

Impact of Tourism on Sustainable Development in Bahrain

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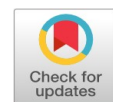
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Abstract: The idea of sustainable development has received much attention in socioeconomic literature in recent decades. Sustainable development aims to meet the demands of the present generation while maintaining a high standard of living for future generations. Since Bahrain is an oil-rich country, and its major share of energy is a fossil fuel which contributes significantly to the environment and sustainability. This study examines the impact of tourism on sustainable development in Bahrain. However, energy and urbanization also influence sustainable development. Therefore, the present study quantifies the relationship between tourism development and sustainable development along with energy and urbanization. The bound's testing method is applied to examine the impact of mentioned explanatory variables on sustainable development after finding the integration order. The results show that tourism is productive to sustainable development, while urbanization and energy consumption are detrimental to sustainable development. Policy recommendations are discussed for sustainable development in Bahrain.

Keywords: Sustainable Development, Tourism Development, Urbanization, Energy

Received: 21 February 2023 / Accepted: 02 April 2023 / Published: 23 May 2023



INTRODUCTION

Tourism is one of the fastest-growing industries globally and received attention in recent socioeconomic literature. It is argued that if the tourism industry is managed efficiently and effectively, it will contribute significantly to the growth and development of the economies. Many research studies confirmed the positive impact of tourism on economic performance (Destak & Aydin, 2022). However, tourism's negative influence on environmental quality also attracted research scholars as it leads to emissions of greenhouse gas; among these emissions, carbon emission is prominent (Usman et al., 2020). Two environmental detrimental forces associated with tourism development are resource consumption and pollution. Resource consumption deteriorates the environment as expansion in tourism leads to the construction of new tourist resorts. The new tourist resorts threaten the natural resources, especially forests, water reservoirs, and soil. On the other hand, tourism increases pollution as, at certain times, the influx of tourists in the tourist location causes several environmental problems such as water, air, and noise pollution. Besides, the tourism industry requires lodging and transportation, which increase energy consumption, resulting in carbon emissions and, thus, deteriorating the environmental quality (Kocak et al., 2020; Ahmad & Ma, 2022). Besides, sustainable development is achieving the present generation's needs, not at the expense of the future generation's needs, and it is composed of three aspects that are economic, human, and ecological (Duran et al., 2015). Tourism is positively affecting the economic and human aspects of sustainable development, while it is negatively affecting the ecological aspect of sustainable development (Destak & Aydin, 2022). This may be the reason that if one investigates sustainable development goals (SDG), a total of 17 SDG goals, of which twelve goals are related to sustainable development and tourism (Iftikhar et al., 2022).

Considering the growing significance of tourism in the global economy, Gulf Cooperation Council (GCC) policymakers have recently given tourism a lot of attention. The GCC governments, who are mostly wealthy oil-producing nations, see the tourism sector not just as a source of income but also, and maybe more importantly, as a means of diversifying their economies and addressing the sustainability problem. Bahrain comparatively

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has a great advantage in the tourism industry in GCC as Mansfeld and Winckler (2008) studied and argued that tourism has immense potential in Bahrain's economy and concluded that tourism could play its role in the economic diversification of Bahrain's economy. This is the reason that Kreishan (2015) examined the effect of tourism on the economic growth of Bahrain. On the other hand, researchers came across a study (Mouzughi et al., 2014) which analyzed the role of real estate in the sustainable development of Bahrain. However, so far, there is no literature available that an empirical investigation has been done to examine the effect of tourism development on sustainable development in the case of Bahrain. Henceforth, to fill this literature gap, this study aims to investigate the effect of tourism development on sustainable development of Bahrain. Moreover, energy and urbanization are also analyzed as potential factors of sustainable development; thus, this study considers these mentioned variables as control variables. Besides, there are several reasons for considering Bahrain for investigating the influence of tourism on sustainable development. First, it is an island country and has great potential for coastal and beach tourism. Second, Bahrain is oil abundant country and thus uses 99% of its energy resources from the consumption of fossil fuels contributing positively to environmental degradation. Thirdly the entire population is found on three islands, and 90% of the population lives in urban areas (MIA, 2022; WDI, 2022). These facts may hinder the sustainable development of the Kingdom of Bahrain.

This study's finding is significant from three angles. Primarily, it is crucial for regulators and policymakers to work toward putting measures that will help Bahrain's tourism sector to grow in the right way. Second, this finding is significant since Bahrain's current administration is working hard to expand the tourism industry in Bahrain to stimulate the local economy. Additionally, this result is crucial for luring in foreign tourists, who are thought to be more interested in destinations that are ecologically sound and sustainable. Finally, this result also helps to support the pace of economic development in the upper quartiles by enhancing investment possibilities, generating jobs, enhancing infrastructure, and fostering a favorable image of the nation abroad to draw in outdoor enthusiasts.

Bahrain's Economy

The Kingdom of Bahrain has a geographically different place in GCC as it is the only island country in the region and consists of thirty-three islands. However, many islands are tiny and uninhabited. The entire population is inhabitants in Bahrain, Muharraq, and Sitra islands, while a small portion of the population occupies Jidda and Nabi Salih islands (Mansfeld & Winckler, 2008). The economic profile of Bahrain is depicted in Table 1. Bahrain is ranked 97th worldwide based on GDP, which is estimated at USD 38.87 billion in 2021. The share in GDP can be divided into three major components, i.e., agriculture, industry, and services sector, which contribute 0.3%, 38.2%, and 61.5% respectively, similarly. Employment, agriculture contribute 1%, industry 32%, and services 67%. The oil and gas, which is the dominant sector in Bahrain's economy, dominated all other sectors in revenue generation, which accounts for 82% of total revenue generation. The financial corporation sectors, which dominate the non-oil GDP, have seen enormous expansion throughout time. Financial Corporation contributed around 16.5% of the total GDP. The manufacturing sector, which accounts for 14.5% of the GDP, is the second greatest contributor to the economy. As a result of the climate and location, agriculture makes up a small part of the Bahraini economy. Like this, Bahrain's government services, transport and communication, commerce, real estate, hotel and restaurant sectors, and trade are its other main economic contributors (MIA, 2022; WDI, 2022; WTTC, 2019).

In terms of its contribution to GDP and employment generation, Bahrain's tourism industry is crucial to the growth. According to the WTTC report of 2019, Bahrain had a total of 11.06 million tourists arriving, which contributed 724 million dollars worth of income to the GDP and 12.7% of all exports. In terms of employment generation, the tourism industry contributed 12.8% to employment. The exceptional overall economic performance of Bahrain's tourist industry is mostly credited to the economic output of companies and services, including hotels, travel agencies, airlines, and other passenger transportation services (MIA, 2022; WDI, 2022; WTTC, 2022).

Table 1: Bahrain's Economic Profile

Variables	Components	Stat (2017)	Variables	Component	Stat (2017)
GDP	Agriculture	0.3%	Employment by sector	Agriculture	1%
Composition by Sector of Origin	Industry	38.2%		Industry	32%
	Services	61.5%		Services	67%
GDP Composition by Revenue	Oil and Gas	82%	Energy	Fossil fuels	99.8%
	Financial Corporation	16.5%	Generation and	renewable	0.2%
	Manufacturing Sector	14.5%	CO2 emission	CO2 Emission	0.90%
	Government Service	11.8%	Tourism	Tourism spending % of export	16.38%
	Construction work	7.3%		Tourism Spending Percentage of GDP	12.79%
			Employment contribution	12.7%	

LITERATURE REVIEW

There are several avenues in the literature that show how tourism may affect development and economic growth. The first indirect impact of tourism on long-term economic growth is the channel of foreign exchange earnings, which not only finance the import of raw materials and machinery that could be used in the manufacturing process (Habibi et al. 2018) but also increase the export earnings of developing countries, which helps in reducing the balance of payment deficit and depleting foreign reserves. Therefore, tourism may be these developing nations' crucial rescuer (Durberry, 2004). Another channel through which tourism affects growth is employment, as employment and commercial activity are both positively influenced by tourism. Tourism has been utilized as a weapon to reduce poverty, maintain peace, and increase human welfare throughout the post-globalization era (Manzoor et al. 2019). Positive externalities of tourism on other economic sectors are the third indirect impact of tourism. The country's economy benefited from the pressure the country's growing tourist population placed on demand for agricultural and industrial commodities as well as investment in vital sectors including commerce, finance, transportation, communication, and tourism. The fourth indirect impact of tourism on long-term economic development is income distribution. Employment and business possibilities have a trickle-down effect that lowers income inequality and speeds up growth (Basarir & Cakir, 2015). As it fosters GDP growth, generates job possibilities, boosts foreign currency reserves, and funds the purchase of capital goods that speed up the manufacturing process, tourism is seen as a growth engine for the economy (Du et al., 2016).

Growth in tourism has been cited by several academics and researchers as a major factor in sustainable development. The tourism-driven growth hypothesis (Jam et al., 2018; Jambor & Leito, 2017) is the term used in literature to describe the effect of tourists on development, and several studies confirmed the tourism-led growth hypothesis (Jambor & Leito, 2017; Tu & Zhang, 2020; Rasool et al., 2021) whereas Iftikhar et al. (2022) examined the effect of tourism on sustainable development as in recent years, research on how tourism affects environmental sustainability, another crucial aspect of sustainable development, has grown significantly. In most of these studies, it is argued that the tourist industry relies exclusively on fossil fuels like coal, natural gas, and oil to satisfy its energy demands. It is also claimed that this reliance on fossil fuels degrades the environment. In addition, the tourist industry requires a lot of energy to clean up human-made trash and supply the growing need for food. In fact, studies by (Durberry & Seetanah, 2014; Nepal et al., 2019; Jayasinghe & Selvanathan, 2021) all concluded that tourism negatively affects environmental quality. On the other hand, several studies contend and conclude that the development of sustainable tourism via ecologically responsible practices in the travel and tourist industry may help the environment (Jebli et al., 2019; Katircioglu et al., 2018; Khan & Hou, 2021). Liu et al. (2011) argued that urbanization affects sustainable development, whereas Gamage et al. (2016) emphasized the social capital aspect of the population for development, and Li et al. (2016) argued that urbanization affects sustainable development. Likewise, among others, Haq et al. (2016), Satrovic and Muslija (2019), and Nepal et al. (2019) highlighted the role of energy in sustainable development.

In recent years, research on how tourism affects environmental sustainability another crucial aspect of sustainable development has grown significantly. In most of these studies, it is said that the tourist industry relies exclusively

on fossil fuels like coal, natural gas, and oil to satisfy its energy demands. It is also claimed that this reliance on fossil fuels degrades the environment. Global CO₂ emissions have increased because of improvements in the air transport industry, particularly in recent years. In addition, the tourist industry requires a lot of energy to clean up human-made trash and provide the growing need for food. As a matter of fact, studies by Durbarry and Seetanah (2014), Al-Mulali et al. (2015), Nepal et al. (2019), and Jayasinghe and Selvanathan (2021) all concluded that there is a negative relationship between tourism development and environmental quality. On the other hand, several studies contend and conclude that the development of sustainable tourism via ecologically responsible practices in the travel and tourist industry may benefit the environment. As an example, studies by Jebli and Hadhri (2018), Katircioglu et al. (2018), Kongbuama et al. (2020), and Khan and Hou (2021) show a correlation between tourist earnings and environmental quality. On the other hand, it has been said that tourism does not significantly affect the environment, according to Oad et al. (2021).

METHODOLOGY

This study employed the stochastic impact by regression on population affluence and technology (STIRPAT) model to analyze the impact of tourism development on sustainable development. The STIRPAT model is based on IPAT, which was developed by Ehrlich and Holden in 1970. The IPAT model describes the environment that is affected by Population affluence and technology. Mathematically.

$$I = PAT$$

In the above model, I measure the environmental effect, PA measures the pollution affluence, and T measures the technological affluence. The IPAT model was revised by (York et al., 2003), who developed the STIRPAT model to measure the impact of population affluence and technology on the environment. It is the stochastic version of the IPAT model. The mathematical form is given as follows.

$$I = aP^b A^c T^d u$$

$$\log I = a + b \log P + c \log A + d \log T + u$$

Where b and c are coefficients of population affluence and technology, respectively. Based on the above model and studies conducted by (Zaman et al., 2017; Kocak et al., 2020), we take tourism as an affluent variable and sustainable development as an environmental variable. In addition, we take urbanization and energy consumption to analyze their effects on sustainable development. As a result, the following empirical model is built and expressed as:

$$\log SDI_t = \beta_1 + \beta_2 \log TE_t + \beta_3 \log URB_t + \beta_4 \log EC_t + u_t$$

Where SDI, TE, URB, and EC denote sustainable development index, tourism expenditure, urbanization, and energy consumption, respectively, where β_1 is the intercept, β_i coefficients, t stands for time, and u_t is the error term.

Sustainable development index is used in this study as a proxy for sustainable development, as it has been used in related research (Destak & Aydin, 2022). Data on the sustainable development index are taken from Hicckel (2020) dataset. Tourism expenditure, which is calculated in millions of US dollars, is used as a proxy for tourism development. Additionally, the data has been taken from United Nations World Tourism Organization (UNWTO, 2022). Energy consumption is measured in British Thermal Units (BTU). The information was obtained from the United States Energy Information Administration (EIA, 2022). The data on urbanization is taken from the world development indicator (WDI, 2022). The data used in this research is quantitative in nature. This study analyzed data from 1995 to 2019. Since most time series data include trends and exhibit unit root problems. Therefore, ordinary least squares cannot be used on data without examining unit root problems. In this way, Augmented Dickey-Fuller (ADF) unit root tests are used to check the stationarity in the data. After examining the data for the stationarity problem, this research used the autoregressive distributed lagged (ARDL) model (Pesaran et al., 2001) to study the relationship between tourism development, energy consumption, urbanization, and sustainable development. The econometric form of the model is as follows:

$$\Delta \log SDI_t = B_1 + \sum_{j=1}^p B_2 \Delta \log SDI_{t-j} + \sum_{i=1}^p B_3 \Delta \log TE_{t-1} + \sum_{i=1}^p B_4 \Delta \log URB_{t-1} + \sum_{i=1}^p B_5 \Delta \log EN_{t-i} + \lambda_1 \log SDI_{t-i} + \lambda_2 \log TE_{t-1} + \lambda_3 \log URB_{t-1} + \lambda_4 \log EN_{t-i} + e_t$$

Where B_1 is the intercept and B_1, \dots, B_5 are the short-run coefficients, and $\lambda_2, \dots, \lambda_4$ of the model and it is the error term. The term with summation signs shows the short-run error correction dynamic, while the other part of the model measures the long-run relationship between variables. The long run cointegration is checked by the

bound test. if the long-run association exists, the error correction model is followed as follows:

$$\Delta \log \text{SDI} I_t = B_1 + \sum_{j=1}^p B_2 \Delta \log \text{SDI} I_{t-j} + \sum_{i=1}^p B_3 \Delta \log \text{TE} I_{t-i} + \sum_{i=1}^p B_4 \Delta \log \text{URB} I_{t-i} + \sum_{i=1}^p B_5 \Delta \log \text{EN} I_{t-i} + \partial \text{ECT} + ut$$

Where the ECT term in the above models measures the speed of adjustment of the model.

EMPIRICAL FINDINGS

Table 2 provides the results of the unit root test. The findings of the unit root test show that the study’s variables are nonstationary in their first order, except urbanization. Therefore, the study used the ARDL technique to estimate the short and long-run coefficients of the variables. Table 3 displays the critical bounds values and the estimated F-statistic value. It is confirmed from the results of Table 3 that variables are cointegrated in the long run.

Table 2: ADF Unit Root Test Results

Variable	ADF <i>t</i> -Statistics	Variable	ADF <i>t</i> -Statistics
logSDI	-1.62	logSDI	-4.45***
logTE	-0.59	logTE	-3.44**
logURB	-3.14**	logURB	—
logEN	-1.39	logEN	-4.56***

***and ** Shows 1% and 5% level of significance

Table 3: Results of F-Bound Statistics

F-calculated	8.12***	
Significance	Lower Bound	Upper Bound
	I (0)	I (1)
10%	3.47	4.45
5%	4.01	5.07
1%	5.17	6.36

*** shows significance at 1 % level.

Table 4 presents the long-term and short-term estimations. These results show that tourism development and urbanization are significant factors of sustainable development in Bahrain. However, tourism is positively associated with sustainable development, while urbanization is negatively related to sustainable development. Moreover, energy consumption has an insignificant negative effect on sustainable development. The positive impact of tourism on sustainable development matches with other studies conducted by Durbarry and Seetanah (2014) and Khan et al. (2021). The negative effect of urbanization on sustainable development matches with the study of Satrovic and Muslija (2019) and Destak and Aydin (2022). Besides, the long-run and short-run result estimates show that energy has an insignificant negative impact on sustainable development in the Kingdom of Bahrain. Kocak et al. (2020), Nathaniel et al. (2021), and Destak and Aydin (2022) also concluded the negative impact of energy consumption on sustainable development. Energy consumption contributes to environmental quality via economic activity but also leads to environmental degradation (Haq et al., 2016). Looking at global data on energy consumption and power generation, fossil fuels account for over 99.4% of all energy sources, why wouldn’t energy be accelerating environmental degradation? Between 2014 and 2018, the total amount of energy used in Bahrain rose with a 0.8% growth rate annually, while in 2019, the demand for power in the industry and services sector increased by 11%. Additionally, due to the aluminum industry, per capita energy consumption increased to nine tons of oil equivalent in 2020 (three times the Middle East average and five times the global average), and per capita electricity consumption increased to 18 MWh (five times the Middle East average and six times the global average). Bahrain uses little renewable energy relative to its overall energy usage. These are the reasons why Bahrain’s sustainable development is severely affected by energy use. High energy intensity has also been shown to be harmful to long-term growth. Kocak et al. (2020) and Nathaniel et al. (2021) also reached the same conclusion when considering its effects on the environment. This is the rationale behind Won et al. (2017) recommendations that nations shall promote both the use of alternative energy sources and energy efficiency. Thus, it is advisable for the Kingdom to look for

renewable energy resources. Besides these results, error correction of the ARDL shows whether the model is stable or in equilibrium. This can be judged if the sign of the Error Correction Term (ECT) is negative and significant. The sign of the ECT term is negative and significant, leading to the conclusion that the model is in equilibrium and will recover from any external shock within a year, given that the error correction term's coefficient is around -0.76.

Table 4: Results of ARDL Bounds Technique

Long Run coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	145.20**	62.93	2.31	<0.05
logURB	-33.72**	14.13	-2.39	<0.05
logTE	0.65***	0.16	4.07	<0.01
logEN	-0.27	0.31	-0.86	0.40
Short run Coefficients				
(logURB)	-25.49**	11.11	-2.29	<0.05
(logTE)	0.49**	0.13	3.90	<0.01
(log EN)	-0.20	0.22	-0.91	0.37
CointEq (-1)	-0.76***	0.17	-4.34	<0.01

***and ** Shows 1% and 5% level of significance

CONCLUSION AND RECOMMENDATIONS

The goal of the current research was to investigate the complex interactions between urbanization, energy use, tourist growth, and sustainable development in Bahrain from 1995 to 2019. For this, the study employed time series data on tourism development, urbanization, and energy consumption. The data was checked for econometric problems such as stationarity, normality, heteroscedasticity, autocorrelation, and specification bias. After the diagnostic test, the study employed ARDL bound testing approach to find the coefficients of numerical estimates of the model. The researchers found a substantial long-run association between sustainable development and tourist growth in the nation using the ARDL limits test for data analysis. Fortunately, the results highlighted Bahrain's tourist industry's commitment to environmental protection, which has emerged as a significant contributor to sustainable growth. However, the analysis also made clear certain worrying trends in Bahrain's urbanization and energy use. Rural-to-urban migration exacerbated the negative effects of urbanization, which proved harmful to the environment, particularly in the absence of a comprehensive plan. The environment suffered as consumption patterns changed inside cities and population density rose, highlighting the need for effective urbanization management. Another significant concern was energy usage since Bahrain relied on non-renewable resources like coal and oil. This over-dependence on fossil fuels has increased CO₂ emissions significantly, which is causing the environment to deteriorate.

The report suggested switching from non-renewable to renewable energy sources, together with initiatives to improve energy efficiency, to protect the environment and promote sustainable development. The study recommends a triangular strategy to advance Bahrain's sustainable development. First, by maximizing the benefits of the tourist industry's expansion while assuring its future sustainability. Second, by controlling urbanization and turning it from unplanned to planned, we can lessen the damaging consequences it has on the environment. And lastly, to minimize carbon emissions and stop environmental damage by using renewable energy sources and placing a priority on energy efficiency. Bahrain may work towards a more sustainable future by putting these measures into place, finding a balance between development and environmental protection.

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