The Measurement of Sustainable Tourism in Countries in the Organization for Economic Co-operation & Development

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INTRODUCTION

Since the term "sustainable development" first came to public attention with the Brundtland Report (or "Our Common Future") in 1987 around the UN Summit in Rio de Janeiro, it has became a major issue in international forums, among academics, public sector institutions and private businesses.

SUSTAINABLE TOURISM

Sustainable tourism implies and requires the coordination of a large number of participants within the tourism system. Tourism development must be based on criteria of sustainability, which means that it must be ecologically bearable in the long term, as well as economically viable, and socially equitable for local communities.

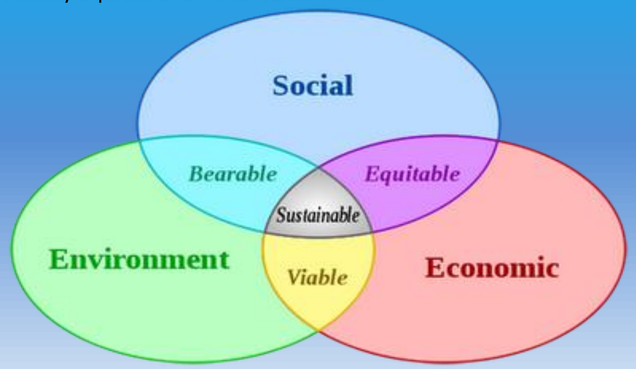

Figure 1. Elements of sustainable tourism development.

Purpose: This study aims to measure sustainability indices for OECD countries (Figure 2) and develop a globally acceptable and applicable model to measured sustainable tourism.

Figure 2. OECD member Countries and membership dates
Source: http://m.opinioncenter.li/oecd/ (2015)

INDICATORS

Tourism sustainability is a fairly complex concept due to its latent, multidimensional and relative nature. The measurement of sustainable tourism strongly depends on appropriately chosen indicators.

OECD countries included in this research were chosen for several reasons:

- Countries are quite different in their size, tourism turnover, tourism product, etc. & that made them interesting for this research.
- The development is influenced by their location and their tourism product is a direct consequence of those locations.
- They differ in the number of inhabitants and also by the stage of destination life cycle (Butler, 1980).

- The proposed composite index is calculated from a broad system of indicators (Table 1).
- The ST index method is based on obtaining a composite sustainable tourism index as the weighted sum of the composite indices S EC, SSO, SEN, and SIN (representing the economic, social, environmental and institutional dimensions of sustainability).
- The indicator selection considered Gooroochurn and Sugiyarto's method (2005) in Fernandez & Rivero (2009).

METHOD

The methodology developed in this study relies on quantitative indicators and they were obtained by employing DPSIR model (driving forces–pressures–state–impact–responses).

A calculated weighted value for each environmental, sociocultural, institutional and economic indicator will take place in the overall equation for measuring sustainable tourism. This study combines all the indicators into one model serving as a tool to measure sustainable tourism.

$$ST_i = \omega_1 S_{ECi} + \omega_2 S_{SOi} + \omega_3 S_{ENi} + \omega_4 S_{INi}$$

When measuring the sustainability of tourism, a strong form of integration is taken into account. We developed a conceptual framework based on 4 sustainability dimensions:

Strong form of integration

Y(economic) = Δ (x1) + … + Δ (xn)
Y(environmental) = Δ (y1) + … + Δ (yn)
Y(socio-cultural) = Δ (z1) + … + Δ (zn)
Y(institutional) = Δ (w1) +….+ Δ (wn)

Secondary data published by UNWTO, UN, World Bank, Turkish Statistics Institution (TSI), etc. were used. Data were descriptively analyzed (including average values, mod, median).

The methodological bases are established for the design of the Sustainable Tourism (ST) index.

Table 1. Tourism Indicators for Composite Tourism Sustainability

	Driving Forces
Indicator	Description
DF1	Per GDP
DF2	Percentage of employees in tourism sector
DF3	Tourism contribution to GDP
DF4	Number of bed places in tourist accommodations per 100 inhabitants
DF5	Percentage of foreign ownership of tourism establishment
	Pressures
PR1	Tourist density in country
PR2	Waste production attributable to tourism
PR3	Consumption of drinking water attributable to tourism
PR4	Electricity consumption attributable to tourism
	State
ST1	Rating of the naturalness of the environment
ST2	Crime rate
	Responses
RE1	Recycling rate
RE2	Air quality index
RE3	Water quality index

RESULTS

According to the results, European countries in OCED have the highest ST index and these results show they achieve more sustainable tourism than non-European countries..

Table 2. Highest Country Scores in Sustainable Tourism Index

Rank	Country	Driving Force	Pressures	State	Responses
1	Germany	70	95	89	93
2	Switzerland	62	92	92	93
3	Denmark	57	88	95	95
4	Austria	64	81	93	88
5	Spain	73	98	77	72
6	Netherlands	60	90	75	90
7	Portugal	62	92	75	82
8	France	72	90	58	90
9	Turkey	66	93	73	75
10	Italy	71	100	61	72

CONCLUSION

In this study, we defined some indicators to develop a measurement system and quantify the process for measuring sustainable tourism for OECD countries.

The methodology developed in this paper relies on quantitative indicators it is hoped that it will become a useful tool for decision-makers, researchers and businesses involved in tourism activities in OECD countries.

Acknowledgement:
This project is supported by The Scientific and Technological Research Council of Turkey (TUBITAK) 2219 International Postdoctoral Research Fellowship Program Grant

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