

# Experimental Researches in Tourism: A Bibliometric Analysis

Cem Oktay Güzeller  
Tourism Faculty  
Akdeniz University  
Antalya, Turkey  
cemguzeller@akdeniz.edu.tr

Nuri Çeliker  
Business Administration Faculty  
Alanya Alaaddin Keykubat University  
Alanya, Turkey  
nuri.celiker@alanya.edu.tr

**Abstract**— The aim of the study is to reveal the empirical trends in the tourism literature by analyzing the experimental researches carried out in the field of tourism in terms of bibliometric. The research data comprise 648 studies published “empirical” and “experimental” topic title between 1982-2017 in the top five tourism journals according to the Journal Citation Reports which are Tourism Management(TM), Journal of Travel Research(JTR), Journal of Sustainable Tourism(JST), Cornell Hospitality Quarterly(CHQ) and Annals of Tourism Research(ATR) indexed in "Hospitality, Leisure, Sport & Tourism" research area. The journals are examined in terms of publication numbers by years, country cooperations, common publication citation networks and topic orientations. Social network analysis has been used to determine the country collaborations, common publication citation networks and topic orientations. According to the results obtained in the study; %92,1 of publications were published after 2000. 58.5% of the publications were published between 2011 and 2017. USA and Spain have an important role in country cooperations. “Multivariate Data Analysis” written by Joseph F. Hair, Jr et al. in 2010 is the most basic reference source that guides the studies. This book was effective especially in the period between 2014 and 2017. Behavioral intention, strategic planning researches and environmental innovation are the most studied topics.  
**Index Terms** — Tourism, Experimental Researches, Bibliometrics, Social Network Analysis.

## I. INTRODUCTION

Empirical researches can be seen as an indicator of scientific progress in a field. Empirically, stochastic results can be found through statistical techniques and following scientific method. Since empirical tests are the key factors to test the validity of hypothetical models, they should not be ignored. Contributions by both correct methodological design and properly-hypothesized models are necessary to produce scientific knowledge [1].

Cumulative literature records of the researches carried out in the field of tourism prove that scientific knowledge production in this discipline and accordingly the number of empirical researches has increased remarkably in recent years and that tourism is in a rapid development stage. While tourism research literature has increased rapidly in recent years, it is observed that necessary importance has not yet been given to the examination of bibliometric map of empirical researches in the field of tourism [6].

Bibliometrics is a quantitative method that includes examination of scientific publications such as books, journals,

announcements and other written communication tools with the help of mathematical and statistical techniques [5]. Bibliometric examination of a specific discipline provides the opportunity to evaluate the research quality, determine the conceptual orientation of scientific knowledge produced by various actors in the field that contribute and identify how the field progress in the context of research methods [4].

## II. RELATED RESEARCHES

Examining the literature, it is observed that bibliometric studies on tourism have also increased in parallel with the development of tourism discipline. Nevertheless, bibliometric studies focusing on empirical researches in tourism are found to be so limited. In general, research design of studies, statistical methods and data collecting techniques were examined in those studies. Studies examining the variables and subjects focused on in empirical researches in tourism are very few.

In their studies, “[4]” suggested that 32.1% of 1073 studies published in 5 tourism journals between the years of 1990-1996 were composed of empirical researches and descriptive statistical techniques were used in those studies. In their study where “[1]” examined 1790 articles published in 12 tourism journals between the years of 1998-2002, they came to conclusion that the most important statistical techniques used in empirical researches are linear regression model, factor and main component analysis and variance analysis. “[5]” examined 1217 studies in tourism and accommodation fields in Turkey between the years of 2000-2010 and observed that 60.6% of the studies were conducted using empirical methods.

Another result of the study was that studies on management and organization in tourism, tourism marketing, tourism education, recreation, tourism sociology, accounting and finance, health and information technologies were empirical; studies on tourism economics, tourism geography, environmental management and cultural heritage were on conceptual level. In their study on 492 researches aiming at discovering the sustainable tourism research trends and dispositions in the last 25 years, “[3]” emphasized that the field developed itself through shifting its focus from definitional and conceptual researches to testing and applying the theories via empirical researches.

### III. METHODOLOGY

In the present study it is aimed to determine bibliometric features of empirical studies published in the field of tourism. Research data are composed of 648 studies indexed in Thomson Reuters Web of Science data base and “Hospitality, Leisure, Sport and Tourism” research field and published under the title of “empirical” and “experimental” in top 5 tourism journals, *Tourism Management*, *Journal of Travel Research*, *Journal of Sustainable Tourism*, *Cornell Hospitality Quarterly* and *Annals of Tourism Research*, according to data from Journal Citation Reports between the year of 1982-2017.

Studies were examined in the context of year-based publication numbers, country collaboration, common publication citation network and topic orientation. Social network analysis was utilized in order to determine the collaboration, the common publication citation network and the topic orientations among the countries in which empirical researches take place in the field of tourism. CiteSpace II application was used for the analysis of social network. CiteSpace II is a Java application that supports structural and time-wise analysis of various networks derived from scientific publications [2].

As a result of the analyses, network density, network modularity and mean silhouette values were calculated. Q modularity has a value ranging from 0 to 1. Modularity value between 0.4 and 0.8 is considered as an indicator of good clustering and shows that there are closer links among clusters. Mean silhouette has a value ranging from -1 and 1. The fact that the value is closer to 1 indicates that components in the network are consistent and similar [7].

In the study, citation bursts for publications for which citations were given were also examined. Citation bursts are determined according to density of the citations periodically given for a specific source in a specific time [2]. A source with a high level of citation burst is an important scale to determine the research tendencies in burst periods [8]. For the examination of topic tendencies of empirical researches in tourism, term frequency-inverse document frequency (TFIDF) and log likelihood ratio (LLR) algorithms were used.

### IV. FINDINGS

#### A. Numbers of Publications According to Years

Having examined 648 empirical studies in the field of tourism between 1982 and 2017, it was observed that interest in empirical studies in this field increased dramatically after the year of 2000. While studies published between 1982 and 2000 comprised 7.9% of total publications, studies published after 2000 comprised 92.1% of total publications. 58.5% of the publications were published between 2011 and 2017.

#### B. Country Collaboration

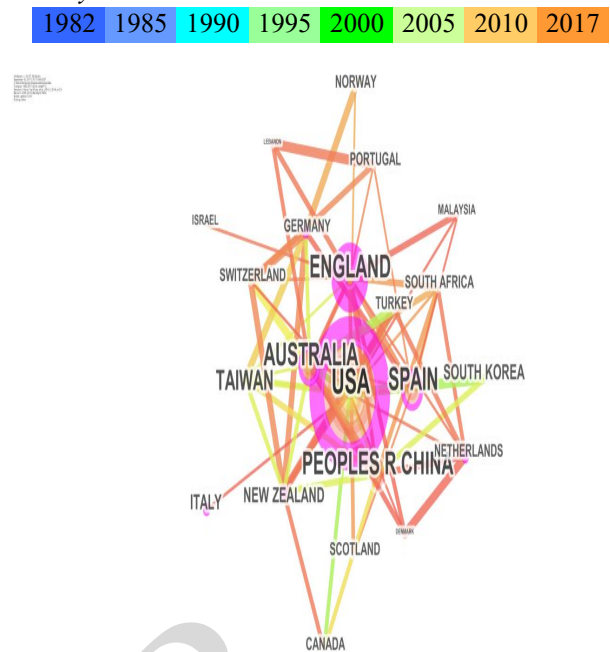


Fig 1. Country Collaboration

As a result of the analysis, a network having consisted of 29 nodes and 74 connections was acquired. The network is divided into 5 clusters and its density is 0.18. Modularity value of the network is  $Q=0.32$  and mean silhouette value is 0.58. While analyzing the country collaboration, in the studies carried out by more than one researcher from the same country, countries were counted as one. Colorization in the network represents the years that collaboration took place in accordance with the timetable above. Thickness and size of the circles around nodes and names of the countries indicate that centralization level of the nodes is high.

Table I: Country Collaboration

Countries	Frequency	Year	Cluster#
USA	148	1999	2
Spain	85	2002	0
China	71	2000	2
Australia	69	2005	1
England	63	1997	0

Examining the data in the table, it is seen that USA and Spain are the countries that collaborate with other countries and contribute to the empirical studies in the field of tourism at most.

## C. Common Publication Citation Network

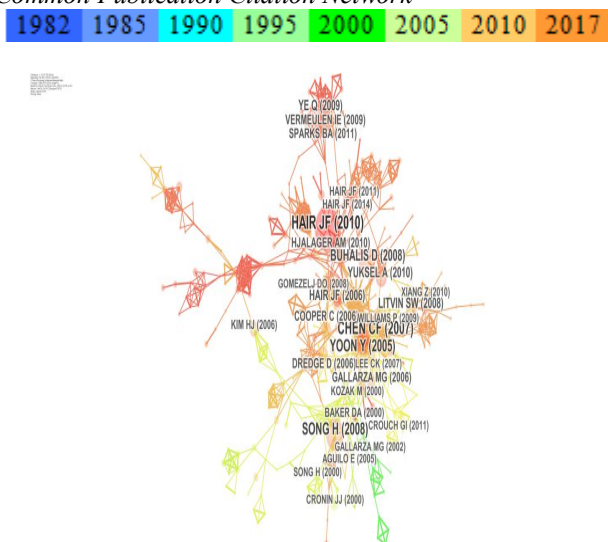


Fig 2. Common Publication Citation Network

The network formed as a result of the analysis consists of 615 nodes, 1412 connections and 128 clusters. The density of the network is 0.0075. Modularity value is  $Q = 0.86$  and mean silhouette value is calculated as 0.28.

Table II: Frequency Values of Citation

Sources	Frequency	Year	Cluster#
Hair, J.F., Black, W.C., Babin, B. J. & Anderson, RE (2010). <i>Multivariate data analysis.</i>	20	2010	4
Chen, C. F., & Tsai, D. (2007). How destination image and evaluative factors affect behavioral intentions.	17	2007	0
Yoon, Y., & Uysal, M. (2005). An examination of the effects of motivation and satisfaction on destination loyalty: a structural model.	14	2005	0
Song, H., & Li, G. (2008). Tourism demand modelling and forecasting—A review of recent research.	14	2008	8
Buhalis, D., & Law, R. (2008). Progress in information technology and tourism management: 20 years on and 10 years after the Internet—The state of eTourism research.	12	2008	4

Examining the table, it is seen that the source with the highest frequency value is the book published ( $n=20$ ) in 2010 by Hair, J.F., Black, W.C., Babin, B. J. and Anderson, RE. This book is observed to be the common reference source, which has led empirical researches in tourism field.

Table III: Citation Burst Values by Years

Sources	Strength	Begin	End	1982-2017
Baker, D. A & Crompton, J.L. (2000). Quality, satisfaction and behavioral intentions.	3.8782	2003	2008	—
Yoon, Y., & Uysal, M. (2005) An examination of the effects of motivation and satisfaction on destination loyalty: a structural model.	4.2744	2008	2013	—
Hair Jr, J. F., Black, WC, Babin, BJ Anderson, RE & Tatham, RL (2006). <i>Multivariate data analysis</i>	3.9337	2010	2013	—
Hair, J.F., Black, W.C., Babin, B. J. & Anderson, RE (2010). <i>Multivariate data analysis.</i>	4.7519	2014	2017	—

Assessing the sources in line with citation bursts, it is seen that the source with the highest citation burst value is the book written by Hair, J.F., Black, W.C., Babin, B. J. and Anderson, RE (2010). This book was effective especially in the period between 2014 and 2017 and it can be regarded as a work that has directed empirical researches in the field of tourism between those years.

Table IV: Topic clusters based on citation

Cluster	Size	Mean Silhouette	Label TFIDF	Label (LLR) p-value	Average Citation Year
0	47	0.827	destination	behavioural intention (1909.81, 1.0E-4)	2006
1	42	0.848	tourism	strategic planning research (1862.37, 1.0E-4)	2007
2	37	0.911	hotel industry	environmental innovation (2104.78, 1.0E-4)	2010
3	36	0.852	influence	survey studies (3326.06, 1.0E-4)	2009
4	35	0.741	effects	travel application service provider (992.44, 1.0E-4)	2010
5	30	0.989	role	online review (4033.23, 1.0E-4)	2012
6	28	0.865	tourism	visitors experience (2203.71, 1.0E-4)	2002
7	27	0.966	longitudinal study	tourism marketing research (1625.03, 1.0E-4)	2009
8	27	0.967	case	international travel (1014.56, 1.0E-4)	2004
9	21	0.919	tourism	tourists pattern (1014.67, 1.0E-4)	2002

It is seen that the biggest clustering in topic clustering is Cluster#0 that involves studies related to behavioral intention (n=47). Silhouette value of the cluster is 0.827 and the average year of the publications that were used as citations in the studies in the cluster is 2006. The most current research subject in the field is determined as the online review for the first ten clustering. The average year of the publications that were used as citations in the studies in this cluster is 2012.

#### V. RESULT

In our study in which bibliometric features of 648 studies carried out between 1982 and 2017 in the field of tourism were examined, considering the distribution of the studies according to years, it is seen that the studies has accelerated in the field after 2000 and the number of studies has started to increase in every single period of time starting from 1982.

In terms of country collaboration, it is observed that USA and Spain have the biggest place in common research network. It can be expressed that USA and Spain are the leading countries for empirical researches in the field of tourism and they affect the direction and tendencies in the studies.

Common publication citations and the burst values support the tendencies and trends found in topic analysis. The book titled Multivariate Data Analysis, published in 2010 by Hair, J.F., Black, W.C., Babin, B. J. and Anderson, RE is the one having the highest citation rate and burst values. This work is of a fundamental reference source that has left its mark on the recent studies carried out especially between 2014 and 2017. In addition, the fact that common publication citation networks are generally shown in orange indicates that the current sources are used in the studies in the field. The most common topics examined in empirical studies are behavioral intention, strategic planning research and environmental innovation. In this regard, it can be indicated that empirical researches are mainly carried out in the fields of organizational behavior, strategic management and sustainable tourism.

#### REFERENCES

- [1] A. L. Palmer, A. Sesé and J. J. Montaña, "Tourism and statistics: Bibliometric study 1998–2002," *Annals of Tourism Research*, vol. 32, no. 1, pp.167-178, 2005.
- [2] C. Chen, F. Ibekwe-SanJuan and J. Hou, "The structure and dynamics of cocitation clusters: A multiple-perspective cocitation analysis," *Journal of the American Society for Information Science and Technology*, vol. 61, no. 7, pp.1386-1409, 2010.
- [3] L. Ruhanen, B. Weiler, B. D. Moyle and C. L. J. McLennan, "Trends and patterns in sustainable tourism research: a 25-year bibliometric analysis," *Journal of Sustainable Tourism*, vol. 23, no. 4, pp. 517-535, 2015.
- [4] S. Baloglu and L. M. Assante, "A content analysis of subject areas and research methods used in five hospitality management journals," *Journal of Hospitality & Tourism Research*, vol. 23, no. 1, pp. 53-70, 1999.
- [5] S. Evren and N. Kozak, "Bibliometric analysis of tourism and hospitality related articles published in Turkey," *Anatolia*, vol. 25, no. 1, pp. 61-80, 2014.
- [6] S. J. Zhang, P. H. Lyu and Y. Yan, "Global geographical and scientometric analysis of tourism-themed research," *Scientometrics*, vol. 105, no. 1, pp. 385-401, 2015.
- [7] X. Li, E. Ma and H. Qu, "Knowledge mapping of hospitality research—A visual analysis using CiteSpace," *International Journal of Hospitality Management*, vol. 60, pp.77-93, 2017.
- [8] X. Zhang, H. Chen, W. Wang and P. Ordóñez de Pablos, "What is the role of IT in innovation? A bibliometric analysis of research development in IT innovation," *Behaviour & Information Technology*, vol. 35, no.12, pp. 1130-1143, 2016.