

Tourism Earnings and Economic Growth in Ghana

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ABSTRACT

The study sets out to examine the cointegration and causality relations between tourism earnings and economic growth in the long-run in Ghana during the period 1985 to 2010. Both theoretical and empirical literature on the topic was thoroughly reviewed. In line with the objective of the study, a simple regression model was specified with economic growth as the dependent variable and earnings from tourism as the independent variable. The relevant time series techniques were used for the analysis. These included Augmented Dickey- Fuller test for unit root, Johansen and Juselius cointegration test and Granger Causality test for causal relationships. The findings of the study revealed that there is a long-run cointegration and a positive relationship between economic growth and tourism earnings in Ghana. Furthermore, the Granger causality test results revealed the presence of unidirectional causality from economic growth to tourism earnings in the country. The policy implications of the study are that the government should focus on economic growth policies to promote international tourism as a potential source of high tourism earnings in Ghana.

Keywords: Tourism earnings, economic growth, stationarity test, cointegration test, Granger causality test.

1.0 INTRODUCTION

Located on the Gulf of Guinea in West Africa, Ghana has an average temperature of 26°C to 29°C, a tropical climate and a total land area of about 238,540 square kilometres with a 540 kilometres square coastline. As a result of its historical land marks and natural attraction, it enjoys the status of being the initial points of entry by most foreigners entering Africa for the very first time. Tourism in Ghana today is considered to be a great avenue for foreign exchange in the country. The industry has illustrated its viability as been a key employer in the service sector and contributor to national growth. The Tourism industry is currently the third largest source of foreign exchange in the country aside gold and cocoa, with tourism earning or receipts of US\$1,8750 million by the end of 2010 (ISSER, 2010). Tourism is one of the new ways of socio-economic development, helping countries particularly developing countries to increase their gross domestic product. Tourism is currently considered the fastest growing industry in the world and accounts for 11.4% of the world's national product. Ghana is endowed with a wide range of a wide variety of tourism products. The unique cultural heritage of Ghana which includes variety of festivals, skills of artisans in woodcarving, pottery, painting and goldsmith are displayed and also historic forts and castles built by different Europeans are but a few examples.

Tourism in Ghana today is currently focused on cultural tourism which is complemented with attractions such as historical heritage sites, game viewing in national parks and historical heritage tourism which is more into the return of Africans in the Diaspora to their native land on the continent with Ghana acting as a gateway.

Truly, earnings from the tourism industry to the GDP of the country have been increasing steadily in the past three years, from 4.9% of GDP in 2005, to 5.8% in 2006 and to 6.3% in 2007. (Ghana Tourist Board, 2008)

The Ministry of Tourism has consistently taken measures to ensure and realize the potential of the sector in order to make significant contributions to economic development. In 2006 the Ministry developed a new tourism policy and organized tourism programmes, capacity building workshops and institutional strengthening activities. Furthermore, investors in the tourism sector have been given a wide range of investment incentives. The Ghana investment promotion centre Act, 1994 (Act 478) provides lots of incentives for investors. Notable amongst these concessions are: tax allowances ranging from 25 to 50%, concessionary rate of 10% duty, 12.5% VAT on import other than foods, beverages, building materials and vehicles required for project in all segment of the tourism industry.

In the light of all these efforts, supports and incentive packages, it would have been rational to expect that the tourism industry flourish and bring out more than it is expected, and power economic growth, and hence this research. The objectives of the study are to explore the long-run cointegration and causal relationships between tourism earnings and economic growth in Ghana, and to make the necessary recommendations.

Hypotheses

The hypotheses investigated by the study are as follows:

1. *There is no cointegration relationship between economic growth and tourism earnings in the long-run in Ghana.*
2. *There is no causal relationship between economic growth and tourism earnings in the long-run in Ghana.*

The study is divided into five sections. The first section being the introduction comprises the background of study, problem statement, objectives of study, and the research hypothesis. Section two reviews both theoretical and the empirical literature as well as an overview of tourism industry in Ghana. The methodology for the study is addressed in section three. Section four presents the estimated results and discussion. The final section is the conclusion of the study in which summary and policy implications have been addressed.

2.0 LITERATURE REVIEW

2.1 Conceptual Framework

Tourism as defined by Hunziker and Krapf (1942) is the totality of relationships and phenomena that arises from the stay of strangers, where they stay does not refer to the establishment of a permanent residence and has no connection with remunerated activities. The definition necessarily conveys the essential nature of tourism arising out of a movement of people, and their stay in various destinations. Development of any form will bring with it varying impacts on the social, economic and physical environment in which it takes place. Mathieson & Wall (1982) talked about tourism as a temporary movement to destinations outside the normal home and workplace, the activities undertaken during the stay and the facilities created to cater for the needs of tourists. The definition emphasizes two important elements, that is, journey to the destination and a stay which should be temporary. The definition covers international travel, not long-term stay or permanent migration. International tourism however, involves people travelling to different countries and crossing international boundaries whilst domestic tourism refers to travelling within their own countries (Ministry of Tourism, 1998).

Morgan et al. (2002) point out that 70% of all tourists visit the ten world tourist destinations, leaving the rest of the world sharing the remaining 30% of tourists. This indicates the intensity of competition for the other less known destinations. For the tourism industry to be a profitable industry now and in the long term, its development and management should be according to a new competitiveness paradigm (Ritchie and Crouch, 1993). Competitiveness is now widely accepted as the most important factor determining the long term success of the organizations, industries, regions and countries (Kazak and Rimmington, 1999). In the past it was believed that it was enough to have only the tourists and attractive exchange rate for them to compete and be successful in the international tourism industry.

“Competitive strategy is the search for a favourable competitive position in an industry. It aims to establish profitable and sustainable position against the forces that determine industry competition” (Porter, 1985). The search for the forces and factors that determine the competitiveness of the tourism industry is an area that has not been fully explored (Dwyer et al. 2003). In tourism context, the concept of competitiveness has been applied to different settings. Various authors have linked competitiveness to economics, marketing and strategic perspectives, price, quality and satisfaction.

A destination can be said to be competitive if its market share, measured by visitor numbers and financial returns are increasing. This approach supports the widely held view that competitiveness should be linked to high visitor numbers and increasing destination income. Studies have shown that growth in tourism often crowds out other economic activities; hence tourism simply replaces the industries that have been there before. To other researchers, destination competitiveness is linked to the economic prosperity of the residents of the country. Due to the multifaceted nature of tourism industry and the diversity of the industries that are involved in making destinations competitive, it is important to look beyond inter firm rivalry. Destination competitiveness should be associated with the ability to deliver an experience that is more satisfying than that offered by other destinations.

The attractiveness of a destination reflects the feelings and opinion of its visitors about the destination's perceived ability to satisfy their needs. The more a destination is able to meet the needs of the tourists, the more it is perceived to be attractive and the more the destination is likely to be chosen. Mayo and Jarvis (1980), define attractiveness as, “the perceived ability of the destination to deliver individual benefits”. This ability is enhanced by the attribute of a destination. The importance of this attributes help people to evaluate the attractiveness of a destination and make relevant choice. Attractiveness of a tourist destination encourages people to visit and spend time at the destination. Therefore, the major value of destination attractiveness is the pulling effect it has on tourist. Without attractiveness, tourism does not exist and there could be little or no need for tourist facilities and service. It is only when people are attracted to a destination that facilities and services follow (Ferrario, 1979). Development of any form will bring with it varying impacts on the social, economic and physical environment in which it takes place. There are two schools of thoughts on this issue. The first school of thought is of the opinion that tourism brings to bear a negative impact on the community in which it is operated. In 1990, Francillon in his opinion concluded that promotion of tourism can lead to ‘cultural pollution’. Thus the direct interaction of the local population and tourists can bring change in behaviour and values.

The negative socio-cultural impact of tourism is counteracted by the second school of thought which McKean (1973) and McTaggart (1980) belong. According to these authors, tourism can help stimulate interest in and conserve aspects of the culture heritage which aids in the preservation of ancient monument, historic building and sites traditional arts and crafts.

2.2 Theoretical Literature

2.2.1 The Tourism Led-Growth Hypothesis.

The Tourism-Led Growth Hypothesis (TLGH) asserts that growth in tourism in a nation promotes economic growth in the country. Indeed, the debate whether or not countries should promote their tourism sector to achieve long-run economic growth is a new issue. However, there is an increasing and widely accepted belief that tourism can play a fundamental role for developing countries to achieve economic growth and development. This hypothesis is strongly supported by international organizations such as World Travel and Tourism Council (WTTC), (Corte's-Jimenez et al., 2009).

Even if, theoretically, tourism may affect the growth of a country, there is little concrete evidence to support this intuition. Economists, in fact, rarely analyzed the relationship between tourism and growth: the classical literature about economic growth takes into account many determinants of growth but not tourism. The few recent studies that analyzed empirically the relationship between tourism and growth are very heterogeneous: they differ from each other, not only in terms of data, period of time and methodology adopted, but mainly in terms of aims. In fact, despite some more "generic" empirical works which explore tourism as possible determinant of growth (such as: Balaguer and Cantavella-Jordá, 2002 and, especially, Eugenio-Martin, Morales and Scarpa, 2004), other studies centre upon more specific aspects regarding tourism, trying to analyze, for example, if small countries specialized in tourism tend to grow faster than other countries (Lanza and Pigliaru, 1999 and, later, Brau, Lanza and Pigliaru, 2003).

A search for economic literature that can shed light on the tourism industry leads us to two distinct strands of literature. The first is the international trade literature, which is a natural starting point since tourism is essentially a form of international trade. Among the different types of international trade, perhaps the closest to tourism are other types of trade in services (financial and others). However, despite the fact that trade in services accounted in 1999 for about 20 percent of the value of all international trade, relatively little research has been done on this topic. The second strand of literature, which is closer to the current study, is the empirical tourism literature. Each strand of the literature is discussed as follows.

A review of the international trade literature uncovers a few aspects that make it unattractive for incorporating international tourism. The Heckscher-Ohlin paradigm, which is the main departure point for both the theoretical and the empirical international trade literature, explains trade flows mainly based on relative factor endowments. This approach is attractive once factors of production can be adequately approximated by a low dimensional vector (e.g. labor and capital).

For tourism, however, the most important "factors of production" are unique and hard to quantify or measure (e.g. the Whli Water falls in Ghana, the Eiffel Tower, the Table Mountains of South Africa, the Pyramids, or nice beaches). This makes the exercise of explaining cross-sectional tourism flows around the world not theoretically appealing. The ability of the Whli Water fall to attract tourists is best measured by the number of tourists who visit it. A more interesting line of research when dealing with tourism is investigating the effects of variables that vary over time on tourism demand.

For example, since in international tourism, as in some other types of trade in services, the exporting country supplies itself and not only its products, tourism flows are more sensitive to such factors as ethnic tensions and external conflicts. These are usually overlooked in standard trade models.

As in the export-led growth hypothesis, a tourism-led growth hypothesis (Empirical tourism literature) would postulate the existence of various arguments for which tourism would become a main determinant of overall long-run economic growth. In a more traditional sense it should be argued that tourism brings in foreign exchange, which can be used to import capital goods in order to produce goods and services leading in turn to economic growth (McKinnon, 1964).

Tourist growth provides a remarkable part of the necessary financing for the country to import more products than to export ones. If those imports are capital goods or basic inputs for producing goods

in any area of the economy, then it can be said that earnings from tourism are playing a fundamental role in economic development.

Furthermore, international tourism would contribute to an income increase as the export-led growth hypothesis postulates, by enhancing efficiency through competition between local firms with the ones corresponding to the other international tourist destinations, Bhagwati and Srinivasan, (1979), Krueger (1980), and facilitating the exploitation of scale economies in local level Helpman and Krugman, (1985).

2.3 Empirical Literature

Despite the fact that tourism industry is, nowadays, of major importance for the world economy and that for many countries is one of the largest single employer and exporting services sector, economists have paid little attention to the empirical examination of possible contributions of this sector to a country's economy as Papatheodorou (1999) argues in his paper. Hazari and Ng (1993) examining the relationship between tourism and welfare showed that tourism may be welfare reducing in a monopoly power, while Hazari and Kaur (1995) argued that tourism is always welfare improving using a Komiya (1967) type first-best model. More recently, Hazari and Sgro (1995) developed a dynamic model in which a favourable impact of a buoyant world demand for tourism would have a positive effect on the long-run growth of a small open economy. This favourable impact is generated by tourism behaviour as a time saving device, which allows domestic population to consume today more than in the future, due to the requirement of a lower saving rate.

In Turkey, Tosun (1999), Guduz and Hatemi (2005) and Zortuk (2009) have found empirical support for the Tourism-Led growth hypothesis.

Balaguer and Cantavella – Jorda (2002), using Spain's economic data, examine the role of tourism's long-run economic development. The hypothesis of tourism-led growth was confirmed by applying cointegration and causality tests.

Balaguer and Cantavella-Jorda (2002) examined the role of tourism in Spanish long-run economic development and tested tourism-led growth hypothesis in their study. Using quarterly data for the period from 1975 to 1997 and Granger Causality test, concluded that economic growth has been sensitive to persistent expansion of international tourism. Driksakis (2004) shows that tourism has a long-run economic growth effect for Greece.

Eugenio-Martin et al. (2004) investigate the relationship between tourism and economic growth for Latin American countries from 1985 through 1998. The empirical results show that tourism development can contribute to the economic growth of medium or low-income countries, while such a role is unclear for developed countries.

Skerritt and Huybers (2005) investigated the effect of International Tourism on Gross Domestic Product (GDP) per capita of 37 developing countries. Their results indicate that tourism positively affect economic development in these countries.

Khalil et al. (2007) examined the role of tourism in economic growth of Pakistan. Using annual data for the period from 1960 to 2005, they identified empirically whether there is a unidirectional or bidirectional causal relation between tourism and economic growth. Using the concepts and methods of the cointegration and Granger Causality Test, their study explored the short-term dynamic relations as well as long-run equilibrium conditions and concluded about the existence of cointegration between tourism and economic growth in Pakistan.

Fayissa, Nsiah and Tadasse (2007) examined the impact of Tourism on Economic Growth and Development in Africa. Using a panel data of 42 African countries for the period 1995 to 2004, the study explored the potential contribution of tourism to economic growth and development with the conventional

neoclassical framework. The results of the study showed that receipts from the tourism industry significantly contribute both to the current level of gross domestic product and the economic growth of Sub-Saharan African countries as do investments in physical and human capital. They concluded that African economies could enhance their short-run economic growth by strategically strengthening their tourism industries.

Lee and Chang (2008) reached the conclusion that there is unidirectional relationship running from tourism toward growth for OECD countries whereas a bidirectional causality relationship exists for non-OECD countries.

Kreishan (2010) examined the causality relations between tourism earnings and economic growth (GDP) for Jordan, using annual data covering the period 1970-2009. Developed time -series techniques such as Augmented Dickey-Fuller (ADF) test for unit root, Johansen and Juselius (JJ) test for cointegration and Granger Causality test for causal relationship were employed. The findings of the study showed that there is a positive relationship between tourism development and economic development in the long-run. However the Granger causality test results revealed the presence of unidirectional causality from tourism earnings to economic growth.

Gautam (2011) examined the effect of tourism development on economic growth in Nepal. Using data based on Nepalese foreign exchange earnings from tourism and gross domestic product for the period between 1974/75 and 2009 /10, he specified a statistical model. Cointegration test has been done for ascertaining long-run relationship and error correction method for short run dynamics. Granger Causality test was applied to determine causality between the two variables. The empirical results confirm the conventional wisdom that tourism development (increased tourism receipts) causes economic growth in both the short and long-run.

With respect to Ghana, we have the following studies: Hoff et.al, (1974) suggested that every effort to make it easy for tourists to travel to and out of Ghana without red-tape must be made, and simple, easy to obtain visas must be given on the spot by consultants abroad.

Teye (1998) talks about the challenges facing the tourism industry in Ghana. He made the point of the lack of human resources capacity needed to implement an ambitious national tourism development Plan and the financing of the plan with respect to general infrastructure and tourism facilities.

Nkrumah (1999) in his research of the role of tourism in rural development in Ghana, recommended the promotion of tourism by employing promotional strategies through regular advert by the mass media, a periodic tourism fair and mounting bill boards displaying some attraction centres at vantage points.

Bank of Ghana (2007) undertook a study on the tourism industry and the Ghanaian economy. A field survey was conducted at selected tourist sites, and operators as well as tourists were consulted to ascertain their views on specific policy areas relating to the growth of the industry. The study revealed among others that Ghana has vast tourism potentials both in terms of natural features and her rich cultural heritage to make tourism a booming sector of the country's economy. The study also recommended improved quality and adequate provision of the following: access roads, reception centres, trained tour guides, wash room and toilet facilities, accommodation and lodging facilities, restaurant facilities, potable water and electricity, transportation, ICT facilities, sanitation, security and proper management of sites.

It is noted from the review of the empirical literature that little or no study has been done on the effect of tourism earnings on economic growth in Ghana as in Nepal, Jordan and other countries. This therefore necessitates the current study to fill this gap.

2.4 Overview of the Tourism Industry in Ghana.

2.4.1 *Tourism Development, Attractions and Receipts*

Formerly called the 'Gold Coast' of Africa, Ghana lies along the Gulf of Guinea. Its tremendous culture and friendly people make it the favourite destination for various international tourists. The country also has tremendous resources for tourism development as well. During the 1960s, immediately after independence, tourism was not fully encouraged by the Nkrumah government, because it was viewed as another form of imperialism or 'neo-colonialism'. A number of domestically sponsored projects were carried out focusing basically on tourism impact assessment.

The first major step in the formal development of tourism in Ghana was an evaluation of the country's tourism resources in 1970 (Obuarn Committee, 1972) the aim was to categorize tourism resources and potential for a five-year development plan for the period 1972-1976. The then government issued a white paper on tourism which included concession and incentives for investors. However, later, there was the need to formulate a more comprehensive national tourism development plan to guide long-term sustainable development. This led to the 25 year tourism development plan that intended to guide tourism planning for the period 1975-1990 with assistance from the Danish Government (Hoff and Overgaard, 1974). By the plan, various projections were made, such as average annual growth rate of 12.5% and international tourist arrival increasing from 64,000 to 357,000 a year by the end of the plan. The plan unfortunately never came into being because of the political economy at that time, and the subsequent decade of political instability (Teye, 1988).

Ghana moved up from seventeenth in 1985 to the eighth position in 1998 among the top 20 leading tourism revenue-earners in Africa (WTO, 1999). International tourism arrivals in Ghana have increased steadily from 113,784 in 1988 to 347,952 in 1998, and 931,224 in 2010 at an annual average growth rate of about 20%. This makes tourism in Ghana rank third behind mineral and cocoa export. The Ministry of Tourism is responsible for the development of tourism sub-sector through its implementing agency, the Ghana Tourist Board (GTB) playing the role of a National Authority or body on tourism. The Ghana Tourist Federation (GHATOF) helps in putting together various private associations and groups in the sector by providing the basis for a public private partnership. The Ministry, upon the recognition of the potential of the tourism sector sought the assistance of the World Tourism Organisation (WTO) and the United Nation Tourism Development Programme (UNDP) to produce the National Tourism Development Plan (1996-2010). The goal of the Plan is to strengthen Ghana's status as an internationally competitive tourist destination.

Ghana still has the over 26 Castles and Forts built between the 14th and 18th centuries by the major European powers such as the Portuguese, Danes, Dutch and Germans. Ghana has therefore the privilege of being few of the countries in the World where World heritage sites occur. The Cape Coast and Elmina Castles have been major holding centres and exit points for African bound for the Americans during the infamous Trans - Atlantic slave trade. Furthermore, Ghana has beautiful beaches in the Greater Accra, Central and Western Regions. Some major beach destinations include Gomoa Fetteh, Elmina and Busua beaches. Also the lake Volta estuary is an area of great scenic beauty with its open beaches and picnic spots shaded by palm tress. Ghana also has scenic waterfalls in attractive rural and forest areas such as the Whli waterfalls, Boti and Kintampo waterfalls.

The country can also boast of one of the few canopy rope walks in the world which is the Kakum National Park. It has a canopy walk way for obtaining a panoramic view of a tropical rain forest, elephants, monkeys and other tropical species. There is also a Hippo Sanctuary in the Wechi community which the Earth Watch Institute recently voted as the third best conservation site in the World. Ghana Invested Promotion Centre (GIPC, 2000). The hippo sanctuary by the end of 2007 had total arrivals of

both residents and non – residents of 1,856 resulting in a total revenue of GH¢11,725.30 – (Ghana Tourist Board, 2002). Exotic wet lands, crocodile ponds, wildlife parks and scenic mountains are some of Ghana's natural heritage sites. Furthermore, events such as the Pan African Historical Theatre Festival (PANAFEST) and Emancipation Day celebration attract a significant number of tourists and also being hosted for various trade and exhibitions such as ECOWAS trade fair. Ghana Industry and Technology Exhibition (INDUTECH) Ghana Industry and Furniture Exhibition (GIFEX) bring a lot of tourist to the country.

Ghana currently has a tremendous combination of cultural events, such as eco-tourism sites and other recreational and leisure activities. Recently, attention has been given to Ghana's tourism through activities such as the transatlantic slave trade project and the Joseph project, making Ghana the gateway to West Africa.

The Ministry of Tourism and Modernization of Capital City took a number of measures to promote tourism in 2003. To encourage domestic tourism, a cross section of Ghanaians numbering over 150 was taken to Boabeng – Fiema and Kintampo in the Brong Ahafo region to sample the immense potential of Ghana's tourism. A Tourism Press Conference comprising media personnel and Writers on tourism was set up to help promote the industry and a publicly owned hotel was released for use as a tendering hotel (ISSER 2003). Since 2004, the Paragliding festival at Kwahu is gaining wide patronage from International and local tourists yearly (every Easter time).

In comparison to other destinations, Ghana is a safe and peaceful country for tourists. Apart from boasting of a stable political environment, crime rate is averagely low. Tourism arrivals have been on the increase with an annual average growth of 20.5% between 1988 to 2010. Tourist arrivals by the end of 2007 were 586,612, increasing by 18 percent from the previous year, and reaching 931,224 in 2010.

Considering the increasing number of tourist arrivals in Ghana, it is not surprising that receipts obtained from International Tourist Arrivals have more than doubled since 2005 (ISSER, 2011). In 2005, the amount of receipts from international arrivals was USD836.09 million, compared to USD1875.00 million in 2010. Similarly employment in the tourism sub-sector has been on the increase. These phenomena would likely have a good impact on the growth of the Ghanaian economy. Table 1 spells out the various purposes by which International Tourists arrive in Ghana for 2005 and 2006.

Table 1: International arrivals, by purpose of visit, 2005-2006

Purpose of visit	2005	%	2006	%
Business	92,840	22.1	108,473	22
Conference/meetings	36,687	8.6	39,661	8
Study/training	28,707	6.6	41,125	8
Visit family/friends	113,839	26.5	125,388	25
Medicals	4,308	1	5,429	1
Holiday	83,030	19	98,555	20
Transit	48,662	11.4	52,913	11
Others	20,460	4.8	25,585	5
Total	428,533	100	497,129	100

Source: Ghana Tourist Board 2010

From Table 1, the three main top ranking purposes for which International tourists come to Ghana are (a) Visit family and friends (25%) (b) Business (22%) and (c) Holidays (20%).

The growth of tourism has brought expansion of activities in the hotel sector. The number of hotels endorsed and incensed by the Ghana Tourist Board has been on the increase. Hence the number of hotel rooms and beds has also been on the ascendancy (see Table 2).

Table 2: Trends in hotel accommodation – number of rooms and beds, 2004 - 2010

Year	No. of Hotels	No. of Rooms	No. of Beds
2004	1315	18079	23538
2005	1345	18752	23924
2006	1427	22835	27839
2007	1432	20788	26057
2008	1595	24410	29645
2009	1775	26047	31702
2010	1797	27873	34058

Source: Ghana Tourist Board, 2010

3.0 METHODOLOGY

3.1 Specification of the Model

To examine the cointegration and causality relations between tourism earnings and economic growth, a simple regression model was specified. The model specified here follows closely Gautam (2011) specification. In order to get the correct functional form and to eliminate heteroscedasticity, the variables were transformed into their logarithm (L) form:

$$LRY_t = \alpha_0 + \alpha_1 LRTE_t + u_t \quad (1)$$

where, LRY represents the logarithm of real GDP at time t, LRTE refers to the logarithm of real tourism earnings at time t, u is the error term and t indicates the time period.

3.2 Stationarity Test

First of all, unit root test has been carried out to each series individually in order to provide information about the data being stationary. Non-stationary data contain unit root. The existence of unit root makes the results of hypothesis test unreliable as it creates the problem of spurious parameter estimates. There are various methods of unit roots such as Dickey Fuller (DF) and Augmented Dickey-Fuller Test (ADF). The Augmented Dickey-Fuller Test (ADF) has been applied to test for the existence of unit root and to determine the degree of differences in order to obtain the stationary series of LRY and LRTE. The test is more robust than the DF test. After that, the Johansen Cointegration test was applied.

3.3 Cointegration Test

Johansen's methodology takes its starting point in the vector autoregression (VAR) of order p given by $\mathbf{y}_t = \boldsymbol{\mu}_t + \mathbf{A}_1 \mathbf{y}_{t-1} + \dots + \mathbf{A}_p \mathbf{y}_{t-p} + \boldsymbol{\varepsilon}_t$ where \mathbf{y}_t is an $n \times 1$ vector of variables that are integrated of order one – commonly denoted $I(1)$ – and $\boldsymbol{\varepsilon}_t$ is an $n \times 1$ vector of innovations. This VAR can be re-written as:

$$\Delta \mathbf{y}_t = \sum_{i=1}^{p-1} \Gamma_i \Delta \mathbf{y}_{t-i} + \Pi \mathbf{y}_{t-p} + \boldsymbol{\mu}_t + \boldsymbol{\varepsilon}_t \quad (2)$$

Where,

$$\Pi = \sum_{i=1}^p A_i - \text{and } \Gamma_t = - \sum_{j=i+1}^p A_j$$

In this test, the null hypothesis of r co-integrating vectors is tested against the alternative of $r+1$ co-integrating vectors. Thus, the null hypothesis $r = 0$ is tested against the alternative that $r = 1$ against the alternative $r = 2$, and so forth. Johansen proposes two different likelihood ratio tests of the significance of these canonical correlations and thereby the reduced rank of the Π matrix: the trace test and maximum eigenvalue test, as follows:

$$J_{trace} \left(\frac{r}{p} \right) = -T \sum_{i=r+1}^n \ln(1 - \lambda_i^2) \quad (3)$$

$$J_{max} \left(\frac{r}{p} + 1 \right) = -T \ln(1 - \lambda_{r+1}^2) \quad (4)$$

Where, T is the sample size and λ_i is the i :th largest canonical correlation. It is also to note that the co-integration tests are very sensitive to the choice of lag length. Following Cartavella-Jorda and Shamin and et. al. 2002 after confirmation of the existence of co-integration between the variables in the equation, the Granger Causality test was performed.

3.4 Granger Causality Test

The traditional practice in testing the direction of causation between two variables is the Granger causality test. According to Granger, X causes Y if the past values of X can be used to predict Y more accurately than simply using the past values of Y. In other words, if a past value of X improves the prediction of Y with statistical significance, then we can conclude that X "Granger Causes" Y. The Granger causality test consists of estimating the following equations:

$$LYR_t = \beta_0 + \sum_{i=1}^n \beta_{1i} LRY_{t-i} + \sum_{i=1}^n \beta_{2i} LRTE_{t-i} + U_t \quad (5)$$

$$LRTE_t = \alpha_0 + \sum_{i=1}^n \alpha_{1i} LRTE_{t-i} + \sum_{i=1}^n \alpha_{2i} LRY_{t-i} + V_t \quad (6)$$

Where U_t and V_t are uncorrelated and white noise error term series. Causality may be determined by estimating Equations (5) and (6) and testing the null hypothesis that $\sum_{i=1}^n \beta_{1i} = 0$ and $\sum_{i=1}^n \alpha_{1i} = 0$ against the alternative hypothesis that $\sum_{i=1}^n \beta_{1i} \neq 0$ and $\sum_{i=1}^n \alpha_{1i} \neq 0$ for equations (5) and (6) respectively. If the coefficient of α_{1i} is statistically significant but β_{1i} is not statistically significant, then LRY is said to have been caused by LRTE (unidirectional). The reverse causality holds if coefficients of β_{1i} are statistically significant while α_{1i} is not. But if both β_{1i} and α_{1i} are statistically significant, then causality runs both ways (bi-directional).

3.6 Estimation Techniques

The Johansen's multivariate cointegration technique was used in estimating the models. This technique is more powerful than single equation estimation techniques. The estimation software was Microfit Version 4.0.

3.7 Data Sources and Measurement

The secondary data used are time series data on the entire variable from 1985 to 2010. They were obtained from the following sources:

- Bank of Ghana Bulletins
- The State of the Ghanaian Economy, published by ISSER (various issues)
- Quarterly Digest of Statistics published by the statistical Service of Ghana

The above sources are the main sources where reliable data are gathered for any research project on Ghana. Since there are no quarterly series on some of the variables such as GDP, the annual series was used for all the variables. The income variable (Y) proxied by GDP was measured in millions of Ghana Cedis, while the tourism earnings variable was measured in millions of United States Dollars (but was converted into Ghanaian Cedis). The Consumer Price Index (CPI) deflator was used to transform the nominal values to real values.

4.0 EMPIRICAL ANALYSIS

4.1 Stationarity Test Results

The Augmented Dickey-Fuller (1979) test results are shown in Tables 3 and 4 as follows:

Table 3: Unit root test for the variables at the levels.

Variables	Lag Length	Test statistic	ADF 95% Critical Value	Order of Integration	Status
LRY	1	-1.7531	-3.6119	1(1)	Non-stationary
LRTE	1	-2.4396	-2.9907	1(1)	Non-stationary

Table 4: Unit root test at first differences

Variables	Lag Length	Test Statistic	ADF 95% Critical Value	Order of Integration	Status
Δ LRY	1	-4.0541	-3.6219	I(0)	Stationary
Δ LRTE	1	-5.7130	-3.6219	I(0)	Stationary

The results above indicate that all the variables are non-stationary at the levels. They have unit roots of I(1), and so had to be differenced once to achieve stationarity.

4.2 Cointegration Test Results.

The long-run Cointegration results based on the Johansen's approach are shown in Table 5.

Table 5. Johansen's cointegration test

Null Hypothesis	Alternative Hypothesis	Maximal Eigenvalue	Critical Values 95% Max	Trace Tests	Critical Values 95% Trace
$r=0$	$r=1$	20.1866*	15.8700	26.0650*	20.1800
$r \leq 0$	$r=2$	5.8783	9.1600	5.8783	9.1600

Notes: r stands for the number of cointegrating vectors. (*) indicates significance at 5% level.

From Table 5 it is seen that both Maximal Eigenvalue and Trace tests confirm the existence of cointegration between economic growth and tourism earnings in the long-run in Ghana. Both test statistics are statistically significant revealing a cointegration rank or vector of one. In this regard, the stated first null hypothesis of no cointegration between the two variables is rejected.

4.3 Granger Causality Test

The existence of a cointegration vector does not give any information on the causality relationship among the variables; thus, causality test would have to be performed. According to Engle (1987) and Granger (1988) if two time-series variables are cointegrated, then at least one directional Granger-causation exists. Thus, to answer the question regarding the direction of causation, the Granger causality tests were performed. Given the results of our cointegration tests, that both series of economic growth and tourism earnings are cointegrated of same order (1, 1), a VAR model was constructed in terms of the levels of the data.

Table 6 reports the statistical analysis of the causal relationships between LRY and LRTE for Ghana. Both hypotheses were tested by a standard Likelihood Ratio test. The optimal lag was selected with the smallest values of Akaike Information Criteria (AIC) and Schwarz Bayesian Criteria (SBC).

Table 6: Granger causality tests

Hypothesis	Optimal lag	LR-test	Conclusion
Null: LRY does not Granger cause LRTE	2	CHSQ(2) = 12.8082(0.002)*	LRY \Rightarrow LRTE
Null: LRTE does not Granger cause LRY	2	CHSQ(2) = 0.52139(0.771)	LRTE \nRightarrow LRY

* Significant at 99% confidence level

\Rightarrow Direction of causation

\nRightarrow No causation

The results shown in Table 6 suggest that the causality does not run from tourism earnings to economic growth but causality does run from economic growth (LRY) to growth of tourism earnings (LRTE). This indicated that there is uni-directional causality between economic growth and tourism earnings in Ghana during the study period. In other words, expansion in economic growth in Ghana serves as an engine of growth for tourism earnings in the country. In this regard, the stated second research hypothesis of no causal relationship between economic growth and tourism earning in Ghana is rejected.

5.0 CONCLUSIONS

5.1 Summary

The study sets out to examine the cointegration and causality relations between tourism earnings and economic growth in the long-run in Ghana during the period 1985 to 2010. Both theoretical and empirical literature on the topic was thoroughly reviewed. A thorough overview of the tourism industry in Ghana was also done. In line with the objective of the study, a simple regression model was specified with economic growth as the dependent variable and earnings from tourism as the independent variable. The relevant time series techniques were used for the analysis. These included Augmented Dickey- Fuller test for unit root, Johansen and Juselius cointegration test and Granger Causality test for causal relationships.

The findings of the study revealed that there is a long-run cointegration and a positive relationship between economic growth and tourism earnings in Ghana. Furthermore, the Granger causality test results revealed the presence of unidirectional causality from economic growth to tourism earnings to economic

growth in the long-run in the country. In general, the study appears not to support Tourism Led-growth (TLG) hypothesis, revealed by Gautam (2009), and Kreishan (2010) among others.

5.2 Policy Implications

The main policy implications of the study are that the government should focus on economic growth policies to promote international tourism as a potential source of high tourism earnings Ghana. The promotion of economic growth via developing a long-term economic strategic plan will contribute to tourism earning in Ghana. Achieving macroeconomic stability (low inflation rates) boosting savings and investment levels are therefore necessary to speed up the level of economic growth in Ghana.

5.3 Limitations of the Study

Lack of quarterly data on the two variables necessitated the researcher to fall on annual time series data with a few data points. Perhaps the use of quarterly data with many data points could improve the conclusions of this study.

6.0 FURTHER RESEARCH DIRECTION.

It may be a useful exercise to research into the microeconomic impact of International tourist arrivals on the level of household incomes in Ghana, as well as the socio-cultural effect. Similarly, an empirical study on the determinants of tourism earnings in Ghana would be worthwhile.

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