Measuring Institutional Thickness in Tourism: An empirical application based on Social Network Analysis

Abstract

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6 This article uses social network analysis to measure institutional thickness in a 7 regional tourism destination in Colombia. Through the analysis of 107 8 institutions, the empirical findings show that the configuration of formal 9 interaction spaces determine the governance system of the destination turning 10 certain institutions into hubs or authorities. The contribution of this research is 11 two-fold. Firstly, it provides a new approach to the study of institutional 12 thickness by applying a social network analysis methodology making possible to 13 identify the components theoretically defined such as the role of institutional 14 presence, levels of interaction, structures of domination, and common agendas in 15 tourism. Secondly, it highlights the importance of understanding the role of the 16 regional institutional environment and the governance framework of tourism 17 destinations, to better plan and manage their dynamics and effects.

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- *Keywords:* Institutional networks, institutional thickness, social network analysis, tourism geography, economic geography.
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23 **1. Introduction**

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25 Institutions are key in mobilizing social, political, and economic stakeholders and in 26 generating capacities to produce growth, innovation, and structural change through the 27 operation and governance of the economic system (Vázquez, 2005). According to 28 Swyngedouw (2000), the economic success of regions is highly dependent on the local 29 institutional environment and the governance framework in which they are integrated. 30 Institutions understood as factors able to explain differences in economic development 31 started to gain popularity by the early 1990s (Chang, 2011). The interest on this topic 32 lead to the creation of a new approach, the New Institutional Economy (NIE) emerging 33 a new vision to discuss how the institutional dynamics of a territory activate its

development potential. In this frame, institutional thickness, theorized by Amin and
Thrift (1994) is considered a key condition to promote economic development as well
as mobilize actors, organizations, and resources (Restrepo & Anton Clavé, 2019).

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38 Even though institutional thickness has become a key reference for a large body of 39 works related to institutions and regional economic development, few attempts have 40 been made to measure its components and to reflect on its empirical application 41 (Zukauskaite, Trippl, & Plechero, 2017). The operationalization of the study of 42 institutional thickness' factors represents a challenge from the standpoint of its 43 empirical application. This is especially relevant as far as related theory links 44 institutional thickness to economic development. Some attempts have been carried out 45 to develop quantitative indicators (Coulson & Ferrario, 2007; Escobal & Ponce, 2011; 46 Beer & Lester, 2015) but most of them still display ambiguities (Zukauskaite et al., 47 2017) and cannot be applied to different contexts or used for comparative studies.

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49 Discussions on institutional thickness have also emerged within the framework of the 50 ever-growing literature on socioeconomic networks and territorial embedding, which 51 highlight institutional and sociocultural factors as the basis of economic success 52 (Keeble, Lawson, Moore, & Wilkinson, 1999). Thus, it is not illogical to claim that 53 there may exist a close relationship between the analysis of institutional thickness and 54 the characterization of socioeconomic networks that substantiate the relationships 55 identified in a territory. In fact, there are analytical proposals that share the idea that 56 research on networks and on institutions should align themselves (Owen-Smith & 57 Powell, 2008), as economically successful regions are networked regional economies in 58 which the cognitive, organisational, social and institutional proximity between their 59 stakeholders promotes their growth (Boschma, 2005).

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In tourism, research regarding institutional environment considers the study of the role of stakeholders (Ritchie & Crouch, 2005) and, particularly, the analysis of stakeholders' networks in destinations as a key factor (Scott & Cooper, 2007; Scott, Cooper, & Baggio, 2008a, 2008b; Baggio, Scott, & Cooper, 2010; Baggio, 2011; Baggio, Scott, & Cooper, 2011; Hazra, Fletcher, & Wilkes, 2017). Recent studies reflect how tourism development depends, to a great extent, on the action of human agency (Brouder, Anton Clavé, Gill, & Ioannides, 2016) and discusses how research needs to move towards to

68 know how and why (Brouder, 2014) it can occur. Additionally, because it is generally 69 accepted that the relationship between tourism and economic success is not automatic 70 (United Nations Conference on Trade and Development [UNCTAD], 2013), a current 71 challenge for tourism research is to explore how and under which circumstances this 72 relation produce distinctive economic results. As general policies, regulatory 73 frameworks and the density of public and private institutional structures and their 74 coordination and interaction play a role within the general economics dynamics, 75 (Ménard, 2011), it looks of interest to explore if the nature and relations of institutions 76 in a tourist context influence the management, planning, and performance of 77 destinations and its general economic development.

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79 In this vein, this article seeks to help to address the first of the two factors included in 80 the relation between institutional thickness and economic development through tourism 81 development making the contribution to incorporate the institutional thickness analysis 82 in tourism research using Social Network Analysis. This is understood as a first and 83 necessary step that can be used further to analyse the role of institutions in the economic 84 dynamics of tourism destinations. To do so, from a theoretical standpoint, the paper 85 identifies some key elements in the relation between institutional thickness and 86 networks, arguing that because institutions are embedded in relational contexts, thus 87 networks are essential components of a strong institutional context. Therefore, the use 88 of Social Network Analysis (SNA) contributes to bridge the gap in the measurement of 89 the institutional thickness factors. In consequence, the main contributions of the paper 90 are, firstly, to provide a new approach to the study of institutional thickness by applying 91 a social network analysis methodology and making possible to measure factors such as 92 institutional presence, levels of interaction, structures of domination, and common 93 agendas in tourism. Second, it highlights the importance of advancing in the 94 understanding of the role of the institutional environment and the governance 95 framework of tourism destinations to better plan and manage their dynamics and effects. 96

97 To do this, Section 2 presents a review of the literature addressing the institutional 98 thickness concept, the close relation between institutions and networks, and the nature 99 of them in the context of tourism. Section 3 describes the methodology implemented. 100 Section 4 introduces the empirical evidence obtained and discusses results with reference to existing literature thereon so far and section 5 summarizes the contributionsand poses several concluding observations.

- 103
- 104 **2. Theoretical Framework**
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106 This section explains the institutional thickness concept according with the original 107 work of Amin and Thrift (1994) but also considering recent approaches (Zukauskaite et 108 al., 2017) with the aim to build a conceptual and operational approach on the 109 relationship between institutional thickness and networks analysis. This is based on the 110 established evidence that both are inherently relational, and they refer not only to the 111 interaction between their components but also consider issues such as domination and 112 power relations, mutual awareness, among others (DiMaggio & Powell, 1983; Amin & 113 Thrift, 1994).

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5 2.1. Institutional Thickness: An overview

117 In the context of the NIE, the concept of "institutions" still lacks a commonly agreed 118 definition (Voigt, 2013). However, the most usual understanding of an institution was 119 proposed by North (1990), who defined it as the restrictions that arise from human 120 inventiveness to limit political, economic, and social interactions. This definition 121 comprises implicit constraints, formal rules, and enforcement mechanisms (Voigt, 122 2013). According to Searle (2005), "an institution is any collectively accepted system of 123 rules, procedures, practices that enable us to create institutional facts." In this 124 framework, organizations are an important form of institution (Posner, 2010) and this is 125 the approach that this work uses in order to delimit how institutions are addressed.

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127 The NIE sustains that in order to analyse the role of institutions in a region it is essential 128 to focus on the relationships between institutions and the context (Fornahl & Brenner, 129 2003; Ménard, 2011). Among the broad and diverse set of disciplinary perspectives 130 created from the study of institutions, the notion of institutional thickness emerges as a 131 key concept within economic geography.

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Institutional thickness was introduced in a collection of essays under the title Globalization, Institutions, and Regional Development in Europe" published in 1994 by Amin and Thrift. It refers to the density of institutions that act in a territory to

136 promote development actions. The main idea of this approach is that the greater is the 137 institutional thickness of a region, the greater is its capacity for growth (Restrepo & 138 Anton Clavé, 2019) although researchers such as Rodríguez-Pose (2013) have also 139 emphasized the importance of developing an approach that focuses on analysing 140 institutional effectiveness. Institutional thickness implies a series of organizational, 141 sociocultural, and economic criteria. It covers different types of institutions, including 142 financial entities, local chambers of commerce, development agencies, local authorities, 143 innovation centres, schools, government agencies, employers, and administrative 144 bodies. Therefore, institutional thickness refers not only to the existence of 145 organizations linked to territorial economic activity, but also fundamentally to the 146 interaction between companies, intermediate organizations, and local public powers 147 (Madoery, 2001).

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149 Institutional thickness as theorized by Amin and Thrift (1994) set a framework based on 150 4 factors. The first factor refers to the existence of a strong institutional presence, 151 understood as the existence of a range of institutions such as local authorities, 152 development agencies, chambers of commerce, innovation centres, trade unions, 153 educational institutions, and other bodies that participate in building capacities as well 154 as in collective representation. The second factor relates to the *levels of interaction* and 155 the importance of formal and informal knowledge exchange and cooperation between 156 institutions. Thirdly, they identify a factor related to domain structures or coalition 157 *patterns*. It refers to leadership and collective representation of what normally are 158 individual interests. Finally, the fourth factor refers to *mutual awareness* and *common* 159 *purposes* introduced through the development of *common agendas* between institutions.

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161 Since Amin and Thrift (1994) introduced the concept of institutional thickness, it has 162 further developed following various approaches. Probably one of the most significant 163 contribution was made by Wood and Valler (2004), who edited a collection of articles 164 on theoretical and empirical approaches developing different aspects of the concept. 165 Subsequently, numerous academic works have focused on the analytical 166 operationalization of institutional thickness. In this respect, Coulson and Ferrario (2007) 167 applied an empirical approach to produce some indicators such as institutional presence, 168 degree of interaction, common enterprise, and structure of domination and coalition. 169 Moreover, institutional thickness has been investigated according to different

170 perspectives in order to build empirical frameworks mainly in developed countries and 171 industrial activity contexts (MacLeod, 1997; Raco, 1998; Keeble et al., 1999; MacLeod 172 & Goodwin, 1999; Henry & Pinch, 2001; Giordano, 2001; Cheng & Lie, 2009; Beer & 173 Lester, 2015; Zukauskaite et al., 2017). The most recent contribution, developed by 174 Zukauskaite et al. (2017), could lead to the development of a more complete empirical 175 application of institutional thickness. These authors address the concept by considering 176 four fundamental issues: the distinction between organizations and institutions, the 177 consideration of different territorial scales, an evolutionary perspective based on 178 changes in power over time; and the relationship of institutional density with 179 innovation.

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181 Despite these contributions, there are difficulties to operationalize the institutional 182 thickness concept, especially quantitatively. In this vein, network analysis could be 183 useful for this purpose.

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185 2.2. The relationship between Institutional Thickness and Networks

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187 Meyer and Rowam (1977) argue that all institutions are integrated-embedded in 188 institutionalized relational contexts. These assertions are based upon the 189 epistemological foundation itself that makes up the NIE. This is a perspective in which 190 the relational dimension, that is to say, links established between institutions through 191 interaction, formal or informal exchanges, domain dynamics and/or coalitions or the 192 existence of common purposes, are essential. Hence, the possibility of focussing an 193 institutional thickness analysis through a perspective of networks. In this sense, Owen-194 Smith and Powell (2008) already introduced a series of empirical studies showing how 195 institutions and networks can effectively come together and presented the idea that 196 networks are like scaffolding for institutions and enabling the potential of common 197 issues between institutional thickness (Amin & Thrift, 1994) and the network analysis 198 (DiMaggio & Powell, 1983), as is shown in Table 1.

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200 [Table 1].

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From DiMaggio and Powell's (1983) perspective, each one of the 4 processes that are established by the institutional thickness approach is inherently relational. The 204 interaction between stakeholders is facilitated by the social rules; status emerges from 205 vertical relations; coalitions are formed by horizontal relations; information is shared 206 within the already established relations; and mutual awareness and response capacity 207 are constituted through two-way links of recognition and observation. The modelling of 208 these four processes requires different types of institutions, various kinds of relations 209 and of a range of flows connecting the relations (DiMaggio & Powell, 1983). In this 210 vein, taking the point of Meyer and Rowan (1977) that institutions are embedded in 211 relational contexts, it could be argued that networks are essential components of a 212 strong institutional context.

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214 2.3. Institutions, Networks and Tourism

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Tourism is a social and economic activity that is growing considerably on a worldwide scale. Based on the nature of the tourism sector, which links multiple stakeholders in decision-making and is often described as multi-stranded, this article applies an empirical approach to institutional thickness to it.

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221 Although the components of the tourism sector differ across countries, there are certain 222 subsectors which are clearly identified as being components of tourism activity 223 (Lickorish & Jenkins, 1997), such as accommodation, travel agents, tour operators, 224 transport (airlines, shipping, rail, and car). Moreover, tourism involves a range of 225 institutions with different legal characteristics (both in the private and public sectors), 226 such as state-authorized autonomous agencies, state agencies, agencies that provide 227 product development or destination marketing organizations, and trade organizations 228 (Kimbu & Ngoasong, 2013). Indeed, tourism involves other service and industrial 229 companies that are not specifically devoted to tourism such as restaurants, among the 230 most characteristic, but also a wide range of suppliers from consultancy to engineering 231 to name two of them. Those companies are not designed for tourism but have part of 232 their income based on the performance of the tourism activity. Additionally, in this 233 same vein, there is a range of institutions such as chambers of commerce, universities, 234 or other public and private agencies that even though they are not fully involved in the 235 tourism sector often play an essentially background role in the development of tourism 236 as partner institutions. In this context, the tourism sector links multiple stakeholders and 237 it is the result of the intensity of the cooperation, the participation, and the consensus in

238 decision-making among them what fosters the activity and increases economic 239 outcomes (Carlson, 2000; Kimbu & Ngoasong, 2013). In other words, the nature and 240 relations of institutions and organizations in a tourist context influence the management, 241 planning, and performance of destinations (Restrepo & Anton Clavé, 2019). In this 242 sense, it can be easily acknowledged that institutional thickness and networks have a 243 strong connection because both approaches refer not only to the existence of institutions 244 and organizations (companies, intermediate organizations, and local public powers) 245 linked to a territorial economic activity but also fundamentally to the interaction 246 between them (Madoery, 2001).

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248 In tourism literature, issues regarding institutional environment have only been partially 249 addressed, given that in general, the research has not been specifically focussed on 250 understanding the role of institutions as elements that monitor, promote, harmonize and 251 compile the interests, expectations, and objectives of the stakeholders in the tourism 252 sector. Conversely, research has mainly studied the role of the stakeholders from a 253 perspective of their influence in the governance of the destinations. Still, a series of 254 works have explored the role of institutions in tourism development (Desforges, 2000; 255 Hall, Williams, & Lew, 2004; Nunkoo, Ramkissoon, & Gursoy, 2012; Roxas & Chadee, 256 2013) albeit not specifically from the NIE perspective (Restrepo & Anton Clavé, 2019). 257

258 Otherwise, there are numerous network analysis in tourism from different perspectives. 259 Gibson, Lynch, and Morrison (2005) highlight their role as a key tool for the 260 destination's local economic development. In 2008, Scott, Cooper, and Baggio (2008a) 261 studied inter-organizational networks in tourist destinations and the effects of 262 interactions between them for producing products and services. More comprehensively, 263 Van der Zee and Vanneste (2015) analyse 98 articles published on network analysis in 264 tourism in order to understand and demonstrate its role in terms of tourist management. 265 This is, in fact, a growing stream of research based on applying mathematical properties 266 to the study of tourism through the theoretical-methodological principles of SNA (Scott 267 & Laws, 2010).

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Hence, analysis has incorporated approaches such as the thickness of tourism networks (Mcleod, Vaughan, & Edwards, 2010), the centrality of the networks and stakeholders in tourism (Bras, Costa, & Buhalis, 2010), or the degree of intermediation that might facilitate the connectivity of the tourist networks (Ramayah, Lee, & In, 2011; Zach &
Racherla, 2011). In a complementary sense, the recent work developed by Sanz,
Lozano, and Anton Clavé (2019) applies social network analysis to identify the
knowledge networks generated in a tourist destination.

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In any case, most of the previous analysis does not explicitly link network analysis tothe institutional thickness.

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280 **3. Methodology**

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Because of the well-known limitations in the operationalization of the study of the factors that make up institutional thickness (Zukauskaite et al., 2017) and taking into account the common issues introduced above about the relationship between institutional thickness and networks analysis, this paper adopts formal Social Network Analysis (SNA) methods to advance the empirical operationalization and the measurement of institutional thickness. To do so, it makes a pilot study in a regional tourism destination.

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A social network is a set of actors (e.g. individuals, groups, and organizations) and the relations defined among them (Wasserman & Faust, 1994). Correspondingly, SNA consist of a collection of techniques for mapping, measuring, and analysing social networks using both qualitative and quantitative data (Blanchet & James, 2011). SNA can be used as a research or evaluation method to understand how the social structure influences actors' behaviour when working together, sharing resources, or communicating across a network (Carrington, Scott, & Wasserman, 2005).

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298 3.1. Regional Context

In order to operationalize the institutional thickness through the application of SNA, thisarticle examines it in the Antioquia region between 1997 and 2016.

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Antioquia is located in the central northwestern part of Colombia. It is Colombia's most populated region (6,690,980 inhabitants in 2018) and the largest economy after Bogota's capital district. In 2018, according to official data from the Colombian Statistical Office (DANE), the Gross Domestic Product (GDP) in Colombia was 306 280.249M. €, among which 14.7% corresponded to Antioquia. Commerce and
307 manufacturing are the most thriving sectors in Antioquia, representing 16.3% and
308 16.3% of its total GDP, respectively.

309 Antioquia has seen a significant increase in its tourist development in the last two 310 decades and Medellín, the capital city, has consolidated an international recognition 311 being designated as City of the Year in 2013 and the best tourist destination in South 312 America according to TripAdvisor in 2018. The city was also awarded by the Lee Kuan 313 Yew World City Prize in 2016. This tourism development path started in 1999, parallel 314 to the consideration of tourism as a key element for the regional economy and it has 315 been considered part of the economic success of the region (Brida, Monterubbianesi, & 316 Zapata-Aguirre, 2011). Since then Antioquia has advanced in the creation and 317 reinforcement of key institutions to support tourist development (Restrepo & Anton 318 Clavé, 2019).

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320 3.2. Data collection

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322 Data gathering for this paper has been developed in three stages (Figure 1). First, 6 323 structured interviews were held between May and June 2016 with representatives of 324 corresponding key institutions in terms of the role carried out by them as regards 325 tourism planning and management (Government of Antioquia-Tourist Office, Medellín 326 Chamber of Commerce, Tourist Office/ Mayor's Office of Medellín, Medellín 327 Convention and Visitors Bureau, Cotelco Antioquia - Hotel and Tourism Association, FENALCO - Association of merchants). The objective of the interviews was to build a 328 329 preliminary vision of the region's institutional structure and learn about the importance 330 of them for regional tourism development.

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The second stage was devoted to map the relevant institutions, either directly or only partially related to tourism development. During the process, 34 institutions with a significant role in the development of tourism between 2000 and 2016 were identified according to strategic planning documents, and information contrast with regional actors. Of these 34 institutions, 28 responded (Table 2) a questionnaire between July and December 2016. The questionnaire was designed to collect evidence on the impact of institutions in the development of tourism in Antioquia and to draw the institutional relations they had with each other and with other institutions not exclusively focused on tourism planning and management. The 28 participating institutions at this stage of the research were the most active and influential while the 6 institutions from which we did not get answers were incorporated in the study during the third stage of data collection.

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344 [Figure 1.]

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More precisely, on the basis of the information obtained from the participating 28 core institutions, during the third stage of the data gathering *formal interaction spaces* between institutions (partnerships, sectoral boards, and sectoral councils) were identified. This enabled to include 79 additional partner institutions (see Appendix A) to the 28 initial core ones, which were reported as participants of the formal interaction spaces linked to tourism development in Antioquia between 1997 and 2006 (Table 2).

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353 [Table 2].

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355 Table 3 shows the formal interaction spaces in which the 107 (28 core + 79 partners) 356 identified institutions participate. The first column lists the names of the identified 357 formal spaces including partnerships, sectoral boards, and sectoral councils. 358 Partnerships are defined as relations created between institutions in order to achieve 359 common goals or increase bargaining power. Sectoral boards refer to spaces for 360 agreement with tourism, governmental and academic bodies to assist in the management 361 of the destination. They involve the voluntary participation in trade associations, 362 entrepreneurs, the public sector, organizations, and the academia. Sectoral councils are 363 defined as consultative spaces with common interests and joint visions for the 364 generation, agreement, and development of initiatives, projects, and policies related to the tourist activity. The issue column summarizes the themes discussed inside such 365 366 spaces, the *leadership* column highlights the institution that exercises the coordinator 367 role and the number of partners column refers to the number of institutions that make 368 up each formal space.

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370 [Table 3].

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372 3.3. Networks' construction

Once the relational data related to participation in different formal spaces had been gathered, these were converted into formal structures (i.e. graphs) in order to be mathematically processed. Specifically, the analysis focused on the relationship between coordinating organizations and participants in the different formal spaces. Thus, we understood the participation in a formal space, whatever its typology, as a link and (to a certain extent) a form of recognition of the participating organization in relation to the coordinating one.

380 In this context, it is important to emphasise that our approach is not that of a 381 netnographic methodology, where traces of actual interactions among actors are 382 available and can be directly assessed. In this paper, the analysis is centred in 383 membership or participation of actors (i.e. organizations) in certain activities (i.e. 384 Formal Spaces). In other words, instead of studying "who interacts with whom", we 385 look at "who coincides with whom at different activities" and "who organized activities 386 attended by whom". This approach has a long tradition in SNA, starting from Davis, B. 387 Gardner, and M. Gardner (1941) studying the attendance to women's social activities as 388 a way to approach racial segregation. Some examples in the literature of applications 389 include company directorates (Burris, 2005), scientific collaboration (Newman, 2001), 390 movies (Watts & Strogatz, 1998), or knowledge management in a destination (Sanz et 391 al., 2019).

392 Consequently, in this paper, each organization is represented by a network node or 393 vertex, and two organizations are connected by means of an arrow if one of these (the 394 origin of the arrow) has, at least, participated in one formal space organized by the other 395 (target of the arrow). Besides the direction, arrows represent the importance of the 396 participant-coordinator link between two organizations. The more formal spaces 397 coordinated by the organization *i* has participated in organization *j*, the thicker (heavier) 398 will be the arrow between *i* and *i*. The social networks built this way represent the 399 'institutional map' of the destination and allow us to quantitatively measure the 400 different aspects of the institutional thickness.

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Given that this study covers quite a 16 years' time window, we also assumed that the structure of the 'institutional map' may have changed over time (and, with it, its institutional thickness). In order to quantify changes, two periods were identified (1997-2007 and 2008-2016), and a network of organizations was built for each one. The division into these two sub-periods is justified for two reasons. Firstly, by the fact that at
the beginning of 2000 Antioquia and Medellín proposed a roadmap for the tourism
sector (the Tourism Development Plan of Medellín 2000-2009), formulating the
configuration of an institutional network non-existent until then. As a consequence,
from 2008 that Antioquia showed a noticeable institutional increase and, likewise, and
this is the second reason, tourist flows increased considerably as from 2008.

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413 Once the networks corresponding to the two sub-periods were built, changes in the 414 institutional thickness could be identified and measured by comparing their structural 415 characteristics. In order to do this, we proposed precise structural measures that provide 416 information on each one of a selected number of indicators related to the variables of 417 the institutional thickness previously identified (Restrepo & Anton Clavé, 2019).

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Table 4 shows the structural measures proposed for each one of the selected indicators
related to the 4 institutional thickness established variables and brings the connection
between social networks and institutional thickness.

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423 [Table 4].

424 Structural measures are borrowed from SNA's toolset. For each of these structural
425 measures, a definition is provided below justifying its relation with the corresponding
426 variable.

427 3.4. Structural measures

Number of nodes: Nodes correspond to institutions that have coordinated or
 participated in formal spaces. Therefore, the number of nodes provides
 information on the institutional presence.

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- Frequency of node attributes: Nodes have individual attributes. The three
 considered attributes in this paper are: Institution vs. Organisation; Public vs.
 Private; and Exclusive vs. Partial commitment with tourism development. Thus,
 proportions for each provide qualitative information on the composition of the
 network.

Link density: Obtained by dividing the number of existing links or arrows in the network by the maximum possible number that might be found. Thus, the greater the level of interaction between the organizations (i.e. the more formal spaces exist, or the busier they are) the network will show more links and, therefore, the higher its density will be.

Average degree: Average number of links that connect each node (i.e. outgoing

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as well as ingoing arrows). Therefore, this measurement provides information quite similar to the density.

- *Average weighted degree:* The previous measurement provides information on the number of interactions between organizations, but not on their intensity (i.e. in how many spaces organized by *j* has *i* participated). The average weighted degree provides this information (expressed as an average per organization), thus complementing the link density.
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454 Hubs & Authorities (HITS centrality): Relevance of each individual node in the 455 context of the network. HITS centrality provides two scores (Hub and Authority 456 scores) to measure the relevance of a node as the source or destination of the 457 arrows that connect to other important nodes in the network (Kleinberg, 1999). 458 In the context of this work, the HITS centrality scores provide quantitative 459 information on the authority of certain institutions (gained by means of the 460 coordination of certain spaces) and on the role of other institutions contributing 461 to such authority.

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Assortativity: A measure of the tendency of nodes to interact preferably with
 others similar to them (based upon some specific characteristics) (Newman,
 2002). Thus, for example, if the assortativity is calculated based on whether the
 organizations are public or private (one of the three types considered in the
 'Institutional presence' variable), it provides information on the 'degree of
 endogamy' the organizations present according to their legal nature.

470 *Clustering/Modularity:* Social networks have the tendency to present a modular 471 structure, that is to say, that nodes are grouped in communities or modules more 472 connected between each other than with the rest of the network. These 473 communities can be identified by means of techniques similar to statistical 474 clustering analysis. Conversely, modularity measures how marked is the 475 modular structure of a network. The greater the modularity (with a maximum 476 value of 1), easier it is to determine the modules that make up a network. Given 477 the criteria used to build the networks, the organizations (nodes) belonging to 478 one same community will have participated in formal spaces with similar 479 interests or attributes.

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Average Path Length: Calculated by means of the shortest path that can be established between two nodes through its links. In the context of this work, the minimum value of this measurement would correspond to the case in which all the organizations would have collaborated in one single formal space (i.e. the connection would almost be direct through the coordinator organization of said space). As the values of this measurement get higher, less overlapping of common interests (and, therefore, of shared formal spaces) can be found.

488 More detailed information and the mathematical expressions used to calculate the489 structural measures can be found in Appendix C.

490

In order to establish a framework to confirm the applicability of SNA to the study of the
region institutional thickness and the interpretation of results, hereunder 4 questions are
posed that the analysis must be able to answer.

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495 Question 1. How can we measure the evolution of the intensity of institutional496 thickness?

497 Question 2. What are the levels (flows) of interaction inside the interaction spaces?498 What is the connectivity level? How do the relations evolve?

499 Question 3. What roles have the different types of institutions played in the power and500 collaboration dynamics?

501 Question 4. To what degree does the development of common agendas bring the group 502 of institutions together? To what degree does it define differentiated groups?

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504 **4. Results and Discussion**

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506 The main goal of this paper is to demonstrate that the network approach is a 507 comprehensive and useful tool to quantitatively operationalize the analysis of 508 institutional thickness. The study, applied to the context of tourism, has the ability to 509 empirically size a set of structural measurements that provide evidence related to a 510 group of selected variables among those established in the seminal work of Amin and 511 Thrift (1994) and empirically developed by MacLeod (1997), Raco (1998), Keeble et al. 512 (1999), Henry and Pinch (2001), Coulson and Ferrario (2007), Beer and Lester (2015), 513 and Zukauskaite et al. (2017), among others.

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515 Specifically, this network-based approach has been useful to analyse institutional 516 thickness because a) it enables a quantitative measurement of the evolution of 517 institutional thickness in a destination; b) it is a systemic approach for the whole 518 destination, considering all its institutional participants under the same perspective, and 519 c) it reveals aspects non-visible by means of other approaches (e.g. counting the number 520 of spaces each institution participates in, studying the composition of each formal space 521 separately, among others). Results are presented and discussed, placing special 522 emphasis on the value obtained due to the social network analysis (SNA) approach.

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524 4.1. Descriptive overview

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526 Structural measures defined to study the institutional thickness selected variables are 527 presented in Table 5. Values obtained for each period reflect variations in the 528 institutional tourism dynamics of Antioquia and the role of institutions in regional 529 tourism development (Table 5).

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531 [Table 5].

532 An interesting preliminary finding is that albeit institutions of a private nature have a 533 significant presence in the two analysed periods, public institutions have been the 534 cornerstone upon which Antioquia has established itself as a tourist destination. In fact, 535 as we will see later, public institutions have been densely formally interconnected 536 through the sectoral boards and sectoral councils gaining authority through their 537 coordination (see Appendix A). Thus, within the context of the Antioquia tourism inter-538 institutional network, the authority of public institutions has guaranteed a positive and 539 lasting institutional evolution for the destination. This is a key issue that, as seen in 540 other studies, creates competitive advantages (Hallin & Marnburg, 2008).

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4.2. Network maps and institutional thickness

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Figure 2 represents the network maps that show the institutional tourist density of Antioquia over time and supports the notion that institutions do not operate in isolation but are connected to achieve common goals. Connectivity between institutions is reflected through their participation in formal interaction spaces. Thus, nodes in the networks correspond to institutions that have coordinated or participated in formal spaces and the number of nodes provides information regarding the institutional thickness dynamics in the destination.

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552 Institutional presence indicators provide information related to the number of 553 institutions (Coulson & Ferrario, 2007) involved in regional tourism development in 554 Antioquia. Institutional presence has been approached considering the three types of 555 node attributes set out in Table 4. Visual comparison of the networks in Figure 1 556 represents 107 institutions involved in the tourist development of Antioquia and reveals 557 an increase in the number of institutions and organizations over time. In the second 558 period, the majority of the pre-existing institutions and organizations remained, but new 559 ones were added. Hence, networks corresponding to the second period present a 54% 560 increase in the total number of institutions/organizations. Within this increase, 27% 561 were institutions of a public nature, 68% of private organizations, and 5% institutions of 562 a mixed nature. This evolution demonstrates an increasingly strong regional institutional 563 presence as well as a qualitative change of the main characteristics of the destination 564 institutions involved in regional tourism dynamics, including their broadening coverage 565 in areas and interests (Coulson & Ferrario, 2007).

566 To clarify, colours have been used in the networks drawn in Figure 2 in order to 567 represent the node attributes according to each case. Each node represents one institution and is identified by a number that corresponds to the order in the list provided in Appendix A. Arrows indicate each institution's participation (arrow source) in, at least, one formal space coordinated by another (arrow destination). The arrows' thickness indicates the importance (i.e. number of formal spaces) of that relation.

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573 It is important, first, to highlight the distinction made between institutions and 574 organizations. Following Zukauskaite et al. (2017), this distinction provides detailed 575 insight into the factors that sustain regional development and more accurate 576 identification of the strengths and weaknesses of the specific context. Essentially, main 577 differences between institutions and organizations relate to their public or private 578 structure but, more precisely speaking, institutions refer to the authorities that design 579 and regulate rules, laws, and policies and generate conditions in a territorial context, 580 while organizations include companies, universities, agencies and support partnerships 581 (Zukauskaite et al., 2017; Restrepo & Anton Clavé, 2019).

582

583 [Figure 2].

584

585 Additionally, Figure 2 is useful to see that although private institutions are the majority 586 in both periods, a greater integration between public institutions and private 587 organizations is observed in the second (i.e. more links with a greater weight between 588 organizations of a different nature). This integration can be highlighted in the diversity 589 of institutions and organizations connected to those identified with the IDs 1 and 13 590 (Medellín City Hall and Medellín Chamber of Commerce, respectively). This greater 591 integration between public and private institutions causes the change in the assortativity 592 sign between the two periods [(0.26) and (-0.07), respectively].

593

All in all, although no significant changes are observed regarding the link density, network analysis illustrates how a set of individual relations between institutions grouped into different types, including both exclusively and partially committed institutions have woven the tourist sector in Antioquia, creating a dynamism that has encouraged its evolution, which allows us to provide an answer to Question 1.

599

600 Levels of interaction

601 Network analysis provides different information concerning the level of interaction 602 between institutions. Regarding the node attribute Type A, the network of the second-603 period reveals more crossed interactions between institutions and organizations, 604 especially due to the greater presence of institutions and the growing authority of some 605 of them (i.e. note the change in nodes 1 and 56).

The average degree is closely related to the density of interactions in the networks, showing that the cohesion between the institutions and organizations increased during the period 2000-2016 (2.95). The increase of the weighted degree (3.74) confirms a greater thickness as well in the links of the second period, also identified visually in Figure 2.

611

612 In this sense, the resulting second-period network presents growth in its connectivity 613 and interactions, providing an answer to Question 2. In the second period, thicker 614 arrows are observed, indicating that the interaction between institutions and 615 organizations tends to be stronger (i.e. the organizations tend to coincide in more formal 616 spaces). This is noticed in the links between institutions and organizations 1, 13, 24, and 617 25 (again, Medellin City Hall, Medellin Chamber of Commerce, Government of 618 Antioquia - Tourism Office, and Vice Ministry of Tourism) that occupy central 619 positions in the second-period network. This pattern confirms that the tendency to 620 incorporate new institutions in developing a destination becomes crucial to facilitate and 621 implement the integration of sustainable common and political agendas for tourism.

622

The gradual growth of the number of interaction spaces created in Antioquia constitutes the basis of an accelerated interaction and collaboration between stakeholders. This perspective confirms that developing a destination is not solely a consequence of local, regional or national government policies, but rather evidences the importance of generating a particular institutional environment to support and integrate the economic life of companies and the arrival of visitors to the destination (Amin & Thrift, 1994).

629

- 630
- 631
- 632

633 Structure of domination

Identifying the relevant role of the institutions and power relations, understanding changes in power over time and illustrating the distribution of the balance of power are key issues in the analysis of institutional thickness (Zukauskaite et al., 2017). In our approach, the Hubs and Authorities scores provide data on the roles played by the different institutions and the level of leadership or power exercised between them. This answers Question 3.

641

642 In general, the analysis allows to distinguish between three categories of institutions 643 according to the degree of power or leadership they exercise (see Table 6): a) 'pure' 644 Hubs and Authorities that only present significant values of one of the two scores and, 645 therefore, only stand out in one of the two roles (e.g. organizations 8 and 72: Anato and 646 Colombian Chamber of Infrastructure); b) institutions with low power, with non-647 significant values in both scores (e.g. in the second period, organization 30 – Urabá 648 Chamber of Commerce); and c) institutions/organizations (public and private) with the 649 capacity of exercising power, represented by relatively high values in both scores. The 650 latter type is particularly interesting, given that it corresponds to institutions that have 651 gained authority coordinating important formal spaces and, simultaneously, have given 652 authority to other institutions participating in a wide variety of spaces, thereby bringing 653 the network together. Within this latter group, the case of Medellín City Hall (Id.1) 654 should be pointed out as a public institution that has evolved from being a 'pure' Hub to 655 present high values in both scores during the second-period.

656

657 In addition, the case of the Medellin Chamber of Commerce (Id.13) shows an 658 interesting pattern. It moved from low hub and authority in the first period to 659 consolidate as high hub and authority in the second period. This pattern is justified on 660 the fact that in the second period the Medellin Chamber of Commerce increased its 661 involvement in the tourism sector, through the creation of a tourism cluster in 2008, 662 consolidating its presence in different formal spaces. Since then, the focus of this 663 organization has been on uniting public and private interests as well as guiding how the 664 new efforts can generate new public policy, confidence, and innovative businesses in 665 this key sector.

666

667 [Table 6].

669 Particularly, as regards the node attribute Type C (exclusive or partial commitment with 670 tourism development), in the second analysis period the nodes exclusively involved in 671 tourist development clearly occupy central positions, whereas the nodes only partially 672 involved occupy the periphery. The latter case is reflected with the homogeneity of the 673 network around node 72, the Colombian Chamber of Infrastructure, which is a pure hub 674 authority and only involves institutions partially involved in tourist development. 675 Likewise, this set of institutions does not increase its connectivity with the rest of the 676 network as we move from the first to second analysis period.

677

The existence of several highly ranked authorities in the destination does not mean that only certain institutions can coordinate the interaction between the actors, nor that positions of power can be changed in the destination to improve the regional organization or common agendas to be developed. It is not so much about who has most power, but about the interest of institutions directly or indirectly involved in participating in the region's tourist activity (Valente, Dredge, & Lohmann, 2015).

684

685 *Common agenda*

686

In general, the common agendas are undertaken from processes that are related to the development of a common vision for the destination, the development of a regional competitiveness strategy, and/or its promotion as a tourist destination. (Restrepo & Anton Clavé, 2019). The values of the network diameter and average path length (Table 5) provide relevant information regarding the differences between the particular agendas of institutions in the destination and, indirectly, the existence of a common agenda.

693

694 Results show that these values remain low (approximately half of the values would 695 show the two networks randomly connecting to the same nodes following the model of 696 Ërdos and Rényi, 1959). This result could be interpreted as, despite the increase in the 697 number of institutions and formal interaction spaces, the destination maintains the 698 convergence of particular interests in the common agendas developed in the first 699 analysis period. In other words, the new formal spaces that emerged in the second 700 period have not led to the dispersion of the efforts and the new institutions incorporated 701 follow the common interests already established in the destination.

703 The persistence of common agendas over time demonstrates the clarity of the main 704 regional actors' vision. Thus, the developed tourism agenda has been shown as 705 sufficiently open to involve everyone and mobilize different stakeholders and 706 institutions from all levels (Zukauskaite et al., 2017), but also heavily focussed on some 707 themes, projects, and programmes allowing them to guarantee the foreseen results as 708 referred to in Question 4. This is a positive factor for the governance of the destination, 709 with a network of stakeholders able and committed to developing a long-term agenda, 710 even when new actors are added to the process.

711

702

712 Conclusion

713

714 The literature on institutional thickness has sharpened the view of how institutions 715 influence regional development (Zukauskaite et al., 2017). However, even before 716 considering the relationship between institutions and economic success, there are also 717 limitations in the operationalization of the study of institutional thickness' factors, 718 representing a challenge from the standpoint of its empirical application. Moreover, 719 caution should be also the guide when discussing under which circumstances tourism is 720 contributing to economic success (United Nations Conference on Trade and 721 Development [UNCTAD], 2013). Therefore, the aim of this article has been to provide 722 a useful approach to the study of institutional thickness by applying a social network 723 analysis methodology. In so doing, it made possible to quantify institutional presence, 724 levels of interaction, structures of domination, and common agendas in tourism as a 725 preliminary standpoint to design further complementary analysis on the relationship 726 between institutional thickness and tourism development and, if it is the case, economic 727 success. The paper advocates on the importance of advancing in understanding the role 728 of the regional institutional environment and the governance framework of tourism 729 destinations to better plan and manage their dynamics and effects.

730

This article shows that SNA is a valid tool not only to determine relations between institutions but also to observe how they define their connections, to size the evolution of the institutional thickness, to identify the role of each institution depending on their nature and level of involvement, and to determine how the design of common agendas attributes authority to some of them. In this sense, SNA has been proved as a useful methodology to set measures that enable identification and assessment of institutionalthickness factors synthetically and quantitatively.

738

In order to demonstrate this approach, it has been applied to one Latin American tourist region. The institutional fabric recently configured in the destination has been analysed, and interaction mechanisms used by the institutions have been examined. Results broaden the knowledge regarding the institutional dynamics occurring in a regional tourism destination by proposing and testing analytical tools that can shed light on the influence of institutions into tourism regions.

745

746 As regards the regional application context, results indicate the role of institutions in 747 creating a tourism related path for the Latin American region of Antioquia from the 748 lowest development level. This reinforces the idea that institutions may play an 749 important role in structuring regional economic policies and that the effects of 750 institutional networks in transforming economic structures may be evident in the long-751 term (Pike, Rodríguez-Pose, & Tomaney, 2016). Additionally, results show how 752 collaborative structures have been fundamental in the institutional dynamics of the 753 Antioquia region. These collaborative structures have been identified as formal spaces 754 characterised by the participation of a diverse range of actors with a role in the 755 destination's management system (Carlsson & Sandstrom, 2008). Over time, these 756 formal spaces enable certain institutions to acquire greater power in the institutional 757 network of the destination. This is mainly determined by its influential capacity through 758 coordination or domination of key issues. This type of result is particularly useful in a 759 sector such as tourism, which is highly fragmented and with an important presence of 760 small and medium firms and initiatives (Hazra et al., 2017). Moreover, it allows us to 761 categorize the power of private firms, auxiliary or support institutions and private and 762 public tourism related institutions.

763

Considering all of this, it is important to highlight finally that being one of the first applying SNA to study institutional thickness in the context of a regional tourism destination, this article opens the door for future developments in order to advance the understanding of regional tourism dynamics and paths or, even, economic development processes related to other industries or in different geographical contexts.

770	In this vein, comparative studies between destinations could be performed so the				
771	structural measures can enable the development of a numerical scale or range that could				
772	place the degree of institutional thickness of a destination beyond the number of				
773	institutions rooted in it. Otherwise, the analysis of how the different types of formal				
774	interaction spaces (partnerships, sectoral boards, and sectoral councils) could offer				
775	differentiated capacities concerning the institutional organization of the destination				
776	could be also be developed. At the same time, how sectoral topics and common agendas				
777	are efficient to configure interactions and bring the region together towards the				
778	achievement of fully established goals should also be a question to approach through the				
779	use of SNA.				
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781	Number of words: 7618 (without abstract, title and keywords)				
782					
783	References				
784					
785	Amin, A., & Thrift, N. (1994). Globalization, Institutions, and Regional Development in				
786	Europe. Oxford: Oxford University Press.				
787					
788	Baggio, R., Scott, N., & Cooper, C. (2010). Network science: A review focused on				
789	tourism. Annals of Tourism Research, 37(3), 802-827.				
790	https://doi.org/10.1016/j.annals.2010.02.008.				
791					
792	Baggio, R. (2011). Collaboration and cooperation in a tourism destination: a network				
793	science approach. Current Issues in Tourism, 14(2), 183-189.				
794	https://doi.org/10.1080/13683500.2010.531118.				
795					
796	Baggio, R., Scott, N., & Cooper, C. (2011). Design of tourism governance networks. In				
797	E. Laws, J. Agrusa, N. Scott, & H. Richins (Eds.), Tourist destination governance:				
798	Practice, theory and issues (pp. 159-171). Oxfordshire: CABI.				
799					
800	Barrat, A., Barthélemy, M., Pastor-Satorras, R., & Vespignani, A. (2004). The				
801	architecture of complex weighted networks. Proceedings of the National Academy of				
802	Sciences of the United States of America, 101(11), 3747-3752.				

804	Beer, A., & Lester, L. (2015). Institutional thickness and institutional effectiveness:			
805	Developing regional indices for policy and practice in Australia. Regional Studies,			
806	Regional Science, 2(1), 204-27. https://doi.org/10.1080/21681376.2015.1013150.			
807				
808	Blanchet, K., & James, P. (2011). How to do (or not to do)a social network analysis			
809	in health systems research. Health Policy and Planning, 27(5), 438-446.			
810	https://doi.org/10.1093/heapol/czr055.			
811				
812	Boschma, R. (2005). Proximity and innovation: a critical assessment. Regional Studies,			
813	39(1), 61–74. https://doi.org/10.1080/0034340052000320887.			
814				
815	Bras, J., Costa, C., & Buhalis, D. (2010). Network analysis and wine routes: the case of			
816	the Bairrada wine route. The Service Industries Journal, 30(10), 1621-1641.			
817	https://doi.org/10.4324/9781315878065.			
818				
819	Brida, J. G., Monterubbianesi, P. D., & Zapata-Aguirre, S. (2011). Impactos del turismo			
820	sobre el crecimiento económico y el desarrollo. El caso de los principales destinos			
821	turísticos de Colombia. Revista de turismo y patrimonio cultural, 9(2), 291-303.			
822				
823	Brouder, P. (2014). Evolutionary economic geography and tourism studies: Extant			
824	studies and future research directions. Tourism Geographies, 16(4), 540-545.			
825	https://doi.org/10.1080/14616688.2014.947314.			
826				
827	Brouder, P., Anton Clavé, S., Gill, A., & Ioannides, D. (2016). Tourism destination			
828	evolution. New York: Routledge.			
829				
830	Burris, V. (2005). Interlocking directorates and political cohesion among corporate			
831	elites. American Journal of Sociology, 111(1), 249-283. <u>https://doi.org/10.1086/428817.</u>			
832				
833	Carlsson, L. (2000). Policy networks as collective action. <i>Policy studies journal</i> , 28(3),			
834	502-520. https://doi.org/10.1111/j.1541-0072.2000.tb02045.x.			
835				
836	Carlsson, L., & Sandstrom, A. (2008). Network governance of the commons			

837 International. *Journal of the Commons*, 2(1), 33–54.

839	Carrington, P. J., Scott, J., & Wasserman, S. (2005). Models and methods in social				
840	network analysis. New York: Cambridge University Press.				
841					
842	Chang, H. J. (2011). Institutions and economic development: theory, policy and				
843	history. Journal of Institutional Economics, 7(4), 473-498.				
844	https://doi.org/10.1017/S1744137410000378.				
845					
846	Cheng, W., & Lie, C. (2009). Institutional thickness, institutional space and regional				
847	development. Human Geography, 24(2), 67-72.				
848					
849	Colombian Statistical Office, DANE. (2020). Gross domestic product. Retrieved from				
850	https://www.dane.gov.co.				
851					
852	Coulson, A., & Ferrario, C. (2007). Institutional thickness: Local governance and				
853	economic development in Birmingham, England. International Journal of Urban and				
854	Regional Research, 31, 591–615. <u>https://doi.org/10.1111/j.1468-2427.2007.00739.x.</u>				
855					
856	Davis, A., Gardner, B. B., & Gardner, M.R. (1941). Deep South. Chicago: University of				
857	Chicago Press.				
858					
859	Desforges, L. (2000). State tourism institutions and neo-liberal development: a case				
860	study of Peru. Tourism Geographies, 2(2), 177-192.				
861	https://doi.org/10.1080/14616680050027888.				
862					
863	DiMaggio, P., & Powell, W. (1983). The iron cage revisited: Institutional isomorphism				
864	and collective rationality in organizational fields. American Sociological Review, 48(2),				
865	147-160. https://www.jstor.org/stable/2095101.				
866					
867	Erdős, P., & Rényi, A. (1959). On Random Graphs. I. Publicationes Mathematicae, 6,				
868	290–297.				
869					

870	Escobal, J., & Ponce, C. (2011). Access to public infrastructure, institutional thickness			
871	and pro-poor growth in rural Peru. Journal of International Development, 23(3), 358-			
872	79. https://doi.org/10.1002/jid.1775.			
873				
874	Fornahl, D., & Brenner, T. (2003). Cooperation, Networks and Institutions in Regional			
875	Innovation Systems. Cheltenham: Edward Elgar Publishing.			
876				
877	Gibson, L., Lynch, P. A., & Morrison, A. (2005). The local destination tourism			
878	network: Development issues. Tourism and Hospitality Planning & Development, 2(2),			
879	87-99. https://doi.org/10.1080/14790530500171708.			
880				
881	Giordano, B. (2001). 'Institutional thickness', political sub-culture and the resurgence			
882	of (the 'new') regionalism in Italy-a case study of the Northern League in the province			
883	of Varese. Transactions of the Institute of British Geographers, 26(1), 25-41.			
884	https://doi.org/10.1111/1475-5661.00004.			
885				
886	Hall, C., Williams, A., & Lew, A. (2004). Tourism: Conceptualizations, institutions,			
887	and issues. In A. Lew, C. M. Hall, & A. M. Williams (Eds.), A companion to tourism			
888	(pp. 3-21). Oxford: Blackwell Publishing.			
889				
890	Hallin, C., & Marnburg, E. (2008). Knowledge management in the hospitality industry:			
891	A review of empirical research. Tourism Management, 29(2), 366-381.			
892	https://doi.org/10.1016/j.tourman.2007.02.019.			
893				
894	Hazra, S., Fletcher, J., & Wilkes, K. (2017). An evaluation of power relationships			
895	among stakeholders in the tourism industry networks of Agra, India. Current issues in			
896	tourism, 20(3), 278-294. https://doi.org/10.1080/13683500.2014.887662.			
897				
898	Henry, N., & Pinch, S. (2001). Neo-Marshallian nodes, institutional thickness, and			
899	Britain's 'Motor Sport Valley': thick or thin? Environment and Planning A, 33(7), 1169-			
900	1183. https://doi.org/10.1068/a32184.			
901	Keeble, D., Lawson, C., Moore, B., & Wilkinson, F. (1999). Collective learning			
902	processes, networking and 'institutional thickness' in the Cambridge region. Regional			
903	studies, 33(4), 319-332. https://doi.org/10.1080/713693557.			

904					
905	Kimbu, A., & Ngoasong, M. (2013). Centralised decentralisation of tourism				
906	development: A network perspective. Annals of Tourism Research, 40, 235-259.				
907	https://doi.org/10.1016/j.annals.2012.09.005.				
908					
909	Kleinberg, J. (1999). Authoritative sources in a hyperlinked environment. Journal of the				
910	ACM (JACM), 46(5), 604-632. https://doi.org/10.1145/324133.324140.				
911					
912 913	Lickorish, L. J., & Jenkins, C. L. (2007). Introduction to tourism. London: Routledge.				
914	MacLeod, G. (1997). Institutional thickness and industrial governance in Lowland				
915	Scotland. Area, 29(4), 299-311. https://doi.org/10.1111/j.1475-4762.1997.tb00032.x.				
916					
917	MacLeod, G., & Goodwin, M. (1999). Space, scale and state strategy: rethinking urban				
918	and regional governance. Progress in Human Geography, 23(4), 503-527.				
919	https://doi.org/10.1191/030913299669861026.				
920					
921	Madoery, O. (2001). Actores territoriales y política de desarrollo endógeno. Revista				
922	Aportes Para el Estado y la Administración Gubernamental, 8, 81–91.				
923					
924	McLeod, M., Vaughan, D., & Edwards, J. (2010). Knowledge networks in the tourism				
925	sector of the Bournemouth, Poole, and Christchurch conurbation: preliminary analysis.				
926	Service Industries Journal, 30, 1651–1667. https://doi.org/10.4324/9781315878065.				
927					
928	Ménard, C. (2011). A new institutional economics perspective on environmental issues.				
929	Environmental Innovation and Societal Transitions, 1, 115–120.				
930	https://doi.org/10.1016/j.eist.2011.04.002.				
931					
932	Meyer, J., & Rowan, B. (1977). Institutionalized organizations: formal structure as myth				
933	and ceremony. American Journal of Sociology, 83(2), 340–363.				
934	https://doi.org/10.1086/226550.				
935	Newman, M. E. (2001). The structure of scientific collaboration networks. Proceedings				
936	of the national academy of sciences, 98(2), 404-409.				
937	https://doi.org/10.1073/pnas.98.2.404.				

938					
939	Newman, M. E. (2002). Assortative mixing in networks. Physical review letters, 89(20),				
940	208701. https://doi.org/10.1103/PhysRevLett.89.208701.				
941					
942	Newman, M. E. (2006). Finding community structure in networks using the				
943	eigenvectors of matrices. Physical Review E, 74, 036104.				
944					
945 946 947	North, D. (1990). Institutions, Institutional Change and Economic Performance. Cambridge, MA: Cambridge University Press.				
948	Nunkoo, R., Ramkissoon, H., & Gursoy, D. (2012). Public trust in tourism				
949	institutions. Annals of Tourism Research, 39(3), 1538-1564.				
950	https://doi.org/10.1016/j.annals.2012.04.004.				
951					
952	Owen-Smith, J., & Powell, W. (2008). Networks and Institutions. In R. Suddaby, C.				
953	Oliver, R. Greenwood, & K. Sahlin (Eds.), The SAGE handbook of organisational				
954	institutionalism (pp. 596-623). London: Sage.				
955					
956	Pike, A., Rodríguez-Pose, A., & Tomaney, J. (2016). Local and Regional Development.				
957	London: Routledge.				
958					
959	Posner, R. A. (2010). From the new institutional economics to organization economics:				
960	with applications to corporate governance, government agencies, and legal				
961	institutions. Journal of Institutional Economics, 6(1), 1-37.				
962	https://doi.org/10.1017/S1744137409990270.				
963					
964	Raco, M. (1998). Assessing 'institutional thickness' in the local context: a comparison				
965	of Cardiff and Sheffield. Environment and Planning A, 30(6), 975-996.				
966	https://doi.org/10.1068/a300975.				
967					
968	Ramayah, T., Lee, J., & In, J. (2011). Network collaboration and performance in the				
969	tourism sector. Service Business, 5(4): 411. <u>https://doi.org/10.1007/s11628-011-0120-z.</u>				
970					

- 871 Restrepo, N., & Anton Clavé, S. (2019). Institutional Thickness and Regional Tourism
 872 Development: Lessons from Antioquia, Colombia. *Sustainability*, *11(9)*, 2568.
 873 https://doi.org/10.3390/su11092568.
- 974
- Ritchie, J., & Crouch, G. (2005). *The competitive destination: A sustainable tourism perspective*. Wallingford: CABI.
- 977
- 978 Rodríguez-Pose, A. (2013). Do institutions matter for regional development? *Regional*

979 *Studies*, 47(7), 1034-1047. <u>https://doi.org/10.1080/00343404.2012.748978.</u>

- 980
- Roxas, B., & Chadee, D. (2013). Effects of formal institutions on the performance of
 the tourism sector in the Philippines: The mediating role of entrepreneurial
 orientation. *Tourism Management*, *37*, 1-12.
 https://doi.org/10.1016/j.tourman.2012.10.016.
- 985
- Sanz-Ibáñez, C., Lozano, S., & Anton Clavé, S. (2019). Brokers in a destination's
 knowledge networks. *Journal of destination marketing & management*, *11*, 120-129.
 <u>https://doi.org/10.1016/j.jdmm.2019.01.001.</u>
- 989

990 Scott, N., & Cooper, C. (2007). Network analysis as a research tool for understanding

991 tourism destinations. In D. Airey & J. Tribe (Eds.), *Developments in Tourism Research*

- 992 (pp. 199-216). Oxford: Elsevier.
- Scott, N., Cooper, C., & Baggio, R. (2008a). Destination networks: four Australian
 cases. Annals of Tourism Research, 35(1): 169-188.
 <u>https://doi.org/10.1016/j.annals.2007.07.004.</u>
- Scott, N., Cooper, C., & Baggio, R. (2008b). *Network analysis and tourism: From theory to practice*. Clevedon: Channel View Publications.
- 998 Scott, N., & Laws, E. (2010). Advances in service networks research. The Service
- 999 Industries Journal, 30(10), 1581-1592. <u>https://doi.org/10.1080/02642060903580623.</u>
- 1000 Searle, J. R. (2005). What is an institution? Journal of institutional economics, 1(1), 1-
- 1001 22. <u>https://doi.org/10.1017/S1744137405000020.</u>
- 1002

1003	Swyngedouw, E. (2000). Elite Power, Global Forces, and the Political Economy of
1004	'Glocal' Development. In G. Clark, M. Feldman & M. Gertler (Eds.), Handbook of
1005	Economic Geography (pp. 541-558). Oxford: Oxford University Press.
1006	
1007	United Nations Conference on Trade and Development [UNCTAD]. (2013). Trade and
1008	development report. Geneva: United Nations.
1009	
1010	Valente, F., Dredge, D., & Lohmann, G. (2015). Leadership and governance in regional
1011	Tourism. Journal of Destination Marketing & Management, 4(2), 127–136.
1012	https://doi.org/10.1016/j.jdmm.2015.03.005.
1013	
1014	Van der Zee, E., & Vanneste, D. (2015). Tourism networks unravelled; a review of the
1015	literature on networks in tourism management studies. Tourism Management
1016	Perspectives, 15, 46-56. https://doi.org/10.1016/j.tmp.2015.03.006.
1017	
1018	Vázquez Barquero, A. (2005). Las nuevas fuerzas del desarrollo. Madrid: Antoni Bosch
1019	Editorial.
1020	
1021	Voigt, S. (2013). How (not) to measure institutions. Journal of Institutional
1022	Economics, 9(1), 1-26. https://doi.org/10.1017/S1744137412000148.
1023	
1024	Wasserman, S., & Faust, K. (1994). Social network analysis: Methods and applications.
1025	Cambridge, UK: Cambridge University Press.
1026	
1027 1028 1029 1030	Watts, D. J., & Strogatz, S. H. (1998). Collective dynamics of 'small-world'networks. <i>Nature</i> , 393, 440-442. <u>https://doi.org/10.1038/30918.</u>
1030 1031 1032 1033	Wood, A., & Valler, D. (2004). Governing Local and Regional Economies: Institutions, Politics and Economic Development. Surrey: Ashgate Publishing.
1034	Zach, F., & Racherla, P. (2011). Assessing the value of collaborations in tourism
1035	networks: A case study of Elkhart County, Indiana. Journal of Travel & Tourism
1036	Marketing, 28(1), 97-110. https://doi.org/10.1080/10548408.2011.535446.
1037	

1038	Zukauskaite, E., Trippl,	M., & Plechero, M. (2017).	Institutional Thickn	ess revisited.	
1039	Economic	Geography,	<i>93</i> (4),	325–345.	
1040	https://doi.org/10.1080/00130095.2017.1331703.				
1041					
1042					
1043	Appendix				
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1047	[Appendix B].				
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1049	[Appendix C].				