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Ecotourism Services: A Competitiveness Analysis in Cundinamarca (Colombia)

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Abstract

Competitiveness strategies play an essential role in the sustainability of companies in the medium and long term. Management must make decisions on each of the components of the ecotourism service as they affect an establishment's competitiveness. Disregarding this can generate a cycle of financial and patrimonial losses, which would deteriorate the agents' well-being. This paper focuses on the competitiveness of the ecotourism services offered in the municipalities of Cundinamarca, which has productive, environmental, social, and economic factors that are conducive to the development of guadua (bamboo). Based on data collected through telephone interviews with agents on whose properties tourist activities and activities related to guadua are developed in some municipalities of Cundinamarca, the competitiveness of ecotourism services is analyzed. Different competitiveness indicators are measured, such as price, e-commerce, infrastructure, tourism, environmental, and human resource indicators. Agents of the guadua production chain who provide ecotourism services have an aggregate competitiveness indicator of 15 points less than establishments with the highest reputation on the booking websites. Available tourist activities and the environmental conditions of the surroundings are the most important decision criteria when choosing a glamping service.

Introduction

Ecotourism is an alternative tourist activity to traditional tourism. It has had rapid growth, and its added value is based on the sustainable interaction between individuals and nature (Fennell, 2014; Wearing & Neil, 2009), which arises from environmental, economic, and social concerns. To generate and satisfy interest in nature, it is vital to exploit the potential of tourism for conservation and local development and mitigate the negative impact of mistakes in governance, industry, and politics on the ecology (Blamey, 2001; Goodwin, 1996).

In Colombia, a type of accommodation mostly used in ecotourism is “glamping,” which combines the experience of camping in the middle of nature with the luxury and conditions of a hotel. According to data extracted from Google Trend[i], interest in this activity has significantly

increased (which reveals a certain level of purchase intention) among individuals from February 2017 to February 2022 (even during the period of the COVID-19 pandemic), having its highest growth in October 2020. This suggests that agents that provide this type of service have an expanding demand for their service. Capturing the largest possible proportion (with the given production factors and environmental conservation measures) of this depends exclusively on the competitiveness of their business strategies, considering the high number and variety of the services they offer.

This study presents a literature review of the definition and role of ecotourism in rural populations as a sustainable economic activity, highlights the importance of management strategies to utilize comparative advantages and transform them into competitive advantages efficiently, and highlights the need to adopt e-commerce tools and establish commercial alliances to maximize profits. Then, the methodological approach is presented, comprising the background, research method, data collection mechanisms, selection of the target population, and the definition and determination of the competitiveness indicators (price, e-commerce, infrastructure, tourism, environment, and human resources), which allow measuring and determining the degree of competitiveness of guadua actors that provide ecotourism services. The results of the competitiveness analysis are then presented using the calculated indicators of the two comparison groups, and a SWOT (strengths, weaknesses, opportunities, and threats) analysis is presented with their respective strategic recommendations to enhance the strengths, capitalize on opportunities, and reduce weaknesses and threats. Finally, the discussions and conclusions of the main results of the competitive analysis and the different strategies that allow taking advantage of the strengths to capitalize on opportunities and mitigate the impact of the identified weaknesses and threats are presented.

Literature Review

Ecotourism or ecological tourism focuses on the development of tourist activities in natural environments. Therefore, agents that provide this type of service exploit the opportunities offered by their environment to generate economic benefits while considering environmental responsibilities (Wunder, 2000; Steele, 1995). Buckley (1994) presented a comprehensive framework for understanding ecotourism. The framework comprises the relationship between the descriptors of the industry (distinctive characteristics, environmental issues, size and growth, and corporate operational aspects and politics) and nature tourism with its respective sustainable management, support for conservation, and environmental awareness.

From an economic perspective, possession of assets that are not homogeneous to different destinations can lead to a competitive advantage (Melián-González & García-Falcón, 2003), suggesting that the success of ecotourism fundamentally depends on the existence of immobile and scarce resources (Gray, 1982), that is, the endowment of factors of production. The scarcity of natural resources makes ecotourism a service with significant demand. However, having a wide variety of natural, cultural, and heritage resources does not guarantee success in this sector. As it is a market with perfect competition, the lack of differentiation and competitive disadvantages in administration, planning, and marketing has negative effects in terms of

sustainability (Sotiriadis & Varvaressos, 2015). Similarly, strategic management must consider factors that can affect the quality of the service provided, such as overcrowding, environmental problems, security, seasonality, and cultural sensitivity (Evans et al., 1995).

Many factors can positively and negatively affect the sustainability of ecotourism; these factors are based on the comparative advantages of various destinations, which are structured and expressed as competitive advantages. Consequently, the development of a competitive analysis is necessary for enhancing the strategies of an organization. Competitive analysis is the main input that collects market information (structural and behavioral) for directors to develop strategies focused on competitive advantages to improve and maintain company performance (Deshpande & Gatingon, 1994).

To understand the structure of the market, it is necessary to correctly identify and analyze the strategies of competitors and how the increases in the sales of one brand decrease the sales of another, that is, the cross elasticities of demand of substitutes (Hausman et al., 1994; Carpenter & Lehmann, 1985; Day & Shocker, 1976).

Technological and communication advances have made e-commerce a fundamental channel for increasing company profits. Some authors have analyzed the role of electronic tourism intermediaries in the competitive environments of the sector. Dale (2003) indicated that strategic alliances with e-commerce platforms allow sustainable strategic advantages to be obtained as it offers consumers the possibility of accessing and buying from multiple online channels, serving as intermediaries through collaboration mechanisms and outsourcing of service reservation processes.

In addition, companies have used social media to provide services and interact with customers. He et al. (2013) illustrated the need to monitor the content generated in social networks from the interactions between companies and customers to extract, transform, and process these data (text mining) into strategic decisions (recommendations and actions) that promote competitive advantages.

Finally, based on the multidimensionality of competitiveness, Gooroochurn and Sugiyarto (2005) proposed the development of competitiveness analysis in the tourism industry through eight (8) main indicators—(1) price, (2) openness, (3) technology, (4) infrastructure, (5) human tourism, (6) social development, (7) environment, and (8) human resources. The authors highlighted the importance of each of these factors and their role in constructing a comprehensive indicator of competitiveness.

Methodology

1.1. Research background

Within the framework of the Science, Technology, and Innovation (CTeI, according to its acronym in Spanish) project for guadua (bamboo), the Scientific Park of Social Innovation (PCIS, according to its acronym in Spanish) of the Corporación Universitaria Minuto de Dios (UNIMINUTO) has defined some municipalities in Cundinamarca (Colombia) that are the focus

of projects to strengthen production chains and business ecosystems to promote sustainability through project management and consulting services that develop capacities in communities to boost the regional economy and increase its competitiveness. These municipalities have favorable conditions for the production of guadua, such as productive (use permits and presence of natural guaduas), environmental (altitude, temperature, annual precipitation, and sunshine), economic (land use and presence of actors in the guadua chain), and social factors (accessibility and proximity to UNIMINUTO services, prior participation in projects for guadua, workforce and job training processes, and culture and tradition in the processing of guaduales). Each of the components of these factors is assigned a rating from 0 to 5 depending on compliance with the requirements for sustainable production and use, according to the Unified Standard in Guadua (2001).

The 12 municipalities with the highest aggregate score (assigned to each of the factors) are included in the CTeI project for guadua. The participating agents are in Pacho, La Palma, Topaipí, El Peñón, La Mesa, Guaduas, Villeta, Cachipay, Tena, Caparrapí, El Colegio, and La Vega. In this geographical delimitation, a socioeconomic characterization instrument is applied to 801 actors in the production chain to analyze their demographic and socioeconomic characteristics and their roles (producer, processor, and trader) and activities associated with guadua.

1.2. Research method

The qualitative research method used for this ecotourism competitiveness analysis is a case study (Starr, 2014; Williams, 2007) in which the managers of different ecotourism service establishments are interviewed by employing both structured and semi-structured questions (Stuckey, 2013) to observe the characteristics of the infrastructure and personnel, price level, e-commerce strategies, the environmental setting, and ecotourism activities that can be developed in areas that the service is provided (see *Appendix 1*). These factors are aggregated under six indicators, and subsequently, a comparative analysis of factors observed in the main ecotourism establishments in the Department of Cundinamarca from booking websites (booking, Trivago, Tripadvisor, Expedia, and hotels.com) are analyzed.

1.3. Data collection mechanism

Collecting primary and secondary data on the ecotourism market is necessary to conduct a competitive analysis. The primary data is collected through telephone interviews that were conducted, recorded, transcribed, and compiled by the research assistants. The research assistants received prior training in order to mitigate application and transcription errors that can affect the analysis (Bailey, 2008; Bryman et al., 2008). The data was collected through a Google form. The form was not shared with the target population due to connectivity problems and limitations identified in the previously developed characterization instrument.

Regarding the secondary data, the establishments were identified through systematic searches (search 1: "glamping, Cundinamarca" and search 2: "glamping, Colombia") on some booking websites. Then, the data were extracted from the web pages of each of the establishments. The data are extracted from the consulted websites when the establishment does not have a website.

1.4. Selection of the target population

Based on the instrument for identifying and characterizing the actors, we identified 87 tourism agents who use guadua for the infrastructure of their facilities (lodge structure) and the construction of ecological trails. The characterization instrument applied by the PCIS contains electronic and telephone contact data, which are applied to the information collection instrument that is described in the following section.

Of the 87 agents, 30 are in the planning phase of the ecotourism service; 27 did not respond to the question about the instrument applied; and eight belong to a different sector of tourism services (error in the characterization instrument), resulting in a final sample of 22 agents (see *Figure 1*) in the municipalities of La Mesa (9), Cachipay (4), Pacho (3), Guaduas (3), La Vega (1), Tena (1), and Villeta (1).

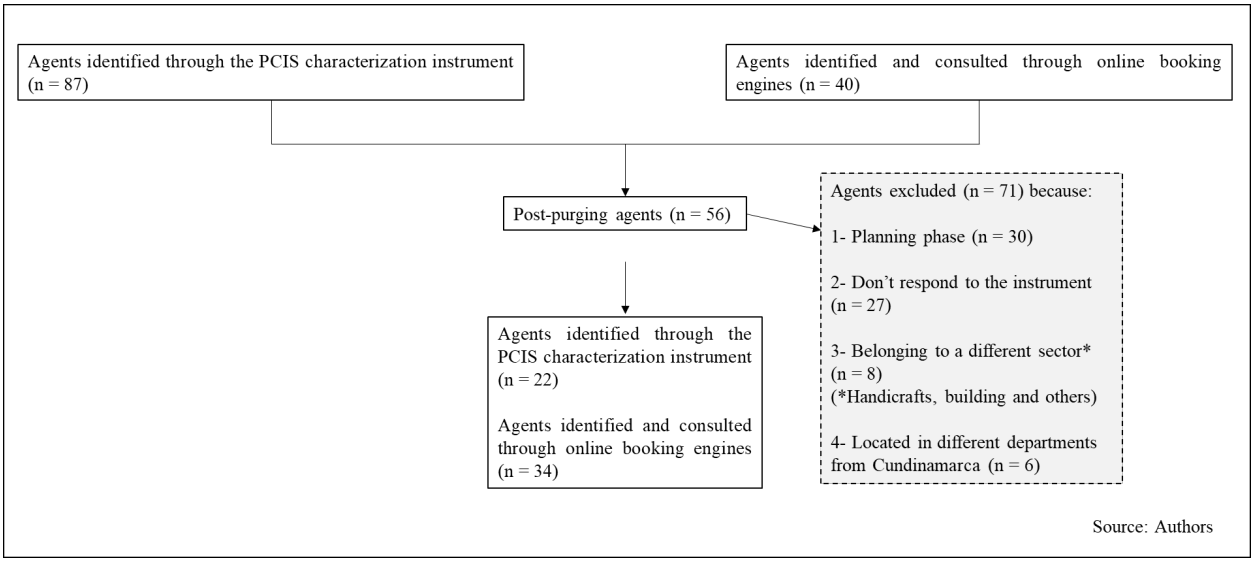

Figure 1. Analysis of the target population

The study population was identified in the CTeI project for Guadua in Cundinamarca. This graph illustrates the different groups found and the selection process of the participants of this research. Regarding the establishments identified through secondary sources, there were initially 40 agents, but six were excluded as they were in municipalities belonging to other departments (Antioquia and Huila). Therefore, the resulting sample (non-representative sample) is made up of 56 agents in the ecotourism sector that provides glamping services, of which 61% were identified and consulted through online booking websites, whereas the remaining 39% were identified through the PCIS characterization instrument.

1.5. Description of the indicators

In this study, the indicators are structured and developed to analyze competitiveness; the components are depicted in *Figure 2* and described below.

Price indicator
The price includes both the average price of the basic accommodation service and the cost of a trip from the origin to the destination. As the second component varies based on the means of transportation, the distance, expressed as the time to travel from the capital of the department where the destination is located, is used as a measure; the greater the distance, the greater the transportation cost.

E-commerce indicator
The e-commerce indicator is associated with the mechanisms and technological channels used by providers of these services in their marketing strategies. Its composition includes the possession of a website, the presence of strategic alliances (booking, Trivago, Tripadvisor, Expedia, hotels.com, and glamping hub), and the option to use online reservations.

Infrastructure indicator
The infrastructure indicator denotes the characteristics (size and endowments) and the number of different accommodation infrastructures available to an ecotourism service provider (tree houses, mini-houses, floating houses, yurts, tents, tipis, domes, ecological pods, cabins, bungalows, bubbles, or hobbit houses).

Tourism indicator
Tourism indicator denotes other activities associated with ecological tourism, such as water, air, and hiking, that users have access to. They can be directly provided by the service provider or through an intermediary.

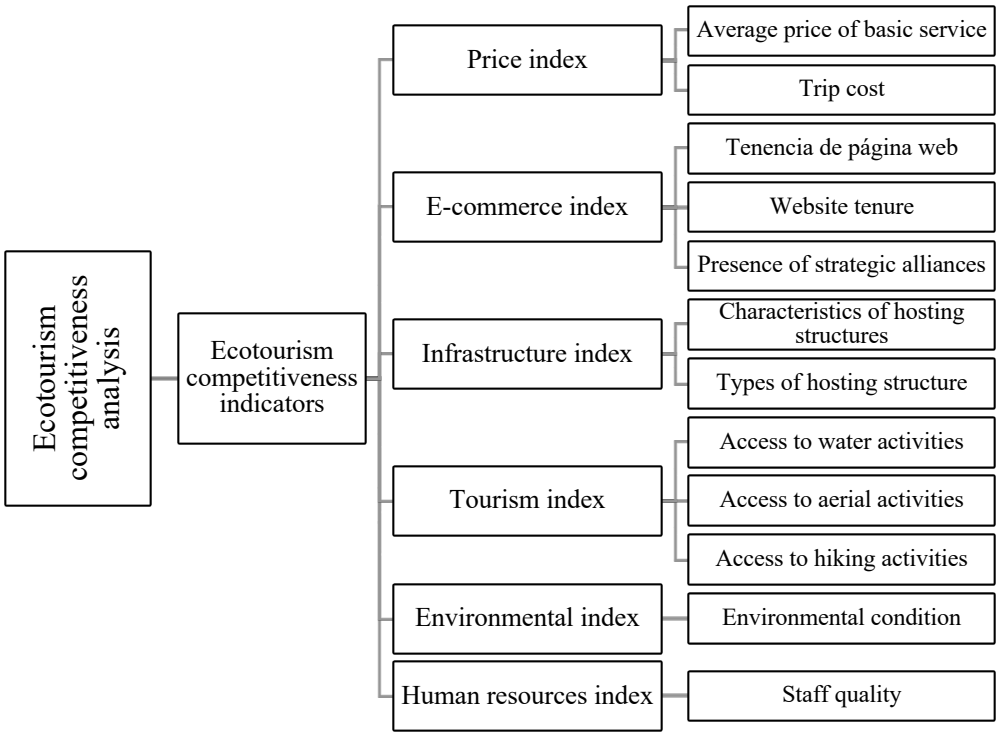

Figure 2. Components of ecotourism competitiveness indicators

The ecotourism competitiveness indicator allows for the analysis of six different variables, including price, online commerce, infrastructure, tourism, environmental conditions, and quality of human resources.

Environment indicator

Being a service that depends, to a greater extent, on the endowment of natural factors of the environment, it is necessary to integrate environmental factors in the planning and development of the competitiveness model through strategies related to the sustainability and conservation of these resources (Hassan, 2000) because environmental conservation or degradation affects the demand for tourism. Therefore, the environment indicator represents the environmental conditions (conservation or deterioration) of the environment in which the ecotourism service is provided. However, there is no data on the environmental conditions of the companies identified through the systematic search, so a text mining analysis of user comments and analysis of images uploaded on booking websites are used to extract information on the degree of satisfaction with the ecological environment.

Human resource indicator

The human resource indicator measures the quality of employees in terms of education or training in the sector. This indicator suggests that the higher the education or training, the higher the quality of service. Data on the education of the personnel of companies identified through the

systematic search are not available, but users' ratings of personnel on different booking websites are available.

Regarding the quality of the labor force of the companies that participated in the telephone interviews, two variables that measure the quality of staff through the manager's educational level and the staff's average educational level are generated. For this, a value from 5 to 10 is assigned to three different groups of educational levels observed in the sample—high school (5), technician or technologist (7.5), and professional and postgraduate (10). This indicator has an information bias as there is no information on nonformal education (training) and the experience of staff, which can affect the quality of service. Further, a lower indicator may be presented by the agents participating in the telephone interviews compared to the personnel ratings by users through the booking websites.

1.6. Determination of indicators

Following the methodology applied by Gooroochurn and Sugiyarto (2005), the indicators are normalized by applying the following formula:

$$\bar{x}_i^c = \frac{x_i^c - min_c\{x_i^c\}}{max_c\{x_i^c\} - min_c\{x_i^c\}} \qquad (1)$$

where $\bar{x}_i^c$ is the normalized coefficient for company c and variable i.

Then, the composite index is generated for each of the six indicators:

$$y_k^c = \frac{1}{n_k} \sum_{i \in N_k} \bar{x}_i^c \qquad (2)$$

Where y_k^c is the composite index of $k(k = 1\ a\ 6)$; n_k is the number of variables in k; and y N_k is the subset of the indicators associated with k. The price indicator is calculated as $1 - equation\ 2$, considering the law of demand (the quantity demanded of a good decreases when the price increases) and the feasibility of substitution in the competitive market (Mankiw, 2011). Finally, the six indicators are aggregated into a tourism competitiveness index as follows:

$$z^c = \sum_k w_k y_k^c \qquad (3)$$

Where w_k is the weighting associated with each indicator based on its relative importance in the aggregate index. This weighting is estimated through a structured survey of individuals' selection criteria when choosing a glamping service (Melián-González & García-Falcón, 2003). The selection criteria represent the constructs of each of the indicators described in the previous

section in aggregate form. They are rated on a Likert scale ranging from 1 to 6, where 1 represents the least important, and 6 is the most important (Mas-Colell et al., 1995).
The weights w_k are obtained using the following formula:

$$w_k = \frac{\sum_i q_k}{S*n} = \frac{\sum_i q_k}{\left(\frac{1+6}{2}*6\right)*n} \quad \text{such that} \quad \sum w_k = 1 \qquad (4)$$

Where q_k is the rating that individual i assigns to indicator k; S is the result of the sum of the arithmetic progression of the Likert scale; and n is the sample size of the structured survey. *Table 1* presents the weighting (w_k) of the survey of 352 individuals residing in the city of Bogotá DC. The results suggest that the tourist activities (aquatic, aerial, and hiking) and the environmental conditions of the environment are the most important decision criteria when choosing a glamping service, whereas the existence of a web page, strategic alliances with booking websites, and an online booking alternative (e-commerce) are the least considered.

Table 1. Weighting of the selection criteria of a glamping service

	Average*	Weight
Price	3,05	0,15
	(1,84)	
E-commerce	3,02	0,13
	(1,65)	
Infrastructure	3,28	0,16
	(1,60)	
Tourism	3,98	0,19
	(1,44)	
Environmental	3,89	0,19
	(1,54)	
Human resources	3,78	0,18
	(1,84)	
N	352	1,00
Population characteristics		
Male	180	0,51
Female	172	0,49
Average age	29	

Standard deviations are in parentheses. *Weighted average.

2. Results

Table 2 presents the average of the ecotourism competitiveness indicators of the companies, segmented according to the collection mechanism applied (*Appendices 2* and *3*).

As the two comparison groups have differences in both sample size and variance, *Welch's t-test* indicates that all the inequalities observed in the competitiveness indicators are statistically significant at the 5% level, except for the infrastructure indicator.

There is evidence of a gap in the e-commerce indicator (39 points), demonstrating that there is a waste of technological strategies in marketing among the agents in the guadua production chain in Cundinamarca. About 60% do not have a website or strategic alliance, and only 45% can make reservations online.

Table 2. Summary of ecotourism competitiveness indicators

	Organic searches	Telephone interviews
Price indicator	59,77	70,95
E-commerce indicator	81,37	42,42
Infrastructure indicator	27,94	25,91
Tourism indicator	49,02	27,27
Environmental indicator	91,18	75,00
Human resources indicator	88,41	64,77
Competitiveness indicator	66,56	51,32
Observations	34	22

Second, the inequality in the human resources indicator (24 points) stands out, which can be justified by the information bias explained in Section 3.4. The gap between the two comparison groups and the weighting of this indicator significantly affects the calculation of the aggregate competitiveness indicator.

Similarly, a difference of 22 points is detected in the tourism indicator, which is low in both comparison groups. This is justified by the low proportion of organizations (around 20%) that facilitate access to the development of aquatic or aerial activities. The environmental indicator has the highest scores among the six competitiveness constructs for both comparison groups. Despite this, a significant difference of 16 points is observed. However, price is the only indicator that exhibits a competitive advantage in favor of agents in the guadua production chain in Cundinamarca. This is because more than half of them use price levels similar to those of other establishments that provide regular lodging services (e.g., hotels and hostels), accounting for the

downward trend. The infrastructure indicator (the lowest score) does not have notable inequalities between the two comparison groups.

Finally, the tourist competitiveness indicator compiles the indicators constructed independently, weighted by the importance that each of them has in the decision-making process of individuals. The providers of ecotourism services in Cundinamarca that are not participants in the CTeI project for guadua are more competitive (15 points of difference) than the agents that are. Even if the human resources indicator is not considered in the calculation of the composite indicator, there is a margin of 11 points (significant at 5%) in favor of the first group.

2.1 SWOT analysis

The results allow a SWOT analysis to be carried out to identify and analyze the internal and external factors (Jozi & Rezaian, 2010) that affect the competitiveness of glamping services offered by agents of the guadua production chain in Cundinamarca. The SWOT analysis can help determine strategies that (1) allow the agents to take advantage of the strengths to capitalize on an external opportunity, (2) focus on the search for external opportunities to reduce the severity of weaknesses, (3) focus on the potential of the strengths to mitigate the impact of external threats, and (4) reduce both weaknesses and external threats (Bull et al., 2016, p. 101).

The SWOT analysis carried out in *Figure 3* reveals that most of the weaknesses do not require a significant effort at the budget level to address and resolve them satisfactorily. Further, the opportunities are potentially attainable under the nature and definition of ecotourism and the relations of mutual benefits and cooperativism that usually arise among organizations in rural areas.

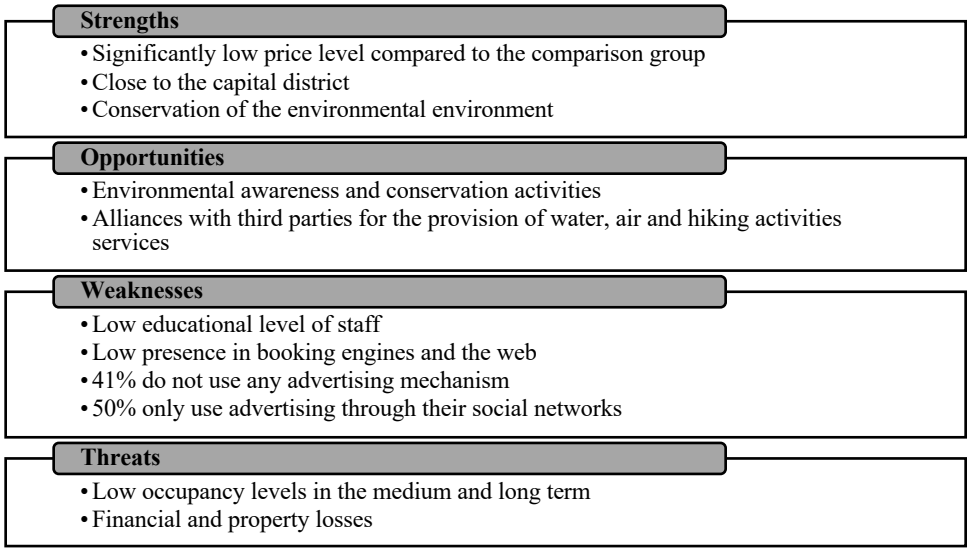

Figure 3. SWOT analysis

In this study, the SWOT analysis was applied as a tool to identify the Strengths, Weaknesses, Opportunities and Threats of the ecotourism sector of guadua in Cundinamarca.

2.2 Management strategies to consider

Most of the agents provide ecotourism services in an environment of total (59%) or partial (32%) environmental conservation, and as this is one of the main factors among the decision criteria of tourists, the portfolio of activities offered includes bird-watching, tree planting, and hiking. The previous ones allow the current conditions to be preserved and contribute to environmental improvement through the reforestation of the environment and the generation of awareness.

Furthermore, strategic alliances must be established with other agents that provide tourist services in nearby areas so that they can serve as an intermediary between the final service provider and the client. These activities can be offered within the portfolio at an additional cost (strategy of most of the agents that make up the comparison group), and a payment mechanism for intermediation would be established with the allies. This would lead to an increase in the profits of all those involved in this operation.

Due to the increased utilization of e-commerce, especially in tourism, it is necessary to increase the visibility of an organization by creating a website and forming alliances with online booking websites (booking, Trivago, Tripadvisor, and Expedia). It is also important to generate an advertising strategy through Google Ads by combining keywords that drive sales and displaying the ads on different digital media (display or search).

Finally, the personnel should be supervised. For instance, on-site supervision and opinion-collection mechanisms such as a suggestion box can be used to establish and execute training and interventions to improve the provision of services.

Conclusions

Despite not having a representative sample (type II error), the results of the comparison group (systematic searches) include the competitiveness indicators of ecotourism service establishments with the best score (ratings given by users) of search engines. The competitiveness of the agents of the guadua production chain that provide ecotourism services has been compared with those that can be considered the most recommended establishments in the sector in the Department of Cundinamarca.

The identification of these significant gaps between the different indicators offers valuable information that reveals how competitive the establishments of the target agents of this study are and the possible strategies that should be considered to promote their businesses. Only two establishments owned by the agents of the guadua production chain have optimal aggregate competitiveness indicators (74 and 73), ranking among the top 10, surpassed (mostly) by

establishments located in other municipalities with a greater tourism component in this area (Guatavita, Guasca, and San Francisco).

The geographic analysis (see *Appendix 2 and Appendix 3)* suggests that only the establishment located in the municipality of Tena has an optimal aggregate competitiveness indicator (74), being the second highest index of the entire sample (aggregated at the municipal level through a simple average), whereas the remaining establishments' (located in another six municipalities) index is 14 points less than that of the comparison group (64).

The strongest competitors are in the municipalities of La Mesa, Guatavita, Cajicá, Chocontá, La Vega, Pacho, and Susa—their aggregate competitiveness indicators are greater than or equal to 70. Municipalities that have establishments of both comparison groups (La Mesa, La Vega, and Pacho) have differences ranging from 15 to 24. The above demonstrates the need to implement competitiveness strategies in the short term; otherwise, the threats will have a higher probability of occurrence.

Disclosure Statement

The authors report that there are no competing interests to declare.

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Appendices

Appendix 1. Environment indicator

1. What do you use guadua for in your tourist service?
2. Do you have different glamping structures, facilities, and sizes?
    a. If yes, what are the differences between them?
    b. If not, what are the characteristics of your facilities?
3. What is the price per night for each of them?
4. Does the location where you provide your service have views of a lake/river?

a. Do you provide water entertainment services? Which?

5. Do you provide air entertainment services? Which?
6. Do you provide ecological hiking services? Which?
7. Do you provide food services? Which?
8. Do you provide other types of services? Which?
9. How far away (measured in time) are your facilities from Bogotá D.C.?
10. Does your business have a website?
11. Do you implement online reservation strategies?
12. Do you have an alliance with online reservation pages? Which?
13. What advertising/promotion strategy do you implement?
    a. Do you have digital media guidelines (Google Ads, Facebook, Instagram, YouTube, and Display)?
        i. Which?
        ii. What type?
    b. Traditional (television, exteriors, press, radio)
    c. Unconventional (voice to voice)
14. In what proportion did your profits decrease during the pandemic compared with those received in the previous year?
15. What strategies have you implemented to mitigate the impact of the pandemic on your profits?
16. What is the average educational level of your staff?
17. What are the environmental conditions of your environment?
    a. Total deterioration (high levels of pollution and deforestation)
    b. Partial deterioration (low levels of contamination and deforestation)
    c. Partial conservation (positive levels of air quality, forest areas, and water resources)
    d. Total conservation (significant levels of air quality, forest areas, and water resources)

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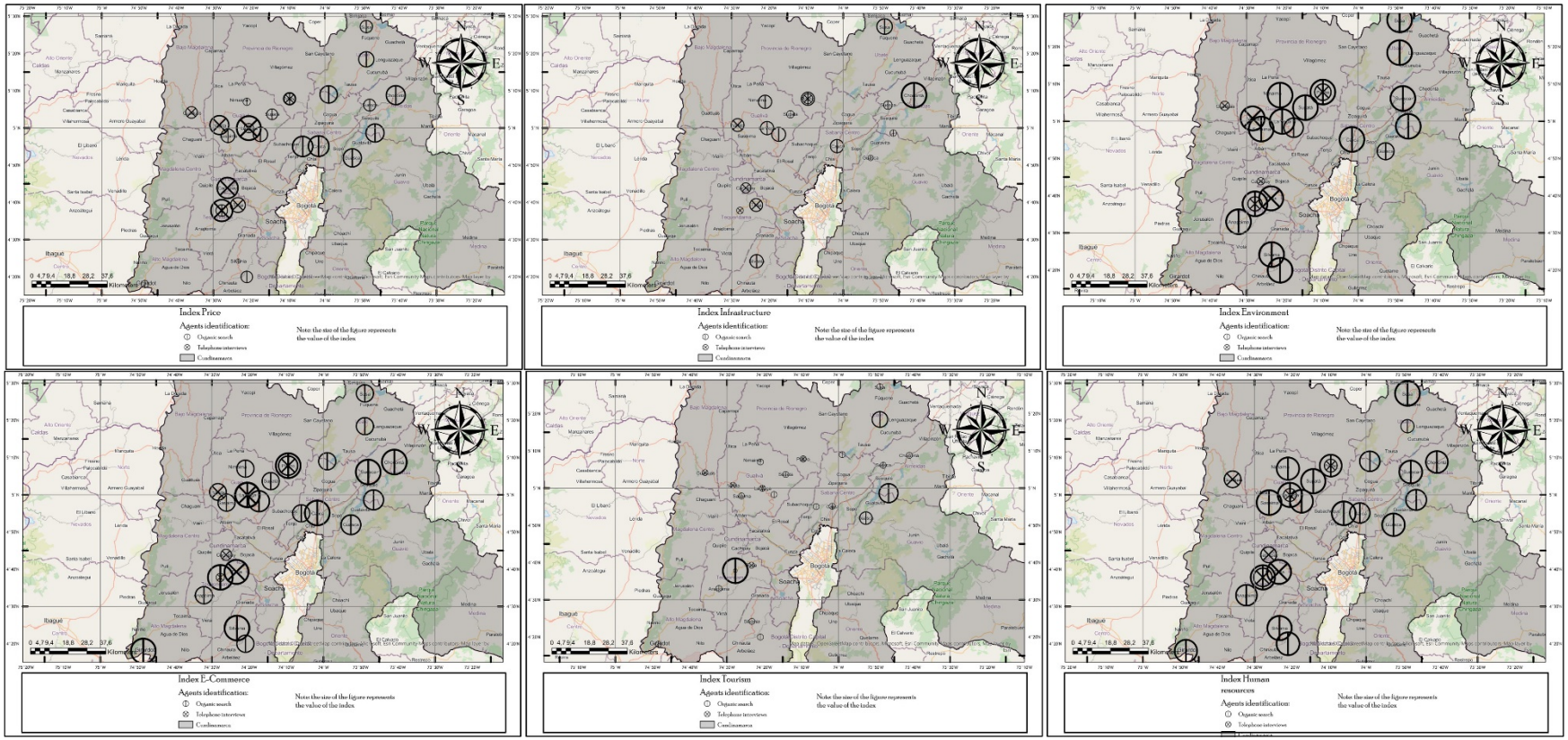
Appendix 2. Geographic analysis of disaggregated competitiveness



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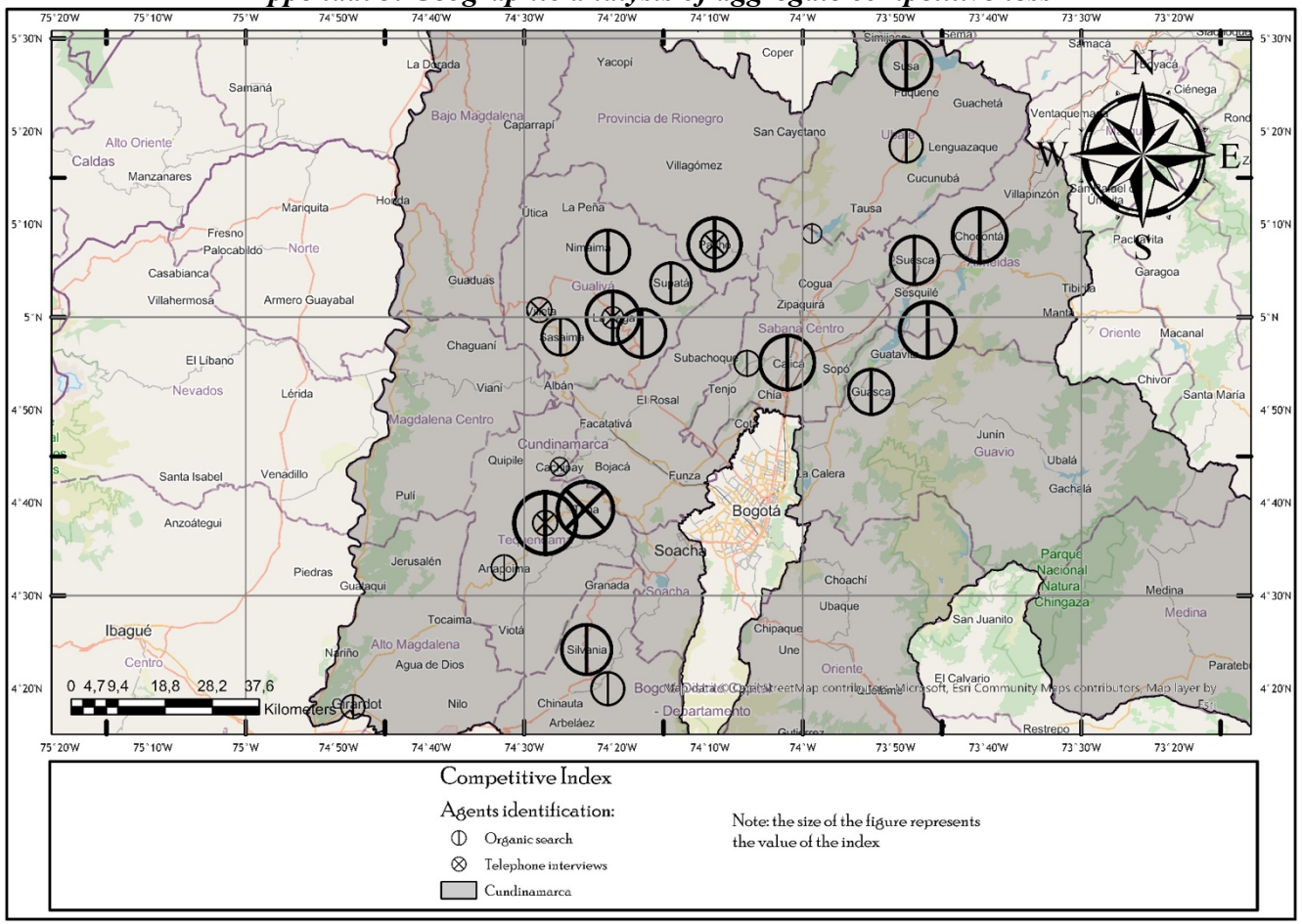
Appendix 3. Geographic analysis of aggregate competitiveness



[i] Taken from

https://trends.google.es/trends/explore?date=2017-02-26%202022-02-20&geo=CO&q=acampar,Glamping,camping