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VARIETY OF ECONOMIC SHARE OF TOURISM ON TROPICAL ISLANDS

Abstract: The author seeks an answer to the question whether a higher intensity of tourism movement is connected with a higher share of tourism in the economy in selected tropical island territories. With the use of the Spearman correlation coefficient, the existence of the average positive correlation between the intensity of tourism movement and the share of tourism in the economy has been determined. In the second part of paper, the author looks at the conditions which affect the role of tourism in the economy in proportion to the intensity of tourism movement. For this purpose, the Chi-square test and detailed case studies of chosen tropical islands are discussed.

Key words: tropical islands, economic significance of tourism, tourism intensity.

INTRODUCTION

The aim of the article is to find the answer to the question: *Is a higher intensity of tourism movement connected with a higher share of tourism in the economy for chosen tropical island territories?* The author put forward two hypotheses. Hypothesis I – *The share of tourism in the economy of tropical island states and dependencies is not strictly connected with the intensity of tourism movement.* On the one hand, there are island territories which, despite a high intensity of tourism movement, have a smaller share of tourism in the economy. On the other, there exist island territories which, despite a smaller intensity of tourism movement, have a bigger share of tourism in the economy. Secondly, the study aims to find the answer to the question: *What conditions affect the differentiation of the share of tourism in the economy in proportion to the intensity of tourism movement and which of them are the most important ones?* The second hypothesis was: *The diversity of the economy exerts the strongest influence on the share of tourism in*

the economy in proportion to the intensity of tourism movement for chosen tropical island territories.

METHODS, TERRITORIAL AND TEMPORAL RANGE

In the research, the following methods were used: the Spearman correlation coefficient and standardisation method; typology; cross table analysis; Chi-square test and analysis of case studies. Territorially, there were 30 island territories in the tropical zone (both independent and dependent territories). The selected tropical territories occupied an area smaller than 30,000 square kilometres, and had a population under 4 million. The conditions of tourism economy on tropical island territories at the beginning of the 21st century are described in the paper (with 2004 as the base year)¹.

Table 1. Chosen measures of tourism intensity movement and economic significance of tourism for tropical island territories in 2004

Chosen tropical Island territories	Tourism intensity ratio	TSA – Share of tourism in		
		GDP (%)	employment (%)	export (%)
American Virgin Islands	2 409	31.4	37.3	38.2
Anguilla	930	67.8	73.1	78.9
Antigua and Barbuda	1 213	81.5	95.0	70.5
Aruba	1 831	68.9	83.0	31.1
Barbados	457	44.2	50.5	54.8
British Virgin Islands	3 664	95.2	95.0	64.0
Dominica	667	23.9	21.8	35.1
Fiji	57	26.5	24.6	34.0
Grenada	414	22.4	20.8	27.5
Guadalupe	132	25.5	23.8	22.0
Jamaica	93	33.1	29.2	44.4
Cayman Islands	4 531	44.6	55.1	47.2
Kiribati	62	23.1	18.9	19.3
Comoros	3	10.2	8.3	18.2
Maldives	182	70.8	61.5	69.4
Martinique	147	8.8	9.2	13.6
Mauritius	61	29.2	31.2	33.2
Puerto Rico	125	5.6	5.7	7.3
Cape Verde	38	19.5	17.8	51.6
Reunion	56	5.7	6.4	4.0
Saint Kitts and Nevis	971	26.5	26.8	38.0

¹ All of the described tropical island territories published comparable data for the year 2004. The changes of the share of tourism in the economy for particular tropical islands as compared to the previous years are not significant. Therefore the author used the data from the year 2004 as the base year.

Saint Lucia	482	39.7	40.0	77.2
Saint Vincent and Grenadines	224	30.5	27.3	47.6
Seychelles	158	52.9	66.9	45.9
Tonga	37	13.3	11.5	31.2
Trinidad and Tobago	45	10.5	10.3	13.8
Vanuatu	49	38.0	34.1	48.8
Bahamas	2 179	51.0	64.3	68.6
Solomon Islands	1	9.3	7.7	6.7
São Tome and Principe	4	24.3	19.4	53.5

Source: prepared by the author based on: *Compendium of tourism statistics*, 2006, WTO, Madrid; *World, travel and tourism sowing the seeds of growth*, WTTC, 2005, pp. 5-27; *Recommendations on tourism statistics*, 1994, p. 15.

THE CORRELATION BETWEEN THE INTENSITY OF TOURISM MOVEMENT AND THE SHARE OF TOURISM IN THE ECONOMY

The intensity of tourism movement on tropical island territories has a positive influence on the share of tourism in GDP, employment and exports (the Spearman correlation coefficient was, respectively, **0.682**; **0.739**; **0.478**; the correlation was significant at the level of 0.01). This influence was not the same for all tropical island territories. The tropical island territories with a bigger and smaller share of tourism in GDP, employment and export in proportion to the intensity of tourism movement were indicated (in confirmation of the first hypothesis).

The correlation between the intensity of tourism movement and the sum of the three standardised indicators of the share of tourism in economy was calculated. The Spearman correlation coefficient was **0.642**, and indicated the existence of an average positive correlation between the intensity of tourism movement and the share of tourism in the economy.

Table 2. Correlation between the intensity of tourism movement and the share of tourism in GDP, employment and export and the sum of standardised measures

	I. Share of tourism in GDP	II. Share of tourism in employment	III. Share of tourism in export	Share of tourism in the economy (sum of three standardised measures - I+II+III)
Intensity of tourism movement	0.682*	0.739*	0.478*	0.642*
Correlation value	positive average	positive significant	positive average	positive average

* Correlation is significant at the level of 0.01.

THE VARIETY OF ANALYSED TROPICAL ISLAND TERRITORIES IN TERMS OF ECONOMICAL BENEFITS FROM TOURISM (TYPOLOGY)

The variety of analysed tropical islands in terms of economic benefits was analysed by the development of a typology. Tropical island territories were divided into three types. Type A - tropical island territories with a higher share of tourism in proportion to the intensity of tourism movement, type B – tropical island territories with a proportional share, type C – with smaller.

Table 3. Comparison of typologies

	Typology I		Typology II	
	Tropical island territories	Number	Tropical island territories	Number
TYPE A	Fiji Jamaica Maldives Mauritius Cape Verde Seychelles Vanuatu Saõ Tome and Principe	8	Fiji Jamaica Kiribati Maldives Mauritius Cape Verde Saint Lucia Seychelles Tonga Vanuatu Saõ Tome and Principe	11
TYPE B	Anguilla Antigua and Barbuda Aruba Barbados British Virgin Islands Guadalupe Kiribati Comoros Saint Lucia Saint Vincent and Grenadines Tonga Trinidad and Tobago Bahamas Solomon Islands	14	Anguilla Antigua and Barbuda British Virgin Islands Grenada Guadalupe Comoros Reunion Saint Vincent and Grenadines Trinidad and Tobago Bahamas Solomon Islands	11
TYPE C	American Virgin Islands Dominica Grenada Cayman Islands Martinique Puerto Rico Reunion Saint Kitts and Nevis	8	American Virgin Islands Aruba Barbados Dominica Cayman Islands Martinique Puerto Rico Saint Kitts and Nevis	8

Blue colour indicates tropical island territories, which were classified in the same type in both methods, red colour – to different types.

Two typologies are developed in the study. In typology I – classification into particular types based on the difference of ranks that the territories were given after being arranged in the order from the smaller to the bigger. In typology II - the classification into particular types was conducted on the basis of intervals for the three groups. The results of both typologies confirmed the hypothesis. The results of the second typology were used below because the division into groups was more equal.

Typology II was created on the basis of data concerning the intensity of tourism movement and the measures of the share of tourism in GDP, employment and export. Each of the factors was divided into three intervals based on the value of the measure. Low values received number - 1, average values – 2, high values - 3.

This allowed for recording the intensity of the movement ratio and the values of the economic share as a code (one and three elements, respectively). The sum of the differences between the code for the intensity of tourism movement and the codes of particular measures showing the share of tourism in the economy produced values from 0 to 3. As a result, tropical island territories were classified under specific subtypes: A_3 , A_2 , A_1 , B , C_1 , C_2 , C_3 .

subtype A_3 – difference 3	}	tropical island territories with a bigger share of tourism in the economy in proportion to the intensity of tourism movement
subtype A_2 – difference 2		
subtype A_1 – difference 1		
type B – difference 0		tropical island territories with an adequate share of tourism in the economy in proportion to the intensity of tourism movement
subtype C_1 – difference 1	}	tropical island territories with a smaller share of tourism in the economy in proportion to the intensity of tourism movement
subtype C_2 – difference 2		
subtype C_3 – difference 3		

The tropical island territories analysed as case studies were classified into different types. Mauritius was classified as subtype A_3 , The Solomon Islands as subtype B , and The Cayman Islands as subtype C_2 . In subtype A_3 , we classified island territories with the biggest share of tourism in the economy in proportion to the intensity of tourism movement (the higher value of codes for three measures: share of tourism in GDP, employment and export). In subtype A_2 – only two values of codes among the three for the analysed tropical island territories were bigger in proportion to the intensity of tourism movement, and in subtype A_1 – only one. Subtype C_3 grouped tropical island territories with a smaller share of tourism in the economy in proportion to the intensity of tourism movement (lower values

of the three codes). In subtype C_2 , only two values of codes of three were smaller in proportion to the intensity of tourism movement, and in subtype C_1 – only one. In type B, subtypes were not indicated because all the codes for the measures were proportional in relation to the codes for the intensity of tourism movement.

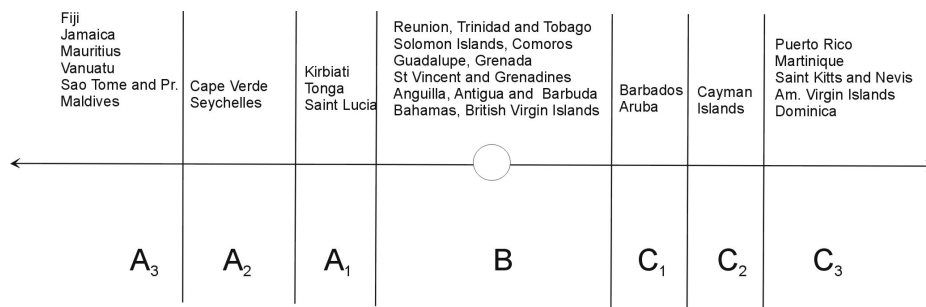


Fig. 2. Division of the analysed tropical island territories into subtypes

CONDITIONS OF VARIETY OF ECONOMIC SHARE OF TOURISM

The choice of potential conditions underlying the variety of the share of tourism in the economy was influenced by an assumption that geographical features such as: the size of the territory, its location, demographical features (number of citizens, population density and urbanisation) and political features (dependence or independence) may significantly affect the share of tourism in the economy. Moreover, it was assumed that tropical island territories with diversified economies should have a bigger share of tourism in GDP, employment and exports due to the possibility to provide diversified goods and services from the local economy. Below, the following types are characterised:

TYPE A - high or average diversification of the economy ratio, average or big surface area, average population, average or small population density, small or average length of stay ratio, high isolation indicator, average or small urbanisation, many independent countries, no dependent countries, location: Indian Ocean, Pacific Ocean, Eastern Atlantic.

TYPE B - low or high diversification of the economy ratio, large or small surface area, large or small population, small population density, high or average length of stay ratio, small isolation indicator, high or low urbanisation, independent countries and dependent states, location: mainly the Caribbean, two island territories in the Indian Ocean, one in the Pacific Ocean.

TYPE C - small or average diversification of the economy ratio, small surface area, small population, high population density, high length of stay

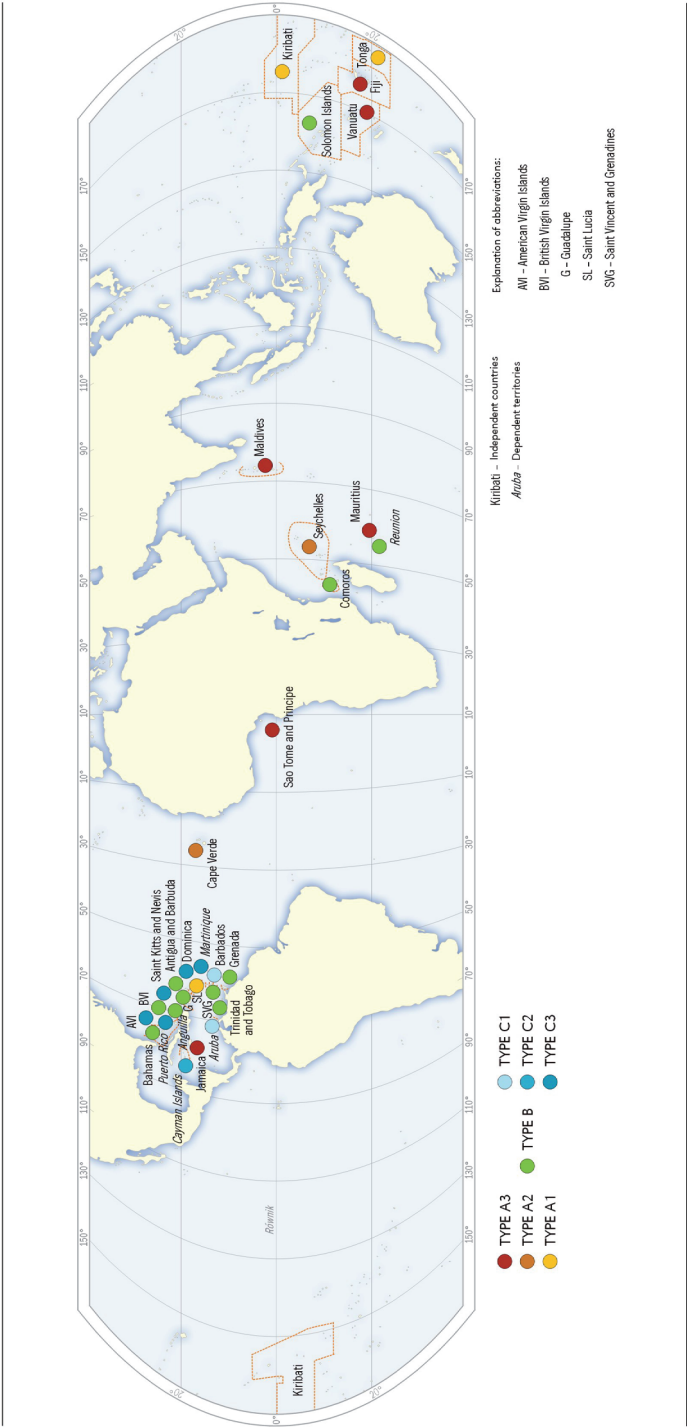


Fig. 1. Subtypes of analyze tropical island territories

ratio, average or small isolation indicator, high urbanisation, not many independent countries and many dependent states, location: the Caribbean.

Hierarchy of the conditions determining the economic importance of tourism

The conditions determining the economic value of tourism were hierarchised on the basis of a variety of means for particular conditions among chosen types. The conditions were order by the value of deviation of average values for types A and C as compared to type B. (1. population, 2. surface area, 3. population density, 4. length of stay ratio, 5. diversification of economy ratio, 6. isolation indicator, 7. urbanisation).

Table 4. Deviation of average values in types A and C as compared to type B for the analysed conditions

Conditions	Standard deviation from type A as compared to average values in type B	Deviation from type C as compared to average values in type B	The sum of modules of standard deviation from average values	Sequence of conditions by the value of deviation from average values
Diversification of economy ratio	44%	-31%	75%	5
Surface area	-50%	-95%	145%	2
Population	77%	132%	209%	1
Population density	49%	75%	124%	3
Length of stay ratio	-76%	16%	92%	4
Isolation indicator	58%	-7%	65%	6
Urbanisation	-25%	26%	51%	7

Table 5. The values of the chi-square test and the significance level for selected conditions, which can potentially affect classification into particular types

Conditions	The value of Chi-square test	Significance level
Diversification of economy ratio	5,932	0,204
Surface area	7,977	0,092
Population	4,636	0,327
Population density	5,250	0,263
Length of stay ratio	6,886	0,142
Isolation indicator	14,932	0,005*
Urbanisation	12,886	0,012*
Status	8,950	0,011*
Geographical location	15,455	0,017*

* Correlation is significant at a level of 0.05.

The hierarchy of conditions underpinning the share of tourism in the economy was developed on the basis of the differentiation of average values

for each of the conditions for each type. It was verified by the Chi-square test, which was significant at the 0.01 level, to see if there is a statistically significant relation between types A, B, C and the chosen conditions. The Chi-square test was made for qualitative features – classification into the type and the selected conditions.

Conditions which were statistically significant included: geographical location, isolation indicator, urbanisation and status of the island territories. In turn, conditions which were not statistically significant were: surface area, length of stay ratio, diversification of economy, population and population density.

PROBABLE INFLUENCE OF SELECTED CONDITIONS ON CLASSIFICATION INTO PARTICULAR TYPES

The classification into particular types was influenced by the geographical location of tropical island territories. Possibly, this was due to the fact that the island territories located in the Caribbean (only territories located in this region were classified in type C) are located on cruise ships routes. They receive enormous numbers of one-day visitors who spend small amounts of money on the islands (they buy most of products and services on the ship). On the other hand, tropical island territories classified as type A (located in the Indian Ocean, the Pacific Ocean and the Eastern Atlantic) are characterised by longer stays (holiday tourism, qualified tourism and ecotourism). Tourists stay longer and spend more money.

Another condition affecting the classification of tropical island territories into particular types is the isolation indicator. The values of this indicator were high for type A. It could be due to the fact that tourists who chose more isolated territories are more wealthy. They spend more money on such travels. People rarely decide to travel such long distances but if they decide to do so, they stay longer and are willing to spend more. For tropical island territories in types B and C, the isolation indicator was smaller or average, which means that tourists often choose less isolated territories but for shorter and cheaper stays.

Another condition that has had an influence on the classification was urbanisation. In type A, we classified tropical island territories with average or small urbanisation, which could be due to the fact that people who live outside the city and are employed in the agriculture sector provide more products for the local economy. It is not necessary to import so many products from abroad, and this restricts the transfers of revenues from tourists abroad (Ashe, 2005, p. 2; Hjalager, 2007, pp. 473-438). In turn, type C groups territories with high urbanisation, which could be due to the fact that the majority of the population in those territories live in the cities, and the local economy is dominated by services, with a marginal share of other sectors.

Another factor influencing the classification into particular types was the **status** of tropical island territories. Type A included only independent island territories. It may be due to the fact the independent countries may have their own tourism policy protecting the domestic tourism market. It is also possible to lower the tax for tourists services, introduce arrival tax, local taxes and other tourists taxes. All these may contribute to a greater share of tourism in the economy in proportion to the intensity of tourism movement. In turn, type B had more independent countries than dependent territories. It may be due to the fact that dependent territories have a bigger share of transfers from tourism revenues abroad.

Other conditions potentially influencing the classification into particular types were not statistically significant. They were described in order of the value of deviation from average values.

Population. Island territories in type A have mostly an average population. It could be due to the fact that more people might be interested in work in tourism. In turn in type C tropical island territories are characterised by a small number of tourists. Not all people who are economically active could work in tourism. It was often necessary to import workers who could work in low-paid jobs in the tourism industry (that is why there was a smaller share of employment in tourism economy than in proportion to the intensity of tourism movement).

Surface. In type A, we classified territories with an average or big surface area. It may be due to the fact that bigger island territories had more possibilities for developing new areas of economy, offering tourists more diversified products and forms of tourism (holiday tourism, qualified tourism, ecotourism). In turn, in type C, there were tropical island territories with a small surface area. Similarly, they did not have diversified economy and were located on popular cruise ship routes.

Population density. Population density in type A was average or small. It may be due to the fact that, in such a population, a higher share of economically active people could work in tourism. In turn, in type C, the population density was high, which means that they were usually small island territories. It may be due to the fact that a large number of people in small island territories could be involved only in tourism activities.

Length of stay ratio. Type A included territories with a small or average length of stay ratio. Those territories were characterised by a small number of days spent by visitors in proportion to the number of the population. Maybe for these tropical island territories came tourists for typical holiday and they spend more money. In turn, in types B and C, we classified territories with an average or high length of stay ratio. It may be explained by a considerable share of cruise passengers among their visitors.

Diversification of economy ratio. Type A included tropical island territories with a high or average diversification of economy ratio. It may be due to the fact that a more diversified economy would provide more products and services and there would be no need to import them. That means that

transfers of revenues from tourism are smaller. In turn, in type C, we classified tropical island territories with a small or average diversification of economy ratio.

Case studies

– Three case studies of island territories with typical conditions were conducted for the purposes of the study: *Mauritius*, *The Solomon Islands* and *The Cayman Islands*. These territories exemplified each of the aforementioned types (A, B and C). After analysing the case studies, the following information was obtained:

– The following conditions are the most important for the variety of share of tourism in the economy: the status of tropical island territories and their geographical location. It is due to the fact that the independence of a country influences its possibility to have its own tourism policy. Tourism policy may result in smaller money transfers of revenues from tourism (*Economic Impacts of Tourism*, 2001, p. 3; Płocka, 2002, p. 135; Piraszewska, 2005, p. 272). The geographical location in the Indian Ocean and in the Pacific Ocean makes tourists stays in the islands longer, which means that they spend more money on islands.

– The geographical location of tropical island territories in the Caribbean is not connected with a higher share of tourism in the economy despite a high intensity of tourism movement, but **with a considerable share of cruise tourism**.

– The geographical location and the isolation indicator are factors which have an impact on the share of tourism in economy. The more isolated the tropical island territories, the more tourists decide to stay longer on such islands in order to compensate for the length of stay and the costs of travel. They also spend more money on the tropical islands that they visit.

– Urbanisation may influence the nature of tourism in some tropical island territories. That means it can also influence the amount of money spent and the share of money transfers from tourism.

CONCLUSIONS

The aims of the study have been achieved because the existence of an average positive correlation between intensity of tourism movement and the share of tourism in the economy has been proved. That means the hypothesis formulated at the beginning of the study was confirmed. On the basis of the Chi-square test, it was assumed that, for the analysed tropical island territories, the following factors exert the greatest influence on the classification into particular types: geographical location, isolation indicator, urbanisation and status. The hypothesis about the crucial influence of the diversification of the economy on the share of tourism in the economy in proportion to the intensity of tourism movement was not confirmed. Moreover,

on the basis of detailed case studies, the reasons why the above conditions have such an influence on the role of tourism in the economy of tropical island territories have been explained.

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