


Segmentation and factors associated with the resilience of touristic SMEs: Results from Colombia

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Abstract

Organizational resilience refers to the ability of organizations to sustain and recover from adversity. The Covid-19 pandemic was an unexpected event of enormous magnitude that affected the stability and continuity of many organizations around the world. The tourism sector was among the hardest hit by the Covid-19 pandemic. In this sense and facing the Covid-19 pandemic, the objective of this study was to explore factors associated with greater resilience by the SMEs in the tourism sector in a destination of Colombia. The information used came from conducting 60 surveys directed to various SMEs, including adventure tourism service providers, overnight stay places and restaurants. In order to identify segments of touristic SMEs according to their resilience, a cluster analysis was carried out. Two segments of SMEs were found, one with greater resilience and another with less resilience. The incorporation of technology, the development of new products and the access to new market segments as actions to cope with the crisis generated by the Covid-19 pandemic are key factors that characterize the most resilient segment of touristic SMEs. Also, the size of the company and the gender and academic level of the managers are associated with resilience of the SMEs that took part in the study.

Keywords

Adaptive resilience, coping mechanism, tourism sector, tourism

Introduction

The crisis generated by COVID-19 extended beyond health (Chica et al., 2021). In the economic field, negative impacts occurred in various sectors globally, being the tourism one of the most affected (Chica et al., 2021; Im et al., 2021).

The COVID-19 pandemic caused an unprecedented impact on the tourism sector (Arbulú et al., 2021). Prior to the pandemic, the tourism sector generated around 334 million jobs and contributed to 10.4% of the global gross domestic product (GDP), i.e., approximately US \$9.2 trillion. During the year 2020 and because of the pandemic, the tourism sector suffered great losses; its contribution to the global GDP was reduced to 5.5% and there was an estimated loss of 62 million jobs (World Travel and Tourism Council, 2021). Despite a gradual improvement

that the sector has been experiencing, some experts believe that a recovery of tourism to pre-pandemic levels would not be generated beyond the year 2024 (World Tourism Organization, 2021). Because the tourism sector has been one of the most affected by the pandemic (Mercado Echazú and Walter, 2020), the way the enterprises have coped with the crisis, their resilience, is a topic of interest in the organizational academic literature (Wut et al., 2021).

Although resilience has been a topic of discussion in the organizational field for decades, only during the last

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decade it has gained greater interest and the tourism sector has not been the exception (Hillmann, 2021). In fact, until just a decade ago, most of the work on organizational resilience had been approached more from a theoretical than an empirical point of view (Bhamra et al., 2011). Within the tourism sector, Becken et al. (2014) proposed a resilience framework in the face of natural disaster vulnerability. In turn, Bec et al. (2016) developed a theoretical resilience framework for long-term changes. On the other hand, studies related to resilience have been carried out in the hotel sector in Spain (Melián-Alzola et al., 2020), in the tourism sector in Ecuador facing natural disaster management (Basurto-Cedeño and Pennington-Gray, 2016), in coastal tourism (Naylor et al., 2021), ecotourism (Gabriel-Campos et al., 2021; Rachmawati et al., 2021; Soliku et al., 2021), ethnic tourism (Lin and Wen, 2021), among others. However, studies on tourism management in times of crisis and risk management have focused mainly on Europe, Asia and Oceania, while studies in this field carried out in Latin America in the past decade are scarce (13 papers, 2.5% of the total) (Wut et al., 2021).

Crisis management within the tourism sector has gained special attention due to the current pandemic (Wut et al., 2021). The evident disruption caused by the Covid-19 pandemic on the tourism sector has raised a great debate, among others, on the enterprises that will be able to overcome the current crisis (Bausch et al., 2021). In relation to Covid-19 and concerning the tourism sector, Wut et al. (2021) proposed as future research the strategies carried out by firms to return to normality. Precisely, this is the focus of the present research. In essence, it addresses some questions that have been previously raised in the organizational context, such as, for example, what differentiates organizations that adapt and overcome these events? (Bhamra et al., 2011). In line with the above and based on a segmentation, the objective of this study was to explore variables associated with greater resilience on the part of SMEs pertaining the tourism sector in a recognized tourist destination in Colombia.

Resilience is a transdisciplinary term, used in various fields and contexts and on which there are many discussions about its definition (Bec et al., 2016; Bravo and Hernández, 2021; Hillmann, 2021; Paluszak et al., 2021). In the organizational context, based on a literature review, Bhamra et al. (2011) suggested that the term resilience is more linked to individual and organizational responses to disturbances. In turn, approaching a diversity of concepts, Gallopín (2006) proposed that organizational resilience was related to adaptive capacity, coping capacity, coping, coping or

responsiveness. In their seminal work, Sutcliffe and Vogus (2003) pointed to organizational resilience as the capacity to absorb stress and preserve functioning despite the presence of adversity. Clément and Rivera (2017), considered organizational resilience as the ability to maintain or recover functioning despite the presence of adverse conditions. Meanwhile, Erol et al. (2010) addressed organizational resilience as the response and ability to adapt to unexpected or unforeseen changes and disturbances. Also, resilience has been closely related to the capacity or ability of an element to return to a stable state after a disturbance (Bhamra et al., 2011). Many other definitions, theoretical perspectives, and approaches to resilience have been carried out (Chen et al., 2021; Kantur and İseri-Say, 2012; Lengnick-Hall and Beck, 2005; Linnenluecke, 2017). However, despite a diversity of interpretations and theoretical perspectives, there is a broad understanding that resilience is the capacity possessed by a system to cope with change or adversity (Bec et al., 2016; Chen et al., 2021) and is inherent to each organization (Hillmann and Guenther, 2021). Moreover, recently, based on a comprehensive literature review, Hillmann and Guenther (2021) conceptualized organizational resilience as the ability of an organization to maintain and recover from adversity by accessing different resources.

Adversities can be of two types, internal and external (to the organizations) (Clément and Rivera, 2017). While, an example of internal adversities may be those related to leadership, economic recessions would be in the case of the second ones. Within the context of tourism, it has been shown that external adversities derived from unexpected events have represented a major unpredictable and serious threat to the continuity of organizations (Bhamra et al., 2011). This is the case of natural disasters, industrial accidents, terrorist attacks, pandemics. Faced with the crisis generated by the Covid-19 pandemic, it is likely that organizational resilience has been more of this reactive type. In the face of unexpected and unpredictable adversities, the most commonly used resilience approach is the reactive/adaptive type, i.e., the capacity of organizations to respond in the short term (Bec et al., 2016). Within tourism, resilience has been more about how quickly it can return to its previous ("normal") state after a disturbance (Basurto-Cedeño and Pennington-Gray, 2016; Bec et al., 2016) than about planned resilience (Orchiston et al., 2016). Indeed, in the face of external adversities, the adaptive resilience approach has been widely used in the literature (Ruiz-Martin et al., 2018). In this sense, after a disruption generated by unpredictable external adversities as the Covid-19 pandemic,

it is appropriate to assess the level of resilience and what organizations have done to recover (Ruiz-Martin et al., 2018).

A large number of scales have been developed to try to measure resilience both at the level of individuals (Fisher and Law, 2021) and at the organizational or a sector level (Hatton et al., 2018), with a greater predominance of the first ones. In New Zealand, Lee et al. (2013) developed a tool to measure resilience in organizations. Meanwhile in Australia, Hatton et al. (2018) developed a tool to measure resilience at the level of a sector focused on critical construction services. In both cases, the proposed scale included vulnerability and adaptive capacity within the resilience measure. However, this differs from what Gallopín (2006) proposed, who considers the terms differently and not interchangeably, although they are interconnected. Within the context of the tourism industry and applied to organizations, Melián-Alzola et al. (2020) proposed a model to address resilience in hotels. Also, in the tourism sector, in New Zealand, Prayag et al. (2018) developed a tool to measure resilience in tourism companies. The proposed model makes a distinction between planned resilience and unplanned resilience and how this affects financial performance. Also, the model takes into account resilience as both a process and an outcome. Chen et al. (2021), using a process approach, developed a tool to measure organizational resilience.

Although there are several measurement scales, there is no consensus on how to measure organizational resilience (Kantur and Iseri-Say, 2015). Kantur and Iseri-Say (2015) in a study conducted in Turkey, developed a scale to measure organizational resilience. The scale was based on three constructs: robustness, integrity, and agility. Although they developed the scale, they did not propose a supporting theoretical model. Noriega et al. (2019), developed a scale to measure organizational resilience. They proposed a theoretical model to measure resilience composed of four constructs: resilient leadership, resilient organizational culture, adaptive capacity, and organizational and management capacity. The model was empirically tested. However, the model considered adaptive capacity as indistinct from resilience; that is, they used them interchangeably. Finally, BSI group (BSI, 2021) developed an Organizational Resilience Index in order to measure organizational resilience through 16 organizational elements corresponding with four components, leadership, people, processes and products. Although, it does not provide “a theoretical supporting model”; the way it is measured suggests that it is a model aimed at planned resilience rather than adaptive resilience.

Within the tourism sector, several studies on resilience have been carried out in the past few years (Basurto-Cedeño and Pennington-Gray, 2016; Bec et al., 2016; Becken et al., 2014; Lin and Wen, 2021; Melián-Alzola et al., 2020; Naylor et al., 2021; Rachmawati et al., 2021; Soliku et al., 2021; Wut et al., 2021; others). These studies have mainly focused on proposing theoretical frameworks and testing empirical models (Bec et al., 2016; Becken et al., 2014; Melián-Alzola et al., 2020; Sobaih et al., 2021), approaching to resilience based on qualitative studies (Lin and Wen, 2021; Naylor et al., 2021; Rachmawati et al., 2021; Soliku et al., 2021) and crisis management in the tourism sector facing natural disasters (Basurto-Cedeño and Pennington-Gray, 2016; Clément and Rivera, 2017; Jiang et al., 2019). In spite of the advances that have been made on organizational resilience in the tourism sector, in both theoretically and empirically spheres, one of the contributions of this paper is to provide an empirical study of the scarce literature on resilience in the tourism sector in Latin America (Wut et al., 2021). It even addresses, at least in part, theoretical questions that have previously been raised in the organizational context and where the literature is still limited (Bhamra et al., 2011).

Methodology

Sampling and data collection

The information used in this study comes from a survey of 60 SMEs in the tourism sector in the city of San Gil. San Gil, located in northeastern Colombia, is nationally recognized within the industry for its special focus on adventure tourism. Near San Gil there are municipalities such as Pinchote, El Páramo, Curití, Villanueva and Barichara, which, due to their proximity to each other and their relationship, form a small tourism cluster. The companies that took part in the study belong to this cluster. Due to the diversity of enterprises and business that in one way or another are related to tourism in the region and the lack of official data on the complex structure of the sector, a convenience sampling was carried out.

In general, adventure tourism refers to the development of any trip that includes physical activity and interaction with nature and/or culture. Although it covers a broad spectrum, such activities usually involve risk, danger, excitement, and challenge (Janowski et al., 2021). All SMEs in the region related to adventure tourism and which were known to exist were surveyed ($n = 21$). Among these SMEs, 18 offered adventure tourism activities related to extreme sports such as, canoeing, bungee jumping, paragliding, extreme parks,

rafting, rappelling, caving, and helicopter flight. The remaining three adventure tourism SMEs offered ecotourism and contemplation tourism activities. In addition, 25 out of the 60 SMEs that participated in the study were hotels and overnight stays while, the remaining 14 SMEs were restaurants and food services aimed especially at tourism. Only the most recognized and largest hotels and overnight stays and restaurants in the area were considered in the study.

All the SMEs that took part in the study had a certain track record in the market; the average age of the companies is 12.6 years. It should be noted that three of the adventure tourism SMEs had been operating in the market for less than 5 years, while only one hotel and one restaurant had been operating for less than 5 years. On the other hand, although there are SMEs that took part in the study that had up to 56 full-time employees, the vast majority (58) do not exceed 10 employees, with an average of 4.6 direct employees per SME. Therefore, these are SMEs that, although they tend to be very small, have a considerable track record in the market.

Within the sample there is an equal representation between men and women (see Table 1). In terms of age, 58.3% of the respondents were between 31 and 44 years old. On the other hand, the academic levels of high school/technical (28.3%), technologist (36.7%) and university (28.3%) are almost equally represented in the sample. Regarding the relationship with the SMEs, most of the respondents (66.7%) claimed to be the managers. 18.3% of the respondents held managing positions, while the remaining 15.0% claimed to be SMEs owners. No sensitive enterprise information was

asked, the interviews were anonymized and prior to their application, an on-line informed consent form was available.

Questionnaire for data collection

As discussed in the introductory section, resilience can be classified into two types, adaptive resilience and planned (desirable) resilience (Prayag et al., 2018). Because there is no consensus to whether resilience is an adaptive or desirable property, the present study focused on adaptive resilience, i.e., what SMEs have done to recover (Ruiz-Martin et al., 2018). In this sense, in order to assess the adaptive resilience of the SMEs, this study used a questionnaire composed of three sections. In a section, in response to the statement "After the uncertainty generated in the region's tourism sector by the COVID-19 pandemic", respondents were asked to assess their perception of whether their SME: (i) achieved a new equilibrium (income vs costs); (ii) recovered to the point of becoming internally stronger; and (iii) adapted to the new environmental conditions. The set of questions used was based on the study by Melián-Alzola et al. (2020), a research focused on measuring adaptive resilience in the hotel sector in Spain. The measurement scale used was a Likert scale with five points where, 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree and 5 = strongly agree.

The survey also asked about the percentage reduction in SMEs sales compared to their performance before the pandemic. This question was

Table 1. Description of the sample.

Characteristic	Percentage
Gender of respondents	
Male	50.8
Female	49.2
Age range of respondents	
Under 30 years old and 18 years old or over	26.7
Between 31 and 44 years old	58.3
Between 45 and 60 years old	11.7
More than 60 years old	3.3
Educational level	
High school/technical	28.3
Technologist	36.7
University	28.3
Postgraduate degree	6.7
Relationship of respondents with the SME	
Administrator	66.7
Employee in management position	18.3
Owner	15.0

accompanied by a set of questions focused on comparing the perception of the current situation (presented at the time of the survey) of the SMEs with the situation presented before the pandemic. In this sense, four items were asked about: (i) last season's sales, (ii) the image of the SME, (iii) the profits of the SME, and (iv) general perception of SME performance. An ordinal scale was used, where 1 = much worse, 2 = worse, 3 = same, 4 = better, 5 = much better.

On the other hand, a set of questions consisting of 10 items related to actions that could have been taken by the SME in order to cope with the crisis was also included in the questionnaire. "In order to cope with the disruptions generated by the Covid-19 pandemic your business/company": (i) Drastically improved the quality of the products/services it offered; (ii) Developed products/services different from those it offered; (iii) Incorporated new technologies; (iv) Significantly changed its business strategy; (v) Penetrated new market segments; (vi) Adopted high standards of biosecurity protocols; (vii) Generated new alliances with tour operators; (viii) Made huge digital marketing efforts; (ix) Supported itself with bank loans; (x) Reduced costs in personnel to the maximum extent possible. The 10 items used were based on the studies on resilience in the tourism sector conducted by [Melián-Alzola et al. \(2020\)](#), [Chen et al. \(2021\)](#) and [Prayag et al. \(2018\)](#).

Finally, in a questionnaire section asked about SMEs and respondent characteristics such as: SMEs category, respondent's relationship with the SME, time that the SMEs has been operating, number of direct employees, number of direct employees with university studies, respondent's gender, age range and academic level.

Statistical analysis

In order to identify segments of SME according to their adaptive resilience, a hierarchical clustering was carried out. The squared Euclidean distance was used as a distance measure, taking the three variables related to adaptive resilience as variables for its calculation. Ward's method was used as a grouping method. In turn, in order to explore the number of groups to be retained, the dendrogram was used. Finally, a group membership variable was created. Then, using the questions about the actions carried out by the SMEs, as well as the characteristics of their business, the respective segments identified were characterized. To identify the most significant variables, several non-parametric bivariate analyses were carried out. Basically, the Chi-squared and U-Mann Whitney tests were used.

Results and discussion

The three variables used to assess the (perceived) adaptive resilience of the SMEs showed a Cronbach's alpha of 0.690, which supports a certain degree of reliability of the scale used. Likewise, the set of questions related to current business performance (Cronbach's alpha of 0.777) as well as the set of questions that inquired about the actions taken by the SMEs to face the crisis (Cronbach's alpha of 0.696) also showed a certain degree of reliability. The results of the cluster analysis suggest the existence of two segments of SMEs, one larger ($n = 50$, 83.3%) than the other ($n = 10$, 16.7%), which differ in terms of their perception of their adaptive resilience (see [Table 2](#)).

In the largest segment of SMEs ($n = 50$), although there is a high average consideration (4.2) of regarding adaptation to new environmental conditions, the averages are lower for the other two items used to assess resilience (see [Table 2](#)). An average of 2.1 for the item achieving a new equilibrium and an average of 2.0 for the item recovering to becoming stronger. Contrary to this, in the smallest segment ($n = 10$) significantly higher average values were found in the three items related to resilience (Mann-Whitney U test, $p = 0.000$). In this sense, the first group ($n = 50$) was referred to as the "less resilient" segment while the second ($n = 10$) was referred to as the "greater resilience" segment. It is clear that there is no consensus on the measurement of resilience ([Kantur and Iseri-Say, 2015](#)). In this sense, as noted in the methodology and as in the study conducted by [Melián-Alzola et al. \(2020\)](#), the three items used act only as indicative variables of resilience but are not aimed at measuring resilience per se, nor is this the objective of the present research.

Significant differences were found between the two segments identified in terms of the percentage of sales decrease (Mann-Whitney U test, $p = 0.004$) and in three of the four items related to the perception of current business performance: (i) overall assessment of the current economic and financial situation of the SME (Mann-Whitney U-test, $p = 0.003$), (iii) last season's sales (Mann-Whitney U-test, $p = 0.019$) and (iv) SME profits (Mann-Whitney U-test, $p = 0.013$). While, in the lower resilience segment the percentages of sales decreases were higher, in the higher resilience segment the percentages of sales decreases were lower. A 62.2% versus an average of 45.5% in sales declines. In addition, the general evaluation of the current economic and financial situation, the sales obtained in the last season and the profits obtained were significantly lower in the less resilient segment than in the greater resilience segment. In other words, with respect to the situation before the pandemic, the SMEs situated

in the less resilient segment tend to consider their performance to be quite questionable, at least when compared to the performance experienced by the SMEs corresponding to the greater resilience segment. In this sense, it may be considered that, facing the crisis generated by the Covid-19 pandemic, the most resilient companies seem to have “fared better” in terms of performance than the least resilient companies.

Greater resilience results in a better way of coping with disturbances, which can ultimately translate into enhanced operation and financial performance (Yu et al., 2019). In fact, in a study conducted in the tourism sector, Prayag et al. (2018) found that adaptive resilience has a positive and significant impact on the

financial performance of companies, corresponding, at least in part, with the results obtained in the present study. In the context of the supply chain management, Yu et al. (2019) showed that resilience has a positive and significant effect on financial performance.

In relation to the actions taken by the companies to face or cope with the crisis generated by the Covid-19 pandemic, it was found that SMEs pertaining to the most resilient segment agreed more in regards to having: (i) developed products/services different from those they offered (Mann-Whitney U test, $p = 0.044$), (ii) incorporated new technologies (Mann-Whitney U test, $p = 0.004$), and (iii) penetrated new market segments (Mann-Whitney U test, $p = 0.041$) (see Table 3). Therefore, SMEs with higher

Table 2. Description of segments by business performance.

Aspects	Global ^b	Resilience clusters		<i>p</i>
		Lower resilience ^b (<i>n</i> = 50)	Higher resilience ^b (<i>n</i> = 10)	
Perceived adaptative resilience				
Adapted to new environmental conditions	4.4	4.2	5.0	0.000
Achieved a new equilibrium (revenues vs costs)	2.4	2.1	3.8	0.000
Recovered to internal strength	2.3	2.0	3.4	0.000
Current business performance				
Percentage decline in sales	59.4	62.2	45.5	0.004
SME image	3.0	3.0	3.0	Ns
Overall assessment of the current economic and financial situation of the SME	1.9	1.8	2.4	0.003
Last season's sales	1.9	1.8	2.2	0.019
SME profits	1.8	1.7	2.2	0.013

Note: *p*-values correspond to the *p*-value relative to the U-Mann Whitney test for comparison between groups.

Ns: not significant; *p*-value ≥ 0.050 .

^aCompared to the situation before the pandemic.

^bInformation corresponds to averages

Table 3. Actions taken to deal with the crisis.

Aspects	Global	Resilience clusters		<i>p</i>
		Lower resilience	Higher resilience	
Actions taken to address the crisis				
Adopted high standards of biosafety protocols	4.8	4.8	5.0	Ns
Significantly changed its business strategy	4.1	4.0	4.4	Ns
Incorporated new technologies	4.0	3.8	4.8	0.004
Undertook huge digital marketing efforts	3.9	3.9	4.2	Ns
Drastically improved the quality of the products/services it offered	3.9	3.8	4.1	Ns
Minimized personnel costs	3.7	3.7	3.8	Ns
Developed products/services different from the ones it was offering	3.4	3.3	4.0	0.044
Penetrated new market segments	3.3	3.2	3.9	0.041
Created new alliances with tour operators	3.2	3.2	3.3	Ns
Supported itself with bank loans	2.2	2.2	2.1	Ns

Note: *p*: *p*-value relative to the U-Mann Whitney test for comparison between groups.

Ns: not significant; *p*-value ≥ 0.050 .

resilience compared to those with lower resilience considered having developed new products, incorporated new technologies and penetrated new markets segments as actions to cope with the crisis to a greater extent.

The role of innovation and technology as sources of competitive advantage is unquestionable. There are several types of innovation, “process innovation,” “marketing innovation”, “organizational innovation” and “product and service innovation” (Yıldız et al., 2014). The last one, “product and service innovation”, focuses more on differentiating products (and services) from competitors so it has a direct differentiation effect (S. O. Becker and Egger, 2013; Wu et al., 2020). The literature is emphatic in recognizing how innovation, including the new products development (and services), positively and significantly affects the performance of companies (Rubera and Kirca, 2012). In this sense, there is a clear relationship between the new products development and the organizational performance, which, in the face of the crisis, should translate into greater resilience. In fact, in the context of the Covid-19 pandemic, Adam and Alarifi (2021), in a study conducted in Saudi Arabia and targeting SMEs, corroborated how innovation practices have a positive effect on business performance and survival. Likewise, Thukral (2021) suggested that one of the key aspects that SMEs should appeal to in order to face the crisis generated by Covid-19 was creativity and innovation. Ahiauzu and Eketu (2015) noted the positive effect of product innovation on organizational resilience.

On the other hand, Gunasekaran et al. (2011) highlighted the role of technology as a factor that enables greater resilience. In the specific case of the tourism sector, information technologies play an important role, especially due to the great influence they have on purchasing behavior (Van Nuenen and Scarles, 2021). For example, organizing an entire trip to a tourist destination using the Internet. In addition to increasing the sales of companies, the use of digital technologies can provide other major benefits such as reduced operating costs, improved internal supply processes, faster internal processes, better integration of the supply chain and improved access to market information (Al-Talib et al., 2020; Gunasekaran et al., 2011). In Indonesia, Anggadwita et al. (2021) highlighted the positive effect on resilience of the SME technological capabilities to cope with the crisis generated by the Covid-19 pandemic.

Studies have revealed the need to improve marketing policy as a way to cope with the crisis generated by the Covid-19 pandemic (Solosichenko et al., 2020). Fear, changes in consumer behavior resulting from the pandemic and the different speeds at which consumers are returning to tourism-related activities (Neuburger and Egger, 2021; Torres et al., 2021), press companies

to align their marketing strategies with market demands. Our results indicate that, the most resilient SMEs have entered new markets as an action to cope with the crisis generated by the Covid-19 pandemic.

No significant differences were found (Mann-Whitney U test, $p \geq 0.050$) between the two segments identified with respect to the other actions taken to deal with the crisis generated by the Covid-19 pandemic (see Table 3). This indicates that both the least and most resilient enterprises basically implemented the same actions in terms of: (i) adoption of biosecurity protocols, (ii) change of business strategy, (iii) making enormous digital marketing efforts, (iv) improving the quality of the products/services offered, (v) minimizing personnel costs, (vi) generating new alliances with tour operators, and (vii) support in bank loans. Regarding the adoption of biosafety protocols, the results may be because the Colombian government established mandatory protocols that should be considered by the enterprises. Additionally, greater digital marketing efforts by the SMEs segments could be due to the type of enterprises involved in the tourism sector. The low average value of the variable in support financial loans indicates that companies in the tourism sector made little use of this financial instrument to face the crisis.

On the other hand, variables such as the number of direct employees linked to the companies (Mann-Whitney U test, $p = 0.010$), the gender of the respondents (Chi-squared test, $p = 0.045$), as well as their academic level (Chi-squared test, $p = 0.011$), were significant when characterizing the two segments found (see Table 4). In contrast, variables such time that the SMEs has been operating (Mann-Whitney U test, $p \geq 0.050$), percentage of employees with university studies (Mann-Whitney U test, $p \geq 0.050$), the general strategy followed by the SME (Chi-square test, $p \geq 0.050$) and the age range of respondents (Chi-square test, $p \geq 0.050$), were not significant in characterizing the two identified segments.

The less resilient segment is made up of smaller enterprises, with an average of 4.3 direct employees. In contrast, the segment of companies corresponding to the most resilient segment shows a higher average number of employees (5.8). These results suggest that there is a relationship between the size of the companies and their resilience. Smaller companies tend to be more vulnerable to market pressures and financial constraints than larger companies (Sobaih et al., 2021). However, smaller companies tend to be more flexible, with simple organizational structures and therefore, can more easily adapt to change (Jiang et al., 2019). Since the companies that participated in this study are SMEs, it is likely that greater resilience is more associated with greater flexibility of the firms but, with certain availability of resources.

Table 4. Description of the segments by the characteristics of the SMEs.

Aspects	Resilience clusters		<i>p</i>
	Lower resilience	Higher resilience	
SMEs characteristics			
Years the company has been in business (average)	13.2	9.5	Ns ^a
No. of direct employees (average)	4.3	5.8	0.01 ^a
% of employees with university education (average)	42.7	39.6	Ns ^a
Strategy followed by the business/company			
Passive type: "wait and see" (average)	10.0%	10.0%	Ns ^a
Proactive type: "adapt as quickly as possible and move on" (average)	90.0%	90.0%	
Gender of respondents (%)			
Male	44.9%	80.0%	0.045 ^b
Female	55.1%	20.0%	
Age range (%)			
Under 30 years old and 18 years old or over	24.0%	40.0%	Ns ^b
Between 31 and 44 years old	60.0%	50.0%	
Between 45 and 60 years old	12.0%	10.0%	
More than 60 years old	4.0%	0.0%	
Education level (%)			
High school/technical	32.0%	10.0%	0.011 ^b
Technologist	42.0%	10.0%	
University	22.0%	60.0%	
Postgraduate	4.0%	20.0%	

Note: Ns: not significant; $p \geq 0.050$.

^aCorresponds to the development of the Mann-Whitney U test

^bCorresponds to the development of the Chi-squared test

On the other side, the lowest resilience segment is represented in a higher percentage by women managers, owners or in senior management positions; 55.1% women versus 44.9% men. However, there is an even stronger relationship between the most resilient segment and gender. In fact, 80% of the most resilient segment is composed of men. In addition, in the most resilient segment, 80% of the respondents have a university or graduate level education. Since the individual knowledge of workers, their skills and abilities affect the success of companies (Becker and Gerhart, 1996), it is expected that this also has an effect on resilience (Biggs et al., 2012). Therefore, in the present study it was found that companies belonging to the most resilient segment tend to have more generic human capital in senior positions than specific human capital (Stucki, 2016). Within the organizational context literature, resilience has been more related to a "tough" and "heroic" approach to decision making such as, for example, conquering challenges, challenges, heroism; something that has traditionally been more associated with men (Witmer, 2019). However, it is curious to note how, within the respondents with postgraduate level studies, 100% were men. Also, within the respondents with lower

academic levels, the highest percentage corresponded to women. Therefore, a dual relationship between gender and educational level with the segments may rather reflect lack of greater opportunities for women within the organizational context (Witmer, 2019). In this specific case, the results reflect less access to academic training by women, although, no significant relationships were found between the two variables (Chi-square test, $p \geq 0.050$).

Conclusions

This present study focused, through a segmentation process, on exploring factors associated with greater resilience on the part of tourism sector SMEs located in a region of Colombia recognized for adventure tourism. For this purpose, 60 surveys were applied to SMEs belonging to this cluster.

From the results, it can be concluded that there are two segments of SMEs that differ considerably in terms of adaptive resilience. On one hand, there are the SMEs considered to be less resilient, representing 83.3% of the enterprises surveyed. On the contrary, the smaller segment, representing 16.3% of the surveyed SMEs, were considered to be more resilient.

Providing answers to previously posed questions about organizational resilience, such as, for example, ¿what do characterize the companies with more or less resilience? It is a work in progress. Therefore, the results found in the present study are only a small contribution to that larger question. When characterizing the two segments, higher resilience and lower resilience, factors related to business performance were found to be significant. Therefore, the results suggest that greater resilience is associated with better business performance and inversely, the lower the resilience, the lower the business performance. On the other hand, the incorporation of new technologies, the new products development and the incursion into new market segments as actions to face the crisis generated by the Covid-19 pandemic, are more recurrent in the segment of more resilient SMEs than in the less resilient ones. These results are very consistent with the literature, but they are supported by empirical evidence, at least to a certain extent. Basically, the importance that innovation and marketing could play as determinants of greater resilience is being highlighted. However, this is a result that cannot be taken with great solidity since the rate of innovation of the companies and their degree of market orientation were not known in depth. In other words, this is a perception of the people surveyed and future studies should confirm the facts found here.

Also, a larger company size also characterizes the segment of more resilient SMEs. However, since only very small SMEs were involved, the results should be taken with some caution and verified through studies involving a greater diversity of company sizes. The gender of the respondents and the academic level of the owners or those in charge of business management were also identified as variables that may be associated with resilience. It can be concluded that a higher academic qualification of the managers or owners of the companies is associated with greater organizational resilience. However, in the present study we found that companies with greater resilience tend to have men as managers or owners as a common denominator. In relation to the academic level, our results further support the important role played by the generic human resource within organizations. However, the dual gender-academic level relationship of business managers or owners may be due to a lack of greater opportunities for women to access university education. Further studies are needed and, therefore, the results obtained in this regard should be taken with great caution.

Despite the limitations of the present study, the results presented here are interesting because this type of information, which can be key to the development of strategies aimed at strengthening entrepreneurship, is

rarely available. In the particular case of this study, the results obtained can be taken into account by decision-makers in the sector, both at the public and private levels, when directing their support efforts.

Another limitation of the study is the difficulty of measuring resilience as a single indicator and, in this regard, there is still no consensus. Therefore, the resilience results reported in this study should only be taken as an indication of resilience. Also, having used a small sample size, it is necessary to establish further studies in order to support or controvert the results obtained. Also, future research should focus on developing predictive models that allow a priori, to have an estimate indication of organizational resilience so that specific and timely actions can be taken.

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