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Bulletin of Geography. Socio-economic Series, No. 45 (2019): 25–44
http://doi.org/10.2478/bog-2019-0022

ISSN 1732–4254 quarterly

BULLETIN OF GEOGRAPHY. SOCIO–ECONOMIC SERIES

journal homepages:
https://content.sciendo.com/view/journals/bog/bog-overview.xml
http://apcz.umk.pl/czasopisma/index.php/BGSS/index

Word Heritage Sites as soft tourism destinations – their impacts on international arrivals and tourism receipts

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How to cite:
Bacsi, Z. Łęcka, and Tóth, É. (2019). Word Heritage Sites as soft tourism destinations – their impacts on international arrivals and tourism receipts. *Bulletin of Geography. Socio-economic Series*, 45(45): 25-44. DOI: http://doi.org/10.2478/bog-2019-0022

Abstract. The paper deals with the relationship between the presence of world heritage sites in a country and the volume of international tourist arrivals and international tourism receipts. World heritage sites are unique tourist attractions with enhanced attention paid to their protection, preservation and sustainability. The paper analyses whether the needs of sustainability can be harmonised with the requirements of a profitable and successful tourism sector, by statistical analysis of data about world heritage sites and tourism performance, for 129 countries of the world from 2014 to 2017. The results show that both cultural and natural world heritage sites are generally strong attractions for tourists and can contribute to increased arrivals and receipts. Cultural sites were found to have higher impact on arrivals, while natural heritage sites seemed to have more impact on receipts, which suggest, that visitors of natural world heritage sites are usually higher spenders, than tourists visiting cultural sites. Countries widely differ, however, in this respect by their geographical locations. Countries in Europe and Latin-America & the Caribbean region benefit most from cultural world heritage sites, while African, and North American countries experienced the benefits of natural world heritage sites more. The general level of development measured by per capita GNI also mattered for the less developed areas, but not so much for developed regions that possess a suitable level of infrastructure, health and education, and living standards.

Article details:
Received: 05 February 2019
Revised: 29 June 2019
Accepted: 01 August 2019

Key words:
world heritage sites,
arrivals and receipts,
multivariate regression,
panel data

Contents:

1. Introduction

In the system of tourism the demand and supply of services are closely linked to the economic, technological, sociocultural, political and natural environment, and the interrelationship between tourism and its environment is usually very complex. Environmental factors influence tourism, while tourism – services and demand alike – may have various impacts on its environment. Increasing concern is felt nowadays about the conditions of the natural environment and local society, in view of their carrying capacities. In response to these challenges, sustainable tourism in general, and soft tourism in particular, provide tourism forms and tourism services that are less harmful to natural endowments and beneficial for the socio-economic situation in the long term (Kaspar, Fekete, 2006).

World heritage sites are unique tourism attractions that are to be protected and preserved for future generations. Word heritage sites, due to their recognised status, may attract increasing numbers of visitors. Therefore, they are powerful items in tourism marketing. It is important for managers of such sites to balance the requirements of preservation and sustainability with the needs of profitable tourism services. However, sustainability is a core issue, and therefore visitors to world heritage sites have to comply with the constraints set in order to make the destination sustainable. The conflicting goals of increasing visitor numbers and protecting the sites from overuse are difficult to harmonise, but most countries consider world heritage sites as a competitive edge in the struggle to increase their share in the international tourism market.

The purpose of the present research is to quantify the impact of world heritage sites on tourism arrivals and receipts. Many papers have been published about the importance of world heritage sites in tourism, and, among them, case studies of individual heritage sites are the most abundant. However, relatively little research has been done on establishing correlations between the number of heritage sites and tourism arrivals, or tourism receipts. The studies addressing this issue have their specific limitations: some refer only to a specific group of countries, others are based on data from before 2011, others handle cultural and natural sites together without testing their separate impacts on the tourism industry, and others focus only on leisure tourism arrivals and receipts in the analysis. The present research attempts to analyse the impacts of cultural heritage sites, natural heritage sites and oral and intangible heritage practices as three separate variables in the same model. Besides this, our model also applies a short time lag, comparing the number of heritage sites and intangible practices

of one year to the tourism performance variables of the following two years. The time span of our analysis is the years from 2014 to 2017, so our results can indicate the temporal robustness of earlier similar results. Another novelty is the segmentation of the analysed countries according to their geographical locations, and testing the impacts of heritage sites on these country segments. The research will show that the number of cultural and natural sites can significantly increase tourist arrival numbers and tourism receipts as well, but the impacts of cultural heritage and natural sites considerably differ between continents, giving a unique regional character to their tourism appeal.

2. Literature review

2.1 Sustainability and soft tourism

Mass tourism emerged in the 1950s, and it has expanded enormously ever since. The main feature of mass tourism is the large number of visitors at the same time and same place, and the tours are often sold in standardised forms regardless of the tourist's individual preferences. This way, mass tourism usually exploits the resources and attractions of the destination to a level that risks the destruction of these very attractions themselves. In contrast to that, alternative tourism, or sustainable tourism, characterised by small numbers of tourists, is often related to "green" activities, ecotourism, and sustainable services (Aronsson, Sandell, 1999).

In relation to the role of local resources in tourism, the term "carrying capacity" is understood in the sense of physical, economic, social, ecological and psychological meanings (Kaspar, Fekete, 2006; Bezzola, 1975). It refers to the maximum number of tourists arriving at the same time at the destination without causing permanent, irreversible damage to the natural, economic and socio-cultural environment without an unacceptable decrease in the quality of visitor satisfaction.

Sustainable tourism is a form of tourism that, in contrast to mass tourism, keeps the caused damage low, and well below the carrying capacity of the destination area. It has been increasingly popular recently, and is widely discussed in contemporary tourism literature (for references see, e.g., Weaver et al., 1999).

The term "soft tourism" is used – especially in Europe – similarly to "sustainable tourism". The expression gained popularity in the early 1980s, at first in Germany, Austria and Switzerland, in Al-

Table 1. Comparison of hard tourism and soft tourism

Hard Tourism	Soft Tourism
mass tourism, institutionalised	individual travel, travel with the family or friends
short duration, short time spent in the area	long duration, long time spent in the area
fast vehicles, fast travel modes	travel modes best suited to the purpose, often slow vehicles
fixed, prepared programme for the tour	spontaneous decisions about the tour
external guidance	internal guidance
imported lifestyles	common rural lifestyles
"sights"	experiences
passive and comfortable, effortless	active, requires effort and involvement
little or no mental preparation	preparation, pre-travel learning about the destination area
travel without knowing or learning the language	learning the local language
feeling of superiority	the joy of learning
"shopping"	bringing presents
souvenirs	memories, notes, new knowledge/skills
taking pictures, buying postcards	photography, drawing, painting
curiosity	sensitivity, understanding
noisy	silent

Source: Fekete, 2006: 63.

pine tourism destinations (Pearce, 2004). The general definition was given in the Chur Declaration of CIPRA (Commission Internationale pour la Protection des Régions Alpines), in the following way: soft tourism "denotes a form of tourism which leads to mutual understanding between the local population and their guests, which does not endanger the cultural identity of the host region and which endeavors to take care of the environment as best as possible. Soft tourists give priority to using infrastructures destined for the local population and do not accept substantial tourist facilities harmful to the environment" (Broggi, 1985: 286).

Weaver et al. (1999) distinguish between sustainable and unsustainable mass tourism. Most of the mass tourism activities are considered to be unsustainable, being large scale, in a destination characterised by low regulation levels, while sustainable mass tourism destinations are resorts and other higher intensity locations that have managed to implement a set of regulations and policies conducive to sustainability. Unsustainable mass tourism is often called "hard" tourism (Fekete, 2006). Table 1 compares the main features of hard tourism and soft tourism.

2.2 Soft tourism forms and activities

Fekete (2006) considers soft tourism as a form of tourism that maintains the balance between the landscape, recreation, leisure and economic benefits. It also maintains harmony between the natural, social and cultural environment, and is characterised by the careful management of the landscape. Fekete (2006) also emphasises the dynamic relationship of soft tourism with cultural heritage and heritage tourism, pointing out the importance of preserving cultural heritage for present and future generations.

Soft tourism activities are activities close to nature, respecting the host culture and not relying on technology-intensive infrastructure. Therefore the two main strands are nature-based activities (hiking, biking, ecotourism, water and ground sports) and activities related to the local cultural resources, like visiting physical objects of cultural heritage (buildings, folk art objects, costumes, food and drink) or enjoying and learning intangible culture (traditions, customs, tales, songs, dances, procedures for making food and drinks, crafts).

Unique natural attractions usually form the core of ecotourism activities, and many World Heritage Natural Sites are destinations for ecotourists. The term "ecotourism" has also gone through a long history of evolution, and still there is no universally accepted definition. Some authors highlight the environmental sustainability, others include its relationship to local society and culture, while still others emphasise its economic benefits (Ceballos-Lascurain, 1987; Ziffer, 1989; Boo, 1991; Boyd, Butler, 1996; Weaver, Lawton, 2007).

The common elements of the many definitions for ecotourism are the following (Weaver, Lawton 2007, Ahmad 2014, Sirakaya et al., 1999):

- it is tourism to natural areas and to their culture,
- it contains educational and interpretational elements,
- it is usually small-scale, organised in a bottom-up way,
- it minimises the negative impacts on nature and culture,
- it supports the protection of natural areas (by creating jobs).

Ecotourism destinations, and therefore nature-based soft tourism destinations, include not only world heritage natural sites; many natural parks and nature reserve areas can very well serve this purpose, too.

Most forms of health tourism use some natural healing resource (thermal water, mountain fresh air, mineral muds, etc.) combined with relaxation and healthy food to produce a complex healing experience, which is perfectly in line with the idea of soft tourism (Bacsi, Kovács, 2016). Similarly, rural tourism also relies on both natural resources – the beautiful rural landscape, the richness of the plant and animal world – and rural lifestyle and culture as tourist appeals, which can nicely accommodate the soft tourist's yearning for a complex and rewarding experience (Bacsi, Kovács, 2007; Vujko et al., 2018).

Cultural heritage tourism involves visiting places that are significant for the past or present cultural identity of a particular group of people. Cultural heritage encompasses what a particular group of people has in common that makes them different from others. Cultural heritage tourism provides an

opportunity for people to experience their culture in depth, whether by visiting attractions or historical or culturally relevant places, or by taking part in cultural activities. Cultural heritage tourism is based on the mosaic of places, traditions, art forms, celebrations and experiences that portray a nation and its people, reflecting the diversity and character of the country. Travellers who are interested in cultural heritage tourism would visit or take part in any of the following (PLC, 2014):

- historical attractions, monuments, or landmarks,
- museums, art galleries or theatres,
- festivals, concerts or performances,
- culturally significant neighbourhoods or communities.

Cultural heritage and tourism often represent conflicting interests. High tourist numbers may bring about receipts that help to maintain and preserve the cultural heritage, but, at the same time, they may imply a heavy demand well beyond the carrying capacity of the heritage site itself (PATA, 2015). Cultural heritage and cultural attractions may exist together with a diverse, multicultural community, and the varied ethnic or religious composition of a country may lead to the parallel existence of different traditions and cultures (Bacsi, 2017).

Natural diversity and cultural wealth are common values for the whole of human society, and the World Heritage Convention recognised their merits by establishing the system of World Heritage sites to protect natural diversity and cultural wealth of global significance for the benefit of future generations and for all mankind (Markham et al., 2016). Looking at World Heritage Sites as tourist attractions, the idea of sustainability is a core element. Tourism directed to World Heritage Sites should give priority to sustainability, and therefore should be fitted to the concept of soft tourism.

The present paper will look at world heritage sites and it will attempt to assess the impact of such sites on tourism performance. As soft tourism is based on two strands, nature-based tourism resources and tourism attractions based on the local culture, World Heritage Sites are also listed as either natural or cultural heritage sites. A third category, mixed sites having both natural and cultural merits at the same time, are also listed (Markham et al., 2016). The present paper looks at these heritage sites of outstanding value to analyse their impact on the success of tourism, measured in terms of arrivals and receipts.

2.3. World heritage sites and protected areas as soft tourism destinations

The role of world heritage sites in the tourism performance of a country is an exciting topic. The relevant literature indicates that world heritage sites are favoured tourist attractions, and by becoming a world heritage site a destination can attract more tourists and attain more tourism receipts. Therefore, the more world heritage sites a country possesses, the more tourists and larger tourism-related incomes it can attain (Markham et al., 2016).

World heritage sites can come in three forms: natural sites, cultural sites and mixed (natural and cultural) sites. Cultural heritage can again be of a physical character, which encompasses tangible items such as buildings, and also intangible features, such as oral traditions, customs, folk music, literature, festivals, etc.

The idea of listing sites as world heritage sites helps the preservation of these sites for the future, and this may be in contradiction with the idea of turning them into popular tourist destinations. World heritage sites as tourist destinations should make sustainability the focus of tourism management, so their very existence should give rise to soft forms of tourism. This is also true for other protected resources, such as natural parks and nature reserve areas, so it is reasonable to assume that world heritage sites and natural parks or nature reserves facilitate soft tourism. If a positive relationship is found between the number of these attractions and tourist numbers, we may assume that this positive relationship may also hold for soft tourist arrivals.

Since the launch of the World Heritage Convention in 1972, World Heritage sites have become increasingly popular. By 2015 more than 1,000 sites have received World Heritage status, including 228 natural and mixed sites. Conradin et al. (2015) present the results of a global survey of 128 of 211 World Natural Heritage (WNH) sites listed in 2011, and show that the understanding of WNH status has undergone great changes: from being perceived

as an internationally valued instrument for fostering conservation, WNH status has now instead become a label of great promotional importance for tourism. This is shown by the decreasing influence of WNH status on the status of protection of a site, while the influence of WNH status on visitor numbers has increased with time (Conradin et al., 2015).

Research about the impact of heritage sites on tourism arrivals is not abundant. In a panel regression analysis of 66 countries for 2006–2009, Su and Lin (2014) found a robust positive relationship between the number of such heritage sites and tourist numbers. The relationship was found to be stronger for natural sites than for cultural heritage sites, controlling for GDP, health expenditure, political and civil freedom, and transport infrastructure. The results also indicated the presence of a U-shaped relationship between numbers of world heritage sites and tourist arrivals.

The main concern about heritage sites can be either their sustainability or their importance as tourism destinations (Schmutz, Elliott, 2016). Tourism is often perceived as a threat to the sustainability of heritage sites. Many observers have criticised heritage tourism as either a profit-making tool of the tourism (or heritage) industry, or a means of identity construction and self-aggrandisement for nation-states that may reflect elite interests. Such efforts to commoditise, politicise, or universalise heritage are seen as a threat to the authenticity of cultural and natural properties. While in the 1980s only 25% of site assessments considered tourism as a threat to heritage sites, this concern has considerably increased in the first decade of the 21st century, to 38% (Schmutz & Elliott, 2016).

Natural parks and nature reserve areas are institutions of great socio-educational impact that could be linked to the process of education about sustainable and responsible tourism. As the example of Polish national parks shows, such parks can have a major role in promoting sustainable and responsible tourism, though there are still unused potentials that can contribute to raising public awareness in this regard. Due to the main protective function of national parks, tourism organised within them should meet the requirements of sustainable tourism with the highest standards. This is fulfilled mostly by regulation of tourism intensity and acceptance of only selected forms of tourism within a particular national park. Regulation of tourism intensity is achieved by the planned limitation of the numbers of tourists, and by introducing charges, which may to some extent limit the numbers of tourists, or by channelling tourist activity into tourist trails and educational tracks. Only selected forms of tourism – i.e., those that are least harmful to nature (e.g. walking, kayaking, cycling or horseriding) are allowed within national parks. In order to promote these, and not other forms of tourism, parks offer tracks, thematic trails and infrastructure necessary to cultivate a given form of tourism (e.g. rest stops for cyclists). Such activities also qualify as sustainable tourism (Szczęsna, Wojtanowicz, 2014).

The positive relationship between tourism demand (arrivals) and world heritage sites has been established by several case studies analysing the experiences of specific heritage destinations from Spain to Germany to Romania to Tanzania to Australia (Hardiman, Burgin, 2013; Wuepper, 2016; Lwoga, 2018; Pino, 2018; García-Hernández et al., 2017; Iatu et al., 2018; Hidalgo-Fernández et al., 2019). Empirical results on cross-country assessments are also available, though not abundant.

Roh et al. (2015) tested the impact of tangible and intangible heritage on tourism demand, using panel data of 78 countries for the ten-year period of 1995–2005. They used linear and quadratic models to estimate the impact of the number of world heritage sites and the number of intangible heritage practices on tourism arrivals and on tourism receipts. They found highly significant positive impacts of both tangible and intangible heritage on arrivals and on receipts alike. The impact of intangible heritage practices was higher than that of tangible heritage sites, on both arrivals and on receipts. It is important to know that in this analysis only leisure tourism was included. In the variable of tangible heritage, the cultural and natural sites were considered together, so the separate impacts of these two types of heritage sites were not analysed. Our analysis in the present paper handles the cultural and natural world heritage sites separately, as well as the number of intangible heritage practices. Regarding the differentiation of leisure and business travel, it should be taken into account that business travel includes conferences and congresses, which are often organised in regions that possess a remarkable natural or cultural heritage item, so world heritage sites

and practices are certainly important when choosing business travel destinations, too.

The methodology in our paper is very similar to that of Din et al. (2017). They analysed a sample of 126 countries, to test whether a quantitative relationship could be established between tourism demand (i.e. the number of international arrivals *per capita*) and the number of world natural and cultural heritage sites, ethnic diversity, GDP *per capita*, and indicators of good governance. Similarly to our methodology, they used the Travel & Tourism Competitiveness Report of the World Economic Forum for data on World Heritage sites for 2011, and carried out a multiple regression analysis to establish a relationship between WHS numbers and the tourist arrivals *per capita* for the analysed countries. They also included ethnic diversity as an explanatory variable in their models. In their model the dependent variable is not the total number of international tourist arrivals, but international tourist arrivals *per capita* (i.e. relative to the population of the analysed countries), and they used the natural logarithms of dependent and independent variables except for ethnic diversity and governance indicators. They found a strong positive influence of both cultural and natural world heritage sites on *per capita* international arrivals when only one of them was included in the models, but when both of these sites were used as independent variables together, only the impact of natural heritage sites remained significant. However, the impacts of heritage sites on tourism receipts were not analysed, nor regional differences. The analysis was based on data for 2011, and as the data show, the number of world heritage sites has increased considerably since then. Therefore, it is interesting to see how these relationships have changed in the past few years.

Veghes (2018) analysed the relationship between cultural heritage and the travel and tourism industry. The indicators of cultural heritage included, among others, the number of cultural World Heritage Sites and the number of Oral and Intangible Heritage Practices according to the UNESCO World Heritage List of 2016. The indicators of the travel and tourism industry were the number of international tourist arrivals and the international inbound tourist receipts of the Travel & Tourism Competitiveness Report, together with the Travel & Tourism Competitiveness Index of 2016. Altogether, 44 economies were included in the analysis, all of which owned higher numbers of cultural world heritage sites than the world average. The relationship between tourism indicators and cultural heritage indicators was assessed by computing correlation coefficients. The number of international tourist arrivals was found to have a very strong positive correlation with the number of cultural heritage sites, and a medium positive correlation with intangible heritage practices. The value of international tourism receipts was less strongly related to cultural heritage indicators: it had a medium positive correlation with the number of cultural heritage sites, and a weak, but still significant positive correlation with intangible heritage practices. These values are interesting, but refer only to one year, and to a limited group of countries, and therefore their validity clearly requires more justification.

3. The impact of World Heritage Sites on tourism performance: a statistical analysis

3.1 The research question

Statistical analysis was carried out to see how the number of word heritage sites is related to tourism performance measured by international tourist arrivals and international tourism receipts.

The statistical relationship between these indicators was tested using heritage site numbers in 2014 and 2016, and arrivals and receipts in 2015, 2016 and 2017, for altogether 129 countries on various continents.

3.2. Data and methodology

3.2.1 Data sources

Tourism related data series of many countries are published in the Travel & Tourism Competitiveness Reports (TTCR) of the World Economic Forum, published in every second year. The latest, about the situation in 2017, was published in 2018 (Crotti, Misrahi, 2018), and provides data for 146

countries of the world. This report contains many indicators of the tourism environment as well as of the performance of tourism, including international arrivals, international receipts, and the components of the Travel & Tourism Competitiveness Index (TTCI). The TTCI is a weighted average of many indicators of tourism, which are available online as an Excel datafile, not only for 2017, but for several earlier years (WEF, 2015, 2017). Tourism competitiveness is estimated by the weighted average of 14 indices (called "pillars") describing the environment in which tourism operates.

The 14 pillars of TTCI are organised into four sub-indices in the following way:

1. The enabling environment (of 5 pillars): 1. the business environment, 2. safety & security, 3. health & hygiene, 4. human resources & labour market, 5. ICT readiness.
2. Travel & Tourism policy and enabling conditions (of 4 pillars): 6. prioritisation of travel & tourism, 7. international openness, 8. price competitiveness, 9. environmental sustainability.
3. Infrastructure (of 3 pillars): 10. air transport infrastructure, 11. ground & port infrastructure, 12. tourist service infrastructure.
4. Natural and cultural resources (of 2 pillars): 13. natural resources, 14. cultural resources & business travel.

Thus, TTCI is the weighted average of a total of 14 pillars, which are either calculated as hard data measured by some physical indicator, or are derived from an executive opinion survey by the World Economic Forum. Survey data are measured on a 1-to-7 scale, 1 meaning the worst situation, and 7 the best, while hard data are also normalised to a similar 1-to-7 scale, 1 corresponding to the worst value and 7 to the best (for details see Crotti, Misrahi, 2018).

The sub-index of natural and cultural resources (iv), i.e. pillars 13 and 14, contains several indicators measuring the quantity and quality of natural and cultural resources, as well as the number of intangible cultural heritage practices. Intangible cultural heritage practices are those practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artifacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognise as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment and their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity.

Selected indicators of pillars 13 and 14 from the TTCR of 2017 and of 2015 will be used in the following analysis, as described in the following section.

3.2.2 World heritage sites in the Travel & Tourism Competitiveness Report

The TTCR contains a rich set of data on tourism attractions, including world heritage sites. The following data series of the report were included in the analysis (Crotti, Misrahi, 2018):

- Pillar 13: Natural resources,
- Number of World Heritage natural sites in the country (NATWHS) – for 2014 and 2016
- Pillar 14: Cultural resources and business travel,
- Number of World Heritage cultural sites in the country (CULWHS) – for 2014 and 2016
- Number of Oral and Intangible cultural heritage practices and expressions (INTHS) – for 2014 and 2016.

Independent variables from the WEF database (WEF 2015, 2017):

- CULWHS: the number of cultural world heritage sites in 2014 and 2016,
- INTHS: the number of oral and intangible cultural heritage practices in 2014 and 2016,
- NATWHS: the number of natural world heritage sites in 2014 and 2016.

The mixed cultural and natural sites are counted as 0.5 natural WHS and 0.5 cultural WHS in the database.

These three data series are the main independent variables in our analysis. The dependent variables are those measuring various aspects of the performance of the tourism sector of the analysed countries. Finally, a set of variables is also included as control variables, to capture the general economic

situation of the analysed countries, which may influence the actual performance of tourism. Therefore the dependent and control variables used in the statistical analyses are grouped as follows:

Dependent variables, measuring the level of tourism performance:

- ARR: Annual international tourist arrivals in thousands of persons, for each year between 2014 and 2017 – from the database of the World Bank (WBD, 2019),
- REC: Annual international tourism receipts in millions of USD, for each year between 2014 and 2017 – from the Database of the World Bank (WBD, 2019).

Control variables:

- GNIP2014: GNI 2014 per person in USD (at purchasing power parity) from the World Bank Databank (WBD, 2014),
- Pop%: Population in 2014, as a percentage of the world total, from UNESA-DP, 2018,
- Urb% 2015: percentage of the population living in urban areas, from UNESA-DP, 2018,
- Region: an index of belonging to one of the areas of Europe, North America, Latin America & the Caribbean, Africa, Asia & Pacific, Middle East & North Africa, as a dummy variable.

The same control variables were applied by Bacsi (2017) when the relationships of tourism competitiveness, tourism arrivals and tourism receipts to population diversity were tested.

3.2.3 Methods of statistical analyses

Three types of statistical methods were applied in the research.

Descriptive analysis was applied to give an overview of natural and cultural tourist attractions worldwide. The chosen indicators of tourism performance were also evaluated by descriptive statistics.

Then the relationships between tourism performance and natural and cultural world heritage sites and intangible practices were tested by correlation analysis. As normal distribution of the variables cannot be assumed, Spearman's correlation coefficients were applied.

Finally, multivariate regression analysis was applied to quantify the influence of the three types of heritages on tourism performance (i.e. on arrivals and receipts). The statistical analyses were carried out by the SPSS (Version 22.00) statistical software. This analysis was performed not only for the whole dataset, but separately for the geographical regions, too.

4. Results of the statistical analyses

4.1 Descriptive methods

The total number of world heritage sites has steadily grown in the past decades. Table 2 presents the total number of world heritage sites in 2014, 2016 and 2018, by heritage type. The data show an average annual increase of about 3%, though the number of cultural sites increases somewhat faster than that of natural sites.

Figures 1 and 2 present the number of world heritage sites in 2014 and 2016 by region for the assessed countries. The total number of heritage sites and practices, i.e. cultural, natural world heritage sites and intangible cultural heritage practices, increased between the two years for each region. The total number of cultural world heritage sites

Table 2. World heritage sites in 2018

Year	Cultural sites	Natural sites	Total number of sites	Growth of cultural sites, % of 2014	Growth of natural sites, % of 2014	Growth of total sites, % of 2014
2014	764	208	972	100%	100%	100%
2016	816	219	1,035	106.8%	105.3%	106.5%
2018	864	228	1,092	113.1%	109.6%	112.3%

Source: UNESCO, 2019 and WEF 2015, 2017

was 801 in 2016 in the assessed countries, while the total number of natural world heritage sites was 218. This means that our sample of countries covers 98.2% of all cultural sites and 99.5 % of natural sites. Looking at regional values, as Fig. 1 shows, Europe possesses most (nearly 50%) of the world's cultural heritage sites, while Asia has the highest proportion of natural world heritage sites and of intangible cultural practices.

Looking at continents separately, Europe's world heritage is mostly of the cultural type. In Asia, the Middle East & North Africa, and North America, most of the world heritage sites are of cultural character, and intangible heritage is of a similar magnitude. In Africa the three types are of similar proportions (see Fig. 2).

As Table 3 shows, the size of the population is positively correlated with all types of heritages. This indicates that, on average, the larger the country the more world heritage items it has, which is not surprising. However, *per capita* GNI (GNIP) is positively correlated with the number of cultural heritage sites, but not correlated with the number of natural WH sites or intangible cultural practices. Wealthier countries do not have significantly more natural WH sites or intangible cultural heritages, but possess significantly higher numbers of cultural world heritage sites than poorer ones. This latter fact may indicate that cultural heritage sites can be better preserved when higher levels of incomes and higher living standards are available in the country.

As the total and the mean values indicate in Table 4, tourist arrivals have steadily increased from 2014 to 2017, but receipts have shown more fluctuation, being the lowest in 2015 and the highest in 2017. This is also reflected in the correlations between arrivals and receipts of various years being lower than 0.91 (Table 5).

As Table 5 shows, the correlations between various years of tourism receipts and tourist arrivals are very strong; all are higher than 0.87. As heritage data are available from 2014 and 2016 we will use arrivals and receipts data for 2015, 2016 and 2017 to show whether the number of world heritage sites influence tourism arrivals and receipts in the same year, or in the following few years.

4.2 Relationships between independent and dependent variables: all countries

The strongest correlations of receipts and arrivals (Table 6) are found with cultural heritage sites (Rho>0.70), followed by natural sites (Rho>0.36), while correlations with intangible heritage practices are weaker (Rho<0.23). Therefore, it is reasonable to assume that cultural or natural heritage sites significantly influence international tourist arrivals and tourism receipts, both in the same year and in the following years, while the impact of intangible practices is more mixed and not very strong.

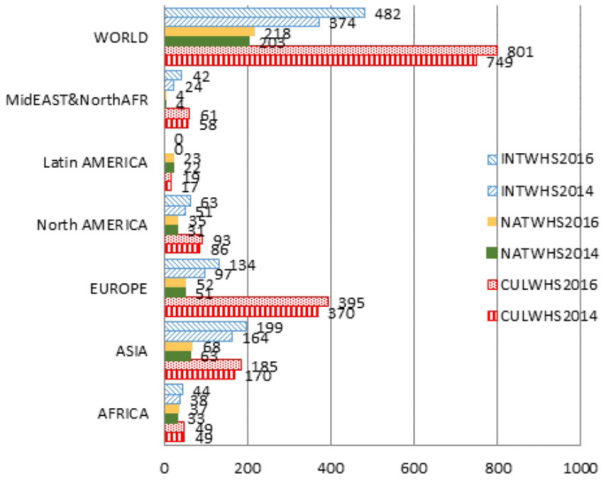

Fig. 1. The number of world heritage sites and intangible heritage practices, 2014 and 2016
Source: Authors' own construction based on WEF 2015,2017

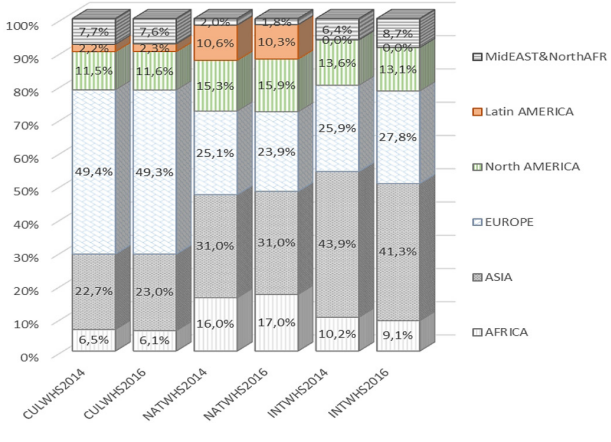

Fig. 2. Distribution of world heritage sites and intangible cultural practices by region and year
Source: authors' own construction based on WEF 2015,2017

Table 3. Correlation between income, population and number of heritage sites and practices

Spearman's rho	GNIP2014	Population percent
CULWHS2014 (N=128)	0.461**	0.539**
CULWHS2016 (N=126)	0.460**	0.550**
INTHS2014 (N=128)	-0.016	0.277**
INTHS2016 (N=126)	0.030	0.306**
NATWHS2014 (N=128)	0.137	0.545**
NATWHS2016 (N=126)	0.079	0.579**

*** Correlation is significant at the 0.01 level.*

Table 4. Descriptive statistics of heritage sites and practices, tourist arrivals and tourism receipts

Indicator	N	Minimum	Maximum	Mean	Std. Deviation	Total
CULWHS2016	126	0.0	47.0	6.4	8.803	801
INTHS2016	126	0.0	39.0	3.8	5.533	482
NATWHS2016	126	0.0	14.0	1.7	2.594	218
CULWHS2014	128	0.0	46.0	5.9	8.354	749
INTHS2014	128	0.0	37.0	2.9	4.884	374
NATWHS2014	128	0.0	14.0	1.6	2.504	203
ARR2014	138	33.00	83,701	7,625.7	13,863.28	1,052,347
ARR2015	138	24.00	84,452	7,957.7	14,343.08	1,098,163
ARR2016	134	55.00	82,682	8,482.4	14,671.41	1,136,642
ARR2017	125	87.00	86,861	9,718.6	15,913.43	1,214,825
REC2014	142	2.80	235,990	9,117.2	23,255.55	1,294,642
REC2015	141	0.10	249,183	8,931.5	23,976.18	1,259,342
REC2016	141	1.60	246,172	9,097.9	23,833.19	1,282,804
REC2017	127	3.00	251,361	10,765.7	25,717.65	1,367,244

Note: Arrivals are measured in thousands, and receipts are measured in million USD.

Table 5. Correlations between tourism receipts and arrivals for various years

Spearman's rho	REC 2015	REC 2016	REC 2017	ARR 2015	ARR 2016	ARR 2017
REC2015	1.000	0.995**	0.992**	0.905**	0.895**	0.885**
REC2016	0.995**	1.000	0.995**	0.906**	0.899**	0.884**
REC2017	0.992**	0.995**	1.000	0.890**	0.885**	0.875**
ARR2015	0.905**	0.906**	0.890**	1.000	0.995**	0.993**
ARR2016	0.895**	0.899**	0.885**	0.995**	1.000	0.997**
ARR2017	0.885**	0.884**	0.875**	0.993**	0.997**	1.000

Table 6. Spearman correlations between tourism receipts, tourist arrivals and heritages

Spearman's rho	NATWHS2014	CULWHS2014	INTHS2014	NATWHS2016	CULWHS2016	INTHS2016
ARR2015	0.388**	0.712**	0.193*	0.364**	0.717**	0.223*
ARR2016	0.399**	0.729**	0.200*	0.365**	0.729**	0.224*
ARR2017	0.402**	0.717**	0.183	0.381**	0.724**	0.205*
REC2015	0.432**	0.708**	0.136	0.399**	0.716**	0.180*
REC2016	0.434**	0.708**	0.163	0.396**	0.713**	0.195*
REC2017	0.445**	0.711**	0.149	0.399**	0.710**	0.177

Based on the above correlations a multivariate regression model was set up in the following form:

$$Y = Const + a \times \text{NATWHS} + b \times \text{CULWHS} + c \times INTHS + d \times GNIP + e \times \text{Pop\%} + f \times Urb\% + g$$

Ten model versions were estimated with multivariate regression analysis.

- Models 1, 2, 3: independent variables are world heritage site values of 2014, and dependent variables (Y) are *ARR2015*, *ARR2016* and *ARR2017*, respectively,
- Models 4, 5: independent variables are world heritage site values of 2016, and dependent variables (Y) are *ARR2016* and *ARR2017*, respectively,
- Models 6, 7, 8: independent variables are world heritage site values of 2014, and dependent variables (Y) *REC2015*, *REC2016* and *REC2017*, respectively,
- Models 9, 10: independent variables are world heritage site values of 2016, and dependent variables (Y) are *REC2016* and *REC2017*, respectively.

In models 1, 5, 6 and 10 the dependent variable refers to tourism performance one year later than the heritage site data, showing the immediate impacts of world heritage sites. In models 2, 3, 7 and 8 the impacts of heritages are tested for tourism performance in the following two years.

The variables *GNIP (GNI per person in 2014)*, *Urb%* and *Pop%* are included as control variables, describing the external influencing factors for tourism. *GNIP* is included to describe the level of development of the countries, which determines the infrastructure, educational and health attainments and living standards, which are all important for tourism. *Urb%* – the proportion of the population living in urbanised areas in 2015 – is handled as an indicator of infrastructural conditions, while *Pop%* – the size of the population of the country as a percentage of the world total population in 2014 – is a measure of country size, as it is reasonable to assume that larger countries have more tourist attractions and more visitors. The variable *g* indicates the error term in the model. The same approach was applied by Bacsi (2017) in analysing the relationship between the Travel & Tourism Competitiveness Index and population diversity.

4.3 Results of the regression analysis

Tables 7 and 8 summarise the results of the multivariate linear regression analyses. The adjusted R^2 values show the rather high power of the regression estimation for arrivals (between 0.667 and 0.688) and medium power of the estimation for receipts (adjusted R^2 between 0.395 and 0.410).

Looking at the impacts of world heritage sites or practices, it is clear from Table 7 that the amounts of natural and cultural heritages have significant positive impacts on international tourist arrivals, as is shown in models 1 to 5. As Beta values reflect in Table 7, the impact of cultural world heritages is more than twice as strong as that of natural world heritages. The impact of intangible and oral heritage practices is much weaker, and not significant. Comparing the results for arrivals of 2015, 2016 and 2017 the Beta coefficients of the three years are rather similar, indicating the robustness of our models. The explanatory power of the regression models is strong; the adjusted R^2 values are in the range of 0.667–0.688.

In contrast to the results for international arrivals, models 6 to 10 (which have international tourism receipts as dependent variables) show slightly

Table 7. Regression results for the various model versions, standardised coefficients (Beta values)

Model	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Dependent variable	**Arr2015**	**Arr2016**	**Arr2017**	**Arr2016**	**Arr2017**	**Rec2015**	**Rec2016**	**Rec2017**	**Rec2016**	**Rec2017**
NATWHS2014	0.254***	0.240***	0.229**			0.458***	0.469***	0.473***		
CULWHS2014	0.603***	0.612***	0.636***			0.203*	0.201*	0.220**		
INTHS2014	0.102	0.122*	0.129+			-0.066	-0.062	-0.079		
NATWHS2016				0.241**	0.230**				0.450***	0.453***
CULWHS2016				0.637***	0.661***				0.233*	0.255**
INTHS2016				0.089	0.095				-0.077	-0.086
GNIP2014	0.248**	0.263**	0.246**	0.236**	0.218**	0.289**	0.302**	0.293**	0.308**	0.302**
Pop%2014	-0.100	-0.103	-0.121	-0.105	-0.123	-0.006	-0.01	-0.037	-0.021	-0.052
Urb %	-0.111	-0.122	-0.113	-0.107	-0.098	-0.074	-0.077	-0.071	-0.084	-0.085
TOL >	*0.450*	*0.452*	*0.458*	*0.464*	*0.462*	*0.445*	*0.447*	*0.449*	*0.469*	*0.470*
Adj R^2	*0.667*	*0.687*	*0.688*	*0.685*	*0.688*	*0.398*	*0.414*	*0.410*	*0.408*	*0.405*
Model sig	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*

different results. In these models the impacts of natural world heritage sites are the strongest, followed by cultural world heritage sites, and both are positive and significant. The impacts of intangible and oral heritage practices are negligible, and not significant in any of the five model versions. The adjusted R^2 values are somewhat weaker than for arrivals, in the range of 0.398–0.414. Beta values are very similar in the various model versions, reflecting the robustness of the model structure.

The impacts of heritage sites practically do not change with time. When dependent variables were taken from the same year as the heritage data, the Beta values were nearly the same as when dependent variables were taken from one or two years later.

The influence of control variables is negligible, except for the *per capita* GNI level, which is positive and significant, its magnitude being similar to that of natural heritages in models 1 to 5 and of cultural heritages in models 1 to 6. This indicates that wealthier, more developed countries attain higher tourist numbers and higher tourism receipts, all other things being equal. However, neither the size of the countries (measured by population), nor the level of urbanisation showed any significant impact on tourism performance.

Table 8 repeats the same information, but instead of giving the standardised Beta values, it presents the unstandardised original regression coefficients for the independent variables.

Comparing the unstandardised regression coefficients to those found by Su and Lin (2014), who carried out similar regression estimations for arrivals for 2000–2009, the coefficients for arrivals in our models are nearly three times as large as in Su and Lin (2014) for natural heritage sites, and 2.5 times higher for cultural heritage sites. However, their results also showed that breaking up the 10 years to shorter, two-year time periods, and grouping the countries by the amount of world heritage sites, the coeffficients increased for the later years, and also for countries with higher numbers of heritage sites. Therefore, it is reasonable to assume that 5 years after their analysed period, with larger numbers of heritage sites, model coefficients should be higher. Our results are in line with Su and Lin (2014) in the fact that coefficients of natural heritage sites are higher than those of cultural heritage sites, showing that arrivals are more sensitive to an increase in natural heritage sites than in cultural heritage sites. Our results show the same features for receipts, too.

Table 8. Regression results for the various model versions, unstandardised coefficients (B values)

Model	**1**	**2**	**3**	**4**	**5**
Y (Dependent)	**ARR2015**	**ARR2016**	**ARR2017**	**ARR2016**	**ARR2017**
Constant	-302.48	-112.24	-249.53	-385.90	-548.37
NATWHS2014	1,495.33***	1,434.49***	1,442.80**		
CULWHS2014	1,066.76***	1,094.68***	1,208.35***		
INTHS2014	308.15	371.78*	416.34+		
NATWHS2016				1,398.36**	1,413.76**
CULWHS2016				1,086.80***	1,198.27***
INTHS2016				241.19	273.48
GNIP2014	.236**	.254**	0.255**	0.23**	0.23**
Pop%2014	-629.836	-651.88	-808.525	-661.15	-821.80
Urb %	-74.962	-83.462	-83.81	-75.06	-74.45
Model	**6**	**7**	**8**	**9**	**10**
Y (Dependent)	**REC2015**	**REC2016**	**REC2017**	**REC2016**	**REC2017**
Constant	-2,839.75	-2,892.35	-2,628.93	-2,667.39	-2,086.03
NATWHS2014	4,585.05***	4,659.70***	4,868.16***		
CULWHS2014	611.56*	598.96*	683.87**		
INTHS2014	-340.75	-317.72	-419.83		
NATWHS2016				4,367.36***	4,536.56***
CULWHS2016				664.85*	760.19**
INTHS2016				-348.35	-405.21
GNIP2014	.43**	0.44**	0.45**	0.46**	0.49**
Pop%2014	-66.11	-109.36	-399.55	-218.67	-570.54
Urb %	-82.24	-85.28	-84.12	-95.03	-101.81

Taking the averages of the regression coefficients of the various independent and control variables, and using them as average regression coefficient the following two estimations can be derived:

$$Arrivals = -319.70 + 1436.95^{***} \times NATWHS + 1130.97^{***} \times CULWHS + 322.19 \times INTHS + 0.241^{**} \times GNIP - 714.64 \times Pop\% - 78.35 \times Urb\%$$

$$Receipts = -2622.89 + 4603.37^{***} \times NATWHS + 663.89^{***} \times CULWHS - 366.37 \times INTHS + 0.449^{**} \times GNIP - 272.85 \times Pop\% - 89.70 \times Urb\%$$

Only three of the variables proved to be significant, and omitting all the other independent and control variables, the following simplified equations are created:

$$Arrivals = 1436.95 \times NATWHS + 1130.97 \times CULWHS + 0.241 \times GNIP$$

$$Receipts = 4603.37 \times NATWHS + 663.89 \times CULWHS + 0.449 \times GNIP$$

This means that a new natural world heritage site can initiate 1,437,000 new arrivals and 4,603 million USD (i.e. 3,203 USD per arrival) as new tourism receipts in the following year, and one new cultural heritage site will generate 1,131,000 new arrivals and 664 million USD as additional tourism receipts (i.e. 587 USD per arrival) in the analysed country.

These figures indicate that the development of natural world heritage sites can be about twice as beneficial as that of cultural world heritage sites. Although the world has about four times as many cultural

heritage sites as natural ones, both of these are major factors in tourism performance.

4.4 Relationships between independent and dependent variables: by regions

The variable *Region* is a dummy variable representing the location of the country in terms of continents (Africa, Asia & the Pacific region, Europe, North America, Latin America & the Caribbean, Middle East & North Africa).

In the following analysis countries are grouped according to their geographical regions and the formerly completed regression estimations are performed for each region separately. Results are presented in Table 9 and Table 10. As North America contains only two countries, Canada and the USA, they were analysed separately. In the Middle East & North Africa region no significant impacts of any of the independent and control variables were found, and the regression estimation was also insignificant, so this region is also omitted from further analysis. For Asia & the Pacific region, with smaller numbers of countries, the issue of multicollinearity was encountered, and to avoid it, the model structure had to be modified; the number of cultural world heritage sites had to be omitted due to their high correlation with *NATWHS* and *INTHS*, while *Pop%* was omitted due to its high correlation with *GNIP*.

Table 8 presents the standardised regression coefficients for the four regions for arrivals and receipts in 2017. Regions differ considerably, as is shown in the table.

- In Europe, cultural heritage is the most influential factor; the number of cultural world heritage sites has strong positive significant effects on arrivals and receipts. Natural world heritage sites do not have any significant impact. Among the control variables only the level of GNI has an impact, and only on receipts, though this impact is much weaker than that of cultural world heritage sites, as is shown by the respective Beta values. Model estimations are very powerful, having adjusted R^2 values above 0.83.
- Latin America & the Caribbean region is very similar to Europe, with the only exception of the impact of GNI, which is insignificant for both arrivals and receipts. Adjusted R^2 values for the models are very high – 0.900 for arrivals and 0.763 for receipts. Surprisingly, the impact of intangible heritage practices on arrivals is significant and negative, thus it mitigates the positive impact of cultural heritage sites.
- The regression estimations for Africa are much weaker; the adjusted R^2 values for the models are 0.462 for arrivals and 0.506 for receipts. In Africa, cultural world heritage sites and intangible cultural practices did not show any significant impact on arrivals or receipts, and a rather weak, but significant positive impact of natural world heritage sites was found. The development level of countries measured by the GNI per person values has a positive significant effect that is somewhat stronger than that of the natural world heritage sites, and in the case of receipts, a weak positive significant impact of the population is also measured.
- The estimation for Asia & the Pacific region is somewhat less convincing; the adjusted R^2 values for the models are 0.398 for arrivals and 0.339 for receipts. Arrivals are positively influenced by intangible cultural practices and receipts are positively influenced by the number of natural world heritage sites, but none of the other independent or control variables has any significant impact.

Considering these results, Europe and Latin America seem to possess mainly cultural appeals, which are reflected in tourist numbers and tourism receipts as well. Africa benefits mainly from its natural attractions, while Asia and the Pacific region seem to be too diverse to produce any convincing relationships. The model estimations should also be carried out for independent variables of 2014 and dependent variables of 2015 and 2016 to see the robustness of the above results. Table 10 presents the unstandardised regression variables for the regional estimations.

Table 11 shows the relevant data of two countries of North America, and the countrywise averages for the Middle East & North Africa region. Canada and the USA are unusual in the sense that, besides

Table 9. Standardised (Beta) regression coefficients in regional models

	11	12	13	14	15	16	17	18
Region (countries)	**Europe (34)**		**Asia (25)**		**Africa (20)**		**Latin Am (18)**	
Y	**ARR 2017**	**REC 2017**	**ARR 2017**	**REC 2017**	**ARR 2017**	**REC 2017**	**ARR 2017**	**REC 2017**
NATWHS2016	0.033	-0.062	0.246	0.496*	0.357+	0.365+	-0.071	0.243
CULWHS2016	0.728***	0.798***			-0.114	0.216	1.394***	1.124***
INTHS2016	0.239*	0.107	0.558**	0.008	-0.179	-0.204	-0.405**	-0.329
GNIP2014	0.072	0.213*	0.191	0.136	0.515*	0.413*	-0.017	0.022
Pop%2014	0.089	0.113			0.400	0.407+	-0.203	-0.316
Urb %	-0.077	-0.071	-0.053	0.231	0.340	-0.005	0.051	0.098
TOL >	0.158	0.158	0.241	0.226	0.310	0.590	0.240	0.237
Adj R^2	0.831	0.855	0.398	0.339	0.462	0.506	0.900	0.763
Model sig	0.000	0.000	0.006	0.012	0.022	0.010	0.000	0.000

Table10. Unstandardised (B) regression coefficients in regional models

	11	12	13	14	15	16	17	18
Region (countries)	**Europe (34)**		**Asia (25)**		**Africa (20)**		**Latin Am (18)**	
Y	**ARR 2017**	**REC 2017**	**ARR 2017**	**REC 2017**	**ARR 2017**	**REC 2017**	**ARR 2017**	**REC 2017**
(Constant)	1,788.01	-2,338.62	1,962.925	-2,588.05	-2,396.94+	-920.65	-1,009.67	-1,222.08
NATWHS2016	344.38	-597.91	991.15	2,246.82*	643.41+	660.59+	-279.13	554.92
CULWHS2016	1,259.61***	1,260.04***			-122.51	242.49	1,849.74***	864.915***
INTHS2016	1,128.60*	460.92	888.73**	13.76	-194.34	-280.03	-1,010.19**	-478.71
GNIP2014	0.105	0.287*	0.167	0.132	0.258*	0.173*	-0.022	0.017
Pop%t2014	4,467.53	5,190.46			2,677.51	1,530.91+	-2,500.98	-2,253.49
Urb %	-121.77	-102.16	-32.901	155.99	53.35	-0.655	30.63	35.55

their rather high numbers of cultural world heritage sites, they are also very rich in natural world heritage sites compared to the rest of the world. There are only two countries, Australia (12 natural WHSs) and China (14 natural WHSs), with similar or higher values. Considering international arrivals and receipts, both countries are far above the world average, and they are well above the European average, too.

The 15 countries of the Middle East & North Africa region, on the other hand, are poorly endowed with natural world heritage sites; altogether 5 of the 15 countries possess such sites (Egypt, Tunisia and Yemen have one each, while Jordan and Algeria have a mixed cultural and natural site each). International tourist arrivals and international tourism receipts are much lower on average than the world average.

5. Conclusions

The statistical analyses proved that natural and cultural world heritage sites positively influence international tourist arrivals and international tourism

Table 11. Heritage items, arrivals and receipts in North America and the Middle East & North Africa.

	CULWHS 2014	CULWHS 2016	INTHS 2014	INTHS 2016	NATWHS 2014	NATWHS 2016	REC 2015	REC 2016	REC 2017	ARR 2015	ARR 2016	ARR 2017
CANADA	8	8	0	0	9	10	19,256	18,088	20,404	17,971	19,971	20,798
USA	8.5	10.5	0	0	12.5	12.5	249,183	246,172	251,361	77,774	76,407	76,941
Middle East & North Africa												
N	13	13	13	13	13	13	15	15	13	12	11	11
Mean	4.5	4.7	1.9	3.2	0.3	0.3	4,990.8	5,057.5	6,544.5	5,428.6	5,713.2	6,271.5
Minimum	0	0	0	0	0	0	116	116	172	366.7	800	813
Maximum	9	9	6	13	1	1	17481	19496	21048	17994	18044	16109
N (ALL Countries)												
N	128	126	128	126	128	126	141	141	127	138	134	125
Mean	5.9	6.4	2.9	3.8	1.6	1.7	8,931.54	9,097.93	10,765.72	7,957.72	8,482.36	9,718.6
Minimum	0	0	0	0	0	0	0.1	1.6	3	24	55	87
Maximum	46	47	37	39	14	14	249,183	246,172	251,361	84,452	82,682	86,861

receipts globally, and this relationship holds not only for one year, but also for several years. The impact of cultural heritage is stronger on arrivals, while natural heritage sites have the stronger influence on receipts. This may suggest that while cultural world heritage sites are more abundant and easier to access, visit natural sites takes more effort and incurs larger spending, probably because more complicated travel modes and less supply of cheap accommodation is available. Naturally, besides world heritage sites, many other factors influence the volume of international arrivals and receipts, and the *per capita* GNI of a country is one of them. The income level indicates higher development level, better living standards, transport, health and education levels, which are all favourable for the tourism sector. However, neither the level of urbanisation, nor the size of the country measured by population had any impact on tourism performance, all other things being equal.

The findings show that a new natural world heritage site can generate 1,437,000 new inbound tourists a year, and an extra 4,603 million USD in tourism receipts, while one new cultural heritage site can generate 1,131,000 new arrivals and 664 million USD as receipts. These figures also show that a new arrival for a natural heritage site will bring about an approximate spending of 3,203 USD, while the equivalent spending is 587 USD per arrival in the case of cultural heritage sites. This points at the better income generating capacity of natural world heritage sites, probably due to their rareness and unique outstanding value. On the other hand, natural sites are probably more vulnerable environmentally, and higher spending may help to establish restrictive measures that can keep the environmental loading low.

Looking at the geographical regions separately, the most convincing results are found for Europe, and the Latin America & the Caribbean region. The tourism sector in these areas can benefit most from the cultural world heritage sites, and somewhat less from the natural heritage sites, in terms of arrivals and receipts. The analysis was performed with data for only one year, but produced a very high regression coefficient of more than 76% explanatory power. In these regions the actual GNI level also had a positive influence on tourism performance, but urbanisation and population did not matter for tourists. In Africa, tourist arrivals and tourism receipts benefit most from natural world heritage sites, and the development level of countries also strongly influence tourism performance. The countries of North America, i.e. Canada and the USA, have outstanding tourism results, and, in contrast to other highly developed countries, are unusually rich in natural world heritage sites. Asia and the Pacific region is too heterogeneous to show any geographically typical pattern, and the countries of the Middle East & North Africa are poorly endowed in natural world heritage, and receive considerably fewer tourists and tourism receipts than the world average.

However, these regional results cannot be considered conclusive, as they are based on the analysis of only one year. The statistical analyses should be carried out for more years to arrive at more reliable conclusions.

Aknowledgements

We acknowledge the financial support of Széchenyi 2020 under the EFOP-3.6.1-16-2016-00015 project.

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Ministry of Science and Higher Education
Republic of Poland

The proofreading of articles, positively reviewed and approved for publishing in the 'Bulletin of Geography. Socio-economic Series', was financed from the funds of the Ministry of Science and Higher Education earmarked for activities popularizing science, in line with Agreement No 695/P-DUN/2018.