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Assessing progress of tourism sustainability: Developing and validating sustainability indicators

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ABSTRACT

This study aims at developing and testing comprehensive set of indicators that would help to conduct meaningful assessment of a progress towards sustainable tourism development. Using three-round Delphi Method, participants were requested to evaluate the initial list of indicators based on 6 internationally accepted indicator selection criteria. The unidimentionality, multivariate normality, multicollinearity, construct reliability, convergent validity, discriminant validity and construct validity were assessed using different tests including Exploratory Factor Analysis (EFA) and Structural Equation Modeling (SEM). Among 158 candidate indicators, only 53 were retained, which were found to be free from the problem of multicollinearity (5.466E-04) and have good internal consistency (0.963), convergent validity (AVE > 0.5, CR > 0.9 and SRW > 0.71), discriminant validity (AVE > r2) and construct validity (P = 0.06, RMSEA = 0.071, GFI = 0.895, CFI = 0.952, TLI = 0.941, NFI = 0.910, Chisquare/df = 2.016). Therefore, it is recommended that broad-based participation of key stakeholders is highly important to develop good indicators that would help to make informed decision on tourism industry.

1. Introduction

The concept "sustainable development" lacks mutually accepted definition (Murray et al., 2003, p. 76). Bell and Morse (2008) and Tsaur and Wang (2007) argue that the origin of the term sustainability was closely associated with maintenance of environmental quality. As noted in the work of Vehbi (2012:103), sustainability as a concept stands for "long term economic, environmental and community health". It is sometimes considered as immeasurable goal and unachievable objective and its application as an achievable and practical objective for the tourism industry is still immature (Ko, 2005; Viljoen, 2007). Some conventional methods of assessing tourism sustainability failed to achieve dependable results (Huang, 2011). To fill this gap, considerable attempts were made to develop relatively comprehensive and logical assessment methodologies (Guijt & Moiseev, 2001; International Union for Conservation of Nature and Natural Resources (IUCN), 1997; Foirito, ND; Cernat & Gourdon, 2012; Reihanian, Hin, Kahrom, & Mahmood, 2015; Huang, 2011; Ap & Crompton, 1998; World Tourism Organization (WTO), 2004; Vehbi, 2012; Ko, 2001, 2005; Prescott-Allen, 1996; Bell & Morse, 2008; Guijt & Moiseev, 2001; Dupeyras & MacCallum, 2013).

There are some important reasons calling for an urgent assessment of tourism sustainability. The fragile ecological settings and cultural sensitiveness of attraction sites call for consistent monitoring and evaluation of tourism impacts. In addition to this, the dynamic, unstable and unpredictable natures of the industry urge to conduct a consistent assessment and monitoring of a progress towards sustainable tourism development. Among many other assessment tools, sustainability indicators are believed to be relatively reliable, clear, simple and flexible that entertains both qualitative and quantitative data (Schianetz, Kavanagh, & Lockington, 2007). The application of indicators for practical assessment of tourism sustainability is still in its immaturity stage (Amiryan, 2013; Ko, 2001; 2005; Viljoen, 2007; Choi & Sirakaya, 2005). Ko (2005) shares that the application of systematic appraisal of sustainability in tourism context is very rare case. He found most studies dealing with such issue to be merely descriptive, subjective and heavily reliant on qualitative data.

How many indicators are quite enough to assess the sustainability of tourism remained obscure (Cernat & Gourdon, 2012). For WTO (2004), 12 to 24 indicators are accepted to be optimal while Sors (2001) argues that 20 to 50 indicators are quite enough. No matter how many indicators to be used, broad-based participation of key stakeholders

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during indicator development is strongly recommended by past studies (WTO, 2004; Organization for Economic Cooperation and Development (OECD), 1994; Miller, 2001, Ap & Crompton, 1998; Choi & Sirakaya, 2005). The use of neutrally phrased items in the development and validation of indicators is recommended by Ap and Crompton (1998), Mbaiwa, Bernard, and Orford (2008) and Choi and Murray (2010). Equally important, assessing unidimentionlaity, multicollinearty, multivariate normality, construct reliability, convergent validity, discriminant validity and nomological validity of the indicators is strongly recommended (Ap & Crompton, 1998). The main objective of this study was developing and validating sustainability indicators using Structural Equation Modeling (SEM).

2. Related literature review

There is no universally accepted definition of the concept sustainability and sustainable development. Bell and Morse (2008) and Weaver and Lawton (1999) associated its genesis with maintenance of environmental quality. Bell and Morse (2008:5) argue that this concept refers to "whatever is done now does not harm future generation" or it can be phrased as "don't cheat on your kids". As noted in Vehbi's (2012:103) work, sustainability stands for "long term economic, environmental and community health". Similarly, sustainable tourism development lacks mutually accepted definition (Dimoska & Petrevska, 2012). One of the most used definitions of the concept is given by the WTO, which defines it as a "development that meets the needs of present tourists and host regions while protecting and enhancing opportunity for the future" (WTO 2004: 19).

Sustainable tourism to be doable, sturdy monitoring of impacts and introducing necessary preventive and/or corrective measures whenever necessary is inevitable (United Nations Environment Program (UNEP), 2009; Dimoska & Petrevska, 2012). Sedai (2006) argues that sustainable tourism cannot be taken as an exceptional form of tourism. Rather, all segments of tourism industry need to be sustainable. However, it is sometimes considered as incalculable goal and unattainable objective and there is intense debate on its application as an achievable and practical objective (Ko, 2005; Viljoen, 2007). It is claimed that tourism may never be utterly sustainable (Sedai, 2006). However, there are copious reasons that call for an imperative and consistent evaluation of tourism performance and impacts (Cernat & Gourdon, 2012).

First, it is an undeniable logic that tourism is like "a goose that not only lays a golden egg, but also fouls its own nest" (Hawkins, 1982, p.iii). Because, tourism is very dynamic, unstable and unpredictable by its very nature and it is an industry which predominantly lays its basis on a very fragile environment setting or culturally sensitive areas (Schianetz et al., 2007). Second, in time when the sustainability as a concept is becoming popular and emerging as a major social concept, tools developed to assess perceptions of positive impacts of tourism within the conventional conceptual works are not adequate. Thus, the development of tools that fit with the principle of sustainable development would add fire into fuel to advance the existing intense debate on sustainable tourism (Choi & Sirakaya, 2005). Third, putting systematic assessment of sustainability into real cases is not well developed (Ko, 2001; 2005; Cernat & Gourdon, 2012). Absence of well developed sustainability indicators highly affected the practical assessment of tourism sustainability (Amiryan, 2013; Choi & Sirakaya, 2005; Ko, 2001; 2005; Viljoen, 2007).

However, this does not mean that scholars and institutions did not contribute to the development of useful tools to assess tourism sustainability. Rather, several scholars and institutions proposed various steps to assess tourism sustainability in different destinations (Guijt & Moiseev, 2001; IUCN, 1997; Foirito, ND; Cernat & Gourdon, 2012; Reihanian et al., 2015; Huang, 2011; Ap & Crompton, 1998; WTO, 2004; Razali and Ismail, 2014; Vehbi, 2012; Ko, 2001, 2005; Prescott-Allen, 1996; Bell & Morse, 2008). Ko (2001, 2005) advocates that systematic organization, combination and measurement of indicators from which decision makers can infer a conclusion regarding state of well being (system quality) of different destinations. Putting systematic assessment of sustainability into real cases is not well developed (Ko, 2001, 2005; Cernat & Gourdon, 2012; Amiryan, 2013; Viljoen, 2007; Choi & Sirakaya, 2005) and criticized for its restricted application to specific cases (Cernat & Gourdon, 2012). Even though many indicators are developed and exist in the literature, very few are implemented and evaluated practically (Reihanian et al., 2015; Blancas, Gonza´lez, Lozano-Oyola, & Pe´rez, 2010; Rebollo & Baidal, 2003; Fiji Bureau of Statistics, 2016; Lee & Hsieh, 2016).

According to WTO (2004:8), "indicators are measures of the existence or severity of current issues, signals of upcoming situations or problems, measures of risk and potential need for action, and means to identify and measure the results of our actions." As suggested by Sors (2001), indicators have an essential position in assessing progress and to direct and monitor policies towards sustainable development. Indicators are also recognized as a good communication tool to simplify multifarious information. As can be seen from the work of the WTO (2004), indicators are also timely cautions for destination managers of potential risks and signals for possible actions and they can be portrayed as quantitative measurements (raw data, ratios, percentages) and qualitative or normative measurements (such as category indices, normative indicators, nominal indicators and opinion based indicators). An increasing number of tourism scholars are now advocating the need for sustainable tourism indicators (Butler, 1999; Mowforth & Munt, 2003). Butler (1999: 16) suggests that without indicators the term sustainability is 'meaningless'. However, despite its clear demand, research on sustainable tourism indicators is still in its incipient stage.

Ko (2005) tried to develop a comprehensive methodology to assess sustainable tourism. Very few scholars adopted Ko (2005) model with very minor modifications. Viljoen (2007), Mahdav, Parishan, and Hasar (2013) and Huang (2011) are good cases in point. Cernat and Gourdon (2012) took data from 75 countries and conducted deeper analysis in three countries: Indonesia, Malaysia and Thailand. However, this study failed to take into consideration the perception of stakeholders and it had wrecked economic dimension into various sub-elements and merged environmental and social aspect into one category: socio-ecological sustainability.

Mahdav et al. (2013) developed practical model and applied it to assess the sustainability of rural tourism in Iran context. Alzboun (2014) carried out a study on sustainability practices and financial linkages in the hotel industry in Jordan. Amiryan (2013) assessed sustainable tourism development in developing countries with particular emphasis on Armenia. Viljoen (2007) developed a practical model to assess tourism sustainability in two tourism routes in the African context: Caprivi Wetland Paradise Route in Namibia and Barotse Trails Route in Zambia. However, the latter study failed to include some basic components of sustainable tourism development such as local residents and tourists satisfaction, among other issues (Viljoen, 2007) and exclusion of such basic elements would have a very pervasive impact on the quality of the research findings. These studies lacked transparent discussion on how indicators were developed and validated. This study went some way to fill this gap.

Most past studies on tourism sustainability focused either on one of the three traditional dimensions (eg. economic aspect) (Dubois, 2005), on three of them (economic, socio-cultural and environmental) (Schianetz & Kavanagh, 2008) or added one more dimension: institutional sustainability (Ko, 2001; 2005; Viljoen, 2007).

Many scholars and institutions proposed various indicator selection criteria (Tanguay et al., 2011; Schianetz et al., 2007; Miller, 2001; European Commission, 2009; WTO, 2004). At Tanguay, Rajaonson, and Therrien (2011) work, two types of indicator selection criteria were identified: primary and secondary. The former type was planned to reduce the potential list into a manageable number and such criteria include classification, frequency of use, coverage of the main issues in tourism sustainability and measurability over time. The latter