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Influence of resources, capabilities and entrepreneurial orientation on rural SMEs' performance

Influencia de los recursos, capacidades y la orientación emprendedora en el desempeño de las PYMES rurales

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Resumen

En Perú, al igual que en América Latina, hasta un 30% de las nuevas empresas son sostenibles. Los estudios sobre el desempeño se han centrado en factores internos como recursos, capacidades u orientaciones. Sin embargo, las empresas rurales han sido poco estudiadas en términos de factores impulsados por el desempeño. Este estudio tiene como objetivo determinar los recursos que inciden en el desempeño de las PYMES rurales peruanas, con la mediación de la capacidad de marketing. En particular, se incluyen en el modelo conceptual la orientación emprendedora, los recursos de marketing y los recursos de Tecnologías de la Información y Comunicación (TIC). Se presenta un enfoque cuantitativo, que incluye el análisis de datos mediante modelos de ecuaciones estructurales. Los resultados muestran el efecto predictivo de la orientación emprendedora y los recursos de TIC sobre el desempeño, mientras que los recursos de marketing mostraron un efecto negativo. Además, el efecto mediador de la capacidad de marketing sobre el desempeño no fue significativo con respecto a las tres variables independientes.

Palabras claves: Pymes rurales, orientación emprendedora, desempeño

Abstract

In Peru as in Latin America, up to 30% of new firms are sustainable. Studies on performance have been centered on internal factors such as resources, capabilities, or orientations. However, rural firms have been scarcely researched in terms of performance-driven factors.

This study aims to determine the resources that have an impact on Peruvian rural SMEs' performance, with the mediation of a marketing capacity. Particularly, entrepreneurial orientation, marketing resources, and Information and Communications Technology (ICT) resources are included in the conceptual model. A quantitative approach is presented, including structural equation modeling for data analysis. Results show the predictive effect of entrepreneurial orientation and ICT resources on performance, while marketing resources showed a negative effect. Additionally, the mediating effect of marketing capacity on performance was non-significant regarding the three independent variables. **Key words:** Rural SMEs, entrepreneurial orientation, performance

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Introducción

In emerging economies, there is a lack of information about the number of rural firms. However, employment rate in rural areas is often used as a proxy data. In that sense, self-employed population conforms 44.4% at such areas (CEPAL et al., 2016).

Although recent studies indicate a growing rate of new firms on Latin America as well as on Peru, 30% of them are sustainable (Serida et al., 2018). Research on performance has been centered upon internal factors such as resources, capabilities or orientations (Grant, 1996; Lumpkin & Dess, 1996; Lee et al., 2001; Ngugi et al., 2010; Fernandez-Jardón & Martos, 2016; Carraresi et al., 2016, Kakodkar et al., 2017). However, rural firms are scarcely researched in terms of performance-driven factors (Pato & Teixeira, 2016).

This study aims to determine the resources that have an impact on Peruvian rural SMEs with the mediation of a marketing capability and entrepreneurial orientation. A quantitative approach is presented, including structural equation modeling for data analysis. Results are discussed and contrasted with literature, while conclusive remarks are stated.

Resource-Based View

The Resource-Based View (RBV) of the firm is addressed in studies about intrinsic factors that impact on organizational performance, defined as resources and capabilities (Newbert, 2007). According to Peteraf (1993), such resources must be valuable, rare, inimitable and non-substitutable to conform competitive advantages.

Barney (1991) defined all goods, capabilities, organizational processes, firm's attributes, information, or knowledge controlled by the firm as organizational resources if their use could lead to efficiency and effectiveness. Such resources were classified as: physical capital, which includes technology used in the firm, facilities and equipment, geographical location, and access to raw materials; human capital, which includes training, experience, intelligence, relations and reasoning of all organizational members; and organizational capital, which considers the firm's structure, planning process, control systems and relations among stakeholders.

According to Wiklund et al. (2007), the RBV must be subdivided into resources and capabilities, due to the need to coordinate both elements in the aim of achieving competitive advantages. Capabilities could be defined as organizational abilities for the integration,

construction, and reconfiguration of internal and external competences (Teece, 1986). In literature, research on RBV has been categorized as the relation between dependent variables, typically linked to performance, and independent variables, commonly referred as capabilities (Newbert, 2007).

Performance

Sousa (2004) showed results implying performance as a dependent variable in a RBV-rooted study. Similarly, Newbert (2007) identified dependent variables such as competitive advantage, sustainable performance, sustainable competitive advantages and organizational performance. The latter was consistently found in 93% of the revised literature.

Reis et al (2013) suggested that in emerging economies, an RBV approach is better measured through subjective indicators for organizational performance, given the lack of trust for SMEs to share sensitive information in a highly competitive environment. Such indicators have been highly correlated in literature (Moore y Fairhurst, 2003; Perin & Sampaio, 2004; Fernandes & Santos, 2008; Sampaio, Perin & Ferreira, 2008).

Entrepreneurial Orientation

Fuentes et al. (2009) defined entrepreneurial orientation as a firm's capability to sense and seize opportunities; allocate external resources; and attract new customers. Particularly, this capability is included as a mediating variable in several studies related to resources and performance (Lumpkin & Dess, 1996; Wiklund et al., 2007; dos Reis et al., 2013). Moreover, Uribe et al. (2013) found that entrepreneurial orientation has shown a strong impact on organizational performance. Similarly, Hernández (2014) found a relation between entrepreneurial orientation and exporting performance.

Thus, the following hypothesis is included in this study:

H1: Entrepreneurial orientation has a positive impact on rural SME's performance.

Marketing Resource & Capability

On one side, a marketing resource is the measure in which a firm has knowledge and engages in marketing activities such as product development, pricing, distribution and sales (Ngo & O'Cass, 2012). On the other side, Sok, O'Cass & Miles (2016) define marketing capacity as a process or ability for using marketing resources. Following that line, studies have concluded that a marketing capability is a driver for increasing sales and boosting organizational performance (Kajalo & Lindblom, 2015, Lekmat et al. 2018). Thus, the following hypothesis is introduced:

H2: A marketing capacity has a positive impact on rural SMEs' performance.

As a unified perspective, Ngo & O'Cass (2012) found a complementary relation between a marketing capability and marketing resources in a study about performance on Australian manufacturing firms. Similarly, Sok et al. (2016) found a strong relation in a study about 160 Cambodian SMEs.

Thus, the following hypothesis is introduced:

H3: Marketing resources have a strong impact on rural SME's performance, mediated by a marketing capacity.

The mediating role of marketing capability has been studied on other capabilities, such as entrepreneurial orientation (Kajalo & Lindblom, 2015; Lekmat et al., 2018). In such studies, entrepreneurial orientation was the driver for resource allocation; nevertheless, its impact was limited on performance without the mediating role of marketing capabilities.

Thus, the following hypothesis is introduced:

H4: Entrepreneurial orientation has a positive effect on rural SMEs' organizational performance, mediated by a marketing capacity.

Information and Communications Technology Resource

According to Gálvez, Riascos & Contreras (2014), as well as to Nwagwu (2015) the Information and Communications Technology (ICT) resource could be defined as access and

use of technology (e.g. cellular phones, radio, television, computers, printed media, internet and e-mailing) for sales, production or marketing. Moreover, literature indicates a positive relation between the use of ICT and organizational performance (Gálvez, Riascos & Contreras, 2014; Nwagwu, 2015). Similarly, Steinfield, LaRose, Chew & Tong (2012); Bayo et al. (2013); and Ngway (2015) found that ICT had an impact on organizational performance. Thus, the following hypothesis is introduced:

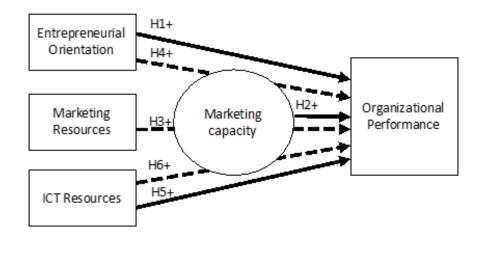
H5: ICT resources have a positive effect on rural SMEs' organizational performance.

There are studies that indicate that the relation among ICT and performance is influenced by a mediating role of additional capabilities (e.g, marketing) (Saavedra & Tapia, 2013). Specifically, Setiowati, Hartoyo, Daryanto, and Arifin (2015) analyzed 204 Indonesian SMEs and found a relation among ITC and performance with the mediating role of marketing.

H6: ICT resources have a positive effect on rural SMEs' organizational performance, mediated by a marketing capacity.

Figure 1

Includes the conceptual model of this study.



Method

Considering the literature review, a causal-quantitative approach is selected. Such approach is non-experimental, with a transactional design as commonly found in studies on rural firms due to geographical and contextual challenges for data recollection.

Population and Sample

The unit of analysis for this study is centered on rural SMEs from three districts at Perú. Thus, the population was calculated by using data from the Ministries of Economic and Social Development at the corresponding districts. Regarding sample size, it was composed of 125 rural SMEs that are producers and sell products independently of any association. The mentioned criteria of independence is critical in terms of avoiding restrictions derived from pertaining to associations.

Statistical Model

The statistical analysis was conducted by using structural equation modeling (SEM), given its applicability for identifying relations among predictive and latent variables (Gefen, Straub y Boudreau, 2000). More specifically, partial least squares (PLS) was selected due to the objective of this research, implying the identification of the principal components or existing relations in the model, at a causal-predictive approach (Salgado & Espejel, 2016). Moreover, PLS is often used to study novel contexts such as the one for Peruvian rural SMEs. Finally, SEM was selected due to its capability of analyzing non-parametric data (Hair et al., 2014).

Results

Initially, internal consistency and convergent validity tests were conducted. According to Nunnally and Bernstein (1994), in the case of the former test, values above 0.7 are sought for exploratory studies; while values above 0.8 for mature research. Regarding the latter test, average variance extracted (AVE) was used as an indicator for the rate of variance explained by each construct in the model, with a minimum threshold of 0.50 (Henseler, Ringle &

Sinkovics, 2009; Roldán & Cépeda, 2019). Table 1 shows the mentioned indicators with their corresponding variables.

Table 1 *Internal Consistency and Average Variance Extracted.*

Variable	Cronbach Alpha	rho_A	Internal Consistency	Average Variance Extracted (AVE)
MKT Capacity	0.759	0.766	0.840	0.514
Entrepreneurial Orientation	0.818	0.832	0.866	0.519
MKT Resources	0.746			
TCI Resources	0.738			
Performance	0.855	0.868	0.890	0.538

Source: Data from 125 surveys of rural businesses. Analysis with Smart PLS

Afterwards, discriminant validity tests were conducted. Firstly, the Fornell-Larcker criterion was applied to assess the degree of shared variance between the model's latent variables (Roldán & Cepéda, 2019). Table 2 shows the results of the Fornell-Larcker test of the shared variances' square roots between each construct and its dimensions.

Table 2Fornell-Larcker test

	FA	MKT CAP	MKTC AP- FA- PERF	MKTC AP- SECT OR - PERF	PERFORM ANCE	OWN ER AGE	ENT_ OR	ENT_ OR- FA- PERF	ENT_ OR- TOW N- PERF	ENT_ OR- SECT OR - PERF	TO WN	MKT RES	ICTR ES	ICTR ES- OWN ER AGE- PER F	ICTR ES- SECT OR- PERF	SECT OR
FA	1															
MKTCAP	0.0	0.717														
MKTCAP- FA-PERF MKTCAP-	0.1 63	0.188	n.a.													
SECTOR- PERF		0.251	-0.306	1												
PERFORM ANCE OWNER	0.0 73 0.4	0.396	-0.105	0.063	0.734											
AGE		0.051	0.121	-0.105	-0.046	1 0.05										
ENT_OR	75 -	0.519	-0.067	0.073	0.384		0.720									
ENT_OR- FA-PERF ENT_OR-	0.0 91	0.063	0.586	-0.128	-0.235	0.14 9	0.137	1								
TOWN- PERF ENT_OR-	0.1 24	0.140	-0.236	0.083	0.170	0.00	0.344	0.455	1							
SECTOR - PERF		0.082	-0.163	0.488	0.050	0.01 4	0.258	0.261	0.385	1						
TOWN	0.0 81	0.143	0.101	-0.081	-0.083	0.01 6	0.071	0.130	0.018	0.071	1					
MKTRES	0.0 21	0.449	-0.116	0.258	0.301	0.00	0.411	0.158	0.035	0.222	0.17 7	n.a.				
ICTRES		0.449	-0.289	0.209	0.367	0.09	0.264	0.189	0.068	0.047	0.08	0.228	n.a.			
OWNER AGE- PERF ICTRES-		0.191	0.250	0.111	-0.068	0.03	0.019	0.069	0.091	0.070	0.00	0.106	0.25 7	1		
SECTOR NEG- PERF	0.0 54	0.153	-0.006	0.540	0.068	0.07	0.031	0.050	0.047	0.304	0.06	0.157	0.29 3	0.080	1	
SECTOR	0.1 89	0.115	0.128	0.187	0.063	0.05 9	0.145	0.054	0.069	0.125	0.33	0.066	0.07 9	0.098	0.305	n.a.

FA: FIRM'S AGE

MKT CAP: MARKETING CAPACITY

PERF: PERFORMANCE AGE: FOUNDER'S AGE

ENT OR: ENTREPRENEURIAL ORIENTATION

CLOSE: GEOGRAPHIC CLOSENESS

MKT RES: MARKETING RESOURCES

ICT RES: ICT RESOURCES

Source: Data from 125 surveys of rural businesses. Analysis with Smart PLS

Secondly, Pearson correlation coefficients were calculated as seen in Table 3.

Table 3 *Adjusted model validation*

	Tightstea model variation									
	MKT CAP	PERF	ENT OR							
MKT CAP 1	0.667	0.353	0.344							
MKT CAP 2	0.634	0.329	0.324							
MKT CAP 3	0.808	0.208	0.485							
MKT CAP 4	0.809	0.285	0.358							
MKT CAP 5	0.646	0.250	0.342							
PERF1	0.233	0.690	0.143							
PERF2	0.284	0.657	0.315							
PERF3	0.275	0.635	0.191							
PERF4	0.309	0.742	0.406							
PERF6	0.304	0.735	0.295							
PERF7	0.299	0.848	0.276							
PERF8	0.318	0.804	0.287							
ENT OR1	0.268	0.209	0.662							
ENT OR2	0.392	0.170	0.727							
ENT OR3	0.407	0.371	0.769							
ENT OR5	0.466	0.291	0.731							
ENT OR7	0.296	0.234	0.682							
ENT OR9	0.364	0.319	0.745							

Source: Data from 125 surveys of rural businesses. Analysis with Smart PLS

Thirdly, HTMT ratio was calculated, comparing data with a maximum threshold of 0.85. In this study, all correlations has values below the mentioned threshold as seen in Table 4.

 Table 4

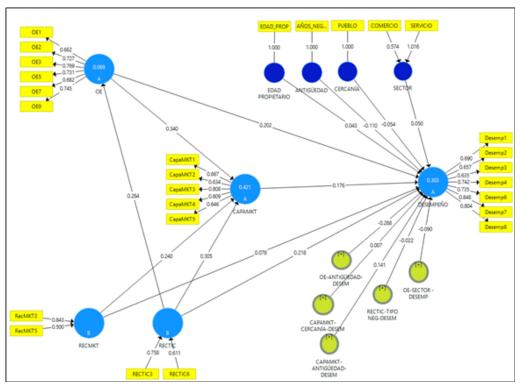
 HTMT Analysis for adjusted model

	MKT CAP	PERF	ENT OR
MKT CAP	-		
PERF	0.494	-	
ENT OR	0.642	0.433	-

Source: Data from 125 surveys of rural businesses. Analysis with Smart PLS

After the analyses about internal consistency and convergent validity were successfully conducted, the resulting structural equation model was evaluated (see Figure 2). Control variables such as owner's business experience, owner's age, business sector, and geographical proximity of the business location, either near a medium-sized town or a small community, were included.

Figure 2
PLS-SEM model



The model presents goodness-of-fit with SRMR, d_ULS and d_G tests as seen in table 5. Concerning the first test, it resulted in 0.083, a value below the threshold of 0.085 at 99%. The

second test about d_ULS resulted in a value of 2.634 below the threshold of 2.735 at 99%. Finally, the d_G test resulted in a value of 0.732 below the threshold of 0.830 at 99%.

Table 5 *Goodness-of-fit*

Test		Original Sample (O)	Media Sample (M)	95%	99%
SRMR	saturated model	0.072	0.063	0.074	0.079
	estimated model	0.083	0.068	0.080	0.085
d_ULS	saturated model	1.964	1.525	2.047	2.354
	estimated model	2.634	1.775	2.390	2.735
d_G	saturated model	0.658	0.605	0.815	0.918
	estimated model	0.732	0.614	0.830	0.943

Notes: 125 rural SMEs as respondents. Bootstrap of 1000 iterations using SmartPLS

The analysis of the structural model was complemented by a two-step process. Initially, collinearity was evaluated as seen in Table 6. According to Hair et al. (2014), multicollinearity is detected when VIF values result above the threshold of 5 and the tolerance level below 0.20. In that sense, VIF values show no collinearity among variables included in the model.

Table 6 *Collinearity analysis*

				1			
	SEN	MKT	MKT	MKT	PERF	AGE	ENT OR
		CAP	CAP/	CAP/			
			SEN/	SECTOR/			
			PERF	PERF			
FA					1.404		
MKT CAP					2.218		
MKT CAP/FA/PERF					2.006		
MKT CAP/SECTOR/					2.324		
PERF							
PERF							
AGE					1.378		
ENT OR		1.249			2.015		
ENT OR/FA/PERF					2.033		
ENT OR/CLOSE/					1.657		
PERF							
ENT OR/SECTOR/					1.759		
PERF							
CLOSE					1.260		
MKT RES		1.226			1.554		
ICT RES		1.095			1.585		1.000
ICT RES/AGE/PERF					1.289		
ICT RES/SECTOR/					1.840		
PERF							
SECTOR					1.530		

FA: FIRM'S AGE

MKT CAP: MARKETING CAPACITY

PERF: PERFORMANCE AGE: FOUNDER'S AGE

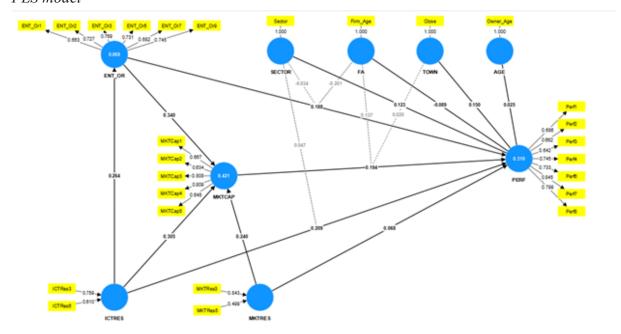
ENT OR: ENTREPRENEURIAL ORIENTATION

CLOSE: GEOGRAPHIC CLOSENESS
MKT RES: MARKETING RESOURCES

ICT RES: ICT RESOURCES

The second step of the analysis implied the evaluation of the algebraic sign, the magnitude, and statistical significance of the standardized path coefficients of the model (Figure 3).

Figure 3. *PLS model*



In Table 7, path coefficients show relations in the adjusted model. Resulting positive signs are aligned with the hypothesis, while standardized regression-path coefficients indicate some expected impacts. Significance analyses demonstrate that hypothesis H1 implying Entrepreneurial Orientation was accepted due to a positive impact on rural SMEs' Performance. Similarly, hypothesis H5 implying ICT Resources, was accepted due to a positive impact on the mentioned dependent variable. Finally, hypothesis H2 implying Marketing Capacity was not accepted given the lack of significance that led to the model's exclusion.

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Table 7 *Individual indirect effects and hypothesis valuation*

Hypo-thesis	Effect	Original	Sample	(ST-	t	P Value	Correc-ted	Correc-ted	H Result
		Sample	media	DEV)			bias 5.00%	bias	
		(O)	(M)					95.00%	
	FA -> PERF	-0.110	-0.104	0.099	1.118	0.132	-0.280	0.046	
H2	MKTCAP -> PERF	0.176	0.189	0.127	1.388	0.083	-0.066	0.358	Accept*
	MKTCAP-FA-PERF-> PERF	0.141	0.123	0.123	1.144	0.126	-0.032	0.366	
	MKTCAP-CLOSE-PERF-> PERF	0.007	0.005	0.102	0.068	0.473	-0.146	0.194	
	MKTCAP-SECTOR-PERF -> PERF	-0.043	-0.021	0.125	0.334	0.369	-0.236	0.163	
	AGE -> PERF	0.043	0.039	0.097	0.477	0.328	-0.108	0.212	
	CLOSE -> PERF	-0.054	-0.055	0.083	0.649	0.258	-0.188	0.086	
	ENT OR -> MKTCAP	0.340	0.353	0.099	3.429	0.000	0.152	0.482	
H1	ENT OR -> PERF	0.202	0.199	0.177	1.730	0.042	0.002	0.385	Accept
	ENT OR-FA-PERF-> PERF	-0.268	-0.250	0.126	2.118	0.017	-0.487	-0.077	
	ENT OR-SECTOR-PERF -> PERF	-0.090	-0.107	0.152	0.593	0.277	-0.336	0.150	
	MKTRES -> MKTCAP	0.240	0.239	0.078	3.097	0.001	0.112	0.368	
	MKTRES -> PERF	0.078	0.068	0.110	0.709	0.239	-0.098	0.259	
	ICTRES -> MKTCAP	0.305	0.299	0.075	4.071	0.000	0.185	0.431	
Н5	ICTRES -> PERF	0.218	0.223	0.097	2.255	0.012	0.052	0.370	Accept
	ICTRES -> ENT OR	0.264	0.277	0.082	3.209	0.001	0.111	0.383	
	ICTRES-SECTOR-PERF-> PERF	-0.022	0.007	0.087	0.249	0.402	-0.168	0.104	
	SECTOR->PERF	0.050	0.058	0.107	0.467	0.320	-0.150	0.199	

^{*}Partially accepted. Notes: 125 rural SMEs as respondents, using PLS Smart analysis.

In Table 8, the mediating effect of Marketing Capacity as a mediating variable is analyzed. In that sense, relations between Entrepreneurial Orientation and Marketing Capacity (H4); Marketing Resources and Marketing Capacity (H3); as well as ICT Resources and Marketing Capacity (H6), are shown with non-acceptance of its corresponding hypothesis. Moreover, a new relation between Entrepreneurial Orientation and ICT Resources was found with significance.

 Table 8

 Individual indirect effects and hypothesis valuation with mediating variable

Hypothesis	Effect	Original	Sample	(ST-	t	P Values	Correcte	ed bias	H result
		Sample	media	DEV)			5.00%	95.00%	
		(O)	(M)						
	ICTRES-> ENT OR -> MKTCAP	0.090	0.099	0.041	2.190	0.014	0.031	0.159	
H4	ENT OR ->MKT CAP -> PERF	0.059	0.075	0.055	1.077	0.141	-0.017	0.148	N/Accept
	ICTRES-> ENT OR -> MKTCAP ->	0.016	0.021	0.017	0.922	0.178	-0.004	0.045	
	PERF								
Н3	MKTRES -> MKTCAP -> PERF	0.042	0.048	0.035	1.208	0.114	-0.008	0.101	N/Accept
Н6	ICTRES -> MKTCAP -> PERF	0.053	0.060	0.042	1.273	0.102	-0.010	0.123	N/Accept
	ICT RES -> ENT OR -> PERF	0.051	0.054	0.040	1.256	0.105	-0.005	0.126	

Notes: 125 rural SMEs as respondents, using PLS SMART analysis

Conclusion

This study shows the predictive effect of entrepreneurial orientation on Peruvian rural SMEs' performance. Moreover, such effect is enhanced by the moderating effect of the firm's sector and age, whose influence appears stronger on the primary sector, as well as on younger firms. Such result could be explained by the innovative and proactive nature of firms pertaining the primary sector, with lesser risk aversion than service firms.

Concerning the influence of the marketing capacity on performance, it resulted negative in the general model. It could be explained as concluding that capabilities for marketing are not fully developed on Peruvian rural SMEs. Such result has a similar affectation on the mediating relation between entrepreneurial orientation and performance, as opposed to Kajalo and Linblom (2015). In the case of the mediation between marketing resources on ICT resources with performance, firm's age increased its significance. According to Sok et al. (2016), marketing capacity interacts with marketing resources; however, rural SMEs often lack marketing resources and a designated budget. Nevertheless, the effect of marketing capacity on performance resulted more significant with the moderation of firm's age, particularly by more experienced firms.

Although its preliminary use, ICT resources have proven a positive impact on rural SMEs' performance. In that sense, their rare and non-substitutable resource status (Barney, 1991) is critical for enhancing performance. However, scarce connectivity in rural areas represents a major challenge in terms of commercial endeavors with potential customers or local markets. Nevertheless, the moderating effect of the firm's sector implying those linked to commercial activities was associated with performance.

Finally, ICT resources are relevant for rural SMEs in terms of their influence on entrepreneurial orientation and on marketing capacity. Thus, their use is critical for contacting potential customers or selling products. Although other variables not included in this study could aid in explaining rural SMEs' performance, digital connectivity is fundamental for commercial communications and sales, Differences among sectors were found; thus, future research is required to map the effects of resources and capabilities on firms' performance.

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