08, 09, 10 e 11 de novembro de 2022
ISSN 2177-3866

INTERORGANIZATIONAL RELATIONSHIPS IN TOURISM CLUSTERS: A FIELD STUDY IN SMALL AND MEDIUM-SIZED ENTERPRISES IN A BRAZILIAN DESTINATION

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Agradecimento à orgão de fomento:
The authors thank IF Sudeste MG and Federal University of São João del-Rei – UFSJ for their financial support.

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1. Introduction

The challenging economic conjecture in Brazil along with the advance of business technologies in the last decades has intensified the competitiveness among companies. In addition, big players have strong representativeness and seek to increase their market share, improve their results and create value to owners. Thereby, they put pressure on small and medium-sized enterprises (SMEs), threatening their survival. This situation includes SMEs in the tourism industry that are often family businesses. They have limited access to modern management tools, which may risk the business continuity. To strengthen themselves in this confrontation they may organize themselves in local or regional clusters.

The increase in business competitiveness induces the emergence of clusters. They are composed by a set of economic, political and social factors of the same territory in which companies perform related economic activities. Those activities imply production, interaction, cooperation and learning links. Clusters may have relationships of competition, cooperation, or even both simultaneously, which is named coopetition (Bengtsson & Kock, 2000; Damayanti, Scott, & Ruhanen, 2017; Y. Luo, 2007; Monteiro, Salvador, & Soares, 2017). According to Lacoste (2012) coopetition approach can be applied both to horizontal and vertical relationships. However, in this study, coopetition between tourism sector SME's is focused on horizontal relationships.

In Brazil, SMEs play an important role in economics and labour market. According to the most recent available official statistics the percentual of small enterprises is extremely significant. At the end of 2016 there were about 5 million formalized enterprises in the country, of which 98.3% had up to 50 employees (Instituto Brasileiro de Geografia e Estatística [IBGE], 2018c). Those enterprises were responsible for employing 30.8% of the occupied people in the formal labour market (IBGE, 2018c). In addition, although SMEs pay lower wages, they have suffered less impact of economic crisis than big organizations in terms of decrease in number of enterprises and employees (IBGE, 2018b). Despite their importance, Brazilian SMEs face difficulties such as high taxes, bureaucracy, and strong competition.

The tourism sector figures of Brazil are not negligible. However, they could be more expressive given tourist attractions of the country. Brazil only shared 3% of 2017 tourist arrivals of the American continent. In 2017, there were about 6,5 million international tourist arrivals to the country (MTur, 2018). There was a small growth of 0.6% in relation to 2016, which was a special year due the Summer Olympic Games in Rio de Janeiro. In comparison, there were 208 million international tourist arrivals in the Americas in 2017 (World Tourism Organization [UNWTO], 2018). International tourist arrivals to the country can be significantly increased given its recognized natural and multicultural attractions. Another factor that might influence tourism in Brazil is a recent rule (Decreto nº 9.731, 2019), which authorized visa waiver to natives from Australia, Canada, Japan and United States.

Minas Gerais State has a significant share of tourism economy of the country. The main State's attractions include the UNESCO World Heritage sites, traditional culinary, natural sites as waterfall and mountains, and people hospitality. Tourism corresponds 12,6% of the States' GDP (Secretaria de Turismo de Minas Gerais [SETUR], 2019). According to (SETUR, 2019), in 2018, the State received 27,2 million tourists, with an increase of 13,3% in the last five years. The tourism sector produced a gross revenue of 18,2 billion BRL in Minas Gerais, 12,6% higher than in the previous year. International arrives increased 44,9 % compared to 2017, facilitated by the increasing in number of international flights.

In this context is the historical municipality of Tiradentes. It is located in Minas Gerais state (MG), nearby São João del Rei, on the old route of the Estrada Real - Royal Road - from Paraty to Ouro Preto (Valente, Dredge, & Lohmann, 2014). It is close to São João del-Rei and Santa Cruz de Minas - the ground zero of that touristic route. It attracts tourists to visit its churches and mansions preserved since the baroque period, in addition to the natural beauties. In 2018 it had an estimated population of 7,886 inhabitants (IBGE, 2018a).

Despite its small size, Tiradentes is one of the most important historical cities in Brazil and tourism is its main economic activity (Camurça & Giovannini Jr, 2003; Cobuci, Nascimento, & Medeiros, 2018; Silveira, 2014). It is now known internationally for its charming baroque architecture (Owen, 2019). Medium and Small enterprises [MSE] play a relevant role for the development tourism sector in Tiradentes. They represent 44,4% of the companies in the municipality and generate 53,5% of formal jobs (Ministério do Trabalho e Emprego [MTE], 2019). Besides the historical churches, culinary, hotels and inns, the tourism attractiveness of the city rely on diverse festivals that happen throughout the year: gastronomy, wine, beer, jazz, motorcycle, cinema and theatre festivals.

In view of the importance of tourism SMEs for local economic development, the question of this research is: what are the types of relationships - competition, cooperation or coopetition - that exist among the companies in the Tiradentes / MG tourist agglomeration? Thus, the objective is to identify the types of relations existing between the companies of the tourist productive cluster of Tiradentes/MG.

This study has both practical and theoretical implications. From an empirical point of view, it aims to contribute to understand the relationships between the SMEs companies in tourism sector. In this sense, findings can be used to achieve effective results, by guiding public policies in the tourism cluster of Tiradentes. In the theoretical field, the study might contribute to assess how competition and cooperation can influence market performance and may provide insights that facilitate understanding of clusters in tourism sector.

2. Regional clusters

Regional cluster is an important concept for tourism management both at organizational and regional levels. Clusters, in a simple definition, are sectorial and special concentrations of firms. According to Porter (2008), regional cluster is a geographic grouping of interrelated companies and their related organizations in a certain area, connected by common or complementary characteristics. Due to their complexity, they encompass numerous configurations. That is, they may consist of different sectors, with different sizes, amplitudes and stages of development (Porter, 2008; Takeda, Kajikawa, Sakata, & Matsushima, 2008). Thus, the boundaries of clusters have little similarity to the classic models of sectorial categorization, which disregard relevant agents in the competitive process.

Clusters incorporate technological advancements, qualifications, information, marketing and new customer demands. They accelerate innovation and foster companies by facilitating mutual coordination and improvement in related areas, preserving competition and rivalry. In this context, an environment of linkage between companies and suppliers, government and institutions is generated (Porter, 2008; Schmitz & Nadvi, 1999).

Porter (2008) and Takeda et al. (2008) point out that the improvement of the regional clusters comes from their information, a reduction in transaction costs, the spread of knowledge and learning, educational policies as well as the refining of demand for products and services. According to Donaire, Boaventura, Siqueira, Telles, and Zaccarelli (2008) clusters are beneficed by the division of competences, facilitating the specialization of the business. Besides, companies rely on shared risks and smaller investments. Further, strong relationships reduce response time do challenges and improves adaptation to the market.

The role of government is another non-negligible factor. It can stimulate clusters by providing: macroeconomic and political stability; increased microeconomic potential, with efficiency and quality of raw materials; incentive to competition; fair and efficient taxation; regulation system. It aims to provoke advances in the business environment, infrastructure and tax advantages (Lemos, 2000). From (Porter)'s view, if these actions are neglected, the cluster can decline due to internal or external causes. The cluster would be incapable of ensuring the conditions for its development and competitive capacity. Some the unfavourable points are: opportunistic behaviour, excessive rivalry among participants, internal inflexibility, union norms and associations, as well as distancing of technological resources.

In clusters, according to Cassiolato and Lastres (2003), SMEs have collective relevance for survival and growth, constituting a potential long lasting competitive advantage. The interaction between SMEs fosters collective learning, cooperation and innovative dynamics. The process of organizational innovation is anchored on the formation of the network, with emphasis on geographic space and local environmental characteristics. The process of learning and interaction (between suppliers, producers and users) involves companies and other agents, such as educational institutions, facilitating regional learning.

Mendonça, Teixeira, Bernardo, and Fonseca Netto (2012) show that the formation of a cluster might yield a region high growth rate. For this, it is necessary the interrelation of four elements: geographical; socioeconomic; sociocultural; and institutional elements. This interaction provides the generation of a specialized and qualified workforce, helps the technological development, the production of knowledge and improves the flow information flow.

Iacono and Nagano (2007) describe three main types of clusters: informal, organized and innovative. Those informal are made up of SMEs with low managerial and technological capacity. They have low qualified workforce, inadequate infrastructure, lack of financial support, and few innovations. Their organizational relationships are weak, with little trust, lots of competition, and low information sharing. In this kind of cluster, the intervention of government is fundamental, through public policies directed to the provision of technological services, training and credit. They prevail in developing countries.

The organized clusters are formed by small and medium companies, with greater competences. They are made up of cooperation and networking. With flexibility and rapid response to the market, they have the capacity to adapt to new technologies and to develop new products and processes. This provides greater competitiveness. But they are not organized enough to support a process of continuous improvement, which limits the generation of innovations. In organized clusters, competition, as in the informal ones, is also high. Cooperation, although of intense presence, is unsustainable. They are common in developing countries (Iacono & Nagano, 2007);

Finally, innovative clusters are made up of small, medium and large enterprises. They present marked creativity and a continuous process of innovation. Trust, cooperation and power of innovation are top-level. The workforce is qualified, and the infrastructure is appropriate. Innovative clusters are more common in developed countries and participate vigorously in the foreign market, with a high degree of exportation (Iacono & Nagano, 2007).

3. Competition, cooperation and coopetition relationships

In a regional cluster, interconnected actors in a particular field compete, cooperate or both (Porter, 2008). In case of competition, the knowledge to analyze the environment becomes relevant for the organization to develop actions and strategies to compete. According to Porter (2008) the forces that drive competitiveness in an industrial sector are: threats from new entrants; substitute products or services; bargaining power of customers and suppliers; rivalry between companies. Similarly, Wood Jr. and Caldas (2007) indicate the following aspects: factors internal to the company as strategy and management; productive and technological training and human resources; structural factors such as market, industry configuration and competition; systemic factors, such as macroeconomic, political-institutional, regulatory, social infrastructures, regional characteristics and international conditions.

Despite competing in the same space, companies are encouraged to cooperate to obtain benefits that isolated companies would not access. The tourism destination companies (e.g., transportation, accommodation, catering and entertainment companies) are particularly highly interdependent (Mariani, 2016). Therefore, networked organizations emerged, providing several benefits to them. Cooperation processes are crucial for the success of tourism destinations and their participants. Zemła (2016) observes that many relevant resources that attract tourists are community "owned". Collective action is then a central aspect for tourism management. Specifically, the development of dense inter-firms networks in regional clusters provides a wide range of positive effects to the regional economy including knowledge diffusion, localized learning and resource transfer (Takeda et al., 2008).

When companies cooperate and compete simultaneously the relationship is called "coopetition" (Bengtsson & Kock, 2000; Y. Luo, 2007; Tsai, 2002), which is more complex and more advantageous to firms. Different degrees of cooperation and competition can occur, shaping different types of coopetition: cooperation-dominated, equal or competition-dominated relationships (Bengtsson & Kock, 2000; Y. Luo, 2007). Moreover, coopetition can occur not only in inter-firm relationships but also in intraorganizational networks (X. Luo, Slotegraaf, & Pan, 2006; Tsai, 2002). Companies benefit from coopetition by combining advantages of cooperation and competition: sharing costs to developing new products, doing contribution from individual's core competencies, reducing lead time, further developing products and carrying out activities in the most efficient way (Bengtsson & Kock, 2000).

The findings of Wang and Krakover (2008) indicate the relationship between cooperation and competition is vital to destination marketing. Due the cooperation tourists perceive the destination as more unified in relation to others, while internally the participants of the destination compete each other. The role of trust and trust-building mechanisms in the dyadic coopetition is another important aspect that has been investigated (Czernek & Czakon, 2016). Della Corte and Aria (2016) evidence that acquired trust between small and medium tourism enterprises is a key factor to improve their performance, as well as the number of links between them.

The necessity to develop coopetition relationships between SMEs has been a concern of researchers studying clusters arrangements of tourism sector recently. Monteiro et al. (2017) identified the issue of coopetition as a major weakness in the nautical tourism cluster in Algarve, Portugal. According to Damayanti et al. (2017) the research on coopetition has been concentrated in the formal economy. The authors provide some of the first insights into the patterns of coopetition among actors in the informal economy by studying pedicab drivers and street vendors in Yogyakarta, Indonesia. In China, Lin and Zins (2016) have studied the image positioning of sub-provincial prefectures. The study evidences that image-positioning plans lack sophistication although coopetition relationships have been improving gradually.

4. Methodology

This research has an empirical-descriptive character since it tries to describe the behavior, aspects or functions of the phenomena (Collis & Hussey, 2005). Its general objective is to verify what types of relations exist between the companies of the tourist cluster of the Tiradentes municipality, situated in Minas Gerais State (MG), Brazil. The approach is quantitative, supported by objective measurements where numbers support the context understanding (Hair, Black, Babin, Anderson, & Tatham, 2009). Following this type of analysis, we have presented structured perceptions about the object of study. A field study has been done and the respondents were defined by accessibility criterion (Hair et al., 2009). The data was obtained locally from SMEs managers willing to contribute to the research.

Secondary and primary data have been collected. Secondary data was obtained from the Brazilian Institute of Geography and Statistics (IBGE) and the Ministry of Labor and Employment (MTE). Primary data was obtained in the field study through a survey. It was composed by structured questions and aimed to describe the elements, the facts and enables to analyze phenomenon (Cooper & Schindler, 2016). In October 2018, there were 267 active and registered companies in Tiradentes's hospitality and tourism sector according to (MTE, 2019). For the data collection 63 companies were visited. However, there were 17 refusals due to lack of time or absence of the manager at the scheduled time. Thus, data were collected from 46 companies as follows: hospitality (11), pub/restaurant (17), souvenir shops (15) and tourism companies (03).

The instrument contemplated objective questions, which addressed functional data of the SMEs and investigations related questions. The questions approached competitive, cooperative and coopetitive relations among the cluster's companies. More specifically, the survey included questions about limiting factors and barriers faced by the companies, trust, perception of the insertion in the region and the governmental action. These elements were inserted in the questions, which, after tabulating the answers, would constitute the items to undertake statistics analysis. Descriptive and multivariate statistics using factorial analysis technique constituted the quantitative data analysis.

Factorial analysis is a quantitative technique that uses the observed correlations between variables to estimate the common factor (s) and the relationships between variables (Marôco, 2010). The factors seek to synthesize the essential information content coming from the original variables, translated in few factors. The Bartlett sphericity test and the Kaise-Meyer-Olkin (KMO) sphericity test were applied in order to ascertain whether the factorial analysis would be an appropriate model for the data. A model with satisfactory adjustments should indicate an accented KMO value and reject the hypothesis of the population correlation matrix to be different from the identity matrix (Hair et al., 2009). The Varimax rotation technique provided the most adjusted model. Afterwards, the correspondence of the factor with the items was verified. The primary data was tabulated through Microsoft Excel® software and then performed the univariate and multivariate analysis using the Statistical Package for the Social Science (SPSS) software, version 18.

5. Presentation and analysis of data

The cluster of Tiradentes is formed by 267 SMEs that provide tourism services. Data from (MTE, 2019) shows that companies in the sector were employing 932 people - an average of 3.49 employees per company. Participants in the cluster are closely located. Consequently, the organizations are likely to share similar audience, management styles, beliefs, values and exhibit mimetic behaviour (Cassiolato & Lastres, 2003; Mariani, 2016; Takeda et al., 2008).

The Table 1 presents the profile of the surveyed SMEs in Tiradentes.

Table 1. Profile of surveyed SMEs in hospitality and tourism cluster in Tiradentes (Minas Gerais)

Data	**Categories**	**Number of SMEs**	**%**
Principal owner level of education	Incomplete primary	1	2
	Primary	3	6
	Secondary	16	35
	Incomplete graduation	6	13
	Graduation	**20**	**44**
Founded in	1960-1969	1	2
	1980-1989	2	4
	1990-1999	6	13
	2000-2009	13	28
	2010-2016	**24**	**53**
Number of employees	Up to 5	**34**	**74**
	6-10	7	15
	11-15	1	2
	16-20	3	7
	46-50	1	2
Type	Family business	**21**	**46**

	Limited company	19	41
	Individual	6	13
Monthly gross revenues (R$)	Up to 5,000	7	15
	5,001-10,000	4	9
	10,001-15,000	4	9
	15,001-20,000	2	4
	20,001-25,000	4	9
	25,001-50,000	**12**	**26**
	50,001-100,000	3	7
	Higher than 100,000	2	4
	Not informed	8	17

Source: Research Data.

As the survey reveals, most of the principal owners of the surveyed companies are graduated. Regarding companies' age, most of them were incorporated in the last decades (over 80% of the total was founded in the last 15 years). They have an average of three employees and about 72% of companies' monthly gross revenues is up to 50,000.00. Most of the SMEs are family business. According to the interviewees, the origin of Tiradentes tourists are mainly from the states of Rio de Janeiro (31.13%), Minas Gerais (30.19%) and São Paulo (27.36%). The other tourists (11,32%) are from different regions of Brazil and other countries.

The factorial analysis has been validated both by KMO and Barlett sphericity tests. The KMO test is 0.683 and indicates the correlation between the variables. Also, the Bartlett sphericity test is significant with p-value = 0.000. Both attest to the good fit of the factorial analysis, as discussed by Hair et al. (2009) and Marôco (2010). The rotated components matrix presents five factors, as shows the Table 2.

Table 2. Factorial analysis of the tourism cluster in Tiradentes (Minas Gerais) – rotated matrix

Constructs	**Factors**				
	1	**2**	**3**	**4**	**5**
Exchange/access to information	0,891				
Development and improvement of products / services	0,880				
Joint purchases and cost reduction	0,844				
In times of crisis, cooperation increases		-0,788			
In times of crisis, competition increases		0,784			
There is opportunism in relations between companies		0,650			
Inadequate marketing channels			0,799		
Quality of the product / service			0,757		
Recognition as a tourist attraction			-0,691		
Relation in productive arrangement				0,702	
Customer attraction				0,694	
Quality of workforce					0,875

Source: Research Data.

There is a correlation between the variables of each factor, with values above 0,426. When this correlation exceeds 0.30, there is sufficient evidence that the factorial technique is adequate and the analysis have statistical validity (Hair et al., 2009) As result of the factorial analysis, the total variance explained by the five factors together is 72.31%. The five factors extracted by the factorial analysis are presented below. The denomination of each factor is according to the behaviors reported by the social actors in the cluster.

Factor 1 has been called "**Benefits of cooperation between cluster companies**". Companies surveyed in tourism cluster realize the benefits of cooperation. It occurs mainly regarding exchanging and accessing to information (70% - 32 companies), development and improvement of products and services (68% - 31 companies) and joint purchases and cost reduction (52% - 24 companies). These findings from the managers perceptions are in line with studies pointing out the benefits of both cooperation and coopetition (Bengtsson & Kock, 2000; Porter, 2008; Takeda et al., 2008). In the local context, those findings follow in a similar direction to those addressing regional clusters in Brazil (Azevedo, Pardini, & Simão, 2015; Balestrin, Verschoore, & Reyes Junior, 2010; Soerger, Oliveira, & Carniello, 2014; Verschoore & Balestrin, 2008).

Factor 2 has been called "**Changes in relationships in period of crisis**". Table 3 details the responses on this item. The managers indicate that coopetition relationships between companies increase in times of crisis while the cooperation reduces. In addition, they indicate the existence of traces of opportunism. On the one hand, 65% of the managers disagree or strongly disagree with the assertion that in times of crisis, cooperation increases. On the other hand, most of the managers (89%) agree or strongly agree with the assertion that competition increases in time of crisis. It is worthy to mention that at the time of the survey Brazil was suffering with an economic crisis. Therefore, the participants had fresh impressions on the impact of crisis in the relationships between the companies.

Table 3. Frequency distribution of the variables composing the Factor 2 – Changes in coopetition

Assertion	Strongly disagree	Disagree	Agree	Strongly agree	Undecided
In times of crisis, cooperation increases	**39% (18)**	26% (12)	17% (8)	11% (5)	7% (3)
In times of crisis, competition increases	2% (1)	4% (2)	22% (10)	**67% (31)**	4% (2)
There is opportunism in relationships	15% (7)	22% (10)	**37% (17)**	17% (8)	9% (4)

Source: Research Data.

Those perceptions on changes in relationships contribute to the literature about the evolution of coopetitive relationships and when they become critical. This is a topic that the literature have not explored sufficiently. Mariani (2016) demonstrates that although there are many discussions on coordinating mechanisms organizations adopt in coopetition relationships, most of them do not discuss the nature of the change process. Our results indicate that external forces are key change mechanisms in coopetitive interactions. The evidences of the influence of crisis in the relationships is in line with the perception that change is discontinuous. That is, it occurs as a consequence of adaptations to fluctuations in the external environment (Bengtsson & Kock, 1999; Dahl, 2014).

It seems that in times of crisis the agglomerate operates at an early stage of development. There is a weakening of relationships and loyalty. That is, when entrepreneurs should add forces, they rather act each for themselves. Then individual attitudes raise to the detriment of collective thinking in a critical period. On the existence of opportunism, it is difficult to avoid since actors seek their own interests (Y. Luo, 2007). Nonetheless, increase in trust could reduce the opportunism risks (Czernek & Czakon, 2016).

Factor 3 is "**Tourism APL Differential**". The companies consider that there are adequate communication channels (80% of the companies) and the products and the service provision have good quality (85%). Further, 65% of the companies recognize the town is a touristic pole. Thus, it has been observed that the cluster has organization and competitiveness, since the companies are able to offer answers to the market, develop products and provide quality service (Iacono & Nagano, 2007).

Factor 4 is "**APL Advantages to companies**". Companies recognize the advantage of being part of a region with a vocation for tourism by pointing out that this attracts customers. Therefore, it allows customer satisfaction by finding a variety of options in the same region (Wang & Krakover, 2008; Zemła, 2016). Another appointed benefit is the relationship of coopetition between the companies in the search for superior results, which is in line with the recognized benefits of coopetition (Bengtsson & Kock, 2000).

Finally, **Factor 5** is "**Lack of skilled labor**". It is considered a restrictive factor to the expansion of tourism in Tiradentes/MG. Most of the SMEs managers (54%) considers the labor force is low quality and not specialized. We asked what types of professionals are difficult to find. Among the managers, 9% did not know to answer, 7% did not have difficulties and 84% reported having difficulty in hiring labor. Of these, 48% mentioned waiter, clerks, cooker and maid; 19% pointed out problems in hiring managers and; 17% all types of employees.

Specialized labor is a prominent problem. A well-qualified staff is crucial to increase productivity and reduced costs for companies. The insufficiency of skilled labor inhibits the development of the agglomerate (Porter, 2008; Takeda et al., 2008). Inattention to the provision of training, with the support public institutions, suggests the government's disregard for the APL, being another problem faced by companies. Such evidence is illustrated in Table 4 as one of the items of greatest dissatisfaction in respondents' perceptions, where the State does not provide satisfactory support to training of local professionals.

The support of the municipal government in the agglomerate is indicated as insufficient. These findings are in line with studies on other clusters in Brazil: clothing segment of Paraná (Marini, Silva, & Nascimento, 2016), and the gems and jewels sector in Minas Gerais (Salume, Guimarães, Pereira, & Castro, 2015). The government is responsible for several actions that promote improvements in the business environment (Damayanti et al., 2017; Fong, Wong, & Hong, 2018; Mariani, 2016). Among them, we can mention the provision of training, infrastructure and financing. If these actions are deferred, the cluster may be retracted, since the APL is unable to guarantee the circumstances of its development and competitive potential (Porter, 2008).

The role of public institutions (municipal, state and federal) is perceived as incipient in the agglomerate, in training, infrastructure and financing - see Table 4. Thus, there is a gap between the demand for specialized labor and what is provided local government in terms of training. Porter (2008) points out that the government's actions must be based on the creation of conditions that favour the expansion of the agglomerate. The government's role would be to encourage companies to raise their aspirations and to achieve high levels of competitive performance, even if the process is difficult.

Table 4. Perception on the support of public sector in the Tiradentes/MG tourism cluster

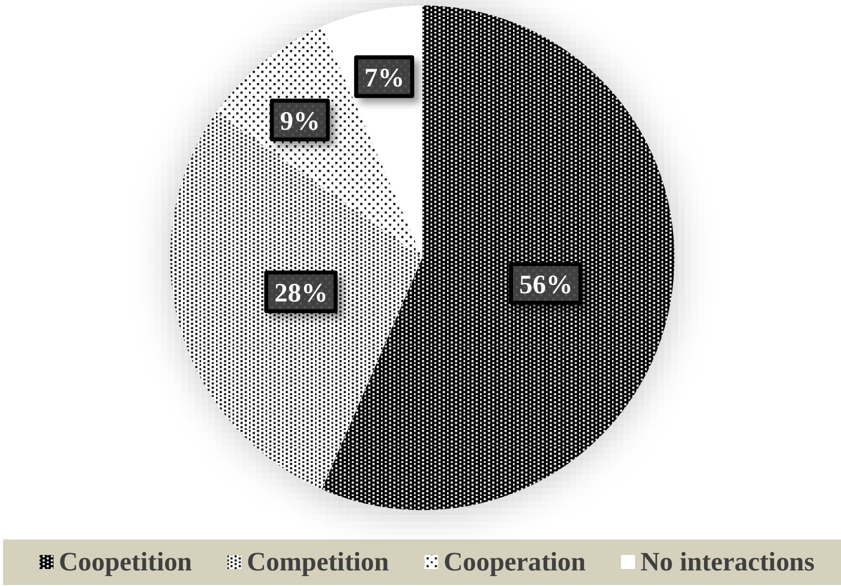
Area	No support	Partial Support	Support	No response
Training	**46%**	37%	15%	2%
Infrastructure	**41%**	**41%**	15%	2%
Financing	**67%**	20%	2%	11%

Source: Research Data.

It should be noted that the item Financing, which refers to the availability of lines of credit to the cluster companies, was strongly negative among those surveyed. This signals how entrepreneurs resent the government's unavailability of credit to finance its productive activity. It is a disincentive to business expansion, clustering, as well as an obstacle to the generation of wealth for the locality. Incipience of infrastructure and training were other items highlighted, with more than 41% of the respondents were completely dissatisfied with them. It should be noted that infrastructure has a broad dimension and is not restricted to physical infrastructure. The evidence indicates that the performance of the public sector is inefficient despite having a fundamental role for the growth of clusters.

Finally, the entrepreneurs were asked about the general stage of coopetition with regard to type of relationships. The positive aspects of the cluster seem to overcome its restrictions, at least from the view of the companies. Coopetition is the strongest behavior in the agglomerate according to 56% of the participants, as shows the Figure 1. In coopetition relationships, organizations seek to forge alliances and establish networks; they compete and cooperate simultaneously (Bengtsson & Kock, 2000; Y. Luo, 2007; Tsai, 2002). The concomitance between competition and cooperation can create value to the companies and to the cluster itself. Figure 2 shows the relationships in the agglomerate.

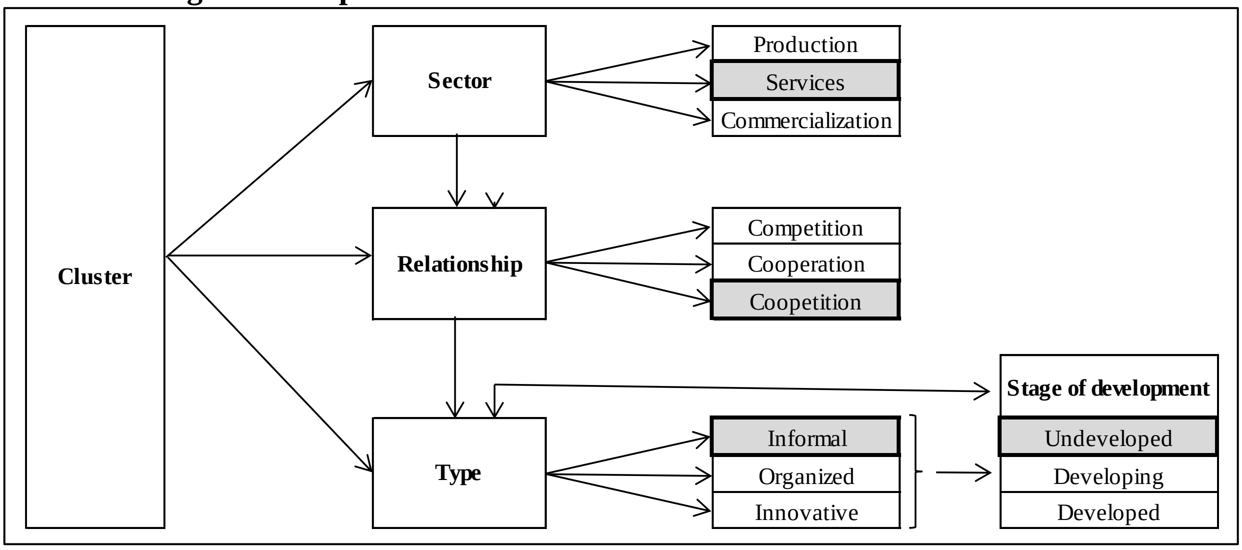
Figure 1. Companies relationships in Tiradentes/MG tourism cluster



Source: Research Data.

Based on the obtained findings and on the literature, the Figure 2 revels the illustrative empirical model of the tourism cluster Tiradentes/MG. The figure seeks to synthetize the field of studies on cluster. As can be seen, a cluster may be classified by sector, relationship, and type. Regarding sector, the cluster operates in services. Concerning relationship, the cluster presents elements of both competition and cooperation, characterizing coopetition relationships (Bengtsson & Kock, 2000; Lacoste, 2012). Finally, the type is informal (Iacono & Nagano, 2007; Mariani, 2016), and the stage is undeveloped (Iacono & Nagano, 2007).

Figura 2. Empirical model for the Tiradentes/MG tourism cluster



Source: Adapted from (Balestrin et al., 2010; Iacono & Nagano, 2007; Lacoste, 2012; Mariani, 2016; Porter; Takeda et al., 2008)

According to Mariani (2016), an informal cluster lacks written contracts stablishing how ownership should be managed and controlled, and how joint activities should be carried out.

Further, it has informal elements, as social ties. Those characteristics described in the literature are observed in the Tiradentes' cluster, which is then informal and undeveloped.

6. Final Considerations

The objective of this research was to identify the types of relations existing between the companies of the Tiradentes/MG tourism cluster. The findings reveal the presence of simultaneous cooperative and competition processes. That is, the cluster has coopetition relationships, in which the relations among the participants are considered more sophisticated, signalling some progress of that cluster in the current context. However, in a period of crisis, competition relationships raised. The individual performance priorities stand out from that of the group.

In general, the surveyed companies visualize the benefits of cooperation, especially in the exchange and access to information, design and improvement of products and services, and gains in scale. When the country's economy is in crisis, competition is widened, cooperation is reduced, and behavioral cheating emerges. On the other hand, communication processes have been considered appropriate and the products and services have good quality.

The municipality of Tiradentes/MG is assimilated as having a strong tourist vocation, which confers advantages to companies, as it attracts many tourists to visit the destination and its attractions. However, the entrepreneur's perceptions indicate that the cluster is at undeveloped stage. There is a lack of well-qualified workers, which is a serious constraint. Skilled people are difficult to find in the town or even do not exist for some positions. This situation restricts the growth of tourism in the municipality and the improvement of its competitiveness.

The participation of public sector in cluster induction is another aspect that could be improved. The support of the municipal government has been indicated as insufficient. The acting of public institutions in all spheres is unsatisfactory either in providing or encouraging qualification of workforce and providing basic and touristic infrastructure. Lack of suitable financing is also a deficiency. Improvements in training, infrastructure and financing would enable companies to progress in their activities and create more value.

The study has provided findings on changes in coopetition relationships, a topic that has not yet been extensively explored. The existing literature indicates that coopetition relationships vary over time due different factors. Our findings indicate that in time of crisis the competition interactions increase while the cooperation ones decrease. Faced with a more challenging economic scenario the surveyed companies adopt more individualistic rather than collaborative behaviors. This occurrence leaves to opportunism and can undermine opportunities to strengthen the cluster precisely now that companies most need it. In this sense, actions to improve mutualistic trust between the companies should be tried to strength the network links.

The limitation of the research is mainly related to the specific study in Tiradentes/MG, focused on the tourism sector, which does not allow generalizations to other clusters or economic sectors. We suggest similar research in other clusters in order to stablish comparative insights. A specific study would be necessary to evaluate the possibility of providing incremental conditions for the qualification of workforce**.** Finally, more investigations are suggested to verify the behavioral deviation of the economic agents influenced by the instinct of survival in times of crisis and whether such reaction may differ in other clusters. The empirical model used in this work may be useful to verify the relationships and stage of development in other clusters.

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