



7th International Conference on Engineering, Project, and Production Management

Tourism Supply Chain – Overview of Selected Literature

Danuta Szpilko*

Faculty of Management, Bialystok University of Technology, Wiejska 45A, 15-351 Bialystok, Poland

Abstract

The development of tourism is inextricably linked to the operation of tourism enterprises and tourism products offered by them. A competitive advantage for enterprises, in the market of tourist services, can be provided by innovative products comprising a response to the ever-increasing customer expectations. The specificity of product development in the tourism industry requires the commitment and cooperation of many partners – operators in the tourist supply chain. The purpose of this article is to identify the areas of research analysed in the international literature in the field of tourism supply chain, published in the Web of Science. The results of the analysis are presented in the form of a map of themes (research areas) most commonly occurring in configuration with the term of the tourism supply chain, as well as in terms of their coexistence in the analysed pool of articles. The process of preparing the article involved the use of the methods of bibliometric analysis and network analysis.

© 2016 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of the organizing committee of EPPM2016

Keywords: tourism; supply chain; tourism supply chain management; knowledge map; research area; bibliometric analysis

1. Introduction

Tourism is one of the fastest growing economic sectors in the world, which is confirmed by statistical research of the United Nations World Tourism Organization and the World Travel and Tourism Council, who noted became its steady increase after World War II in both the number of international tourist trips, and tourism revenue. In 1950, the number of international tourist trips amounted to 25 million, and in 2015 increased to 1,186 billion [1]. The revenue from international tourism from year to year is also rapidly increasing. In 1950, it accounted for USD 2 billion, in 1980 – USD 104 billion, in 1995 – USD 415 billion, and in 2015 increased to USD 1260 billion [1]. In 2015, the tourism sector, on a global scale, was the source generating 9.8% of global GDP, the value of which amounted to USD

* Corresponding author.

E-mail address: d.szpilko@pb.edu.pl

7,170.3 billion [2]. The World Travel and Tourism Council estimates that by 2026, the value will increase to USD 10,986.5 billion, which would represent 10.8% of the world GDP [2].

The dynamic development of the tourism sector requires the enterprises, striving to achieve or maintain a competitive advantage, to take actions allowing meeting the ever-increasing customer expectations. As a result, they face the challenge of designing innovative and, at the same time, increasingly complex tourism products, the preparation of which often involves many entities providing various services. Cooperation between multiple business partners in a tourism supply chain constitutes an important determinant of the success of a product on the tourist market, and at the same time, assuming that it is successful, contributes to the optimization of the conducted business activities.

Zhang et al. define the Tourism Supply Chain (TSC) as a network of tourism organizations involved in a series of diverse activities, ranging from providing an entire spectrum of components of tourism products/services, such as flights, accommodation at the tourism reception desk, and ending with the sale of tourism products in the tourism region. This network includes a wide range of subjects, both from the private and the public sector that are involved in the creation, sale, and promotion of tourism products [13]. Shaping tourist supply chains are based on a defined tourist product, which takes the form of the region, the city [19, 20, 23].

Operators within the tourist supply chain, in the process of cooperation, by providing specific materials, products, and services simultaneously, thanks to the correctly shaped relationships, may represent a significant source of value for the company in the process of achieving a sustainable competitive advantage [3]. The essential element of this process is especially the suitable selection of partners in a supply chain focused on the preparation of a competitive tourism product. The contractor selection process is very complicated and requires significant commitment and clarification of the criteria for the evaluation of potential partners [4]. This issue is extremely important, especially in the case of products – tourist services, whose production takes place in the presence of the customer (tourist), and are consumed at the moment of production [5].

Considering the growing importance of tourism in the socio-economic development of many regions and countries, supported each year by the increasing number of international tourist trips, as well as the increase of tourism revenue, the author conducted a bibliographic analysis of the existing publications in the area of the tourism supply chain, collected in the Web of Science database. The aim of this article is the identification of the areas of research analysed in the literature concerning the tourism supply chain. This measure represents the first stage of the research process, aiming to identify the research problems in the field of TSC, which have not yet been undertaken within the field of international science, but their solution would constitute a theoretical and practical contribution to the development of tourism supply chains.

2. Research Methodology

Identification of research areas may be supported by the use of a number of tools and research methods. Among others, the concept of creating knowledge maps on the basis of bibliometric analyses can be applied here. Bibliometry uses mathematical and statistical methods for the analysis of books and other sources of knowledge [21]. It is a collection of research techniques used for the quantitative analysis of publications covering both scientific publications and other documents [22]. The results obtained through the use of bibliometric techniques including the analysis e.g. of the co-occurrence words, are usually presented in the form of a map showing the relationship between the individual elements [18]. These maps allow for a better understanding and analysis of the current state of knowledge, hence constitute an example of the possible to prepare maps of knowledge.

This study was designed to identify the areas of research in the field of the tourism supply chain in international publications collected in the Web of Science database, with the use of the selected bibliometric analysis techniques. It should be noted that the Web of Science database provides access to a wide spectrum of research in multiple disciplines, and multiple sources (journals, proceedings papers, books, book chapters and others). The study was conducted in June 2016. It involved the identification of scientific publications containing the term “tourism supply chain” in the title, abstract, or keywords. All the collected data from the Web of Science database has been formatted for use in Microsoft Excel 2013 and the VOSviewer software.

VOSviewer software is especially useful in the analysis of multi-component data sets. In this program, it is possible to generate visualizations in several forms, each of which focuses on the presentation of a different aspect of the data.

The article uses the label view form, which according to the author, presents the analysed data in the clearest way. Network visualizations made in this form constitute a presentation of the prevalence of data elements in the network. They also present information on the frequency of co-occurrence of items in the form of their proper placement on a plane. The size and clarity of the label of a given item suggests its incidence in the analysed set. The proximity of the position of the elements indicates frequent co-occurrence in specific collections. Similarly, greater spacing between sets indicates less frequent coexistence of elements in specific collections. The elements substantially spaced apart do not appear together at all. The element occurring in centre of the map (the strongest cluster) remains in relation with the more numerous and more diverse group of other elements. The elements situated on the edge of the visualization are characterized by a small number of links. Thanks to the applied colour schemes on the map, it is also possible to isolate clusters created by most commonly coexisting elements [17, 18].

3. Research areas in the field of tourism supply chain

The analysis of publications concerning the issues related to the supply chain theme, indexed in the Web of Science database, shows that scientific interest in the subject has increased significantly over the years. The first publications in this field appeared in 1960. A significant increase in interest in the subject of the supply chain in the context of publications indexed in Web of Science database has occurred since 2000. In total, in the period of 1960-2016 – 50273 publications were included in the database on the subject of the supply chain (Fig. 1). This issue still attracts a number of considerations in the scientific work, as evidenced by their growing number.

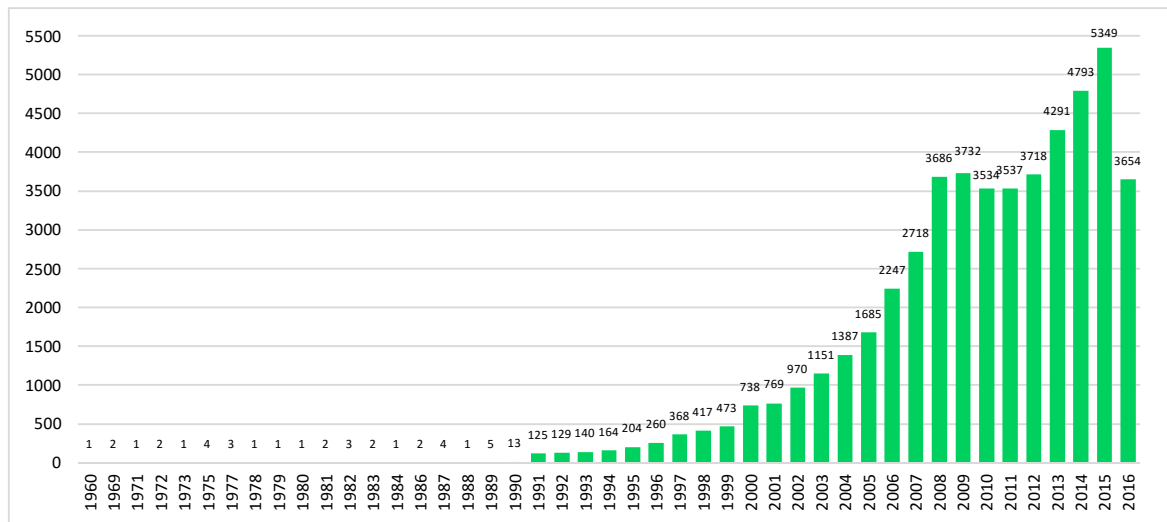


Fig. 1. Number of publications indexed in the Web of Science concerning the issue of the supply chain.

The situation is slightly different in the case of the tourism supply chain issue. The first article in this field was prepared as late as in 1993. The increased interest of researchers in the theme of the tourism supply chain has been present since 2007. Unfortunately, the number of publications in this field is low, despite the ever-growing importance of tourism and the issue of tourism supply chain management, in the context of socio-economic development of regions and countries. So far, in the Web of Science database, only 212 publications have been posted on the subject of the tourism supply chain (Fig. 2). Due to the author's special interest in the issues of the tourism supply chain, further considerations were made on the basis of this issue.

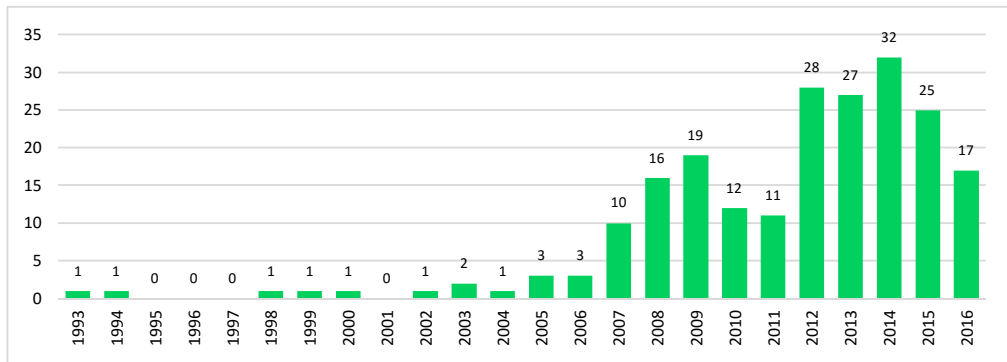


Fig. 2. Number of publications indexed in the Web of Science concerning the issue of tourism supply chain.

Articles related to the topic of tourism supply chain were published in various journals indexed in the Web of Science database. Among the magazines, where many articles on this subject can be found the following should be mentioned: *Tourism Management*, *Routledge Advances in Tourism*, *Journal of Sustainable Tourism*, *Tourism Economics*, *Tourism Supply Chain Management*, *Acta Horticulturae*, *International Journal of Contemporary Hospitality Management*, *Journal of Travel Research*, *Procedia Social and Behavioural Sciences* and the *Journal of Cleaner Production*. Among the researchers who publish in journals indexed in the Web of Science, who dealt with issues of tourism supply chain, the following should be distinguished: H. Y. Song, X.L. Guo, G.Q. Huang, S. Kumar, Y. Shi, L. Yang, X.Y. Zhang. It should also be added that the works of the mentioned authors are cited in other publications in this field. Researchers dealing with issues of tourism supply chain come mainly from China, UK, USA, Spain, Taiwan, Italy and Australia. The research centres leading in research in the field of tourism supply chain include: Hong Kong Polytechnic University, University of Science Technology of China, Shenyang Aerospace University, the University of Hong Kong, University of Surrey, University of St. Thomas in Minnesota, Xiamen University.

Among the analysed 212 articles in the field of tourism supply chain, most of them can be classified into two research areas: business economics (84 articles), social sciences and other topics (68 articles). Many publications have also been prepared in areas of research: engineering (36), operations research management science (32), environmental sciences, ecology (31), computer science (24), science technology other topics (15). On the other hand, few publications were related to such research areas as, for example: public administration, agriculture, geography, transportation science library information science, psychology, sociology, automation control systems, energy fuels, food science technology, and urban studies.

Publications identified in the Web of Science database, which are related to the tourism supply chain, have also been used to create the map of knowledge about the analysed issue research areas. VOSviewer software was the tool used in its preparation. The map of knowledge was prepared based on keywords indicated by the authors in the identified 212 publications. In view of maintaining the transparency of the map, key words that appeared at least twice in the group of the analysed publications have been adopted to the visualisation. The analysis also omitted the words, which formed the filter in the search of publications in the Web of Science database, namely: tourism supply chain, tourism, supply chain. As a result of the works, the map of knowledge about the research areas related to the theme of tourism supply chain, presented in Fig. 3, has been prepared.

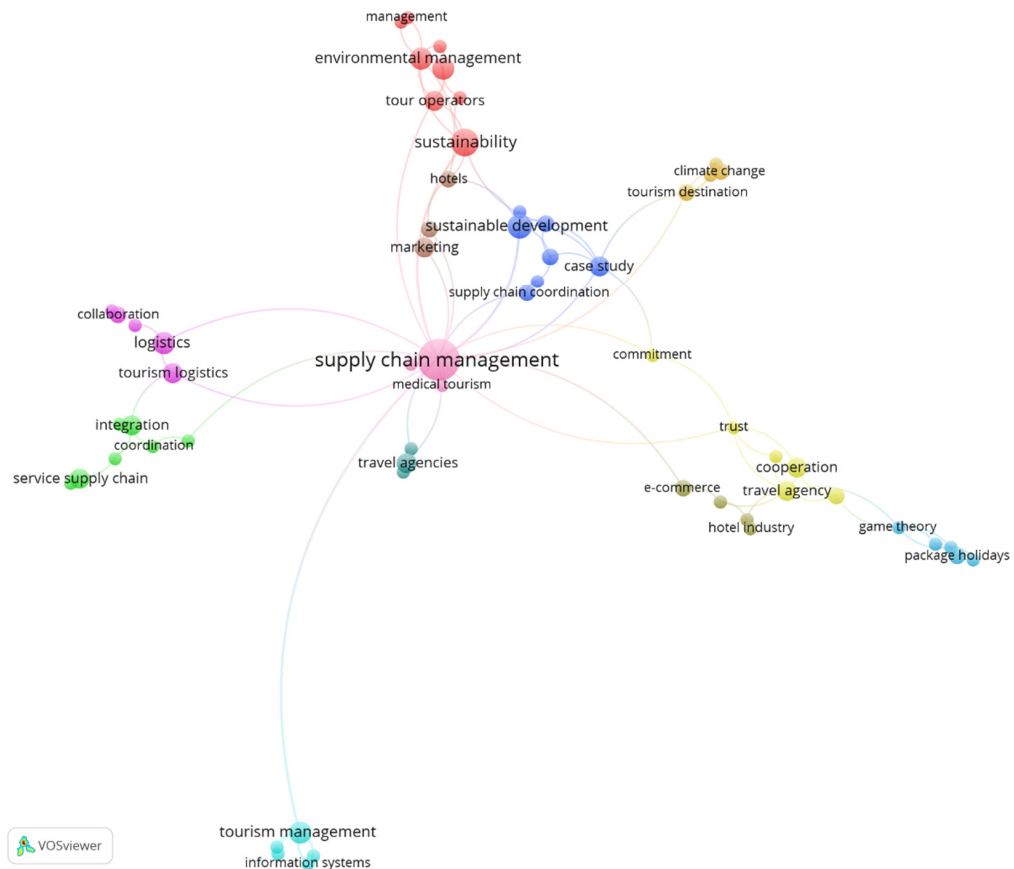


Fig. 3. Map of co-occurrence of the authors' keywords in publications from the Web of Science database regarding the issue of tourism supply chain in the years 1993-2016.

Analysing Fig. 3, it can be noticed that the obtained network of co-occurrence of keywords is not dense. It is also characterized by a small number of connections between nodes, indicating that keywords rarely coexisted with each other. This is due to the fact that the number of publications on issues related to tourism supply chain is small, which also indicates the initial stage of the development of research in this field.

Individual circles visible at the map of knowledge represent specific items, or keywords that appeared at least 2 times in the surveyed articles. The bigger the circle, the higher the term's occurrence scores. In Fig. 3, the largest circle represents the research area of supply chain management, which means that most researchers works were published in the database Web of Science is in the framework of that subject. Apart from the main area of interest of the researchers, it is also possible to highlight 11 research sub-areas(thematic clusters) associated with the issue of the tourism supply chain, which were marked on the map with different colors. Among them, it is possible to distinguish the following sub-areas of research: environmental management and sustainability (I), sustainable development (II), marketing (III), service supply chain – integration and coordination (IV), logistics and tourism logistics (V), travel agencies (VI), tourism management (VII), travel agency cooperatin (VIII), package holidays (IX), e-commerce and hotel industr (X), tourism destination and climate change (XI).

4. Conclusion

On the basis of available publications contained in the Web of Science database it was possible to analyse the areas of research and identify the main authors, research centres and magazines, playing a key role in the generation of knowledge in the field of tourism supply chain.

A small number of publications on tourism supply chain, which each year is increasing, prove that in the international scientific literature it is still growing and interesting subject of research. The results obtained as a result of the carried out analyses should be treated as an introduction to an in-depth analysis of the literature concerned with thematic scope. Despite the fairly high level of generality of the conducted analyses, already some research problems, which are interesting and important from the point of view of the development of tourism enterprises as well as socio-economic development of regions and countries, that require an in-depth analysis and search for solutions can be indicated.

In contrast to the typically manufacturing industries, in the tourism sector, the issue of supply chains has been the subject of few studies. They concern mainly the following aspects: managing tourism supply chains [e.g. 13, 26, 27] sustainable development [e.g. 25], marketing, distribution channels, in particular, [e.g. 6–11]. Also, theoretical considerations concerning the supply chains in tourism are available [e.g. 12–16, 24]. From the initial review of the literature, it appears that in the international scientific context no comprehensive research providing information about the determinants of the choice of partners in the supply chain in the tourism sector was conducted. The carried out literature studies also indicated a research gap in respect of criteria (requirements) to be met by the contractor, cooperation with whom will bring tangible benefits to the tourism enterprise in the form of optimization of the conducted business activities, as well as in the long term reaching of a potential competitive advantage in the market of tourist services. There are also no studies on building a vision for the future development of the tourism supply chain, with which a wide range of foresight methods successfully used in building a vision of the future of countries, regions and businesses could be used [28–33].

Acknowledgements

The research was conducted within MB/WZ/6/2016 project and was financed from Ministry of Science and Higher Education funds.



7th International Conference on Engineering, Project, and Production Management (EPPM2016) was financed in the framework of the contract no. 712/P-DUN/2016 by the Ministry of Science and Higher Education from the funds earmarked for the public understanding of science initiatives.

7th International Conference on Engineering, Project, and Production Management (EPPM2016) finansowana w ramach umowy 712/P-DUN/2016 ze środków Ministra Nauki i Szkolnictwa Wyższego przeznaczonych na działalność upowszechniającą naukę.



7th International Conference on Engineering, Project, and Production Management (EPPM2016) was co-organised by the Agency for Restructuring and Modernisation of Agriculture (Poland).

References

- [1] *UNWTO Tourism Highlights, 2016 Edition*. Madrid: United Nations World Tourism Organization; 2016.
- [2] *Travel & Tourism Economic Impact 2016, World*. London: World Travel & Tourism Council; 2016.
- [3] Flint DJ, Woodruff RB, Fisher Gardial S. Customer value change in industrial marketing relationship. *Industrial Marketing Management* 1997;26:163–175.
- [4] Rezaei J, Davoodi M. A deterministic, multi-item inventory model with supplier selection and imperfect quality. *Applied Mathematical Modelling* 2008;32(10):2106–2116.
- [5] Panasiuk A, editor. *Marketing usług turystycznych* [Marketing of tourist services]. Warszawa: Wydawnictwo Naukowe PWN; 2005.
- [6] Buhalis D. Marketing the competitive destination of the future. *Tourism Management* 2000;21(1):97–116.
- [7] Buhalis D, Laws E. *Tourism Distribution Channels: Patterns, Practices and Challenges*. London: Thomson; 2001.
- [8] Page SJ. *Tourism management: managing for change*. Oxford: Butterworth-Heinemann; 2003.
- [9] Pearce DG, Schott C. Tourism distribution channels: the visitors' perspective. *Journal of Travel Research* 2005;44(1):50–63.
- [10] Pearce DG, Tan R, Schott C. Distribution channels in international markets: a comparative analysis of the distribution of New Zealand tourism in Australia, Great Britain and the USA. *Current Issues in Tourism* 2007;10(1):33–60.
- [11] Stuart P, Pearce DG, Weaver A. Tourism distribution channels in peripheral regions: The case of Southland, New Zealand. *Tourism Geographies* 2005;7(3):235–256.

- [12] Scavarda AJ, Lustosa LJ, Scavarda LF. *The tourism industry chain*. Annual Conference of the Operations Management Society (12th), Orlando: POM; 2001.
- [13] Zhang X, Song H, Huang GQ. Tourism supply chain management: A new research agenda. *Tourism Management* 2009;30(3):345–358.
- [14] Song H. *Tourism supply chain management*. London: Routledge; 2011.
- [15] Alford P. A framework for mapping and evaluating business process costs in the tourism industry supply chain. In: Frew AJ, editor. *Information and communication technologies in tourism*, Vienna: Springer Verlag; 2005.
- [16] Yilmaz Y, Bititci U. Performance measurement in the value chain: manufacturing v. tourism. *International Journal of Productivity and Performance Management* 2006;55(5):371–389.
- [17] Van Eck NJ, Waltman L. *VOSviewer Manual. Manual for VOSviewer version 1.3.0*. software documentation; 2011.
- [18] Gudanowska AE. Tworzenie mapy wiedzy opartej na tematyce projektów badawczo – rozwojowych na przykładzie województwa podlaskiego [Creating knowledge maps based on the themes of R&D projects on the example of the Podlaskie region]. *Ekonomia i Zarządzanie* 2015;7(1):257–270.
- [19] Ashworth G, Voogd H. Marketing of tourism places: what are we doing? In: Uysal M, editor. *Global Tourist Behavior*, Binghamton International Business Press; 1994, p. 5–19.
- [20] Garcia-Rosell J-C, Haanpää M, Kylänen M, Markuksela V. From firms to extended markets – a cultural approach to tourism product development. *Tourism – Interdisciplinary Journal* 2007;55(4):445–459.
- [21] Okubo Y. *Bibliometric indicators and analysis of research systems: Methods and examples*. OECD Science, Technology and Industry Working Papers 1997/01. OECD Publishing; 1997.
- [22] Klineciewicz K, Żemigala M, Mijał M. *Bibliometria w zarządzaniu technologiami i badaniami naukowymi* [Bibliometry in technologies management and scientific research]. Warszawa: Ministerstwo Nauki i Szkolnictwa Wyższego; 2012.
- [23] Website of VOSviewer – a software tool for constructing and visualizing bibliometric networks, <http://www.vosviewer.com/> (retrived 22.06.2016).
- [24] Muchina S, Popovici V. Logistics and supply chain management in tourism. *Amphitheatre Economic* 2008;24:122–132.
- [25] Font X, Tapper R, Schwartz K, Kornilaki M. *Sustainable supply chain management in tourism*. Business Strategy and the Environment 2008;17(4):260–271.
- [26] Sigala M. A supply chain management approach for investigating the role of tour operators on sustainable tourism: The case of TUI. *Journal of Cleaner Production* 2008;16(15):1589–1599.
- [27] Song H. *Tourism supply chain management*. London: Routledge; 2011.
- [28] Nazarko J, Glinska U, Kononiuk A, Nazarko L. Sectoral foresight in Poland: thematic and methodological analysis. *International Journal of Foresight and Innovation Policy* 2013;9(1):19–38.
- [29] Nazarko J. *Regionalny Foresight Gospodarczy. Metodologia i instrumentarium badawcze* [Regional Economic Foresight. Methodology and Research Tools]. Warszawa: Związek Pracodawców Warszawy i Mazowsza; 2013.
- [30] Ejdyś J. *Regionalny foresight gospodarczy. Scenariusze rozwoju lokalnego województwa mazowieckiego* [Regional economic foresight. Scenarios for the local development of the Mazowieckie province]. Warszawa: Związek Pracodawców Warszawy i Mazowsza; 2013.
- [31] Ejdyś J. Future oriented strategy for SMEs. *Procedia – Social and Behavioral Sciences* 2014;156:8–12.
- [32] Ejdyś J, Nazarko Ł. Foresight gospodarczy – instrumentem orientacji na przyszłość [Economic foresight – an instrument of orientation for the future]. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu* 2014;340:651–664.
- [33] Szpilko D. The Future of Tourism Development in the Podlaskie Voivodeship. *Procedia – Social and Behavioral Sciences* 2015;213:977–984.