

## Citation analysis of the Brazilian tourism journals: subsidies for impact factors estimation

Análise de citações de periódicos científicos de turismo no Brasil: subsídios para a estimação de indicadores de impacto

Análisis de citas de periódicos científicos de turismo en Brasil: subsidios para la estimación de indicadores de impacto

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**Abstract:** This paper presents the analysis of all references made by articles published at the four major Brazilian tourism journals. A total of 28,767 references in the 1,254 articles published since the first volume of each journal until the end of 2014. References were analyzed with respect to their type (journal, book, thesis, conference paper and others), place of publishing (Brazil or other countries) and authorship. For the references of scientific articles, the names of these specific vehicles were identified. The results indicate the most cited authors, books, articles and journals. Impact factors of journals and the h-index of Hirsch (2005) of authors were also estimated. Moreover, techniques of social network analysis were applied to the representation of the relationships between authors and journals, besides estimating complex centrality indexes for these agents. The results also indicate some tendencies of change in the actual scenario arising from the strengthening of new authors and journals.

**Keywords:** Tourism. Scientific Journals. Bibliometric Analysis. Impact Factor. Brazil.

**Resumo:** O artigo apresenta a análise de todas as referências feitas pelos artigos publicados nas quatro principais revistas de turismo do Brasil. Foram identificadas 28.767 referências nos 1.254 artigos publicados desde o primeiro volume de cada revista até o fim de 2014. As referências foram analisadas quanto ao tipo de material (periódico, livro, tese, trabalho em evento e outros), local de publicação (Brasil ou exterior) e autoria. Nos casos de referências feitas a artigos científicos, foram identificados os nomes dessas publicações específicas. Os resultados apontam os autores, livros, artigos e periódicos mais citados. Foram também estimados os fatores de

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impacto dos periódicos e os índices h de Hirsch (2005) dos autores. Além disso, foram utilizadas técnicas de análise de redes sociais para representar as relações existentes entre os autores e entre os periódicos, além de estimar índices complexos de centralidade desses agentes. Os resultados apontam tendências de mudança do cenário atual decorrentes do fortalecimento de novos autores e periódicos.

**Palavras-chave:** Turismo. Periódicos Científicos. Análise Bibliométrica. Fator de Impacto. Brasil.

**Resumén:** *En este trabajo se presenta un análisis de todas las referencias de los artículos publicados en los cuatro principales periódicos de turismo de Brasil. Se identificaron 28.767 referencias de 1.254 artículos publicados desde el primer volumen de cada periódico hasta el final de 2014. Las referencias fueron analizadas con respecto al tipo de material (periódico, libro, tesis, trabajando en congresos y otros), lugar de publicación (Brasil o exterior) y la autoría. En el caso de referencias a artículos científicos, se identificaron los nombres de las publicaciones específicas. Los resultados apuntan a los autores, libros, artículos y periódicos más citados. También se estimaron los factores de impacto de las revistas y el índice h de Hirsch (2005) de los autores. Se utilizaron técnicas de análisis de redes sociales para representar la relación entre los autores y entre los periódicos, además de estimar índices complejos de la centralidad de estos agentes. Los resultados también indican cambios en las tendencias de la situación actual resultantes de la consolidación de nuevos autores y las revistas.*

**Palabras clave:** Turismo. Periódicos Científicos. Análisis Bibliométrico. Factor de Impacto. Brasil.

## 1 INTRODUCTION

The analysis of the scientific production of a country, whether in general or of a specific field of research, is key to reveal where science is heading, its ramifications, to avoid mistakes and correct its course. According to a study of FAPESP (2005), the use of indicators have long tradition, because these are tools to boost science, technology, innovation, and competitiveness and can contribute "to the analysis of the outcomes of the available infrastructure and policies of investment in scientific and technological research" (p. 4). Therefore, this is a theoretical exercise with practical results that has increasingly gained visibility in the Brazilian scientific community. Bibliometrics is the field of librarianship and information science responsible for data processing and analysis in order to generate a variety of indicators in research.

According to Santos and Rejowski

(2013), at least 20 scientific tourism journals have existed in Brazil. These authors point out some of the difficulties that the Brazilian journals face, such as: no inclusion in the Journal Citation Reports from Thomson Reuters, they have no impact factor, and they are not indexed in the Scientific Electronic Library Online (SCIELO) or included in other archiving systems, such as Science Direct, Sage Publications, and JSTOR.

The current study is within the scope of bibliometric analysis and examines the references made by papers published in the four Brazilian academic tourism journals better classified by the Qualis system of CAPES in 2014, which are: *Caderno Virtual de Turismo* (CVT) (Virtual Tourism Handbook), *Revista Brasileira de Pesquisa em Turismo* (RBTur) (Brazilian Magazine of Tourism Research), *Revista Turismo em Análise* (RTA) (Tourism Analysis), and *Revista Turismo Visão e Ação* (RTVA) (Tourism: Vision and Action). The main objective is to develop the bibliometric

analysis and offer subsidies for the creation of impact indicators of Brazilian tourism journals. To this end, the following section makes a brief literature review on Bibliometrics and scientific production in Brazil. Section 3 describes the set of articles analyzed. Section 4 presents the results obtained, including information on the type of reference, the main articles and Brazilian tourism books referenced and their authorship, the periodicals cited and the topics covered in the referenced work. In particular, the different impact indicators of journals and authors are presented, including impact factors, indices and measures of centrality of social networks formed by references.

## 2 LITERATURE REVIEW

The most robust analyses of the Brazilian scientific production are made by public organizations, among them CNPq (2016), CAPES (various reports available in [www.capes.gov.br](http://www.capes.gov.br)) and FAPESP (2005). However, there are authors who have become specialized in this kind of research, among them Viotti and Macedo (2003), Mugnaini, Jannuzzi and Quoniam (2004) and Meis, Arruda and Guimarães (2007), just to name a few.

Bibliometrics analysis usually focuses on the handling of references for scientific papers. Such references may include books, magazines, journal articles, articles published in events and others. The analyses are made by using different statistical methods, which may or may not be specific to an area, depending on the objectives to be achieved.

The goals of this type of study may include the identification of trends of a field; measuring the contribution given by universities, study groups, researchers and scientific journals; and the identification of links between researchers, topics of study, groups, universities, etc. Such analyses have been used in Brazil in different areas of knowledge, e.g., management (Bertero, Caldas, & Wood Jr., 1999; Wood Jr & Chueke, 2008), medicine (Mendes, Martelli, Souza, Quirino Filho, & Martelli Júnior, 2010; Romano-Silva et al., 2013; Vitor-Costa, Silva, & Soriano, 2012) and physical education (Sacardo & Hayashi, 2011; Victor-Costa et al., 2012).

The Brazilian scientific production in tourism, when compared to other established areas, is recent and it is in the pursuit of excellence and high quality. Regarding the books, when Barretto (Barretto, 1996, p. 99) made the first survey of what was published in Brazil he identified 66 books. According to Panosso Netto (2005), the first series of tourism of Brazil appeared in 1986, with "Tourism: defining activity of the 20th century" by Geraldo Castelli (Editora Educus). This author inventoried 329 titles that had been published by 17 publishers between 1990 and 2004. Later, Panosso Netto and Calciolari (2010), in an upgrade, identified 51 publishers and 560 titles. Currently, Santos (2016) acknowledge around 1700 tourism books published in Brazil.

In relation to the tourism journals in the world, according to Panosso Netto and Jäger (2015), the first was created in Germany before the Second World War, by the researcher Robert Glücksmann, in 1930 and

was called *Archiv für den Fremdenverkehr* (Archive of/for Tourism). In 1946, was published the *Revue du Tourisme*, in Switzerland, which still exists today. Other magazines have emerged only in the 1960s. Studies on the most important international tourism magazines were published by Pechlaner, Zehrer, Matzler and Abfalder (2004), Ryan (2005), McKercher, Law and Lam (2006), Jamal, Smith and Watson (2008), Severt, Tesone, Bottorff and Carpenter (2009), Hall (2011), Cheng, Li, Petrick and O'Leary (2011), Park, Phillips, Canter and Abbott (2011). Moreno-Gil and Picazo-Peral (2012) have addressed only the scientific papers published in different journals by authors affiliated to Spanish entities.

According to Rejowski and Aldrigui (2007), with regard to tourism journals in Brazil, the first to be created was the *Revista Turismo em Análise* (Tourism Analysis Magazine), from the USP, in 1990 and the second was the *Boletim do Curso de Turismo* (Tourism Program Newsletter) (deactivated), from the UNIBERO, in 1992. In 1998, *Turismo: Visão e Ação* (Tourism: Vision and Action), from UNIVALI, and *Turismo: Tendências & Debates* (Tourism: Trends & Debate), from the Faculty of Tourism of Bahia, made their debut. The last survey was conducted by Santos (2016), and it indicates 17 active periodicals and 14 other deactivated. Solha e Jacon (2010) were the first to propose a qualitative analysis of the journals and not only quantitative, which was followed by Miranda (2012).

Still focusing on Brazil, Picazo-Peral, Moreno-Gil and León-González (2012) have

analyzed the contribution of tourism researchers affiliated to Brazilian entities published in specialized journals in the field both in the Brazil and abroad from 2006 to 2011. The leading institutions of education and Brazilian researchers were identified and ranked. Despite criticism, because the article was considered to strengthen the productivist logic of the academia, the study offers an overview, based on predetermined objective criteria, about the most published Brazilian authors in a group of scientific journals. The research of Santos and Rejowski (2013) has extended the research of Picazo-Peral et al. (2012) by analyzing 2,126 articles published in 20 Brazilian tourism journals between 1990 and 2012. The most prolific authors and most frequent keywords were identified, in addition to statistics on the size of the articles, titles and abstracts, which made of this one of the most comprehensive studies on the topic.

It is important to note that no Brazilian author of tourism or Brazilian tourism educational institution is included in any of the several international rankings made by Ryan (2005), Pechlaner et al. (2004), Severt et al. (2009) or Park et al. (2011). The reasons for this fact have not so far been investigated, nonetheless some hypotheses have been proposed, among them difficulties with the English language, translation or editing services high costs, the choice of topics which have only local interest, researchers' methodological and theoretical shortcomings or even a lack of interest in publishing in such scientific dissemination vehicles.

### 3 ANALYZED PAPERS

In this research, we analyze the references used in scientific articles published in four of the main tourism journals in Brazil, from their release dates until the end of 2014. The selection of these journals was made through the Brazilian Qualis system of classification developed by the Coordination for the Improvement of Higher Education Personnel (Capes). We selected periodicals from the field of tourism, with a minimum grade of B2 required, according to the 2014 list. The focus of this analysis is on tourism as a whole, thus we ruled out the periodical *Revista Brasileira de Ecoturismo - RBE* (Brazilian

Journal of Ecotourism) due to its specific targeting, a bias that could favor ecotourism research and researchers in the results. It should be noted that the Qualis system aims the classification of journals for the purpose of evaluating postgraduate programs. Therefore, the use of this instrument for the selection of journals is a criteria for approaching the most representative scientific production. However, as it was not designed for this particular purpose, such an instrument may be prone to distortions. Also, the same criteria was used in similar studies, such as that by Santos and Rejowski (2013). The journals selected for analysis are depicted in Table 1.

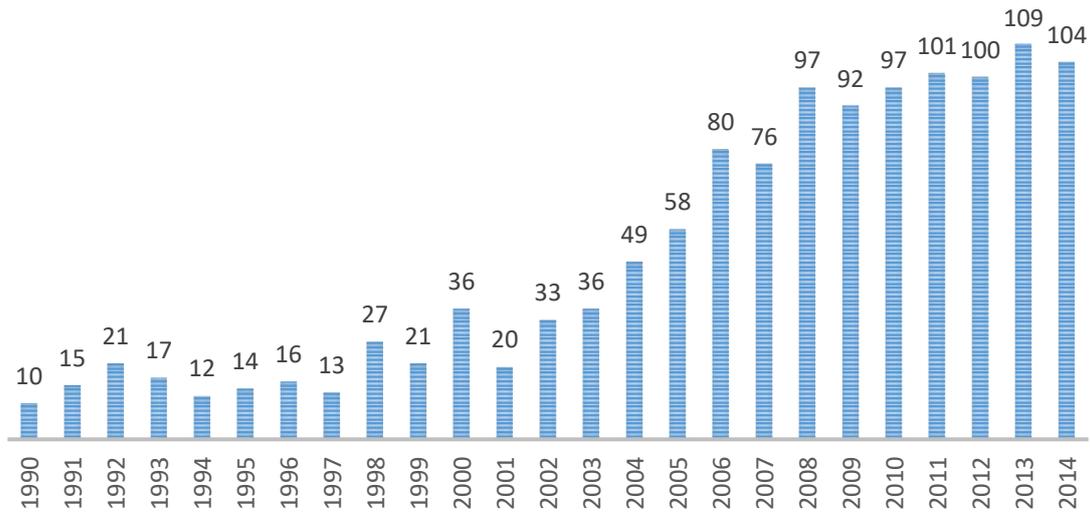
**Table 1** - Description of analyzed journals

Journal	Responsible entity	Starting year	Qualis (2014)	Number of analyzed papers	% of total of analyzed papers
<i>Caderno Virtual de Turismo</i> (CVT)	Federal University of Rio de Janeiro (UFRJ)	2001	B1	308	24.6%
<i>Revista Brasileira de Pesquisa em Turismo</i> (RBTur)	National Association for Research and Postgraduate Studies in Tourism (ANPTUR)	2007	B2	156	12.4%
<i>Revista Turismo em Análise</i> (RTA)	University of São Paulo (USP)	1990	B2	473	37.7%
<i>Revista Turismo Visão e Ação</i> (RTVA)	University of Vale do Itajaí (UNIVALI)	1998	B2	317	25.3%
<i>Total</i>				1,254	100.0%

The four selected journals currently are published on a quarterly basis. In each issue of the periodicals only the papers were considered in this analysis, other works, such as reviews, comments, reports of events, among others were ruled out. During most of the 1990s only the RTA was published; RTVA made its debut in 1998. Therefore, the papers published during this decade represent

a smaller share of the total analyzed (13.2 percent). Most of the articles analyzed (55.8 percent) were published as of 2008. If we consider the last five years of the period under study, the number of publications represents 40.7 percent of the total. The number of papers analyzed by year of publication is presented in Figure 1.

**Figure 1** - Year of publication of the analyzed papers



A simple count of items shows that Rivanda Meira Teixeira was the researcher who published most in the journals analyzed (22 papers). Following in the ranking appear Doris van de Meene Ruschmann (18 papers), Mirian Rejowski (17 articles) and José Manoel Gonçalves Gândara (17 papers). The 19 authors with 7 or more papers included in all analyzed are shown in Table 2. If continued, this list would indicate the existence of 13 authors with 6 published papers, 10 with 5 papers, 25 with 4 papers, 48 with 3 papers, 210 with 2 papers 210, and 1460 with only 1 paper. Therefore, it should be noted that the

distribution of authors on the basis of the number of published papers follows a roughly exponential curve, so that the number of authors decreases exponentially with increasing the number of articles published.

The features of the papers published are not object of detailed analysis in this study. The focus of this paper is to analyse cited works, not those merely published. For information about the characteristics of published works, we recommend the study of Santos and Rejowski (2013).

**Table 2** - Number of analyzed papers from main authors

Author	Papers
Rivanda Meira Teixeira	22
Doris van de Meene Ruschmann	18
Mirian Rejowski	17
José Manoel Gonçalves Gândara	17
Carlos Alberto Cioce Sampaio	11
Glauber Eduardo de Oliveira Santos	10
Alfredo Ascanio	10
Paulo dos Santos Pires	9
Mario Carlos Beni	9
Josildete Pereira de Oliveira	9
Yolanda Flores e Silva	8
Francisco Antonio dos Anjos	8
Wilson Abrahão Rabahy	7
Valmir Emil Hoffmann	7
Maximiliano Emanuel Korstanje	7
Margarita Barretto	7
Heros Augusto Santos Lobo	7
Helena Araújo Costa	7
Edegar Luis Tomazzoni	7

## 4 ANALYSIS OF RESULTS

### 4.1 Type of reference

We recorded a total of 28,767 references at the end of each of the 1,254 analyzed papers. The references were classified into five categories describing the type of referenced material, namely:

- I. Journal: work published in a journal regardless of the section.
- II. Book: includes authored books and edited books.
- III. Theses: includes doctoral theses, master's dissertations and other types of academic monographs.
- IV. Events: papers presented at events or published in the annals of events.
- V. Others: other type of materials not included in the above-mentioned categories, such as reports issued by organizations, webpages, articles,

among others.

A small portion of the referenced material was classified under "Others" (3.4 percent). As this research focus on authored works of academic nature, materials classified as "Others" have not been analysed in detail. The works belonging to other categories were also classified as to nationality and field of knowledge. In terms of nationality, the referenced materials were divided into Brazilians and foreigners. Regarding the field of knowledge, the materials were classified as tourism or other field of knowledge. In the case of works published in journals, the classification of field of knowledge took into account the focus of the journal, and not the work itself. For both periodicals and other materials, the focus on tourism was assessed by the terms used in the title and description of the material. For example, books that fail to mention the term tourism both in the title and in the synopsis released by the publisher

were associated to other areas of knowledge.

Among the 27,780 authored materials referenced, most part is composed of books (57.2 percent). The works published in journals represent 32.1 percent of the total of registered references. The proportion between these two types of materials has been changing in favor of journals. Only 1.2 percent of the cited books were published as of 2010, whereas 24.3 percent of papers cited were published in the same period

The majority of the referenced works is Brazilian (56.7 percent). The specific works within the field of tourism are only 38.1 percent of the total of the registered authored

works. This profile of references in the analyzed papers reveals that the authors prefer referring to international works. A more consistent national scientific production should lead to a majority of national journals referencing. However, the most cited categories are just the opposite. Each of the three categories associated with the national tourism journals has proved less cited than its alternative. Instead, the categories of most cited materials are books, foreign works and works from other fields of knowledge. The distribution of references according to this classification is presented in Table 3.

**Table 3** - Distribution of analyzed references by nationality, field of knowledge and type

Type	Tourism			Other field			Total
	Brazil	Foreigner	Total	Brazil	Foreigner	Total	
Journal	876	2,766	3,642	1,686	3,580	5,266	8,908
Book	3,876	2,078	5,954	6,936	3,010	9,946	15,900
Thesis	409	66	475	937	95	1,032	1,507
Event	342	176	518	698	249	947	1,465
Total	5,503	5,086	10,589	10,257	6,934	17,191	27,780

On average the time elapsed between the publication of the work and its use as a reference of a scientific paper is 4.7 years. Most of the references (59.5 percent) are made to works up to four years. Only 7.7 percent of the citations refer to works with 10 or more years.

#### 4.2 Brazilian tourism books and papers

Publications in journals and Brazilian tourism books referenced in the set of selected articles were analyzed in greater detail than other publications, including other types of materials, the foreign publications

and works of other fields of knowledge. A total of 876 references were made to works published in Brazilian scientific tourism journals. These references included 547 individual different works and seven citations of journals as a whole. Of the authored works, only 12 have been cited at least five times. Half of these were published in the RTA. The most cited work, published by Margarita Barretto on RTA in 2004, received 10 citations. Mario Carlos Beni and Marta de Azevedo Irving are the only researchers who have two works among the 12 most cited. The list of 12 works that have received at least 5 citations is presented in Table 4.

**Table 4 - Most cited Brazilian journals**

Title	Author(es)	Journal	Year	References
Relationship between visitors and residents: retrospective of socio anthropological studies	Margarita Barreto	RTA	2004	10
Tourism National Plan: a critical analysis	Davis Gruber Sansolo & Rita de Cássia Ariza da Cruz	CVT	2003	8
Revisiting meanings in tourism planning sustainability	Marta de Azevedo Irving; Ivan Bursztyn; Altair Sancho & Gustavo de M. Melo	CVT	2005	8
The network of tourism businesses: a study of their characteristics and strategic implications	Denis Donaire; Marcos Pereira da Silva & Marcos Antonio Gaspar	RTVA	2009	7
Higher education and the hotel industry in Brazil: an exploratory study	Rivanda Meira Teixeira	RTA	2001	7
An approximation between the tourism study and administration science following Tedqual model: the case of São Luís	Anderson Lourenço Miranda Lourenço Miranda & Deborah Moraes Zouain	RTVA	2008	6
Evaluation of service quality in a guest house using the Servqual scale	Luciana Santos Veiga & Josivania Silva Farias	RTVA	2005	5
Travel trade and globalization, communication and competition on the international market	Mario Carlos Beni	RTA	1996	5
Tourism scientific production: referential papers analysis in Brazilian and abroad	Mirian Rejowski	RTA	2010	5
Tourism system – SISTUR: study of tourism in the face of modern Systems theory	Mario Carlos Beni	RTA	1990	5
Community-based tourism: participation as a practice in the development of tourism projects in Brazil - Prainha do Canto Verde, Beberibe (CE)	Marta de Azevedo Irving & Teresa Cristina de Miranda Mendonça	CVT	2004	5
The role of sustainable tourism to the preservation of the natural heritage	Doris van de Meene Ruschmann	RTA	1992	5

If the focus of the analysis is narrowed down to the references made in papers published in the last five years of the period under analysis (2010-2014), the list of most re-

ferenced works is rather different, revealing a greater impact of other articles, as shown in Table 5.

**Table 5 - Most cited Brazilian papers published as of 2010**

Title	Author(es)	Journal	Year	References
The network of tourism businesses: a study of their characteristics and strategic implications	Denis Donaire; Marcos Pereira da Silva & Marcos Antonio Gaspar	RTVA	2009	7
An approximation between the tourism study and administration science following Tedqual model: the case of São Luís	Anderson Lourenço Miranda Lourenço Miranda & Deborah Moraes Zouain	RTVA	2008	6
Tourism National Plan: a critical analysis	Davis Gruber Sansolo & Rita de Cássia Ariza da Cruz	CVT	2008	5
Tourism Scientific production: referential papers analysis in Brazilian and abroad	Mirian Rejowski	RTA	2010	5
Revisiting meanings in tourism planning sustainability	Marta de Azevedo Irving; Ivan Bursztyn, Altair Sancho & Gustavo de M. Melo	CVT	2005	5
Community-based tourism: participation as a practice in the development of tourism projects in Brazil - Prainha do Canto Verde, Beberibe (CE)	Marta de Azevedo Irving Teresa Cristina de Miranda Mendonça	CVT	2004	5

From the 3,876 references to Brazilian books in the tourism field, 3,010 (77.7 percent) refer to authored books, whereas the remaining 866 relate to edited books. A total of 715 different authored books are referenced. The authored book most cited is “Structural Analysis of Tourism” by Carlos Mario Beni, which received 66 percent more citations than the second most cited book. Eleven books received at least 30 citations. This list is presented in Table 6.

If we were to redo the list presented in Table 6, considering only the references made in published works as of 2010, the result is essentially the same. The top positions

among the most cited authored books do not change significantly in the comparison between the total number of papers and the latest papers. Therefore, it should be noted that the same books continue to show the highest levels of impact on national scientific production.

The 866 references to Brazilian edited tourism books apply to 103 different titles. Only eight books are cited at least 30 times. The two books of this set with the largest number of citations were organized by Naveen Balastreri Rodrigues. The most cited books in this ranking are presented in Table 7.

**Table 6 - Most cited books on tourism by Brazilian authors**

Title	Author(es)	References
Structural analysis of tourism	Mario Carlos Beni	169
Tourism and sustainable planning: environmental protection	Doris van de Meene Ruschmann	102
<i>Sociology of Tourism, towards a new understanding of leisure and travels</i>	Jost Krippendorf	87
Methods and techniques for tourism research	Ada de Freitas Maneti Dencker	67
Tourism: principles and practice	Chris Cooper; John Fletcher; Stephen Wanhill; David Gilbert & Rebecca Shepherd	59
<i>Manual initiation to the study of tourism</i>	Margarita Barretto	50
Tourism policy and territory	Rita de Cássia Ariza da Cruz	41
The tourist gaze: leisure and travel in contemporary society	John Urry	38
Tourism: foundations and dimensions	José Vicente de Andrade	36
Tourism: principles, practices, philosophies	Charles R. Goeldner; J. R. Brent Ritchie & Robert W. McIntosh	34
Tourism space planning	Roberto C. Boullón	31

**Table 7 - Most cited edited tourism books**

Title	Author(es)	References
Tourism and geography: theoretical reflection and regional approach	Adyr Balastreri Rodrigues	44
Local development and tourism	Adyr Balastreri Rodrigues	43
Regional and global analysis of Brazilian tourism	Luiz Gonzaga Godoi Trigo; Alexandre Panosso Netto; Paulos dos Santos Pires; Mariana Aldrigui Carvalho	38
Tourism: theory and practice - Beatriz Helena Gelas Lage	Paulo Cesar Milone	35
Global tourism	William F. Theobald	34
Local identity and tourism: an anthropological vision	Álvaro Banducci Júnior & Margarita Barretto	33
Tourism: space, landscape, culture	Eduardo Yázigi	32
Ecotourism: a <i>guide</i> for planners and managers	Donald E. Hawkins & Kreg Lindberg	30

If we consider only the references made by papers published as of 2010, the list of the most cited edited books changes little. Basically, the books organized by the researcher Adyr Balastreri Rodrigues lose the prominence. On the other hand, the book “Community-based Tourism: a diversity of looks and Brazilian experiences”, by Davis Gruber Sansolo, Roberto Bartholo, and Ivan Bursztyn appears in the second position of

the ranking, behind the book “Regional and global analyses of Brazilian tourism”.

#### 4.3 Authorship of Brazilian books and articles on tourism

Altogether, 1,346 authors were cited in the set of Brazilian papers and books on tourism. The most cited author is Mario Carlos Beni, with 227 references. Doris van

de Meene Ruschmann and Margarita Barretto appear in the second position. A total of 33 authors had at least 30 citations. Among these, 14 (42.4 percent) are foreigner authors who published in Brazil, with emphasis to Jost Krippendorf and John Swarbrooke. Only 6.5 percent of the citations of the 33

most referenced authors relate to papers published in journals. The vast majority of citations (93.5 percent) refer to authored books. Contrary to the trend, all the cited works by the researcher Rivanda Meira Teixeira were published in journals. The list of most cited authors is presented in Table 8.

**Table 8** - Most cited authors (continue)

Author	References			
	Book	Journal (a)	Total (b)	(a)/(b)
Mario Carlos Beni	210	17	227	7.5%
Doris van de Meene Ruschmann	148	12	160	7.5%
Margarita Barretto	133	14	147	9.5%
Jost Krippendorf	87	0	87	0.0%
John Swarbrooke	79	0	79	0.0%
Ada de Freitas Maneti Dencker	78	1	79	1.3%
Reinaldo Dias	76	2	78	2.6%
Chris Cooper	72	0	72	0.0%
Luiz Gonzaga Godoi Trigo	70	1	71	1.4%
Rebecca Shepherd	69	0	69	0.0%
Rita de Cássia Ariza da Cruz	55	8	63	12.7%
John Fletcher	59	4	63	6.3%
Stephen Wanhill	59	0	59	0.0%
David Gilbert	59	0	59	0.0%
Geraldo Castelli	54	0	54	0.0%
Alexandre Panosso Netto	45	4	49	8.2%
Luzia Neide Menezes Teixeira Coriolano	45	2	47	4.3%
Mirian Rejowski	27	18	45	40.0%
Mario Petrocchi	45	0	45	0.0%
José Vicente de Andrade	41	0	41	0.0%
John Urry	38	0	38	0.0%
Joffre Dumazedier	38	0	38	0.0%
Eduardo Yázigi	35	1	36	2.8%
Rivanda Meira Teixeira	0	35	35	100.0%
Robert W. Mcintosh	34	0	34	0.0%
J. R. Brent Ritchie	34	0	34	0.0%
Charles R. Goeldner	34	0	34	0.0%
Roberto C. Boullón	33	0	33	0.0%
Nelson Carvalho Marcellino	31	1	32	3.1%
Wilson Abrahão Rabahy	22	9	31	29.0%

**Table 8 - Most cited authors** (conclusion)

Author	References			(a)/(b)
Luiz Renato Ignarra	31	0	31	0.0%
Colin Michael Hall	31	0	31	0.0%
Beatriz Helena Gelas Lage	26	4	30	13.3%

Narrowing down the analysis of the most cited authors to the set of works published as of 2010, we notice some changes in the top seven positions, revealing trends of change in the set of authors with the highest impact level, as shown in Table 9.

**Table 9 - Most cited authors in works published as of 2010**

Author	Book	References		
		Journal (a)	Total (b)	(a)/(b)
Mario Carlos Beni	95	1	96	1.1%
Doris van de Meene Ruschmann	62	1	63	1.6%
Margarita Barretto	56	5	61	8.9%
Reinaldo Dias	42	2	44	4.8%
Alexandre Panosso Netto	36	4	40	11.1%
Rita de Cássia Ariza da Cruz	33	5	38	15.2%
Ada de Freitas Maneti Dencker	36	1	37	2.8%

Altogether 1,431 book organizers and editors. The most referred editor is Adyr Balastreri Rodrigues with 147 citations. Other editors with more than 40 are Luiz Gonzaga Godoi Trigo (60 citations), Alexandre Panosso Netto (57), Heloisa Turini Bruhns (56), Marília Gomes dos Reis Ansarah (48), and Margarita Barretto (43).

Although the amount of citations is a relevant indicator of academic production of the authors, this measure has been criticized for not valuing the regularity of publication.

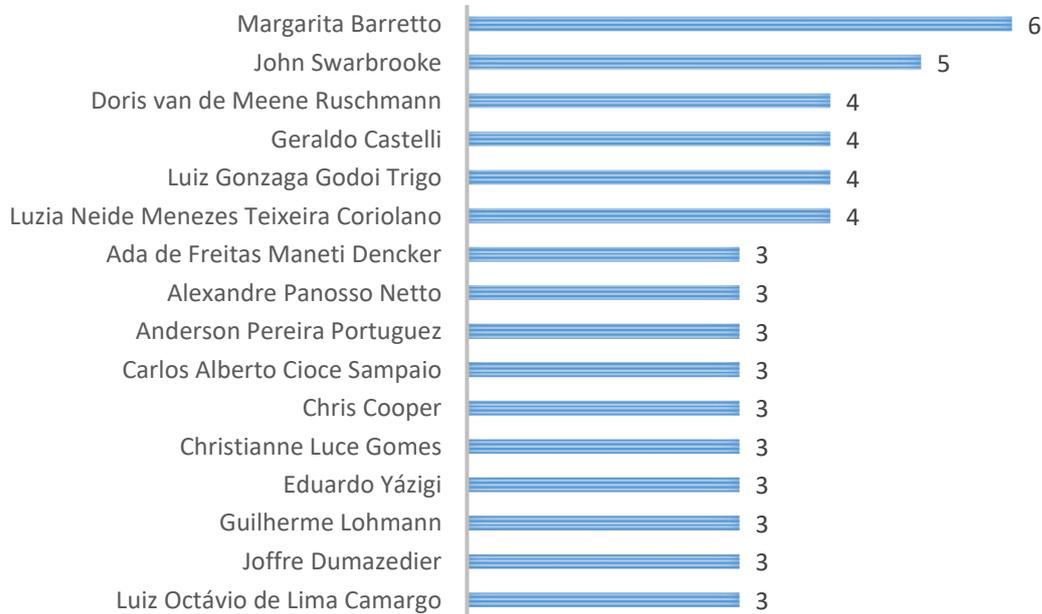
An author with a single publication cited many times may have offered a great contribution to the development of knowledge, however, from another perspective he or she may not be considered a highly prolific professional for not having put forward other relevant works. As a workaround to value author's regular production, the h-

index (Hirsch, 2005) has been increasingly adopted as a measure that takes into account both the amount of citations and the amount of work. The index is defined as the number of works with a large or equal amount of citations that number.

Among the authors cited in the analyzed articles, the researcher Margarita Barretto is the one with the highest h-index (h = 6). Then in this ranking appears the British author John Swarbrooke with five works cited at least five times. With a four h-index we have the researchers Doris van de Meene Ruschmann, Geraldo Castelli, Luiz Gonzaga Godoi Trigo, and Luzia Neide Menezes Teixeira Coriolano. The list of researchers with h-index equal to or greater than three is shown in Figure 2. It should be noted that the h-index that we have calculated here refers only to the analysis of the citations made in

articles of journals selected for this work, thus, in a wider universe of publications the h-index of each author can be superior.

**Figure 2 - H-index by author**



The citations of authors were also studied by means of social network analysis techniques, such as development of network diagrams and estimation of centrality measures (Carrington, Scott, & Wasserman, 2005; Scott, 2012; Scott & Carrington, 2011). Two measures of centrality were calculated: eigenfactor centrality (EC) and betweenness centrality (BC). The EC index is a comprehensive measure of centrality of the authors on the network of citations, taking into account not only the number of citations received, but also the centrality of the authors who made these citations. The process of measurement is recursive, so that the centrality of

an author depends on the centrality of those who cite them. In this way, the EC indicates the relevance of an author more accurately than the mere number of citations (Bergstrom, West, & Wiseman, 2008).

In turn, the BC indicates to what extent the authors connect with other authors. An author with high BC is the one who relates to different groups of authors, transferring knowledge between different fields or social groups. Thus, BC can be used to measure the interdisciplinarity of authors (Leydesdorff, 2007). The top 20 most central authors on the citation network according to EC and BC indices are presented in Table 10.

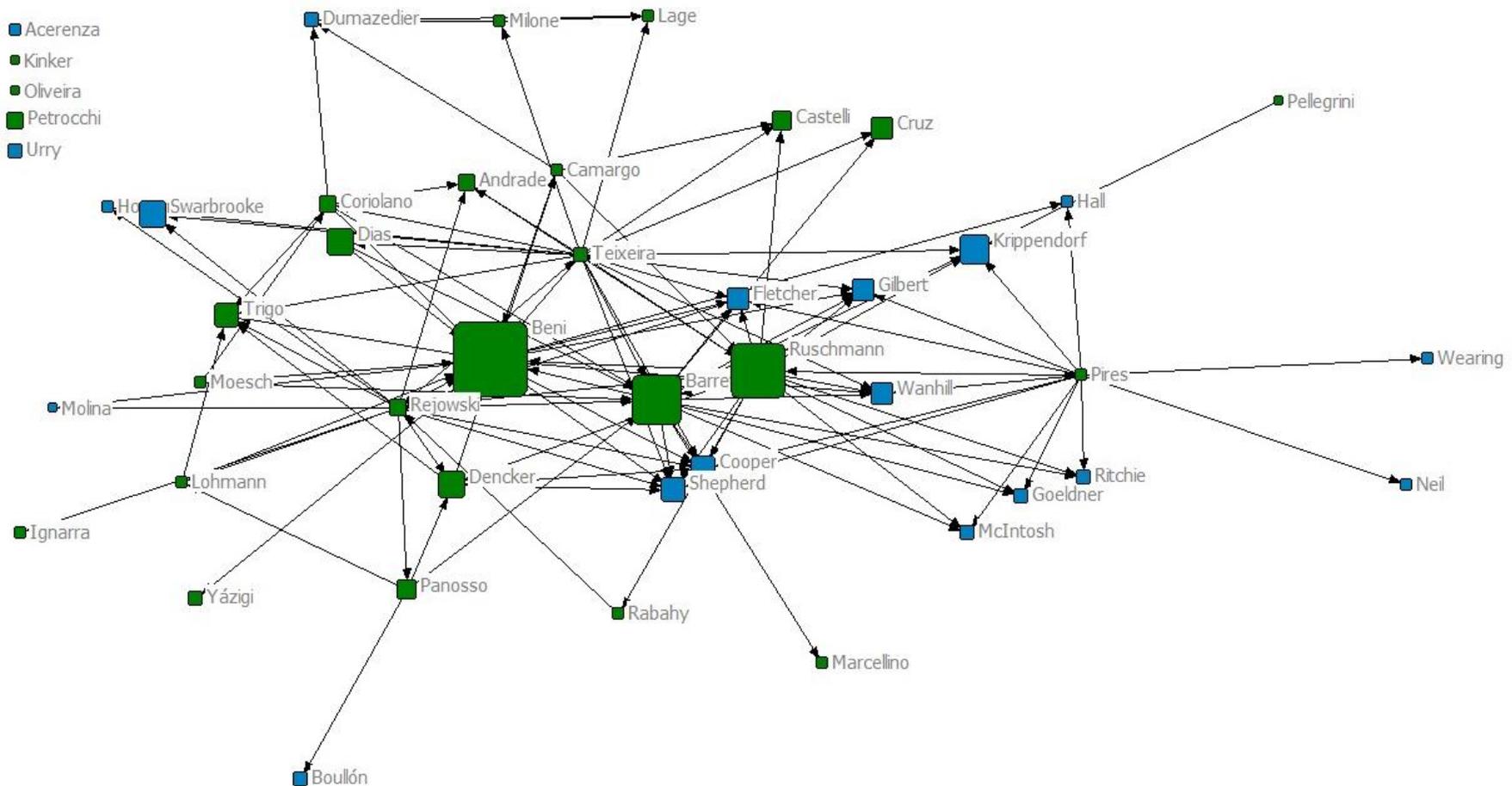
**Table 10** - Centrality of the principal authors by eigenfactor and betweenness criteria

Author	Eigenfactor centrality (EC)	Author	Betweenness centrality (BC)
Mario Carlos Beni	0.342	Margarita Barretto	8.371
Doris van de Meene Ruschmann	0.309	Edegar Luis Tomazzoni	5.634
Margarita Barretto	0.248	Rivanda Meira Teixeira	5.011
José Manoel Gonçalves Gândara	0.217	Doris van de Meene Ruschmann	4.057
Edegar Luis Tomazzoni	0.184	John Fletcher	3.852
Carlos Eduardo Silveira	0.175	Adriana Marques Rossetto	2.988
Juliana Medaglia	0.171	Murilo de Alencar Souza Oliveira	2.988
Mirian Rejowski	0.154	Mario Carlos Beni	2.633
Alexandre Panosso Netto	0.132	Mirian Rejowski	2.421
Ada de Freitas Maneti Dencker	0.128	José Manoel Gonçalves Gândara	1.872
Chris Cooper	0.122	Paulo dos Santos Pires	1.858
Rivanda Meira Teixeira	0.119	Glauber Eduardo de Oliveira Santos	1.695
Rebecca Shepherd	0.117	João Carlos Garzel Leodoro da Silva	1.642
Luiz Gonzaga Godoi Trigo	0.114	Carlos Alberto Cioce Sampaio	1.336
John Fletcher	0.109	Luiz Octávio de Lima Camargo	0.994
Keila Cristina Nicolau Mota	0.108	John Westlake	0.941
Francisco Antonio dos Anjos	0.107	Mauri Fortes	0.831
Valmir Emil Hoffmann	0.097	Wanyr Romero Ferreira	0.831
Jost Krippendorf	0.096	Wilson Abrahão Rabahy	0.817
Heros Augusto Santos Lobo	0.095	Ada de Freitas Maneti Dencker	0.747

The diagram of the citations made by the selected papers to Brazilian journals and books on tourism reveals a large number of links between authors. The profusion of relationships makes the analysis of the network extremely complex and difficult. The network of citations becomes much simpler and easier to interpret when the number of authors included is significantly reduced. In this sense, Figure 3 presents the social network formed by the references made to 46 researchers whose works received at least 20 citations in the entire set of papers analyzed. Although leaving out a large number of authors, Figure 3 shows more clearly the positioning and the relationships between the principal authors. The authors in the upper-

left corner of the diagram are those that do not connect to this reduced network, they are neither cited nor cite any of the most selected authors.

**Figure 3 - Simplified network diagram of authors and citations**



*Legend: Acerenza: Miguel Ángel Acerenza; Andrade: José Vicente de Andrade; Barretto: Margarita Barretto; Beni: Mario Carlos Beni; Boullón: Roberto C. Boullón; Camargo: Luiz Octávio de Lima Camargo; Castelli: Geraldo Castelli; Cooper: Chris Cooper; Cruz: Rita de Cássia Ariza da Cruz; Dencker: Ada de Freitas Maneti Dencker; Dias: Reinaldo Dias; Dumazedier: Joffre Dumazedier; Fletcher: John Fletcher; Gilbert: David Gilbert; Goeldner: Charles R. Goeldner; Hall: Colin Michael Hall; Horner: Susan Horner; Ignarra: Luiz Renato Ignarra; Kinker: Sônia Kinker; Krippendorf: Jost Krippendorf; Lage: Beatriz Helena Gelas Lage; Lohmann: Guilherme Lohmann; Marcellino: Nelson Carvalho Marcellino; McIntosh: Robert W. McIntosh; Milone: Paulo Cesar Milone; Moesch: Marutschka Martini Moesch; Molina: Sergio Molina; Neil: John Neil; Oliveira: Antônio Pereira Oliveira; Panosso: Alexandre Panosso Netto; Pellegrini: Américo Pellegrini Filho; Petrocchi: Mario Petrocchi; Pires: Paulo dos Santos Pires; Rabahy: Wilson Abrahão Rabahy; Rejowski: Mirian Rejowski; Ritchie: J. R. Brent Ritchie; Ruschmann: Doris van de Meene Ruschmann; Shepherd: Rebecca Shepherd; Swarbrooke: John Swarbrooke; Teixeira: Luzia Neide Menezes Teixeira Coriolano; Teixeira: Rivanda Meira Teixeira; Trigo: Luiz Gonzaga Godoi Trigo; Urry: John Urry; Wanhill: Stephen Wanhill; Wearing: Stephen Wearing; Yázigi: Eduardo Yázigi.*

The study of the relations between authors including citations to books and journals which were not selected for analysis in this paper offers an interesting view of the relationships between the works of different researchers. However, this perspective is accompanied by a certain bias because it mixes possibilities of one-way and two-way relationships. Citations of books made by papers were recorded in this survey, but not the citations of papers made in books. In fact, only citations made by papers published in the four major journals have been registered and analyzed. The same goes for papers published in journals not selected for analysis in this research. Therefore, a second network analysis was developed including only references to papers published in the analyzed journals. In this second network analysis all pairs of authors allow two-way relationships, that is, all works that make citations were or could have been cited as well. The diagram is presented in Figure 4.

The analysis of Figure 4 shows that the social network made exclusively of papers published in major Brazilian tourism journals is considerably different from the network that includes books and other journals. The explanation for this difference is the aforementioned fact that the citations to journals are a minority of the total citations. This leads to a minor highlight for some older researchers whose names became recognized primarily for their books. On the other hand, some authors with more recent publications and with few published books be-

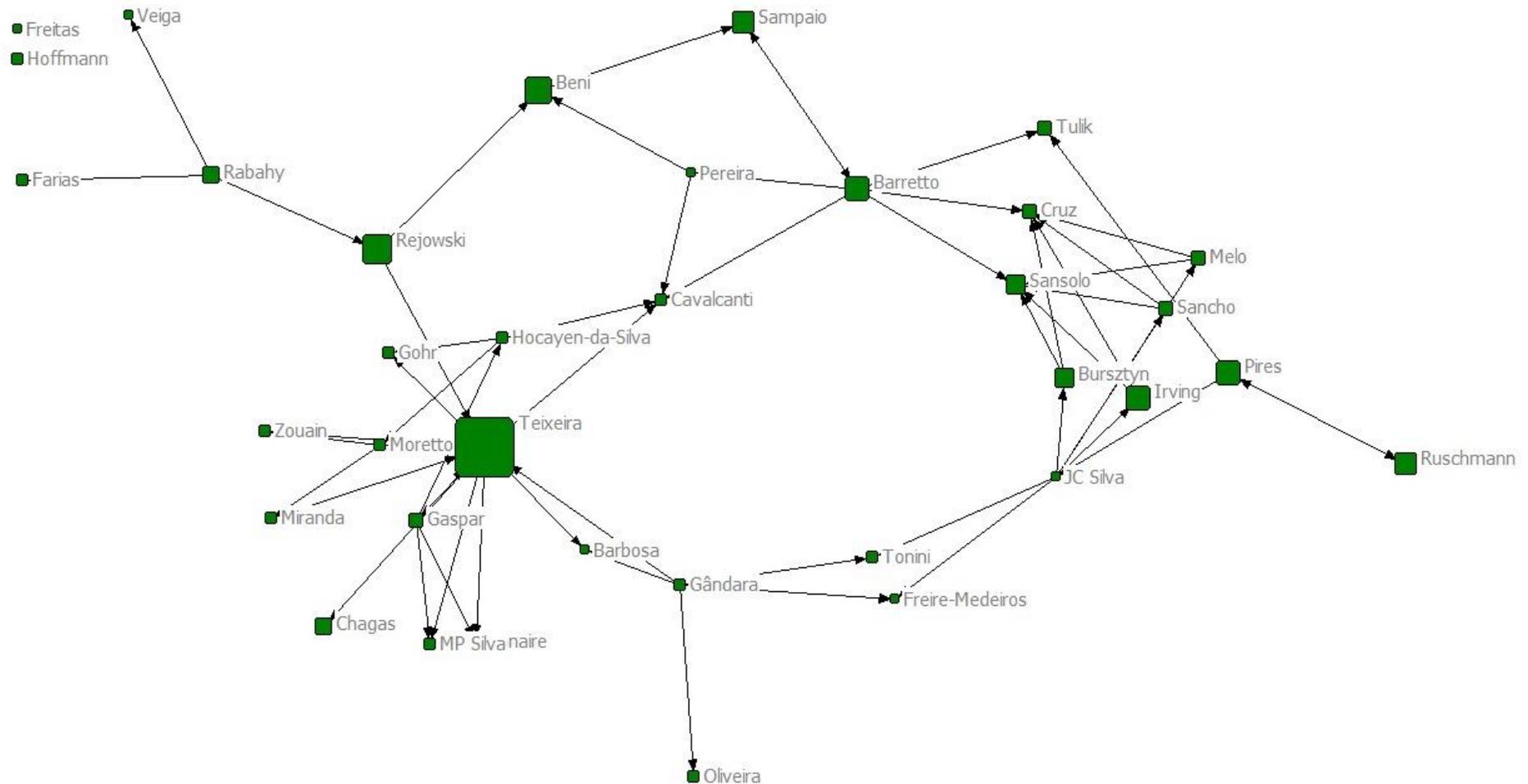
come more noticeable.

#### 4.4 Journals

The four journals selected for study are also the most cited by the papers analyzed. The RTA is the first of the ranking with 285 mentions. The second most cited is RTVA with 228 citations. The CVT received 110 citations and RBTur 50. The number of citations in the journals changes considerably if we consider just the citations made to works published as of 2010. In this case RTVA becomes the first in the ranking with 178 references, against 129 citations of RTA.

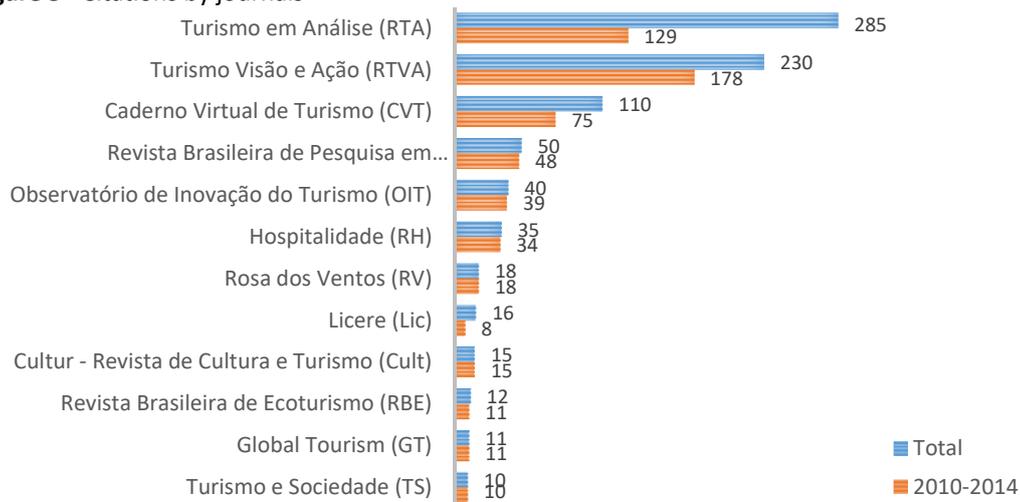
The most cited among the journals which have not been selected for analysis is the *Revista Acadêmica Observatório de Inovação do Turismo* (Observatory of Tourism Innovation). Following it appears the *Revista Hospitalidade* (Hospitality Magazine), the *Revista Rosa dos Ventos* (Rose of the Winds Magazine), and the periodical *Licere*. The relative few citations of the *Revista Brasileira de Ecoturismo* (RBE) (Brazilian Magazine of Ecotourism), despite its B2 classification in the Qualis System, in 2014, is due to the fact that it is a publication aimed at a specific target of researchers and relatively apart from the tourism field as a whole. Therefore, that small amount of RBE citations has contributed to its exclusion from the set of periodicals analyzed in this study. The list of the most cited periodicals is presented in Figure 5.

**Figure 4** - Simplified network diagram of authors and exclusive citations of journals selected for analysis



*Legend: Barbosa: Maria de Lourdes de Azevedo Barbosa; Barretto: Margarita Barretto; Beni: Mario Carlos Beni; Bursztyn: Ivan Bursztyn; Cavalcanti: Keila Brandão Cavalcanti; Chagas: Márcio Marreiro das Chagas; Cruz: Rita de Cássia Ariza da Cruz; Donaire: Denis Donaire; Farias: Josivania Silva Farias; Freire-Medeiros: Bianca Freire-Medeiros; Freitas: Rodrigo Randow de Freitas; Gândara: José Manoel Gonçalves Gândara; Gaspar: Marcos Antonio Gaspar; Gohr: Cláudia Fabiana Gohr; Hocayen-da-Silva: Antônio João Hocayen-da-Silva; Hoffmann: Valmir Emil Hoffmann; Irving: Marta de Azevedo Irving; JC Silva: João Carlos Garzel Leodoro da Silva; Melo: Gustavo de M. Melo; Miranda: Anderson Lourenço Miranda Lourenço Miranda; Moretto: Luis Moretto Neto; MP Silva: Marcos Pereira da Silva; Oliveira: Josildete Pereira de Oliveira; Pereira: Cássio Avelino S. Pereira; Pires: Paulo dos Santos Pires; Rabahy: Wilson Abrahão Rabahy; Rejowski: Mirian Rejowski; Ruschmann: Doris van de Meene Ruschmann; Sampaio: Carlos Alberto Cioce Sampaio; Sancho: Altair Sancho; Sansolo: Davis Gruber Sansolo; Teixeira: Rivanda Meira Teixeira; Tonini: Hernanda Tonini; Tulik: Olga Tulik; Veiga: Luciana Santos Veiga; Zouain: Deborah Moraes Zouain;*

**Figure 5 - Citations by journals**



A more detailed analysis of the relevance of the published works in journals should take into account not only the number of citations, but also the total amount of papers. If the number of papers is not taken into account, the relevance of the papers of a journal tends to be biased regarding journal with a higher number of published papers. One way to overcome this situation is through impact factor analysis, i.e. the ratio between the total of received citations and the total of works published by the journal (Garfield, 1999, 2006). The estimation of impact factors for the four journals is presented in Table 11. However, it should be noted that the impact factor of a given publication tends to increase as the number of journals of the same area grow.

In this way, the relevance of the older journals may be underestimated when compared to most recent ones through the estimation of the impact factor of the set of papers. To avoid the bias the impact factor of the journals was estimated considering the publications of the last five years. These results are also presented in Table 11. At last, the h-index was calculated as a third relevance measurement of the selected journals. As previously discussed, the h-index values not only the total number of received citations, but also the number of papers that received the citations, putting at disadvantage the journals that are irregular in terms of received citations. The h-index estimated for each journal is presented in Table 11.

**Table 11 - Impact factor of journals**

Journal	Impact factor		
	Total	5 years	h-Index
Turismo em Análise (RTA)	0.60	0.40	4
Turismo Visão e Ação (RTVA)	0.73	0.40	3
Caderno Virtual de Turismo (CVT)	0.36	0.06	5
Revista Brasileira de Pesquisa em Turismo (RBTur)	0.32	0.22	4

The analysis of the citations in the journals reveals the network relationship between the publications. The structure arises, among others, from thematic, geographical, historical, and personal proximity. Thus, likewise the analysis made for the authors, the network of relationships was examined by the methodology of social networks analysis. The network diagram of the citation between journals is presented in Figure 6.

In the diagram, the journals are represented by squares and the citations by lines that connect the squares. The sizes of the squares indicate the quantities of citations received by journals, while the colors distinguish the selected journals for review. The selected journals are highlighted in red. It is important to note that the citations depart only from the analyzed journals, but they can go to any of the journals. The thickness of the lines represent the number of citations between the two interconnected journals.

It stands out that the RTA and RTVA journals occupy the most central position. The RBTur occupies a more central position than the CVT, although it received less than half of the citations of the latter. The *Revista Hospitalidade* (Hospitality magazine) appears more to the center of the network than the *Observatório de Inovação do Turismo* (Observatory of Tourism Innovation), even though the latter was cited more often than the former. On the periphery of the network appear, mainly, the journals focused on specific themes (such as Tourism and Karst Areas), recently released journals (such as the *Revista Iberoamericana de Turismo* – the Ibero-American Journal of Tourism) and extinct journals (as the *Turismo: Tendências & Debates* - Tourism: Trends & Debates).

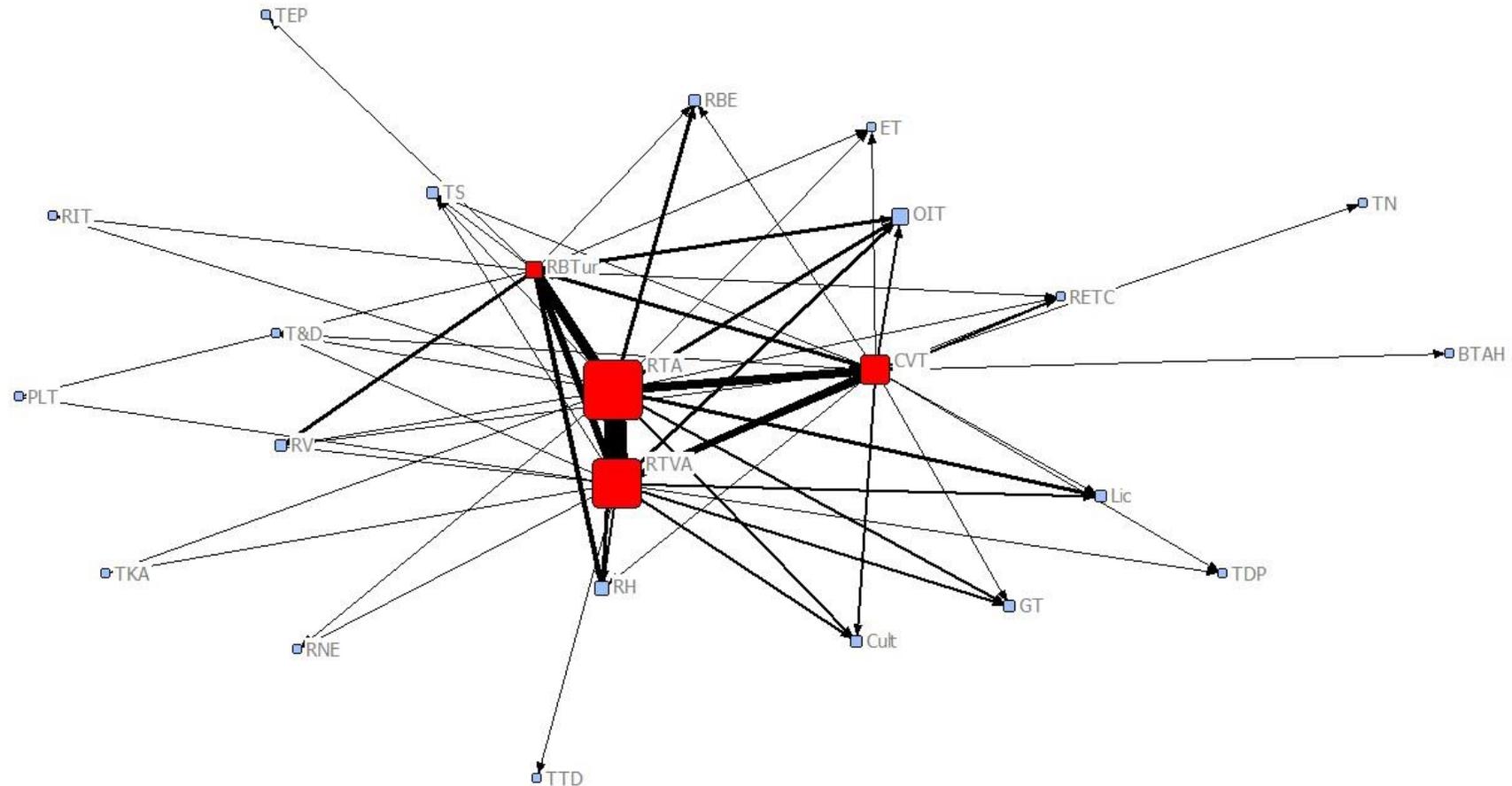
The network diagram presented does not bring information about the citations made by papers of a journal to other papers from the same journal. This type of reference can be considered as a journals' endogenous indicator. The percentage of citations of this type over the total number of citations made in RTA is 50.6 percent. This 'endogenous rate' is 46.6 percent in the RTVA, 36.7 percent in the CVT and 15.2 percent in the RBTur. However, the comparative analysis of these rates should be cautious, since the relatively high 'endogenous rate' of the RTA and the RTVA is related to the age of these journals, given that for years there were no other Brazilian journals to be cited.

An analysis of the categories of the works referenced made earlier can be detailed by journal. With respect to the type of the referenced works, the RBTur stands out for having the highest citation rate of papers published in journals (44.5 percent of total references from journals and books). At the other end is the CVT with a citation rate of only 23.1 percent. The CVT is also the least international of the analyzed journals, and 72.7 percent of the works cited by its papers are national (Brazilian). The RBTur stands out positively in this regard as the journal that most refers to foreign works (27.3 percent). Finally, with respect to the field of knowledge, the four journals feature similar rates of use of specific references in the area of tourism. The citation rate of each category of material for selected journals is presented in Table 12.

**Table 12** - Citation rate of works by category and journal

Journal	Type			Nationality			Field of Knowledge		
	Journal	Book	Total	Yes	No	Total	Tourism	Other	Total
CVT	23.1%	76.9%	100.0%	72.7%	27.3%	100.0%	42.8%	57.2%	100.0%
RBTur	44.5%	55.5%	100.0%	44.8%	55.2%	100.0%	42.8%	57.2%	100.0%
RTA	34.1%	65.9%	100.0%	53.8%	46.2%	100.0%	41.0%	59.0%	100.0%
RTVA	38.2%	61.8%	100.0%	59.4%	40.6%	100.0%	35.5%	64.5%	100.0%

Figure 6 - Network relationship between the Brazilian journals of tourism



Legend: BTAH: Boletim de Turismo e Administração Hoteleira; CVT: Caderno Virtual de Turismo; Cult: Cult: Revista de Cultura e Turismo; ET: Estudos Turísticos; GT: Global Tourism; RH: Hospitalidade; Lic: Licere; OIT: Observatório de Inovação do Turismo; PLT: Patrimônio: Lazer e Turismo; RBE: Revista Brasileira de Ecoturismo; RBTur: Revista Brasileira de Pesquisa em Turismo; RETC: Revista Eletrônica de Turismo Cultural; RIT: Revista Iberoamericana de Turismo; RNE: Revista Nordestina de Ecoturismo; RV: Rosa dos Ventos; TKA: Tourism and Karst Areas; TN: Turis Nostrum; T&D: Turismo & Desenvolvimento; TS: Turismo e Sociedade; RTA: Turismo em Análise; RTVA: Turismo Visão e Ação; TDP: Turismo: Dimensões e Perspectivas; TEP: Turismo: Estudos e Práticas; TTD: Turismo: Tendências & Debates

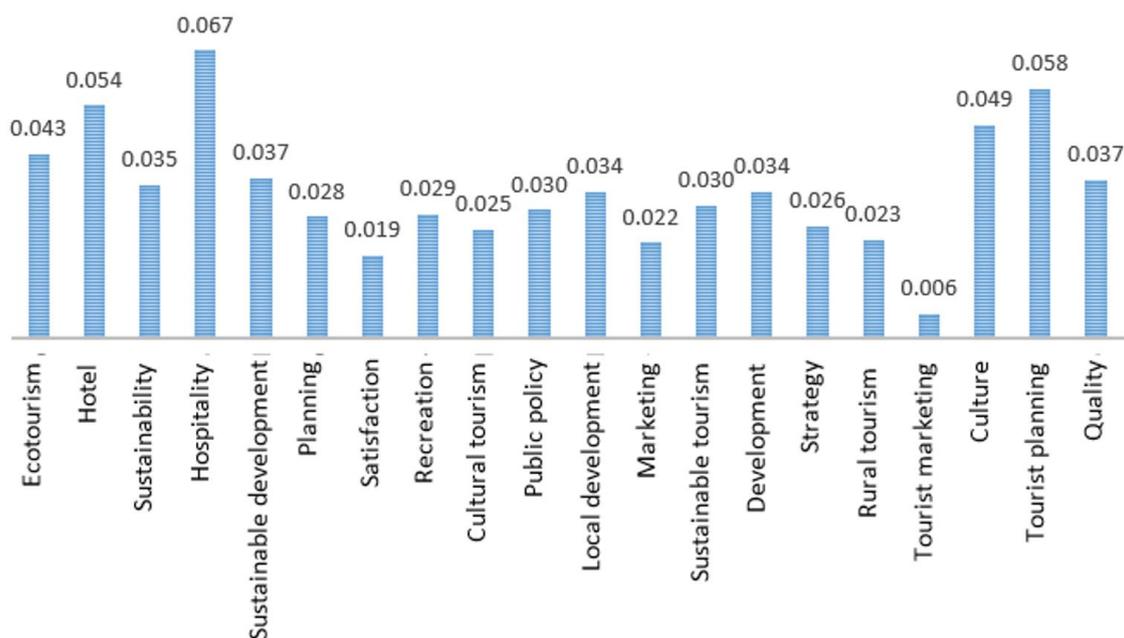
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#### 4.5 Topics

A brief analysis of the keywords of the cited papers in comparison with the same information from the papers published in the four selected journals reveals a little about the different level of impact of the various topics. The impact factor calculated for the

articles indexed by each one of the 20 most used keywords, as shown in Figure 7, shows that *hospitality* is the theme with greater impact, followed by *tourism planning*, *hotel industry* and *culture*. It should be noted that even for the most successful keywords the impact factors are relatively low, below 0.07.

Figure 7 - Impact factor by most used keywords



#### 5 FINAL CONSIDERATIONS

The current study looked at all the references made by the papers published in the four main academic tourism journals in Brazil. This was a pioneering work in this context, offering bibliometric data about Brazilian scientific production on tourism. Several lists, measurements, indexes and diagrams were presented, providing a number of useful elements to guide researchers, research managers and editors in their activities. In particular, this work contributes to the development of impact indicators of authors

and journals, widely used metric to evaluate teachers and postgraduate programs in Brazil.

The results obtained show that the Brazilian scientific research on tourism still has some features of incipient areas, such as the relative small number of citations of papers published in academic journals, the preference for foreign references and works published in other fields of knowledge. Other evidence of this condition is the small number of references received by the most cited papers, indicating that the area is still far from establishing what could be known as classic papers. In addition, although

the

extent of the analysis is limited, excluding references for books and other materials, we observe that the number of citations received and the h-index of leading authors are relatively low. The researcher Mario Carlos Beni, the most cited author in the analyzed papers, received 227 entries. The researcher Margarita Barretto, first in the calculated h-index ranking, has an index of just 6. For comparison purposes, according to data from Google Scholar, the researcher Colin Michael Hall, of the University of Canterbury, New Zealand, received more than 30,000 citations and has a h-index of 90. The researcher Dimitrios Buhalis of the Bournemouth University received close to 15,000 citations and his h-index is 53. In Brazil, Google Scholar presents Luiz Gonzaga Godoi Trigo with an h-index of 21, the highest between tourism researchers, and about 1,700 citations. Mario Carlos Beni, in turn, received around 3,000 citations, but his h-index is 11. Also, by comparison, the Brazilian researcher working abroad for several years, William Lohmann, has around 660 citations and an h-index of 11 in Google Scholar. The researcher Margarita Barretto has no Google Scholar profile, or the access is restricted, so it was impossible to know her index in this database. Finally, it should be emphasized that the impact factor of the journals in Brazil is also relatively low. In the analyzed set, the magazine *Turismo Visão e Ação* (Tourism Vision and Action) presents the highest impact factor: 0.73. Despite the national prominence, this value can be considered low if compared to the highest impact factor of an international tourism journal: 2.68 of the *Annals of Tourism Research* journal.

Although the results indicate a certain

degree of fragility of the Brazilian tourism scientific production, these data must be considered within the context. The analyzed articles related mostly to Brazilian tourism aspects which, not surprisingly, interested especially the Brazilian scholars. In addition, the academic field of tourism in Brazil is small and, in the beginning of 2016, it amounted to 11 postgraduate programs *sensu stricto*, of these four are doctoral and masters programs (UNIVALI, UFRN, UCS and UAM). In the CAPES area of Administration, Accounting and Tourism there were 182 registered programs in August 2015 (CAPES, 2016). In other words, tourism accounts for only 6.7 percent of all programs in this CAPES area. Therefore, the number of teachers and students engaging in research in this field of knowledge is relatively small, which leads to the depicted reduced number of papers, citations and indexes. It is also important to note that neither the quality of the studies published nor its impact on society, such as generation of products or patents, improvement of life of society and innovation, was analyzed. The generation of such positive impacts should be among the main drivers for tourism research in Brazil.

In fact, the difficulties faced by research in Brazil compared to the reality of some other countries should be acknowledged, in addition to the difficulties of tourism regarding older and more consolidated fields of knowledge. In addition, some comparisons between the references made by the complete set of analyzed papers and those made only by published papers as of 2010 reveal that the area of tourism in Brazil is dynamic. New researchers and journals have gained importance as a reference. In this way, a possible direction for tourism research in Brazil is the improvement and consolidation.

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