

Katarzyna Podhorodecka

University of Warsaw – Faculty of Geography and Regional Studies
– Institute of Regional and Global Studies
00-927 Warsaw, Krakowskie Przedmieście 30
e-mail: kpodhorodecka@yahoo.com

THE USE OF ISOLATION INDICATOR FOR EXPLAINING TOURISM ARRIVALS ON TROPICAL ISLANDS

Abstract: The aim of the article is verification of possibility of use of UNEP isolation indicator for measuring isolation of tropical islands for tourism purposes. 30 tropical islands were included in the study. The correlation between intensity of tourism movement and isolation indicator by Spearman rank correlation was $-0,46$. More isolated islands have smaller intensity of tourism movement and less isolated have higher intensity of tourism movement ratio. But there are also exceptions from this rule – territories which are more isolated and with higher intensity of tourism movement such as Maldives and less isolated with the smaller intensity of tourism movement such as Sao Tome and Principe. UNEP isolation indicator is not ideal measure for tourism purposes.

Key words: isolation indicator, tropical islands, intensity of tourism

INTRODUCTION

The aim of the article is verification of possibility of use of isolation indicator created by United Nations Environment Programme (UNEP) for measuring the extend of isolation of tropical islands for tourism purposes.

The UNEP isolation indicator was created for measuring the isolation of island from potential sources of colonization by particular species of plants and animals. The hypothesis is that isolation of tropical islands influences on intensity of tourism movement. More isolated

islands should have smaller intensity of tourism movement and islands which are less isolated should have higher intensity of tourism movement. It can be assumed that the location of tropical island territories influences on duration and price of transportation between the place, from which tourists come from and tropical island territories. The large distance and therefore high isolation indicator should have negative influence on intensity of tourism movement.

DATA AND METHODS

30 tropical islands territories included in the study¹. Analysed tropical territories have surfaces less than 30 000 sq km and number of population less than 4 millions. The method used in the article was Spearman rank correlation.

THE INTENSITY OF TOURISM MOVEMENT

In the article it was used the ratio of intensity of tourism movement, which is a quotient of number of foreign visitors (both tourists and one-day visitors) and the number of citizens².

The tropical island territories with the highest intensity of tourism movement ratio are:³ Cayman Islands (4 531), British Virgin Islands (3 664) and American Virgin Islands (2 409). However the tropical island territories with the lowest intensity of tourism movement ratio are: Salomon Islands (1), Comoros (3) and Sao Tome and Principe (4). The average of intensity of tourism movement ratio for analysed tropical island territories was 707 and median was 153.

ISOLATION INDICATOR

The term of isolation is not precise. More precise term is for spatial isolation. It suggests reference of isolation for space and indicates its

¹ 21 independent countries and 9 depended territories.

² For better visibility the ratio was multiply by 100.

³ The data for the year 2004.

geographical aspect. Spatial isolation is an isolation of territory A from B (Jędrusik 2001, s. 23).

UNEP isolation indicator was created for measuring isolation of islands from potential source of colonization from live species. It is „the square roots of the distances to the nearest equivalent or larger island, the nearest island group or archipelago and the nearest continent are added to give an index of isolation. Where one of these does not exist, the next higher distance is repeated, except in the case of small satellite islands close to much larger land masses” (UNEP – <http://islands.unep.ch/CMM.htm> – 23.07.2007).

Figure number 1 presents the value of UNEP isolation indicator. Table number 1 shows the data about number of citizens, foreign tourism

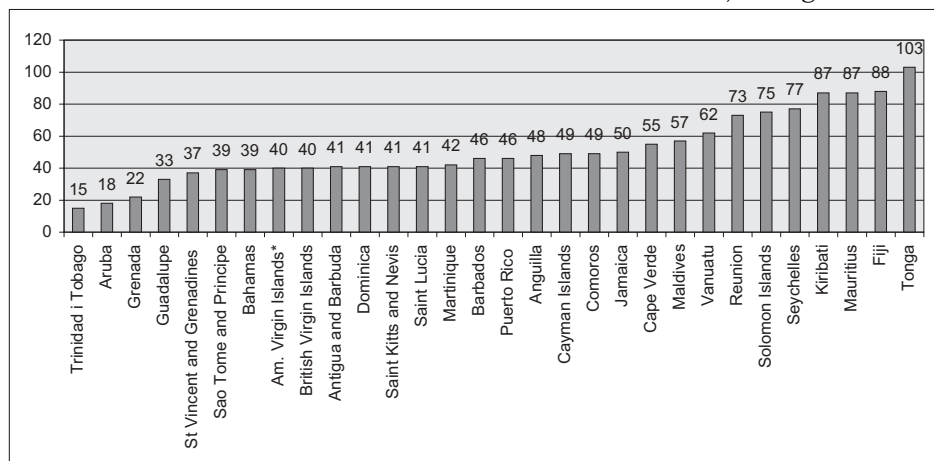


Fig. 1. UNEP isolation indicator for analysed tropical island territories

*Because of lack of data the same value was used as for British Virgin Islands.

Source: United Nations Environment Programme (<http://islands.unep.ch/CMM.htm>) – 23.07.2007.

The territories with the largest value of UNEP isolation indicator are: Tonga (103), Fiji (88), Mauritius (87), Kiribati (87). Moreover the lowest isolation indicator were in: Aruba (18) and Trinidad and Tobago (15). The average value of isolation indicator was 51 and median was 46.

Table 1.

The number of citizens, number of foreign visitors arrivals, intensity of tourism movement ratio for 2004, UNEP isolation indicator for analysed tropical islands territories

| Analysed tropical island territories | The number of population | Foreign visitors arrivals (thou) | Intensity of tourism movement ratio | UNEP isolation indicator | Island for which isolation indicator is used |
|--------------------------------------|--------------------------|----------------------------------|-------------------------------------|--------------------------|--|
| Am. Virgin Island | 108 775 | 2 620 | 2 409 | 40 [#] | St Thomas |
| Anguilla | 13 008 | 121 | 930 | 48 | Anguilla |
| Antigua and Barbuda | 63 320 | 768 | 1 213 | 41 | Antigua |
| Aruba | 71 218 | 1 304 | 1 831 | 18 | Aruba |
| Bahamas | 229 697 | 5 004 | 2 179 | 39 | New Providence |
| Barbados | 278 289 | 1 273 | 457 | 46 | Barbados |
| British Virgin Island | 22 187 | 813 | 3 664 | 40 | Tortola |
| Cape Verde | 415 294 | 157 | 38 | 55 | São Tiago |
| Cayman Islands | 43 103 | 1 953 | 4 531 | 49 | Grand Cayman |
| Comoros | 651 901 | 18 | 3 | 49 | Grande Comore |
| Dominica | 69 278 | 462 | 667 | 41 | Dominica |
| Fiji | 880 874 | *499 | 57 | 88 | Viti Levu |
| Grenada | 89 357 | 370 | 414 | 22 | Carriacou |
| Guadalupe | 444 515 | 586 | 132 | 33 | Basse Terre |
| Jamaica | 2 713 130 | 2 515 | 93 | 50 | Jamaica |
| Kiribati | 100 798 | 63 | 62 | 87 | Tarawa |
| Maldives | 339 330 | *617 | 182 | 57 | Male' |
| Martinique | 429 510 | 630 | 147 | 42 | Martinique |
| Mauritius | 1 220 481 | 739 | 61 | 87 | Mauritius |
| Puerto Rico | 3 897 690 | 4 890 | 125 | 46 | Puerto Rico |
| Reunion | 766 153 | 430 | 56 | 73 | Reunion |
| Saint Kitts and Nevis | 38 836 | 377 | 971 | 41 | St Kitts |
| Saint Lucia | 164 213 | 791 | 482 | 41 | St Lucia |
| São Tome and Principe | 181 565 | 8 | 4 | 39 | Sao Tome |
| Seychelles | 80 832 | 128 | 158 | 77 | Mahe |
| Solomon Islands | 523 617 | 21 | 1 | 75 | Guadalcanal |
| St Vincent and Grenadines | 117 193 | 262 | 224 | 37 | St Vincent |
| Tonga | 110 237 | *41 | 37 | 103 | Tongatapu |
| Trinidad and Tobago | 1 096 585 | 497 | 45 | 15 | Trinidad |
| Vanuatu | 202 609 | 99 | 49 | 62 | Efate |

[#] because of lack of data the same value was used as for British Virgin Islands

* - the number of tourist arrivals.

Source: The number of population: United Nations Statistical Division – Demographic and Social Statistics – <http://unstats.un.org/unsd/demographic/products/socind/popula->

tion.htm, Social Indicators on Population. The number of visitors' arrivals: WTO, 2006, *Compendium of tourism statistics*, Madrid. Isolation indicator – UNEP (<http://islands.unep.ch/CMM.htm>) – 23.07.2007.

RESULTS

The correlation between isolation indicator and intensity of tourism movement ratio by Spearman correlation method was calculated. It turned out that with the trial of 30 island territories ($n = 30$) correlation is $-0,46$ and it is significant at the 0.05 level. That means average negative correlation between examined indicators. Less isolated islands have higher intensity of tourism movement and more isolated have smaller intensity of tourism movement ratio.

It can be assumed only average negative correlation between UNEP isolation indicator and tourism intensity movement ratio. Some of examined tropical island territories are exceptions from this rule: the higher isolation indicator the lower intensity of tourism movement and the lower isolation indicator the higher intensity of tourism movement. Table number 2 shows the subtract of ranks between the intensity of tourism movement and isolation indicator.

Table 2.
Ranks in Spearman correlation method for analysed tropical island territories

| Analysed tropical islands territories | Ranks for intensity of tourism movement ratio | Ranks for isolation indicator | Subtract of ranks |
|---------------------------------------|---|-------------------------------|-------------------|
| American Virgin Islands | 28 | 8 | 20 |
| Anguilla | 23 | 17 | 6 |
| Antigua and Barbuda | 25 | 10 | 15 |
| Aruba | 26 | 2 | 24 |
| Bahamas | 27 | 7 | 20 |
| Barbados | 20 | 15 | 5 |
| British Virgin Islands | 29 | 9 | 20 |
| Cape Verde | 5 | 21 | -16 |
| Cayman Islands | 30 | 18 | 12 |
| Comoros | 2 | 19 | -17 |
| Dominica | 22 | 11 | 11 |
| Fiji | 9 | 29 | -20 |
| Grenada | 19 | 3 | 16 |
| Guadalupe | 14 | 4 | 10 |
| Jamaica | 12 | 20 | -8 |

| | | | |
|---------------------------|----|----|-----|
| Kiribati | 11 | 27 | -16 |
| Maldives | 17 | 22 | -5 |
| Martinique | 15 | 14 | 1 |
| Mauritius | 10 | 28 | -18 |
| Puerto Rico | 13 | 16 | -3 |
| Reunion | 8 | 24 | -16 |
| Saint Kitts and Nevis | 24 | 12 | 12 |
| São Tome and Principe | 3 | 6 | -3 |
| Saint Lucia | 21 | 13 | 8 |
| Seychelles | 16 | 26 | -10 |
| St Vincent and Grenadines | 18 | 5 | 13 |
| Solomon Islands | 1 | 25 | -24 |
| Tonga | 4 | 30 | -26 |
| Trinidad and Tobago | 6 | 1 | 5 |
| Vanuatu | 7 | 23 | -16 |

Source: own elaboration

CONCLUSIONS

UNEP isolation indicator is not ideal to measure an isolation for tourism purposes. The strength of this correlation measured by Spearman rank ratio was $-0,46$. The intensity of tourism movement can be influenced by the transport accessibility of island, the price of air or sea transportation or frequency and duration of connections. More over there are other variables such as tourism attractiveness, which includes both environmental attractiveness and anthropological attractiveness, and the development of tourism infrastructure. For example island, which have higher isolation indicator e.g. Maldives (UNEP isolation indicator -57) nowadays are very accessible and have high intensity of tourism movement ratio. There are also such islands, which although small UNEP isolation indicator have small number of air connection e.g. Sao Tome and Principe (UNEP isolation indicator -39) or are not included as a port of call for cruises e.g. Trinidad and Tobago (UNEP isolation indicator -15). UNEP isolation indicator is not proper measure for tourism purposes. With advanced transport infrastructure the distance is not priority. Perhaps good measure for isolation for tourism purposes should be the frequency of air transport connection and its cost for particular islands and the accessibility of island territories by sea.

REFERENCES

- Jędrusik M., 2001, *Izolacja jako zjawisko geograficzne*, [Isolation as a Geographical Phenomenon; in Polish] Uniwersytet Warszawski, Wydział Geografii i Studiów Regionalnych, Warszawa.
- United Nations Environment Programme (<http://islands.unep.ch/CMM.htm>) – 23.07.2007.
- United Nations Statistical Division, *Demographic and Social Statistics, Social Indicators on Population*, <http://unstats.un.org/unsd/demographic/products/socind/population.htm> – 10.01.2007.
- World Tourism Organization, 2006, *Compendium of Tourism Statistics*, Madrid.