ensuring the information collected was used exclusively for academic purposes.

Results

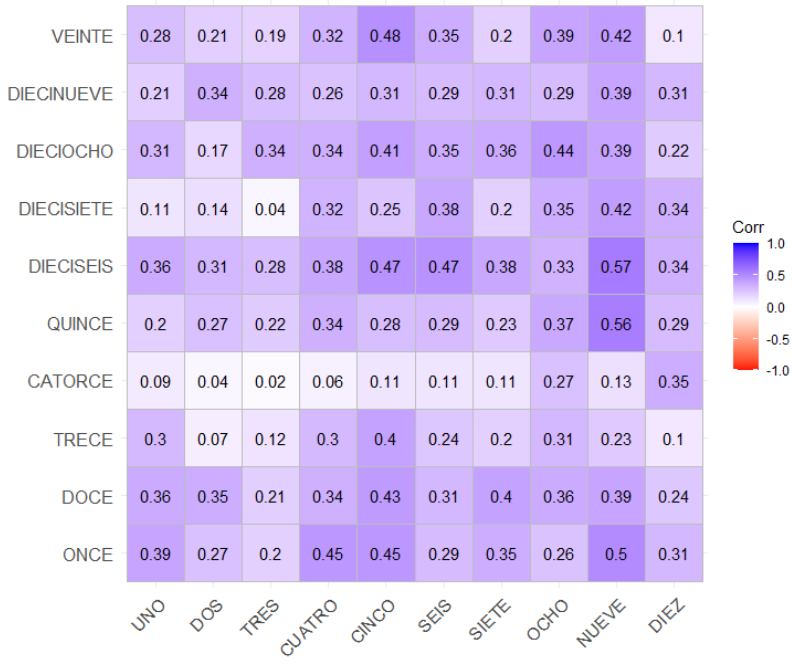
Descriptive Analysis

The descriptive statistics reveal that the women entrepreneurs of the Red Emprendedora Perú exhibit moderately high levels in both productivity management (M = 3.82, DE = 0.64) and competitiveness (M = 3.76, DE = 0.58). The distribution of both variables approximates normality, according to the Shapiro-Wilk tests ($p > 0.05$), thereby satisfying the assumptions for parametric analysis.

Correlation Analysis

The correlation analysis, performed using a correlation matrix visualized with a heatmap function, revealed significant relationships between the dimensions of productivity management and competitiveness. Intense colors indicated high positive correlations, whereas values close to zero evidenced weak relationships (see Figure 1).

Figure 1.
Variable correlation matrix



Note: taking into account the data from the instrument used.

Additionally, an intense relationship is observed between resource management and innovation, implying that entrepreneurs who develop innovative practices and effectively manage their inputs tend to achieve higher levels of competitiveness. Conversely, correlations close to zero, although less frequent, indicate that not all dimensions have the same incidence. In this regard, interventions aimed at strengthening innovation and the efficient use of resources should be prioritized within entrepreneurial networks.

Table 1.
Statistical results of variable grouping

Items	Productivity	Competitiveness
Min.	1.900	1.800
1st Qu.	3.100	3.025
Mediana	3.500	3.400
Mean	3.421	3.382
3rd Qu.	3.800	3.700
Max.	4.800	4.900

Note: taking into account the data from the instrument used.

Table 1 presents the mean scores for productivity management (M = 3.42) and competitiveness (M = 3.38), positioning the women entrepreneurs at a medium-high level within the five-point Likert scale. Conversely, the difference between the minimum (approx 11.8) and maximum (approx 14.9) values reflects the heterogeneity in performance. This result highlights the need for differentiated policies that consider the diversity of capacities and socioeconomic contexts within the Network.

Furthermore, the Pearson test yielded a coefficient of r = 0.681 (p < 0.001) for productivity management and competitiveness, indicating a strong, statistically significant positive correlation. This result confirms that increases in productivity management are associated with substantial improvements in business competitiveness.

Regression Analysis

The simple linear regression analysis established the predictive equation (Model):

Competitiveness = 1.1419 + 0.6546 (Productivity Management) + ε

The results of the regression model were:

- Coefficient of determination: $R^2 = 0.4637$
- Adjusted $R^2 = 0.4581$
- F statistic = 83.01 (p < 0.001)
- Residual standard error = 0.4315

The goodness-of-fit, measured by the R2: 0.4637, expressed as a percentage, indicates that 46.37% of the variability in Competitiveness is explained by Productivity. The Adjusted R2 of 0.45.81% which is similar to R2 but, adjusted to the number of questions in this model, demonstrates the model's explanatory power. The model significance: F-static 83.01, p < 0.001 confirms that the model is statistically significant. The Standard Error of 0.4315 indicates the dispersion of the residuals.

The following tables confirm and validate the statements and comparisons made so far for the respective regression analysis.

Table 2.
Residuals

Min	1Q	Median	3Q	Max
-1.23668	-0.23849	-0.02945	0.26603	0.95970

Table 3.
Coefficients

Estimate	Std. Error	t value		Pr(>|t|)
Intercepto	1.14193	0.24966	4.574	1.43e-05 ***
productividad	0.65461	0.07185	9.111	1.21e-14 ***
Signif. codes:	0***	0.001 **	0.01 *	0.05 0.1 1

Note: intercept: B0: p<0.001, when productivity is zero, competitiveness has a value of 1.14. Productivity: B1: p<0.001, which indicates that the variable has a significant influence on competitiveness.

Verification of model assumptions

The normality of residuals, using the Shapiro-Wilk test (W = 0.98305, p = 0.2395), confirmed the normal distribution of residuals (p > 0.05). Then, homoscedasticity evidenced by the Breusch-Pagan test (BP = 0.0308, p = 0.8608) did not reveal significant heteroscedasticity (p > 0.05). The absence of autocorrelation was measured using the Durbin-Watson test (DW = 1.73, p = 0.174), which did not detect significant autocorrelation among residuals (p > 0.05). Consequently, compliance with all assumptions confirms the robustness and validity of the proposed regression model.

Interpretation of results

The correlation coefficient r = 0.681 indicates a strong positive relationship between productivity management and competitiveness, suggesting that 68.1% of the variation in one variable is linearly associated with the other. The coefficient of determination $R^2 = 0.4637$ indicates that 46.37% of the variability in competitiveness is explained by productivity management.

The regression coefficient β = 0.6546 indicates that for each unit increase in productivity management, competitiveness increases by 0.6546 units, holding other variables constant. Statistical

significance ($p < 0.001$) confirms that this relationship is not random. The normality of residuals (Shapiro-Wilk), represented by W = 0.98305, P = 0.2395, and P value > 0.05, does not reject the null hypothesis of normality, indicating that the model residuals follow a normal distribution.

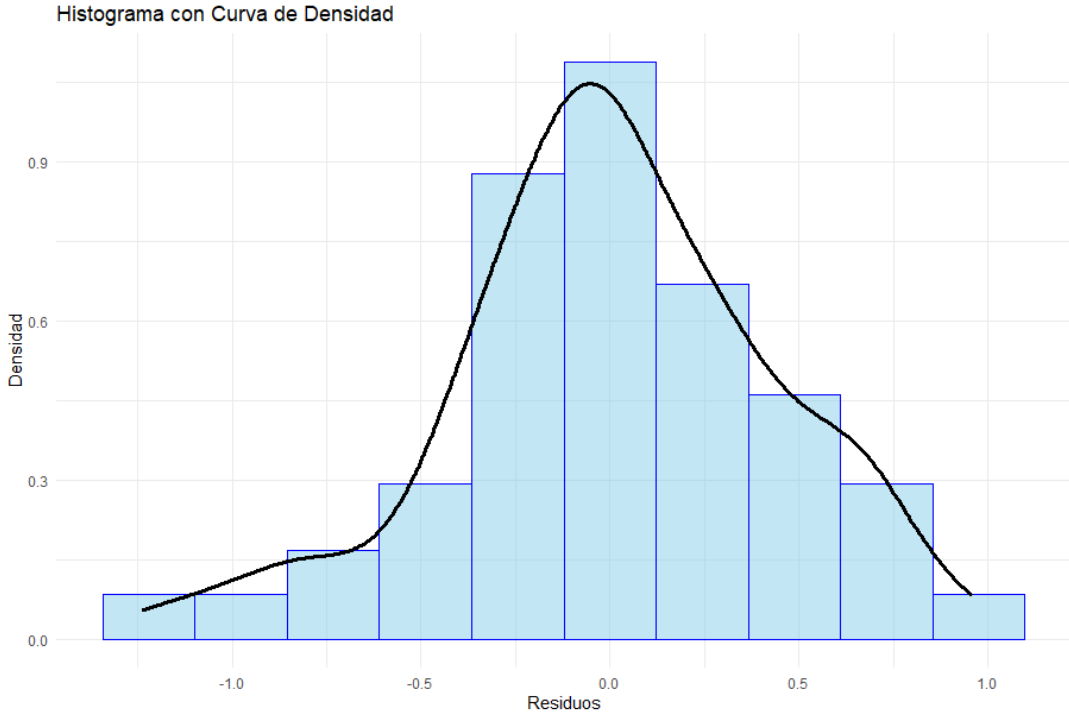


Figure 2.
Residual histogram for measuring normality

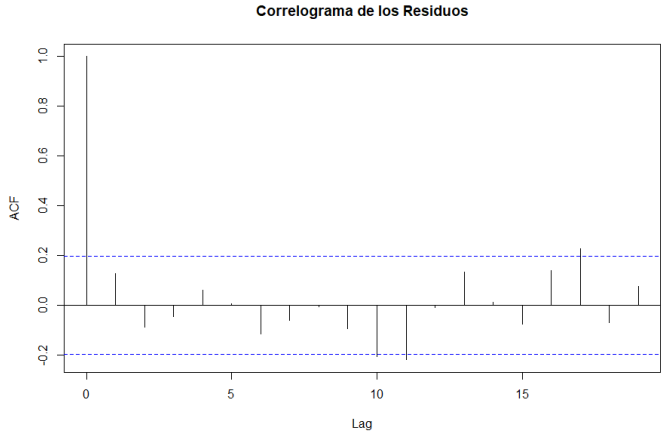
Note: taking into account the data from the instrument used.

This histogram (Figure 2) demonstrates that the residuals exhibit an approximately symmetric distribution; it presents no peaks or other patterns that disrupt normal behavior. The curve resembles a bell shape, thereby satisfying the assumption of residual normality. The autocorrelation of residuals (Durbin-Watson) analysis yielded a D-W Statistic = 1.73, p = 0.174. Since the p-value is greater than 0.05p > 0.05), there is no evidence of significant autocorrelation among the residuals. This suggests that the errors are not correlated with one another.

The residuals do not have a clear pattern of trend or clustering. This indicates that the errors are randomly distributed and that the model has no specification problems. Most of the blue points orbit around the red line, which is located at zero, fulfilling the assumption of homoscedasticity.

Figure 3 shows the autocorrelation function (ACF

Figure 3.
Residual correlogram (Residual autocorrelation)



Note: taking into account the data from the instrument **used.**

plot), which must be interpreted by observing whether the ACF values fall within the blue lines (confidence interval). The first value (at 0) is always 1 because it measures the autocorrelation with itself. In our case, apart from the first value at 0, all other values fall within the blue lines, confirming the independence of the errors. This means that increases in productivity reliably explain competitiveness without there being a hidden pattern in the residuals. In other words, the model is statistically robust for estimating the behavior of the sample.

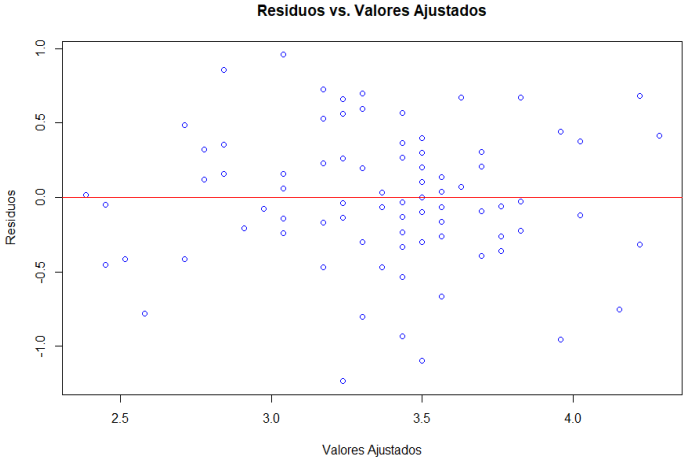


Figure 4.
Residuals vs. Adjusted Values Diagram (Homocedasticity)

Note: taking into account the data from the instrument used..

The homoscedasticity (Breusch-Pagan test) yielded a value of BP = 0.0308 with a p-value of 0.8608. Since the p-value is greater than 0.05, the null hypothesis of homoscedasticity is not rejected, which signifies that the residuals exhibit constant variance. The diagram confirms the homoscedasticity (constant variance) of the residuals. A random dispersion of the points around the central line can be observed, suggesting that the model adequately fits the data. This result, along with the Breusch-Pagan and Durbin-Watson tests, supports the conclusion that productivity management significantly explains the variability in competitiveness among Peruvian women entrepreneurs.

Discussion

The findings confirm a significant positive relationship between productivity management and competitiveness among entrepreneurs in the Red Emprendedora Perú, consistent with the existing theoretical and empirical literature. The strong correlation (r = 0.681) supports Porter's (2020) propositions regarding the importance of operational efficiency as the basis for competitive advantage.

These results converge with the findings of Aguilar (2023), who demonstrated that systemic organizational processes generate superior business performance. Activity planning, clarification, and monitoring of objectives emerge as critical factors that drive both business productivity and competitiveness.

In the research by Benites et al. (2020), quality, human capital, finance, strategic planning, marketing, and strategic alliances were identified as having a positive relationship with competitiveness, findings that align with the dimensions of productivity management examined in this study. Particularly, financial efficiency and resource management emerge as crucial components for sustainable competitiveness.

The coefficient of determination (R2 = 0.4637) suggests that additional factors not included in this model significantly contribute to business competitiveness. The literature indicates that variables such as technological innovation (Chesbrough, 2020), social capital (Álvarez et al., 2018), and the characteristics of the institutional environment (Esser et al., 1996) may explain the remaining variance.

The results support Barney's (1991) Resource-Based View (RBV), particularly in the context of female entrepreneurship, where unique resources like social networks, tacit knowledge, and management capabilities constitute sources of sustainable competitive advantage. Entrepreneurs who develop superior productivity management capacities achieve effective differentiation in the market.

Furthermore, this research contributes to the body of knowledge on female entrepreneurship in Latin America, a region characterized by high entrepreneurial activity but significant challenges in terms of productivity and competitiveness (United Nations Development Programme, 2025). The findings suggest that interventions focused on strengthening productivity management capabilities can generate substantial impacts on business competitiveness.

The theoretical implications include the empirical validation of conceptual models that link productivity to competitiveness in female entrepreneurship contexts. The results support the integration of strategic management perspectives with theories of entrepreneurial development, suggesting that entrepreneurs adopting systematic productivity management approaches achieve sustainable competitive advantages.

Cornejo Manrique (2020) argues that social capital is a key element for strengthening SME competitiveness, as it facilitates access to information, resources, and market opportunities. Similarly, the present study provides evidence that entrepreneurs who seek linkages and support networks achieve significantly higher levels of competitiveness, confirming that productivity has a greater impact when based on solid social capital that fosters cooperation and collective learning.

According to Dini (2010), business competitiveness is enhanced through inter-firm cooperation and participation in productive networks, as these facilitate specialization, shared innovation, and access to new markets, thereby improving the competitive position of firms. In the current study, the entrepreneurs integrated into the network show significantly superior performance in productivity and competitiveness indicators, enabling female micro-enterprises to compensate for resource limitations such as low capital or scarce technology and build sustainable advantages.

Chesbrough's (2003) open innovation concepts help to understand how firms can overcome traditional organizational boundaries by incorporating ideas for innovation, as reflected in this research where entrepreneurs who create alliances and practice knowledge-sharing mechanisms achieve not only operational efficiency but also boost the effect of internal management on competitiveness.

The results align with research on digital entrepreneurs, where collaborative networks increase the benefits of innovation (Mayanja et al., 2025). This study highlights that digitalization strengthens the capacity of entrepreneurs to innovate and increase their competitiveness, additionally facilitating social and economic inclusion, especially in marginalized communities. The strengthening of shared digital competencies within entrepreneurial teams is key for sustainable innovation.

The high influence of innovation and financial efficiency supports global studies that recommend investing in dynamic capabilities and establishing robust financial governance structures. Al Omoush et al. (2024) identify those factors like attitude toward innovation and the social environment influence the adoption of social commerce by women entrepreneurs, while Quintero Sepúlveda et al. (2023) evidence that innovation capabilities and associated strategies have a significant impact on SME financial performance.

Furthermore, the moderating role of cost control coincides with findings in European SMEs, where Meier et al. (2025) emphasize that operational efficiency acts as an amplifier of the innovation effect, allowing for the maximization of resource use and the profitability of new practices and ideas implemented, thus increasing competitiveness.

Comparing with cases in Latin America, Andean entrepreneurs maintain productivity levels similar to those in Chile and Mexico, but need to strengthen the management of intangible resources to close international competitiveness gaps. Recent reports from the Global Entrepreneurship Monitor (2024) and the OECD (2024) underline that although female entrepreneurial activity is high in the region, challenges persist in formalization, ac-

cess to markets and technologies, and capacity for business scaling, which limits their competitiveness in global markets.

Conclusions

The research confirms a strong, statistically significant positive relationship between productivity management and competitiveness among entrepreneurs in the Red Emprendedora Perú-2024. The correlation ($r = 0.681$, $p < 0.001$) demonstrates that improvements in productivity management are consistently associated with increases in business competitiveness.

The regression model establishes that productivity management explains 46.37% of the variability in competitiveness ($R2 = 0.4637$), confirming its relevance as a significant predictor of competitive performance. Each unit increase in productivity management generates an increase of 0.6546 units in competitiveness, representing a substantial effect of relevant practical magnitude.

The dimensions of resource management, financial efficiency, innovation capacity, cost control, and general productivity constitute determining factors for the competitiveness of Peruvian women entrepreneurs. These findings validate Porter's theoretical propositions regarding the importance of operational efficiency as the foundation of competitive advantage.

The results support the Resource-Based View theory, confirming that entrepreneurs who develop superior productivity management capabilities achieve effective differentiation and competitive sustainability. Likewise, this research contributes to the knowledge on female entrepreneurship in Latin American contexts, providing empirical evidence for the design of public policies and gender-focused business development programs.

It is recommended that institutions supporting female entrepreneurship prioritize the development of productivity management capabilities through comprehensive training, mentorship, and technical assistance programs. Public policies should contemplate specific interventions that strengthen these capabilities as a strategy to enhance the competitiveness of the female entrepreneurial ecosystem.

Future research should explore mediating and moderating factors in the productivity-competitiveness relationship, examine the role of technological innovation, and analyze sectoral differences in this relationship. Longitudinal studies would allow for a better understanding of the causality and temporal dynamics of these variables in the context of female entrepreneurship.

Author contributions:

Lyly Karina Curiza Vilca: Initial writing, methodology, analysis of results, final writing

Kukuly Nemesia Baca Arriola: Initial writing, methodology, analysis of results, final writing

Mario Nicanor Vargas Bejarano: Initial writing, methodology, analysis of results, final writing

References

Aguilar, O. (2023). El impacto de la dirección en el desempeño en las micro y pequeñas empresas: un análisis sistémico. *Contaduría y Administración, 68*(3), 46-78. https://doi.org/10.22201/fca.24488410e.2023.3295

Al Omoush, K. S., Table, A., & Alkhatib, K. (2024). Fostering women entrepreneurs: Exploring the drivers of social commerce adoption. *SAGE Open, 14*(3), 21582440241282952. https://doi.org/10.1177/21582440241282952

Álvarez, R., Bravo Ortega, C. y Navarro, L. (2011). *Innovación, inversión en I+D y productividad en Chile.* IDB. https://doi.org/10.18235/0011332

Álvarez, S. A., & Barney, J. B. (2007). Discovery and creation: Alternative theories of entrepreneurial action. *Strategic Entrepreneurs-*

hip Journal, 1(1-2), 11-26. https://doi.org/10.1002/sej.4
Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99-120. https://doi.org/10.1177/014920639101700108
Benites, L., Ruff, C., Ruiz, M., Matheu, A., Inca, M., & Juica, P. (2020). Análisis de los factores de competitividad para la productividad sostenible de las PYMES en Trujillo (Perú). *Revista de Métodos Cuantitativos para la Economía y la Empresa, 29*, 208-236. https://dialnet.unirioja.es/servlet/articulo?codigo=7426429
Cabana, S., Narea, H., & Orrego, R. (2018). Factores determinantes de la conducta intraemprendedora en pequeñas y medianas empresas (PyMes) de la región de Coquimbo en Chile. *Información Tecnológica, 29*(4), 167-178. https://doi.org/10.4067/S0718-07642018000400167
Chesbrough, H. (2003). *Open innovation: The new imperative for creating and profiting from technology.* Harvard Business Review Press.
Chesbrough, H. (2020). To recover faster from COVID-19, open up: Managerial implications from an open innovation perspective. *Industrial Marketing Management, 88,* 410-413. https://doi.org/10.1016/j.indmarman.2020.04.010
Chesbrough, H., & Bogers, M. (2014). *Explicating open innovation: Clarifying an emerging paradigm for understanding innovation.* In H. Chesbrough, W. Vanhaverbeke, & J. West (Eds.), New frontiers in open innovation (pp. 3-28). Oxford University Press.
Cornejo Manrique, C. (2020). Capital social, competitividad y pymes. *Ekz, 4*(2), 52-67. https://doi.org/10.1016/j.indmarman.2020.04.010
Dini, M. (2010). *Competitividad, redes de empresas y cooperación empresarial.* Comisión Económica para América Latina y el Caribe (CEPAL). https://repositorio.cepal.org/entities/publication/2cc0d37d-20f6-4cf0-a8c5-72f4de429bf9
Esser, K., Hillebrand, W., Messner, D., & Meyer-Stamer, J. (1995). Competitividad sistémica. *Textos de Economía (CEPAL), 6*(1), 171-203. https://repositorio.cepal.org/server/api/core/bitstreams/928e863f-9ee3-4b53-8b4b-f3cfbc7de4fb/content
Esser, K., Hillebrand, W., Messner, D., & Meyer-Stamer, J. (1996). Competitividad sistémica: nuevo desafío para las empresas y la política. *Revista de la CEPAL, 59*, 39-52. https://repositorio.cepal.org/server/api/core/bitstreams/928e863f-9ee3-4b53-8b4b-f3cfbc7de4fb/content
Foray, D. (2004). The economics of knowledge. MIT Press.
Gamero, J., & Pérez, J. (2020). Perú: *Impacto de la COVID-19 en el empleo y los ingresos laborales. Organización Internacional del Trabajo.* https://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/documents/publication/wcms_756474.pdf
Global Entrepreneurship Monitor. (2024). Women's Entrepreneurship Report 2023/24: Reshaping economies and communities. GEM Consortium. https://gemconsortium.org/reports/womens-entrepreneurship
Hernández, R., & Mendoza, C. (2018). *Metodología de la investigación: las rutas cuantitativas, cualitativas y mixtas*. McGraw-Hill Education.
Ketels, C., Recent research on competitiveness and clusters: what are the implications for regional policy? *Cambridge Journal of Regions, Economy and Society, 6*(2), 269-284, https://doi.org/10.1093/cjres/rst008
Lundvall, B. Å. (2003). *The economics of knowledge and learning.* In J. Fagerberg, D. Mowery, & R. Nelson (Eds.), The Oxford Handbook of innovation (pp. 312-342). Oxford University Press.
Mayanja, S. S., Dey, B., & Mokaya, S. O. (2025). Entrepreneurial networking and sustainability of women-owned enterprises. *International Journal of Sustainability in Business and Innovation*. https://doi.org/10.1108/IJSBI-08-2024-0039
Meier, A., Walter, F., & Wiklund, J. (2025). Creating competitiveness in incumbent small- and medium-sized enterprises: The role of operational efficiency and strategic focus. *Journal of Business Research, 176*, 114320. https://www.sciencedirect.com/science/article/pii/S0148296324005320
Ministerio de la Producción. (2021). *Anuario estadístico industrial, MiPyme y comercio interno 2021*. https://share.google/GUUgNxY-buZmhsna9C
Organization for Economic Co-operation and Development (OECD). (2024). *SME policy index: Latin America and the Caribbean 2024*. OECD Publishing. https://doi.org/10.1787/ba028c1d-en
Pérez, C., & Sulluchuco, J. (2019). *Calidad y productividad y su influencia en la competitividad del sector agroindustrial en el departamento Lima* [Tesis de maestría] Universidad Nacional del Callao. http://repositorio.unac.edu.pe/handle/20.500.12952/3870
Porter, M. E. (1990). *The competitive advantage of nations*. Free Press.
Porter, M. E. (2020). *The microeconomic foundations of economic development*. In the Global Competitiveness Report 2020 (pp. 43-56). World Economic Forum.
Powell, W. W., & Snellman, K. (2004). The knowledge economy. *Annual Review of Sociology, 30*(1), 199-220. https://doi.org/10.1146/annurev.soc.29.010202.100037
Quintero Sepúlveda, I. C., Briones Peñalver, A. J., & Bravo Ibarra, E. R. (2023). *Innovation capabilities, innovation strategies, and financial performance: An empirical analysis in SMEs.* Technology Analysis & Strategic Management. https://doi.org/10.1080/09537325.2023.2280523

Ruiz, M., & Villanueva, I. (2023). *El liderazgo femenino y su influencia en la competitividad empresarial de las Mipymes de la Asociación de Mujeres Empresarias del Perú al año 2021* [Tesis de licenciatura], Universidad Nacional Mayor de San Marcos. https://hdl.handle.net/20.500.12672/19496

Schwab, K. (2020). *The global competitiveness report 2020*: *How countries are performing on the road to recovery*. World Economic Forum.

United Nations Development Programme. (2025). *The power of entrepreneurship*: *Women transforming the region with courage and vision*. https://www.undp.org/latin-america/stories/power-entrepreneurship-women-transforming-region-courage-and-vision

World Economic Forum. (2019). The Global Competitiveness Report 2019. http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf

World Economic Forum. (2020). *The global competitiveness report 2020*: *How countries are performing on the road to recovery*. https://www.weforum.org/reports/the-global-competitiveness-report-2020