Research Article

Ghana Social Science Journal
2023, Vol.20 (1): 97–113

Publisher: School of Social Sciences UG

Economic determinants of international tourism demand in Ghana

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Abstract

Ghana's tourism industry has witnessed steady growth over the past two to three decades, which has translated into increasing tourism receipts. This paper examines the economic determinants of international tourism demand in Ghana using data on tourist arrivals from the country's major generating markets outside Africa from 1995 to 2014. We employ the Panel Autoregressive Distributed Lag (ARDL) estimation approach. The long run estimates suggest that income of tourists denoted by the GDP per capita of their respective origin countries, tourism prices in Ghana, substitute prices in an alternative destination (Nigeria), and the level of trade between Ghana and the origin countries are significant determining factors of international tourism demand in Ghana. In the short run, the substitute price showed a negative and statistically significant effect on tourism demand; implying tourists from the origin countries consider Ghana and Nigeria as complementary destinations in the short run. The error correction coefficient indicates that about 11 percent of deviations in tourism demand are corrected every year, signalling a sluggish adjustment process towards long run equilibrium. The study recommends that government policies should focus on strengthening the macroeconomic fundamentals of the economy, promote trade with the origin countries, and diversify the tourism markets.

Article History: Received 4 November 2022 Accepted 10 May 2023

Keywords: international tourism, tourism prices, tourism industry, Ghana

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Introduction

Travel and tourism is an important economic activity globally. The tourism sector is a major source of revenue (foreign exchange), employment and economic growth. For instance, real growth in international tourism receipts (54%) outperformed growth in world GDP (44%) between 2009 and 2019 (United Nations World Tourism Organization [UNWTO], 2020). The sector is expected to continue to grow in the foreseeable future despite the negative impact of climate change, financial crises, and increasing cost of travel due to rising crude oil prices (Hall & Page, 2014). In more recent years, tourism activities have gone beyond simply leisure to encompass travel for the purposes of education, medical treatment, religious pilgrimage, participation in sporting activities, conventions, among others (UNWTO, 1994; UNWTO, 2010). These developments have further widened the multiplier effect of tourism on economies. The World Travel and Tourism Council (WTTC) classifies the total impact of the tourism sector on the economy into 1) direct (the contribution of the sector to GDP and employment); 2) indirect (the supply chain impact of the sector); and 3) induced (the impact of incomes spent in the host economy by those who are directly or indirectly employed in the sector). These impacts according to the WTTC, makes the tourism industry the largest industry in the world using virtually every economic measure, including contribution to GDP, capital investment and contribution to tax revenue and employment (WTTC, 2018).

There has been a phenomenal growth in the worldwide tourism industry over the past six to seven decades. International tourist arrivals have nearly tripled over the period; from a mere 25 million arrivals in 1950 to 1,323 million in 2017. International tourism receipts have also maintained an upward trend increasing from US$627 million to US$1340 billion over the period 2005 to 2017 (UNWTO, 2018). In Africa, the continent is endowed with several tourist sites and related facilities making it an equally attractive tourism destination. Ghana is one of the many countries on the African continent with a growing tourism industry. According to data from the Ghana Tourism Authority, the number of tourists who visit the country more than doubled between 2000 and 2017; from 456,275 to 980,100. Tourism receipts, on the other hand, increased more than proportionately from US$289,500 million to US$1854.8 million over the same period. The contribution of the sector to the country's GDP increased from US$ 0.89 billion in 1995 to US$ 3.42 billion in 2017, with an average annual growth rate of approximately 10 percent over the period. Also, the sector continues to be an important contributor to job creation in the country. Employment in the sector grew at a yearly average rate of 6.6% over the period from 1995-2017. Ghana's tourism industry has a diverse product offering. The 15-year National Tourism Development Plan (1996-2010) classified the tourism products in the country into four broad categories namely; natural attractions, historical heritage, cultural heritage and other types of attractions, such as museums, cultural centres, recreational centres, natural resource endowments (Ministry of Tourism, Ghana, 1996).

The country's major selling points include beaches, castles, cultural and traditional events as well as the stable political and social environment (Oxford Business Group, 2016). The sector has become the next highest earner of foreign exchange for country after the traditional commodity exports (gold and cocoa) (Oxford Business Group, 2016). The industry, therefore, offers an opportunity to diversify the Ghanaian economy, which over the years has been dependent on primary commodities and the extractive industry. The industry has evolved over the years into a contemporary industry with considerable involvement of both local and multinational enterprises (Akyeampong, 2011). There have been some major transformations in the sector in recent years, ranging from the establishment of more modern accommodation facilities, hosting of international events, promotional activities, including the launch of the "Year of Return" initiative, expansion of tourism infrastructure such as airports, road networks, among others. Despite the numerous opportunities the tourism sector offers the Ghanaian economy, only a few studies have been conducted to investigate what factors influence tourism demand in the country.

An understanding of how the consumer makes his or her purchasing decisions is crucial to estimating and predicting tourism demand. The theoretical framework which underpins the development of tourism demand models is mostly based on the theory of consumer behaviour. The theory models individual preferences formally known as utility, subject to a budget constraint, to derive a consumer's demand for a set of commodities as a solution to the optimization problem (Nicholson & Snyder, 2008). Specifically, the consumer utility maximization yields a demand equation that is a function of price of the commodity, the consumer's income, price of substitute or complement commodities, and other variables which could affect the tastes and preferences of the consumer. Empirical studies have employed different variables as proxies of international tourism demand. Such measures include the number of tourism arrivals and or departures, tourist expenditures and or receipts, length of stay, tourist participation rate, among others (Muñoz, 2007; Song et al., 2010). Economic explanatory variables which are mostly incorporated into econometric modelling of tourism demand are income (proxied by nominal income, real personal or disposal income, Gross Domestic Product (GDP), per capita income, foreign travel budget, permanent income, production or industrial production index (Bashagi & Muchapondwa, 2021; Deluna & Jeon, 2014; Montes-Rojas & Barroso, 2020); prices (measured by; Consumer Price Index (CPI); drinks and tobacco price index; food, shopping, entertainment, and hotel price index among others) (Habibi & Rahim, 2009; Hanafiah & Harun, 2010; Gunter, 2018), trade openness (Leitão, 2010; Ibraham, 2011; Ngugi, 2014) and exchange rate (Lin & Lee, 2013; Agiomirgianakis & Sfakianakis, 2014; Arsad & Borhan, 2016). Some researchers have also indicated that tourism demand is influenced by transport cost (measured by price of air travel, distance, crude oil cost, etc.) (Dritsakis, 2004; Bentum-Rnnin, 2014; De Vita & Kyaw, 2014; Jewoo & Choong-Ki, 2017); political environment or security factors (Okon, 2014; Neumayer and Plümper, 2016; Ghalia et. al, 2019); destination

marketing and advertisement (Ledesma-Rodriguez et. al., 2001; Ngugi, 2014; Magatef, 2015); and repeated visits or dynamic effects (Muñoz, 2007; Ngugi, 2014; Adeola et al., 2018).

Previous studies have adopted different estimation techniques, ranging from co-integration, error correction models, time varying parameters, vector autoregressive models, panel static and dynamic models, to estimate the tourism demand model. Ibrahim (2011) used panel data on tourist arrivals from eight of Egypt's generating markets during the period 1990-2008 and found that real GDP per capita, relative cost of living of tourists in Egypt, substitute tourism price in Tunisia, trade with the generating markets and the relative real effective exchange rate influence foreign tourists' decision to visit Egypt. Micro-level analysis of tourism demand is now also popular due to the availability of micro-level data on tourism activities. Adeola et al. (2018) also estimated a Poisson regression model to explain the factors influencing foreign tourists' decision to visit 44 African countries over the period 1995-2015. They concluded that per capita income of origin countries, tourist taste formation, real exchange rate, political stability, tourism infrastructure, foreign direct investment, and trade openness are key drivers of international tourism demand in Africa. The availability of micro-level data on tourism activities has also made it possible to carry empirical studies at the micro level. Ngugi (2014) employed a count data regression model to estimate the effect of tourist socio-demographic features, destination characteristics and political factors which affect international tourism demand in Kenya for the period 1991 to 2011. The study result demonstrated that international tourism demand in Kenya is driven by destination characteristics (weather, tourism sites, diverse culture, etc.) and tourist socio-demographic features (such as age, occupational status and household income) drive international tourism demand in Kenya. Another study in Ethiopia conducted over a 2 month period (December 2018-January 2019) showed that household income, age, occupational status, destination quality and political factors influence international tourism demand in Ethiopia (Takele, 2019).

In Ghana, a recent study by Bentum-Ennin (2014) based on five tourist originating regions, namely, Africa, the Americas, Europe, East Asia and the Pacific, and the Middle East, found international tourism in the country to be sensitive to incomes of originating regions, substitute prices, exchange rates, and political rights and civil liberties. To the best of our knowledge, there is no study with a specific focus on major origin countries. With the global tourism industry being very competitive, there is the need for Ghana to offer more demand driven tourism products that can sustain patronage from major origin countries and capture new markets. The study contributes to the scanty literature by investigating both the short- and long run determinants of tourism demand in Ghana using data on the number of tourist arrivals from the country's major generating markets outside Africa spanning 1995 to 2014

Methods

Empirical model

Following from both the theoretical and empirical literature on tourism demand, we specify a tourism demand for Ghana as:

$$TA = f(GDP, TP, SP, OPEN, TCOST, D2005, D2007) \quad (2)$$

where TA is tourist arrivals, GDP is GDP per capita of the origin country, TP is relative tourism price between the various origins and Ghana, SP is the tourism price for a substitute destination (Nigeria in this case), OPEN is the degree of trade openness between Ghana and the various origins, TCOST is transport cost incurred by tourists from their respective origins, D2005 and D2007 are dummies to capture the reclassification of Ghana's tourism data in 2005 and the financial crises in 2007, respectively. D2005 takes on the value zero before 2005 and 1 from 2005 onwards, while D2007 takes on the value zero before 2007 and 1 from 2007 onwards.

Data description and sources

Annual data on the number of international tourist arrivals in Ghana from the selected origin countries is sourced from the Ghana Tourism Authority (GTA). The GTA collaborates with the Ghana Immigration Service (GIS) to collect arrival data at the airports and the various borders of the country. GDP per capita and Consumer Price Index (CPI) based on 2010 constant US dollar, are obtained from the World Bank's World Development Indicators database. The World Bank's database on commodity prices is the source of data on the crude oil prices. Data on the distance between the respective origins and Ghana (measured in kilometers) is sourced from the Time and Date AS ("Aksjeselskap") database. Average annual exchange rate data is sourced from the IMF's International Financial Statistics (IFS) database whilst data on Ghana's trade (merchandize export and import) with the selected origin countries is sourced from the IMF's Direction of Trade Statistics (DOTS) database. Exports are valued free on board whilst the value of imports includes cost of freight and insurance according to the UN guidelines.

Measurement of variables

Outcome variable

International Tourism Demand

This is measured as the number of tourists arriving in Ghana annually. The GTA collaborates with the Ghana Immigration Service (GIS) to collect arrival data at the airports and the various borders of the country. Visitors are given a questionnaire to complete, where they provide information on their country of origin, period of stay and reason for visit. Persons indicating tourism as the reason for visit are extracted in the GTA database on tourist arrivals.

Explanatory Variables

GDP per capita: This measured as GDP (based on 2010 constant US dollar) divided by population of the respective country.

Tourism Price: The relative price levels between the various origins and Ghana (TP) is calculated as:

$$Tourism\ Prices\ (TP_{it}) = \left[\frac{CPI_{GH,t}}{CPI_{Origin,t}}\right] * \frac{1}{ER_{it}} \qquad (3)$$

where t is time indicator measured in years, $CPI_{GH,t}$ is the Consumer Price Index for Ghana at time t, $CPI_{origin,t}$ is the Consumer Price Index for each of the origin countries at time t and $ER_{i,t}$ is the average annual exchange rate of the cedi to the dollar.

Substitute Price: The price level in a chosen substitute destination to Ghana (SP) is obtained as:

$$Substitute\ Prices(SP_{it}) = \left[\frac{CPI_{Nigeria,t}}{CPI_{origin,t}}\right] * \frac{1}{ER_{it}} \qquad (4)$$

where $CPI_{Nigeria,t}$ represent the Consumer Price Index for Nigeria at time t, $CPI_{origin,t}$ is the Consumer Price Index for each of the origin at time t and $ER_{i,t}$ is the average annual exchange rate of the naira against the dollar. Nigeria is chosen as the substitute destination for Ghana in this study since it is the closest country to Ghana in the West Africa sub region with a large share of the total tourist inflows in Africa. Additionally, Ghana and Nigeria share a lot in common in terms of the style of music, official language, colonial links, food, and dance, among others.

Trade Openness: The degree of trade between Ghana and a respective origin country (OPEN) is calculated as exports plus imports divided by GDP:

$$OPEN_{it} = \frac{Import_{GH,it} + Export_{GH,it}}{GDP_t} \qquad (5)$$

where $Export_{Gh\ I,t}$ is Ghana's export of goods to each of the origin countries at time t, $Import_{Gh\ i,t}$ is import of goods by Ghana from each of the origin countries at time t and $GDP_{Gh,t}$ represent the GDP of Ghana at time t.

D2005: This is an indicator variable representing the reclassification of tourism data in Ghana in 2005. It takes the value 1 in 2005 and thereafter, and 0 for the periods before 2005.

D2007: This is an indicators variable capturing the impact of the shock of the global financial crises in 2007 on foreign tourism demand in Ghana. It takes the value of 1 in 2007 and after and 0 for the periods before 2007.

Data analysis

The study employs the Pooled Mean Group (PMG) estimator suggested by Persaran et al. (1999) and applied it within the Panel Autoregressive Distributed Lag (ARDL) estimation framework to estimate the short and long run determinants of international tourism demand for Ghana. First, we test for stationarity (or order of integration) of the variables using panel unit root tests proposed by some researchers (e.g. Breitung,2000; Levin, Lin & Chu, 2002 Im, Pesaran & Shim, 2003. The Westerlund (2005) test of cointegration in panel data is adopted to ascertain if the variables of the model are cointegrated or have a long run relationship. The test is conducted with both panel-specific and same Autoregressive parameter (AR) specifications. The PMG estimator is computed by Likelihood Maximum estimation and it operates by adding and finding the averages of coefficients (Pesaran et al., 1997; 1999). A distinctive feature of the estimator is that it allows variations in the short run coefficients (including the intercepts, the speed of adjustment, and error variances) across the groups and restricts the long run coefficients to be homogenous across groups. This estimator is more useful when the long-run relationship between the variables in the model is expected to be similar across the cross-sections. A key assumption underlying the consistency of the PMG estimator is that there must be no serial correlation in the residual of the error correction model in order to validate exogeneity of the explanatory variables. This assumption is satisfied with the specification of the error correction model to include the ARDL (p, q) lags, where p and q represent the optimal lag length of the dependent and independent variables, respectively. The optimal lag selection ensures that the residuals of the error correction model are free from the problems of autocorrelation, heteroscedasticity and endogeneity. The efficiency and consistency of the PMG estimator is also confirmed by a statistically significant speed of adjustment coefficient, which in turn, confirms the existence of a long-run relationship. All the estimations were done using the Stata 15.

Results

Unit root tests

The panel unit root tests were carried out at both levels and first difference of the variables (Table 1). The test is conducted on a null hypothesis that a particular variable is non stationary versus the alternative hypothesis that the variable is stationary. According to the LLC test, the GDP per capita, tourism prices, substitute prices and transport cost variables are stationary at levels at the 5% significance level. The Breitung test shows the substitute prices and transport cost variables are stationary at level at the 5% significance level. Also, the IPS test indicates the GDP per capita, substitute prices and transport cost variables are stationary at levels at the 5% significance level. Since at least one variable is non-stationary at levels, the unit root test was carried out again using the first difference of the variables. The results show all the variables which were non-stationary at levels,

attain stationarity at first difference. The variables which are stationary at levels have the order of integration I(0) and those that became stationary at first difference have the order of integration I(1). This means the model is made up of a mixture of both I(0) and I(1) variables. This validates the use of the ARDL technique for estimation in the study since none of the variables is of order I(2).

Table 1: Panel unit root tests at levels and first difference of variables

	Level			First Difference		
Variable	**LLC**	**Breitung**	**IPS**	**LLC**	**Breitung**	**IPS**
Tourist arrival	1.22	3.73	3.37	-5.76***	-7.17***	-5.33***
GDP per capita	-4.67***	1.34	-1.71**	-4.79***	-3.96***	-3.72***
Tourism prices	-1.72**	-1.57*	-1.22	-1.68***	-5.47***	-2.02***
Substitute prices	-2.95***	-2.12***	-2.07**	-4.38***	-6.41***	-3.87***
Trade openness	-1.49*	-1.23*	-0.59	-4.51***	-3.79***	-4.67***
Transport cost	-5.14***	-6.73***	-4.39***	-8.45***	-6.02***	-7.86***

Note:
*p <0.1; **p < 0.05; ***p < 0.01

Cointegration test

The results of the group-mean and panel-variance ratio statistics of the Westerland cointegration test reports values of 3.12 and 1.18, respectively. This result indicates that the null hypothesis of no co-integration is rejected at even the 1% significance level in the case of the test based on the group- mean statistics or panel specific AR parameter. However, with the test based on the panel-variance ratio statistics or same AR parameter for all the panels, the null hypothesis of no cointegration is rejected at just the 10% significance level. Thus, cointegration exists among some and not all the panels. However, the existence of long-run relationship among the variables can also be inferred if the coefficient of the speed of adjustment is negative and statistically significant in the Panel ARDL-PMG estimation. This also provides validity for the efficiency and consistency of the estimator employed.

Panel ARDL-PMG estimation results

The long run and short run estimates[2] of the determinants of international tourism demand for Ghana are presented in Table 2. The optimal lag structure is selected based on the Schwarz Information Criterion (SIC). The lag structure is specified as (1,0,1,0,1,0,1,0) corresponding to the variables in the following order: total arrivals, GDP per capita, tourism prices, substitute prices, trade openness, transport cost, D2005 and D2007. .

Table 2: Panel ARDL estimates of International Tourism Demand in Ghana

Variable	Long run coefficient	Short run coefficient
GDP per capita	5.93***	0.52
Tourism price	-1.49**	0.03
Substitute price	1.02***	-0.06**
Trade openness	0.96***	0.02
Transport cost	-0.02	0.10
D2005	1.30	-0.48***
D2007	-1.07***	0.06**
Error correction term	-0.11***	

Note: *
p <0.1; **p < 0.05; ***p < 0.01;

All the variables are log linearized with exception of the dummy variables. In addition, the variables in the short run results are in first difference.

From the long run results, all the variables have the expected sign. The long run estimates suggest that income of tourists denoted by the GDP per capita of their respective origin countries, tourism prices in Ghana, substitute prices in alternative destinations like Nigeria, trade between Ghana and the selected origin countries, and the global financial crises in 2007 are significant determining factors of international tourism demand in Ghana. Income of tourists has a positive effect on international tourist arrivals in Ghana and is statistically significant at the 1 percent level. As expected, tourism price

2 The long-run results, as the name suggests, refer to the equilibrium or steady-state relationship between the variables in the ARDL model. In the long run, all variables are assumed to have fully adjusted and reached their equilibrium values. The long-run results capture the permanent or sustained effects of changes in the variables. The short-run results, on the other hand, refer to the immediate or temporary effects of changes in the variables of the ARDL model. In the short run, some variables may not have enough time to fully adjust or converge to their long-run equilibrium values. Therefore, the short-run results capture the dynamics or adjustments that occur in the shorter term. The short-run results are typically captured by the coefficient estimates associated with the lagged or differenced values of the variables and any error correction terms. These coefficients represent the immediate effects or adjustments that occur in response to shocks or changes in the model. On the other hand, the long-run results are captured by the coefficients associated with the levels of the variables in the model. These coefficients represent the equilibrium relationship between the variables when they have fully adjusted in the long run. They are often interpreted as elasticities or the long-run impact of a change in one variable on another variable.

has a negative effect on tourist arrivals in the long run and is statistically significant at the 5% level. Also, the tourism substitute price variable has the expected sign and significant at the 1% level. The trade openness variable has a positive effect on international tourism demand in Ghana and is statistically significant at the 1 percent level. The dummy capturing the impact of the global financial crises on tourism demand is negatively correlated with the demand for tourism in Ghana and is statistically significant at the 1 percent level.

The short-run estimation results demonstrate that foreign tourism demand in Ghana is sensitive to tourism substitute prices in Nigeria, reclassification of the country's tourism data in 2005 and the global financial crisis which occurred in 2007. Specifically, the tourism substitute prices in Nigeria have a significant negative effect on international tourism demand in Ghana. The dummy representing the reclassification of Ghana's tourism data is negative and statistically significant at the 1 percent level. The dummy for the impact of the global financial crises is positively correlated with foreign tourism demand in Ghana in the short run and also statistically significant at the 5 percent level. The coefficient of the error correction term has the expected sign and statistically significant at the 1 percent level. This indicates the existence of long run relationship among the variables of the model.

Discussion

The Panel ARDL-PMG estimation results have revealed that, in the long run, as the incomes of international tourists rise, we should expect their demand for tourism in Ghana to increase. Thus, in the long run, tourists from the selected origin countries consider tourism in Ghana to be a luxury. This finding is corroborated by most tourism demand studies which found income elasticity of foreign tourism demand to be greater than one (Song et. al, 2010; Adeola et. al, 2018; Bashagi & Muchapondwa 2021). The negative long-run effect of tourism prices on foreign tourism demand in Ghana implies that in the long run, tourism demand in Ghana by tourists from the selected origins will decline in response to increases in the price of tourism products and services in the country. This outcome is consistent with findings of previous studies (e.g. Ibrahim, 2011; Bentum-Ennin, 2014). The magnitude of the tourism price variable falls within the own price range of -19.68 to 6.64 as recorded in studies on some sub regions like the Association of Southeast Asian Nations (ASEAN) (Nguyen, 2021) and the Southern Africa Development Community (SADC) (Motsatsi, 2018), and specific countries like Egypt (Ibrahim, 2011) and Mauritius (Seetanah et. al, 2015). The findings also show that tourists from the selected origin countries consider Ghana as a substitute destination to Nigeria in the long term. The implication of this finding is that as the price of tourism products and services in Nigeria increases, tourists would shift their demand to competing destinations like Ghana. This expectation is premised on the fact that Nigeria and Ghana have a lot in common in terms of geographical location in the same sub region, same colonial links, official language, similar climatic conditions, arts and styles

of music among others. This outcome supports the findings by Bentum-Ennin (2014). The positive long run effect of trade on international tourism demand in Ghana indicates that, as the country trades more with the origin countries, tourist arrivals from these countries to Ghana is expected to increase in the long run. This outcome is consistent with the findings by Ibrahim (2011) and Ngugi (2014). A boost in international trade would provide the country an opportunity to advertise her unique products which could in turn attract the attention of foreign consumers, and create awareness about both the products and the country of origin. The results also revealed that the global financial crisis has a negative long run effect on international tourism demand in Ghana. This implies that the global financial crises in 2007 had a negative lag effect on tourist arrivals in the country in the successive years.

However, in the short run, tourists from the selected origin countries do not consider Nigeria as a substitute destination to Ghana. This suggests that in the short run tourists see Ghana and Nigeria as two unique tourist destinations with distinct tourism products and services which offer different touristic experience. At best, they consider Ghana and Nigeria as complementary destinations in the short run. The results point to a positive impact of the global financial crisis on foreign tourism demand in the short run. This suggests that Ghana recorded an increase in arrivals from the selected origin countries in the short run despite the financial crises. Total inbound tourist arrivals in Ghana increased from 508,199 in 2006 to 580,895 in 2007 whereas arrivals from the selected origin countries only, increased from 151,000 in 2006 to 173,300 in 2007. This result is in contrast with the long run outcome, suggesting that it took some time for tourists to adjust their demand for Ghana's tourism goods and services in response to the financial crises. Moreover, it took time for the effect of the crises which started in the USA, to spread to other regions like Europe. This may explain why the negative impact of the crises on tourism demand in Ghana is evident only in the long run. The results suggest the reclassification of the country's tourism data had a negative effect on the collection of tourist arrival data in the short run. The first-three years after the reclassification show a reduction in total tourist arrivals vis-à-vis the 2004 figure. There was a reduction in tourist arrivals from 582,108 in 2004 to 392,454 in 2005, which then increased to 508,199 in 2006 but still less than the 2004 figure. The reduction in tourist arrivals (especially from 2005-2006) is attributed to reforms introduced in 2005 which resulted in the adoption of new and improved system for collecting data on tourist arrivals and tourism receipts in the country. The statistical significance of the error correction term implies that for any one percent deviation in foreign tourism demand from its long run equilibrium, about 11 percent of the deviation is corrected every year. This outcome indicates a sluggish adjustment process towards the long run equilibrium.

Limitations and recommendation for future research

Due to data limitations, the study covered only twenty years (1995-2014). It was difficult to obtain data on arrivals that has a longer time series dimension. Also, data on arrivals are available for only a limited number of countries. For instance, data on arrivals from countries such as China, which has increasingly become an important generating market for Ghana, is not fully available. Future studies could be conducted using a more expanded database with a wider cross sectional and longer time series dimension. This will create an opportunity to explore with various methodologies and estimation techniques as a way of corroborating the present findings. Also, future research could look at the impact of government marketing and promotion expenditure on tourist arrivals in Ghana, which we could not explore. Finally, future studies could examine the effect of habit formation or word of mouth on tourism demand in Ghana. This variable helps to measure the impact of supply side constraints on tourism demand.

Implications of the study

Policies aimed at stimulating tourism growth must be informed by investigation into the factors that drive tourism demand. Therefore, based on the findings and the importance of tourism in foreign exchange generation and employment, it is imperative that policies and strategies are enacted to promote the growth and development of the tourism industry so as to boost Ghana's competitiveness in the sector. The positive income elasticity of tourism demand in the long run suggests that Ghana's tourism products and services would be regarded as luxury by tourists in the long run. Hence, in the long run, tourists will demand more of tourism in Ghana as their income level rises. Thus, there is the potential for Ghana to generate more revenue from the tourism sector. While external shocks, such as economic downturns in origin countries and other global events like the financial crises which occurred in 2007 are beyond the country's control, policy makers can monitor closely the economic cycles in the origin countries and try to diversify into new markets. This diversification will help to spread the risk of recording low demand for tourism in times of economic downturns in some of these origin countries. Furthermore, the findings reveal that tourism demand in Ghana responds positively to the level of trade between Ghana and the origin countries. Therefore, the government of Ghana should encourage trade with the origin countries. An important policy initiative must be one that is directed towards encouraging exports of both goods and services produced in Ghana. Institutions like the Ghana Investment Promotion Authority must be adequately resourced and strengthened to look for more export opportunities for local producers. This will serve as a great incentive for local producers to expand production and increase the country's export supply. Additionally, given the negative and positive effect on tourism demand of prices in Ghana and prices in substitute destinations, respectively, there is the need to improve the sector and make it competitive so as to ward off any threats from competing destinations.

Conclusion

This paper sought to estimate the short and long run economic determinants of international tourism demand in Ghana using data on arrivals from 8 major origin markets outside Africa namely the United States, United Kingdom, Germany, France, Netherlands, Canada, Italy and Switzerland, from 1995 to 2014. Panel ARDL-PMG estimation technique was employed to investigate the dynamic short and long run relationship between international tourist arrivals in Ghana and key economic variables, namely, GDP per capita of origin countries, tourism prices, substitute prices in Nigeria, trade openness and transport cost. The study also investigated the impact of key economic events such as the global financial crises in 2007 on international tourism demand in Ghana. We find a long run relationship between income of tourists, price of tourism, substitute prices, trade between Ghana and the origin countries on the one hand, and international tourism demand on the other. More specifically, the income of tourists, the level of trade and substitute prices had a positive effect on tourism demand in Ghana, while the price of tourism had a negative effect.

Based on the findings and to ensure that Ghana continues to attract increasing numbers of international tourists to boost its foreign exchange generating capacity, government and stakeholders in the tourism industry must ensure that tourist expenditure on items such as the cost of accommodation and domestic transport, tourist sites charges and fees are competitive. Government can therefore lend support to operators in the industry through the provision of various incentives and subsidies to help reduce the cost of doing business in the industry. Generally, policies must be directed at creating a conducive economic environment that promotes business growth.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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