# A DYNAMIC PANEL ANALYSIS OF THE EFFECTS OF INTERNATIONAL TOURISM EXPORTS ON AFRICAN ECONOMIC GROWTH

**BY**

**KAREEM, OLAYINKA IDOWU**
**Department of Economics,**
**University of Ibadan,**
**Ibadan, Nigeria.**

**Email: olayinkaidowuus@yahoo.com**
**olayinkaidowuus@gmail.com**
**nobilityresearch@yahoo.com**
**GSM: 2348055677538**

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## TOURISM – EXPORTS AND ECONOMIC GROWTH IN AFRICA

### I. Problem Statement

Tourism has continued driving itself onto the radar of developing countries' policy makers. The growth of tourism has been sustained at 7-12% per year in most developing countries in the last five years (ODI, 2007). At the local and international level, it is being seen as an impetus to sustained growth and development, and no longer as a generator of foreign exchange. It is often included in more than 80% of low income counties Poverty Reduction Strategies (ODI, Ibid). However, practical action to harness tourism for sustained growth and development is being hindered by the elusive nature of the evidence on pro-poor impact, and the policy void on tourism that exists in many donor and financing organisations.

Tourism generates a vital amount of foreign exchange earning that also contributes to the sustainable economic growth and development of developed world. However, such component of growth has not been effectively and appropriately utilized by African countries. World Tourism Organisation (2008) report shown that in 2007, about $856 billion was generated from 908 million of tourists (excluding transport). In the same year, the share of Africa in global tourist arrivals was about 5% (about 45 million tourists), which is a positive figure compared to what she obtained in 2005 (which 33 million tourists or 4.3%).

Tourism's contribution to economic growth and development could be seen from its exports, and this according to WTO (2006) represents over 40% of all services exports, which puts it as the highest category of global trade. WTO (2005) estimates put tourism to have accounted for 3% to 10% of the GDP in the developing world. Thus, we find it not surprising that tourism has become a viable export-oriented economic growth strategy for the creation of employment and the reduction

of abject poverty. However, despite the popularity and increasing importance of tourism among continents of the world and particularly Africa, it has attracted relatively low attention in the economic development literature. Many studies that examined cross-country growth rates and development were often focused on the contributions of exports from either agriculture or manufacturing sectors, rather than those of the services sector of the economy. Even the little literature that focuses on service sector and more specifically on the tourism sector in developing countries are mainly concerned with the estimation and forecasting of tourism demand and income generation via the multiplier process (Sinclair, 1999; Naude and Saayman, 2004; Bezmen, 2006; Odularu and Kareem, 2007, Kareem, 2008b). It is against this background that we intend to know whether tourism exports drive growth in Africa, and to ascertain if tourism exports could accelerate long run economic growth.

## II. Justification

Tourism has become one of the most significant export sectors in many developing countries, especially in the least developed countries. This sector provides a large number of jobs because it is labour intensive. According to ODI (2007), tourism has accounted to equivalent to around 2-6% of jobs in Africa and these include jobs for the women (around 50% of the workforce), unskilled and informal sector workers.

Empirical evidence in some micro studies have shown that income flows and other net benefits to participants at enterprise level, especially where pro-poor tourism initiatives are put in place to assist micro entrepreneurs gain market access to many markets.

Tourists often demand in their destinations, these four main goods and services: accommodation, food, transportation facilities and entertainment services. In order to satisfy these demands, many of the developing countries need to increase their current level of production, which provides two positive effects on their economy. First, increased production that will ultimately improve the income level. Second, given the fact that tourism sector is labour intensive, it will therefore reduce the level of unemployment and thereby alleviate the extent of poverty in the economy of these regions. This is highly important in the case of regions with high rates of unemployment, low level of per capital GDP, one source of foreign exchange earning and export products facing difficulties in competing internationally.

Furthermore, one of the main factors to economic growth in Africa is the export of additional commodities, which have minor or no domestic demand. This means that Africa is a poor continent due to the fact that her range of commodities for export is very low and not necessarily because of trade restrictions in the developed countries.

It is as a result of this that a lot of efforts have been put in place by many African countries to diversify their economies and to increase their export commodities in international markets through the promotion and enhancement of export through tourism sector. It has also been seen that for adequate and appropriate development of the rural as well as the urban areas of the continent, the promotion of tourism export through the provision of necessary facilities at the tourism sites is inevitable. Given this, we find it worthwhile investigating whether tourism exports in Africa has the potential of translating to economic growth.

Following the review of empirical literature on tourism-export led growth hypothesis, we discovered that most of the studies did not evaluate the long run

relationship as well as the direction of causality between tourism and economic growth, but rather they show the effect of tourism exports on economic growth. Eugenio-Martin, Morales and Scarpa (2004) consider the effect of tourism on economic growth in Latin American countries from 1985 to 1998 using Arrelano-Bond dynamic panel estimation technique. Also, Sequeira and Campos (2005) examine the relationship between international tourism exports and economic growth using a panel data approach. Ledo and Iglesians (2007) evaluate the relationship between tourism activities and local development in the Spanish Urban Settlement using a time series analysis. Further, Fayissa, Nsiah and Tadasse (2007) examine the effect of tourism on economic growth in sub-Saharan African countries with the application of dynamic panel data analysis. Thus, it is as a result of this explicit gap in the literature that we intend to fill with the use of panel granger causality approach in determining the direction of causality between tourism and economic growth in Africa.

Furthermore, after perusing through the literature, we find out that there is a gap in establishing the long run relationship between tourism-exports and economic growth, especially at the panel data level. Balaguer and Cantavella-Jorda (2000) evaluate the role of tourism in the long run economic development of Spain using Johansen time series cointegration approach. One can understand the reason most studies have not used panel cointegration approach because it is relatively new in panel data analysis. It is as a result of this that this study tends to establish the long run relationship between tourism-exports and economic growth in Africa. Therefore, the establishment of the direction of causality and the long run relationship in the tourism-export led growth hypothesis would serve as our major contributions to the existing literature and specifically in trade in service literature.

## III. Tourism in Africa

Tourism is one of the major global economic activities. Tourism is said to be an important ingredient for economic development through its impact on employment generation, enhancement of infrastructure provision, generation of income taxes, exports and by acceleration global peace (Eilat and Einav, 2004). According to Sinclair (1999), the contribution of tourism to development is well documented and tourism is now among the fastest growing industries in the world. Competition among destinations has intensified to attract more and more tourists.

Tourism growth has been impressive in recent years and this has shown in the number of tourism arrivals in all countries that increased from 25.3 million in 1950 to 69.3 million in 1960 and later to 165.8 million in 1970. Despite the drag in the growth rate of tourist arrivals since 1970, world tourist arrival multiplied by a factor of about 27 between 1950 and 2000 (see table 1). Thus, from 25.3 million in 1950, international tourist arrivals reached 924.0 million in 2008. In terms of global tourism receipts, the world witnessed an increase in tourism receipt from US$2.1billion in 1950 to US$17.9billion in 1970 and later rose to US$106.5 billion in 1980. Due to more and more arrivals in the world and with their accompany expenditure, international tourism receipts increased from US$105 billion in 1980 to US$479.2 billion twenty years after. This increasing trend continues till 2007, where the total global tourism receipts amounted to US$866.0billion. Thus, tourism is one of the most flourishing sectors in the world given that its global receipt have grown by 12 per cent over the last ten years (Durbarry, 2001). This has led to the case where many countries are setting targets in attempts to gain the additional income, foreign currency, employment and tax revenue that the sector can provide.

It is as a result of this that many African countries have started tapping the potentialities that is embedded in tourism and hospitalities. According to Kester (2003), tourism has the potential to contribute significantly to economic growth and development in Africa. Naude and Saayman (2004) opined that Africa's cultural and natural resource endowment are such that it ought to be benefiting largely from tourism, while Christie and Crompton (2001) believe that African has "exceptional" tourism potentials and that it is increasingly contributing to the continent's gross domestic products (GDP) and exports.

**Table 1: International Tourism Arrivals, 1950-2008 (million)**

| Year | World | Africa | America | Asia & Pacific | Europe | Middle East |
|---|---|---|---|---|---|---|
| 1950 | 25.3 | 0.5 | 7.5 | 0.2 | 16.8 | 0.2 |
| 1960 | 69.3 | 0.8 | 16.7 | 0.9 | 50.4 | 0.6 |
| 1970 | 165.8 | 2.4 | 42.3 | 6.2 | 113.0 | 1.9 |
| 1980 | 278.2 | 7.3 | 62.3 | 23.6 | 117.5 | 7.5 |
| 1990 | 441.0 | 15.2 | 92.8 | 57.7 | 265.3 | 10.0 |
| 2000 | 680.6 | 28.2 | 128.2 | 114.9 | 384.1 | 25.2 |
| 2001 | 680.4 | 28.9 | 122.1 | 120.7 | 383.8 | 25.0 |
| 2002 | 700.4 | 29.5 | 116.6 | 131.1 | 394.0 | 29.2 |
| 2003 | 689.7 | 30.8 | 113.1 | 119.3 | 396.6 | 30.0 |
| 2004 | 763.2 | 33.2 | 125.8 | 152.5 | 1416.4 | 35.4 |
| 2005 | 803.0 | 37.3 | 133.9 | 155.3 | 438.7 | 38.3 |
| 2006 | 846.0 | 40.7 | 135.9 | 167.2 | 460.8 | 41.8 |
| 2007 | 908.0 | 44.9 | 142.5 | 185.4 | 488.0 | 47.5 |
| 2008 | 924.0 | 46.9 | 147.6 | 188.3 | 488.5 | 52.9 |

**Source: World Tourism Organisation World Tourism Barometer (Several Issues)**

**Table 2: International Tourism Receipt, 1950-2007 US$ (billion)**

| Year | World | Africa | America | Asia & Pacific | Europe | Middle East |
|---|---|---|---|---|---|---|
| 1950 | 2.1 | 0.1 | 1.1 | 0.04 | 0.9 | 0.03 |
| 1960 | 6.9 | 0.2 | 2.5 | 0.2 | 3.9 | 0.1 |
| 1970 | 17.9 | 0.5 | 4.8 | 1.2 | 11.0 | 0.4 |
| 1980 | 106.5 | 3.4 | 24.7 | 11.3 | 63.7 | 3.5 |
| 1990 | 273.2 | 6.4 | 69.3 | 49.7 | 145.6 | 5.1 |
| 2000 | 479.2 | 10.6 | 131.0 | 90.4 | 231.6 | 15.6 |
| 2001 | 467.0 | 11.5 | 119.8 | 93.5 | 226.7 | 15.5 |
| 2002 | 481.6 | 11.8 | 113.7 | 99.1 | 241.2 | 15.7 |
| 2003 | 524.2 | 15.5 | 114.1 | 94.9 | 282.9 | 16.8 |
| 2004 | 622.7 | 18.3 | 131.7 | 125.0 | 326.7 | 21.0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2005 | 676.0 | 21.7 | 145.2 | 134.5 | 348.8 | 26.3 |
| 2006 | 742.0 | 24.6 | 154.1 | 156.5 | 376.9 | 29.9 |
| 2007 | 866.0 | 28.3 | 171.1 | 188.9 | 433.4 | 34.2 |

**Source: World Tourism Organisation (Several Issues)**

International tourist arrivals to Africa destinations increased from just 500,000 in 1950 to over 15 million in 1990 (see table 1 above). This increase in arrivals continued, reached 28.2 million in 2000 and later rose to 46.9 million in 2008. This really shows that Africa tourist arrivals have been growing overtime. According to WTO (2003) figures, Africa tourism has grown significantly since 1990. In terms of the continent's receipts on global tourism, table 2 shows that African's receipts on international tourism rose from US$100 million in 1950 to US$3.4 billion in 1980, which later increased to US$6.4 billion in 1990. By 2000, African tourism receipts have risen to US$10.6billion and reached US$28.3 billion in 2007.

Regionally, there are differences in the performance of these regions in the continent. According to WTO figure (2003), there has been considerable improvement in tourism in Africa, especially in 1990, particularly that of southern Africa that has grown by about 300% between 1990 and 2002 (see table 3 below). However, North Africa still remains the most attractive regional destination, capturing 1.5% of the total international tourism market share (Naude and Saayman, 2004). Worth of noticing is that as the tourist arrivals in Africa increased in 2001 that of the world tourism decreased during the period. The report of WTO (2003c) indicates that there had been an increasing trend in tourism in Africa despite the SARS virus that affected the Asia counties and the war in Iraq.

Central Africa remains the least tourist arrivals destinations in the continent followed by the West African destinations. This might be due to the inadequate infrastructural facilities that are available for tourism in these destinations.

**Table 3: Africa's International Tourist Arrivals by Region**

| | 1990 | 1995 | 2000 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|---|
| **Africa** | 15,160 | 20,438 | 28,154 | 29,492 | 30,763 | 33,222 | 37,312 |
| **North Africa** | 8,398 | 7,271 | 10,202 | 10,407 | 11,092 | 12,791 | 13,312 |
| **West Africa** | 1,352 | 1,913 | 2,451 | 2,728 | 2,762 | 2,960 | 3,768 |
| **Central Africa** | 365 | 357 | 665 | 627 | 677 | 788 | 802 |
| **East Africa** | 2,842 | 4,906 | 6,600 | 6,927 | 7,251 | 7,483 | 7891 |
| **South Africa** | 2,203 | 5,991 | 8,235 | 8,804 | 8,980 | 9,199 | 11,121 |

**Source: World Tourism Organisation (2006)**

## IV. Review of the Literature

As it is in the export-led growth hypothesis, a tourism-led growth hypothesis postulates the presence of several arguments for which tourism export would become a main determinant of overall long run economic growth. Hitherto, it is argued that tourism brings in foreign exchange that can be used to import capital goods in order to produce goods and services in the economy, which in turn leads to economic growth. This means that it is possible for tourism to provide a remarkable part of the necessary development financing. If the earnings from tourism could be used to import capital goods or basic inputs for producing goods in any area of the economy, then, one can say that earnings from tourism are playing a fundamental role in economic development. Of course, given these potentials of tourism, it become obvious that non-tourist regions will also gain from it, as a result of the distribution of a country's wealth.

However, recently, it is now acknowledged that tourism could contribute to a rise in income and economic development as it is in the export-led growth hypothesis. First, it has the potential of enhancing efficiency through increased competition

among firms and other international tourism destinations (Bhagwati and Srinivasan, 1979; Krueger, 1980; Balaguer and Cantavella-Jorda, 2000), and secondly, it facilitates the exploitation of economies of scale in local firms (Helpman and Krugman, 1985).

Further, it is seen that the bulk of the tourist's expenditure is spent on the consumption of non-traded goods and services in the host country and there exist factors that can either have a positive role or an unfavourable impact on economic growth. These non-traded goods and services are not exportables in the traditional sense due to the fact that their prices are not determined in the global market, but rather in the domestic market. The consumption of these non-tradable goods and services by tourists has effect on the relative price and availability of these non-tradable goods and services for the domestic consumers.

In the literature, a lot of articles have been written on the relationship between tourism growth and welfare where tourists consume non-tradable goods and services and these studies adopt mostly static framework. In a Komiya (1963) type first-best model, tourism is always welfare improving. Also, Hazari and Ng (1993) show that in a monopoly power framework, tourism may be welfare reducing, in another article, 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 economy. This favourable impact is generated by tourism behaviour as a time-saving device that allows domestic population to consume now rather than later due to the requirement of a lower saving rate.

Balaguer and Cantavella-Jorda (2000) examine the role of tourism in the long run economic development of Spain, in which the tourist-led growth hypothesis was tested. Their result indicates that economic growth in Spain is sensitive to persistent

expansion in international tourism. The increase in this activity has produced multiplier effects over time. External competitiveness has also been seen in the model to be a fundamental variable for Spanish economic growth in the long run. From their empirical analysis, it can be inferred, the positive effect of tourism on income and adequacy of supply.

Fayissa, Nsiah and Tadesse (2007) examine the impact of tourism on economic growth and development in Africa using a panel data analysis. They discovered that tourism receipts significantly contributed to the current level of gross domestic product and the economic growth of sub-Saharan African countries as with investment in physical and human capital. Their findings indicate that African economies could enhance their short-run economic growth by strategically strengthening their tourism industry.

Eugenio – Martin, Morales and Scarpa (2004) consider the relationship between tourism and economic growth in Latin America countries from 1985 to 1998. They based their analysis on panel data approach and the Arellano-Bond estimator for dynamic panels, in which they obtained estimates of the relationship between economic growth and growth in tourist per capita conditional on main macroeconomic variables. Further, they identified that tourism sector is adequate for the economic growth of medium or low income countries, though not necessarily for developed countries. Then, they invert the causality direction of the analysis. Rather than explaining economic growth, they explained tourism arrivals conditional on GDP and other covariates such as safety, prices and education level, and investment in infrastructures. Using generalized least square AR(1) panel data model, their results indicate that low income countries seem to need adequate levels of infrastructures, education and development to attract tourists. While the middle income countries

need high levels of social development like health services and high GDP per capita levels. They conclude that price of the destination in terms of exchange rate and purchasing power parity (PPP) is irrelevant for tourism growth.

Sequeira and Campos (2005) carried out a study on the relationship between international tourism and economic growth using a panel data approach and find out that on the average, tourism-specialized countries grow more than others, but this is inconsistent with economic theory, in particular, endogenous growth theory suggests that economic growth is linked with; sectors with high intensity in research and development (R & D) and thus high productivity, and large scale economies**.** Thus, they went further in treating the endogenity problem and discovered that contrary to previous studies, tourism on its own cannot explain the higher growth rates of the tourism-specialized countries.

Ledo and Iglesias (2007) study the tourist activities and local development in the Spanish urban settlement system. They intend to find out the relationship between the function of tourism, population growth and the socio-economic development, taking into account the type of tourist activity which is dominant. They concluded that tourism is running as an urban and territorial development factor, generating significant changes in the system of settlement but it nether acts the same way nor has the same impact on all municipalities or in all cities.

Brau, Lanza and Pigliaru (2006) analysed the empirical relationship between growth, country size and tourism specialization using a dataset covering the period 1980-2003. They discovered that tourism countries grow significantly faster than all the other sub-groups considered in the analysis. Tourism appears to be an independent determining factor for growth, the reason for that is neither because they are poorer than the average, nor because they are very open to trade. They also found that small

states are fast growing only when they are highly specialized in tourism, this finding contradicting with some previous conclusions in the literature that smallness per se is not good for growth.

Cortes- Jimenez (2006) studied the importance of the tourism sector expansion at the regional level; by focusing on two of the world wide countries with respect to tourism. The study analyzed not only the effect of international tourism but also the importance of domestic markets. Apart from analyzing the Spanish and Italian regions separately and collectively, it also took into account some criteria such as geographical location of regions. The data for the study covers the period from 1990 to 2000 using a dynamic panel-data model of the Arellano-Bond (1991) and also applied the Bruno (2005) finite sample correction. The result of the analysis shows that both domestic and international tourism have a significant and positive role in regional economic growth, despite the fact that each of them becomes important in different scenario. Thus, domestic tourism is important for Spanish regions whilst international tourism is important in Italian regions. Furthermore, for the coaster regions and Mediterranean coast region, both domestic and international are important factors, whereas for internal regions, only domestic tourism is important.

Lanza and Pigliaru (2000) studied the reasons why tourism countries are small and fast growing using a cross-country data for 1985-95 on tourism specialization and economic growth. The study used two-sector endogenous growth model to obtain explanatory hypothesis. They found that many tourism countries have grown faster compared to the other countries and they are small. The study concluded that what matters is a country's endowment of the natural resources rather than its absolute size.

Cortes-Jimenez and Pulina (2006) assessed if exports and tourism have really promoted growth by means of the export-led growth hypothesis and the tourism-led

growth hypothesis. The study used Italy and Spain as the case studies because of the fact that these countries are the main developed countries in the Mediterranean area and important countries regarding the expansion of tourism. They applied cointegration technique and multivariate granger causality test. The outcome of the analysis revealed that exports cause economic growth in the long run for both countries whilst only in Spain that tourism appears as a factor that influences economic growth in the long run.

Sequeira and Campos (2005) evaluate the effect of international tourism on economic growth using a panel data analysis. They found that on average, tourism-specialized countries grow more than others. This fact is inconsistent with economic theory as in the endogenous growth theory that suggest that economic growth is linked with sectors with high intensity in research and development (R&D) and thus high productivity as well as large scale. This study concluded that tourism, on its own, cannot explain the higher growth rates of these countries.

Katircioglu (2008) empirically investigated the role of international tourism in the long run economic growth of Malta. The cointegration as well as granger causality techniques were applied as the main tool to identify the effect of tourism on growth on the Maltese long-run economic growth over the period 1980 to 2004. The result of the study reveals that tourism has a positive and elastic impact on the Maltese economy. Real exchange rates depict inelastic effect on growth of Malta. The granger causality test confirms the bidirectional causality between tourism growth and economic growth in Malta. While unidirectional causation runs from external competitiveness to tourist arrivals in Malta.

Alper, Muhittin and Ferit (2008) studied the supply side to the determination of demand for tourism in Turkey by using factors such as infrastructure in networks

and accommodation capacity in the hosting country. They used a dynamic model to estimate the demand function of tourism in Turkey with respect to its nine major clients. The conclusion of the study is that there is a minor word-of mouth effect on the consumer decision in favour of the destination.

Venegas Sr. and Croes (2007) examined the causal relationship between tourism expansion and poverty for the Nicaraguan economy. Using cointegration and causality tests, the study's result lend support to the proposition that tourism has a significant positive impact on Nicaragua's economic expansion and development. The study actually used a regression analysis to carry out its analysis.

Brida and Risso (2008) investigated the relationship between tourism and economic growth for the South Tyrolean economy by using the Johansen Cointegration technique to obtain a co-integrated vector among the relevant variables. They used data from 1980 to 2006 of the GDP of South Tyrol, the number of foreign tourist in South Tyrol and the relative prices (RP) between south Tyrol and Germany. The study found that the estimated long run elasticity of the real GDG with respect to tourism demand is inelastic while the granger causality test shows that causality goes unidirectionally from tourists and RP to real GDP. They concluded that tourism –led growth hypothesis is supported empirically in the case of South Tyrol.

Kaplan and Celik (2008) investigated the impact of tourism on economic performance in Turkey over the period 1962-2006. The empirical analysis of the study was carried out with the use of VAR procedure. The result shows that there is a cointegrating vector among real output, real tourism receipts and real effective exchange rate; which simply means that tourism has a long-run effect on output. They also found that the presence of one-directional causality, indicating that tourism and exchange rates cause output.

Fayissa, Nsiah and Tadesse (2009) evaluated the effects of tourism on economic growth in Latin American countries (LAC). The study used a panel data of 17 Latin American Countries for the years that span from 1995 to 2004, which was done within the conventional neoclassical growth model framework. They discovered from empirical analysis that revenue from the tourism industry positively contributed to both the current level of gross domestic product and the economic growth of LAC as to investment in physical and human capital. The implication of their findings is that Latin American economies may enhance their economic growth by strategically strengthening the tourism industry while not neglecting the other sectors that promote growth.

Brida and Risso (2009) studied the relationship between tourism and economic growth for the South Tyrolean economy by using the Johansen cointegration analysis to obtain a cointegrated vector among the relevant variables and using the Granger causality to investigate the causality. They used annual data from 1980-2006 of the GDP of South Tyrol and the relative prices (RP) between South Tyrol and Germany. They discovered that the estimated long-run elasticity of the real GDP with respect to tourism demand is 0.29 and the Granger causality test shows that causality goes unidirectionally from tourism reinforces economic growth rate but economic growth does not reinforce tourism. The impulse response analysis shows that a shock in the number of tourists and relative prices produce a continuous and sustained positive effect.

## V. Theoretical Framework

The study will adopt the export-led growth hypothesis, which postulates that exports are essential ingredient for the enhancement and acceleration of long run economic growth. Theoretically, a lot of argument had been put forward to justify the export-led growth hypothesis. There are two perspectives to this hypothesis: the demand and supply side. The demand-side perspective argued that demand growth sustainability cannot be maintained in a domestic market that is small, given the fact that economic impulse based on the expansion of domestic demand is bound to be exhausted quickly. In contrast, export market can not be exhausted and do not involve growth restriction on the demand side. Agosin (1999) opined that as a component of growth, exports could be a catalyst of output growth.

Further, from the supply-side of export-led growth hypothesis, the expansion of exports could promote and enhance economic growth through a rise in the total factor productivity (TFP). This begins with the fact that an expansion in exports might enhance and encourage specialization in sectors that have comparative advantage in the country and it will lead to reallocation of resources from a relatively inefficient non-trade sector to the more productive export sector. Also, Helpman and Krugman (1985) opined that the growth of exports can increase productivity by offering larger economies of scale. In addition, export growth might affect total factor productivity through dynamic spillover effects on the rest of the economy (Feder, 1983). The sources of these knowledge externalities include productivity growth through increased competitiveness, more efficient management styles, better forms of organization, labour training, and knowledge about technology and international markets (Chuang, 1998). This knowledge is acquired through a systematic learning mechanism initiated by exports and spilling over to the domestic economy. Lastly,

Riezman, et al. (1996) believed that export expansion might indirectly affect growth by providing the foreign exchange that allows for increasing levels of capital goods imports. Then, by increasing the importation of capital goods would stimulate output growth by raising the level of capital formation. Thus, the importation of capital goods from technologically advanced countries might lead to a rise in the productivity, which could translate to economic growth, given the fact that knowledge and technology are embodied in equipment and machinery that are transferred through international trade (Chuang, 1998).

Further, base on this ELGH efforts have been made in the literature to disaggregate the exports so as to show the impact of these categories of exports on economic growth. The dynamic effects of spill-over of the technology are associated with manufacturing exports rather than primary exports. However, many scholars (e.g. Dawe, 1996) have hypothesize that both primary and mining exports could serve as hindrances to greater productivity growth. They based their argument on the fact that (i) primary goods give no sustainable potential for the spillover of knowledge, and thus a rise in export of primary goods could move resources from the externality generating manufacturing sector (Sachs and Warner, 1995). (ii) Also, that extreme price and volume fluctuations affect primary exports. Thus, there might be a rise in GDP volatility and uncertain in the macro economy due to a rise in the primary exports. According to Dawe (1996) this volatility and certainty might also hinder efforts at planning the economy and bring down the efficient and that of quantity of investment.

Another theoretical basis for the study is that of Heckscher-Ohlin (1933) theory, which was developed by Heckscher-Ohlin (1933). This theory tends to relax and modify some of the assumption of the classical theory in order to provide a

realistic and better reason for the existence of differences in the comparative costs between countries. This theory was built around two basic features of countries and goods. That countries differ from each other based on the factors of production they possess, and also that goods differ from each other based on the factors that are required in their production. Given this as it may, they posited that a country would be able to produce at a lower cost (and this posses comparative advantage in) those goods whose production requires relatively large amounts of the factors of production (this is also known as factor endowment, e.g., labour, land, capital, natural resources) with which the country is relatively endowed. This theory of trade is also known as modern theory of external trade or better still neoclassical theory of external trade. This theory differs from that of Classical theory in the sense that it introduces capita as a second factor of production and then relaxes the assumption that each economy has a fixed input/output technology. But, assume that technology sets available to each country are identical and that tastes in the two countries are identical .Trade in this theory is as a result of the differences in comparative cost, which is due to inter-country differences in relative factor endowment (Okoh, 2004). She further argued that this theory leads to free trade internationally and it will enable domestic economy to maximize national and global production efficiency, output, consumption and welfare. But, concluded that the policy inference of the neoclassical and that of classical theories are exactly the same.

The theory of Vent-for-surplus was developed by Adam Smith (1937) to extending domestic markets. This theory assumed positive correlation between foreign trade and economic growth. This theory was made known due to the success of the Asian newly industrializing countries in the 1980s and 1990s. According to this theory there are opportunities to put to adequate use formally underemployed land and

labour resources to produce greater output for export to foreign market rather than reallocating fully used resources as it is in the traditional theory. Also, the idle resources would be adequately utilized with liberalization of trade and it will increase the production of primary products for exports thereby moving the domestic economy towards its production possibility frontier. Todaro (1977) and Iyoha (1995) agreed that this theory provide a better realistic analytical framework of the past trading experience of developing countries than that of classical and neoclassical theories. Thus, this theory tends to show that if a country is producing within or inside its production possibility frontier, this means that there is underutilization of resources, which will propel the country to rent or mobilize these resources for export purposes and thereby moving toward and along the production possibility frontier.

## VI. Methodology

The methodological approach that we have used in this study is different from what is usually used in the literature of tourism and economic growth. Most of the literature on the tourism-export led growth hypothesis have adopted panel regression analysis in testing the validity of the hypothesis (see Sequeiroa and Campos, 2005; Ledo and Iglesias, 2007; Fayissa, Nsiah, and Tadasse, 2007 and 2009; etc). However, due to recent development in the analytical framework of trade in service sector and in econometric analysis, the use of panel regression analysis cannot depict the direction of causality and long run relationship between tourist exports and economic growth. The panel regression analysis can only give the effects through the degree of association between tourism exports and economic growth. Thus, in order to ascertain the direction of causality between tourism exports and economic growth, one would need an estimation technique that can give appropriate causality estimation. The panel

granger causality test could be used to carry out the causality test between tourism exports and economic growth[1].

Though, the panel granger causality test will be used to determine the direction of causality in this study, we also intend to ascertain the panel properties of the data in order to show that the panel data do not random walk. Further, to be able to use the result of this study to predict the future occurrence between tourism and economic growth in Africa, we are going to establish the long run relationship in the model through the panel cointegration test. This study covers the period from 1995 to 2004 for thirty five African countries[2]. We have used real gross domestic product (RGDP) to measure economic growth while tourist arrivals (Tarrivals) has been used to capture international tourism exports. The study has also used some other growth model variables such as gross capital formation (GCF), total consumption expenditure (Tconsump), the total number of labour force (Lforce), the past value of the real GDP (RGDP (-1)) and total energy consumption in the continent (Enercons), which is in line with the empirical literature (see Cortes-Jimenez, 2006; Cortes-Jimenez and Pulina, 2006; Sequeira and Campos (2005), etc). The data for the analysis were sourced from World Bank – World Development Indicators, 2007.

## VII. Modelling Economic Growth with Tourism

Several studies have concentrated on the rate at which countries bridge the gap between their current positions and their destined long-run growth paths. However, to examine the responsiveness of income growth rate to revenue generated from tourism

[1] This does not mean that growth equation will not be estimated in this study.
[2] We intend to cover all countries in Africa, but data are available for the following countries: Algeria, Angola, Benin, Botswana, Burundi, Cameroon, Cape Verde, Chad, Congo Rep., Cote d'Ivoire, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Kenya, Lesotho, Libya, Malawi, Mali, Mauritius, Morocco, Nigeria, Rwanda, Senegal, South Africa, Swaziland, Tanzania, Togo, Tunisia, Zambia, Zimbabwe.

and typical sources of economic growth, we specify a neo-classical Cobb-Douglass production that was adapted from Herzer, et el. (2004) with some modifications in line with this study.

On the basis of the above theoretical background, the empirical model of the study will start with a Cobb-Douglas neo-classical production function, given the fact that Krugman and Obstfeld (2000) agreed that neoclassical model is a better model to work with than the classical and specific factor models. Since it conveys a deeper understanding of how resources may drive trade patterns. Therefore, we adopt Herzer, *et al* (2004) neoclassical Cobb-Douglas production function with some modifications, in terms of inclusion of some vital variables;

$$Y_t = A_t K_t^{\alpha} L_t^{\beta} \quad (1)$$

Where $Y_t$ denotes the aggregate output of the economy at time *t, (GDP), and* $A_t, K_t, L_t$ are the levels of total factor productivity, the capital stock, and the stock of labour, respectively. Given the fact that we want to know if exports affect economic growth through increasing productivity, then we assume that total factor productivity (TFP) could be expressed as a function of oil and non exports, capital goods import, investment, education and energy consumption. The rationale for inclusion of these variables is to prevent spurious conclusions regarding ELG hypothesis and to endogenize growth equation. According to Shan and Sun (1998) any study that does not consider the endogenous nature of the growth process, to a large extent, are liable to simultaneity bias and would give unreliable conclusions. Therefore, the total factor productivity is expressed as:

$$RGDP_{it} = V_o + \alpha GCF_{it} + \beta Lforce_{it} + aTarrivals_{it} + bEnercons_{it} + cRGDP(-1)_{it} + dTconsump_{it} + \ell_{it} \quad .....(2)$$

Where RGDP is the real gross domestic product, GCF is gross capital formation, Tarrivals is the total tourist arrivals, Enercons is total energy consumption, RGDP (-1)

is the past value of the real gross domestic product and Tconsump is the total final consumption expenditure. Theoretically, in the growth equation (2), we expect each of the explanatory variables to have a direct effect on the real GDP, that is, the coefficients $\propto, \beta,\ a, b, c, d, e, > 0$.

However, in order to estimate the corresponding parameters to this study's variables of interest, we will estimate through the panel data such as:

$$Y_{it} = \delta_i + \Gamma_t + (X_{it})\phi + \varepsilon_{it} \qquad \text{- - -} \quad (3)$$

Where $Y_{it}$ is the natural logarithm of GDP in country i at year t, and $X_{it}$ is the vector of the explanatory variables for country $i$ =1, 2, ---, n and at time t= 1, 2,---, T, $\phi$ is a scalar vector of parameters of $\alpha_1, - - -, \alpha_J, \psi_{it}$ is a classical stochastic disturbance term with $E[\varepsilon_{it}]$ =0 and var $E[\varepsilon_{it}] = \sigma_\varepsilon^2$, $\delta_i$ and $\Gamma_t$ are the country and time specific effects respectively. Here, we are going to state different assumptions on the model and then choose the one that gives robust estimates, rather than placing a priori decision on the behaviour of $\delta_i + \Gamma_t$ (See Fayissa, Nsiah, Tadesse 2009).

Let's assume that the country specific effects is constant across countries and that the time specific effects are not present, i.e. $\delta_i = \lambda_i$ and $\Gamma_t = 0$, then equation (3) could be estimated by the ordinary least square (OLS) method, or restricted OLS method. Also, we can assume that the country specific effects are constant but not equal, for instance, $\delta_i = \lambda_i$ and $\Gamma_t = 0$, which gives a one-way fixed effects model. Assumption three is a situation whereby the country effects are constants, rather, they are disturbances, the time effects are not present, such that $\delta_i = \lambda + w_i$ and $\Gamma_t = 0$. Where $E[w_i] = 0$ and var ( $w_i$ ) = $\sigma_w^2$ and cov$[\varepsilon_i, w_i] = 0$. Given this, the equation (3)

is estimated with the generalized least square (GLS) which will yield a random effects model.

Furthermore, in line with the fact that some of the determinants of growth are either pre-determined or endogenous, or both, and current period growth could depend on its values in the past, then a dynamic variant of both the fixed and random effects that were provided in equation (3) which is known as the Arellano and Bond (1999) estimation is specified as:

$$\Delta Y_{it} = \alpha^1 \Delta Y_{it-1} + \beta^1 \Delta X_{it-1} + \gamma^1 Z_{it} + \upsilon_i + \varepsilon_{it} \qquad \text{--- (4)}$$

Where $\Delta Y_{it}$ is the first difference of the natural log of the dependent variable in country i during time t; $\Delta Y_{it-1}$ is the lagged difference of the dependent variable, $X_{it-1}$ is a vector of lagged level and differenced predetermined and endogenous variables, $Z_{it}$ is a vector of endogenous variables, and $\alpha$, $\beta$, and $\gamma$ are variables to be estimated. Thus, $\upsilon_i$ and $\varepsilon_{it}$ are assumed to be independent over all time period in country $i$. The term $\upsilon_i$ represents country specific effects which are independently and identically distributed over the countries while $\varepsilon_{it}$ noise stochastic disturbance term and is also assumed to be independently distributed. The Arellano and Bond (1991) estimation method will be used to derive the coefficients. However, this method will also provide the opportunity of controlling the potential bias that is due to endogeneity of some of the regressors.

**Panel Unit Root Test**

Unit root test in time series analysis is a usual phenomenon among applied researchers and has become an integral part of econometric analysis. However, unit root in the panel data analysis is recent (Maddala and Wu, 1991; Hadri, 1999; Choi, 1999; etc). Bharagava et al. (1982) advocate a test for random walk residuals in a dynamic model with fixed effects. They suggested a modified Durbin-Watson (DW) statistic based on fixed effects residuals and two other test statistics based on differenced OLS residuals. Quah (1994) suggested a test for unit root in a panel data model without fixed effects where both N (number of country) and T (length of time series) go to infinity at the same rate such that N/T is constant. This model was generalized by Levin and Lin (1992) to allow for fixed effects, individual deterministic trends and heterogeneous serially correlated errors. They assumed that both N and T tend to infinity, but, T grows faster than N with $N/T \rightarrow 0$.

According to Phillips and Moon (1999) despite the fact that the literature grew from time series and panel data, the way in which, N, the number of cross section units and T, the length of the time series, tend to infinity is crucial for determining asymptotic properties of estimators and tests proposed for non-standard panels.

Furthermore, it is important to mention that micro panel data deals with large N and small T, while the macro panels deal with large N and large T, thus, it is appropriate here to give attention to non-stationarity. Basically, time series fully modified estimation techniques that account for endogeneity of the regressors and correlation and heteroscedasticity of the residuals can now be combined with fixed and random effects panel estimation methods. Parts of the distinguishing results that are found with non-stationary panels are that a lot of the test statistics and estimators of interest have normal limiting distribution. This case is difference from that of the

non-stationary time series literature where the limiting distributions are complicated functional of Weiner Processes.

However, many of the unit root tests that are applied in the time-series literature have been extended to panel data. When the panel data are both non-stationary and heterogeneous, issues of combining individual unit root tests applied on each time series are tackled by Im, Pesaran and Shin (2003), Maddala and Wu (1999), and Choi (1999a). Thus, Kao (1999) opined that one can avoid the problem of spurious regression by using panel data. Even in the case of spurious regression in panel data, it is different from that of time series spurious regression literature, given that its estimates give a consistent estimate of the true value of the parameter as both N and T tend to $\infty$. This is due to the fact that the panel data estimator averages across individuals and the information of independent cross-sectional in the panel tends towards a stronger overall signal than the pure time series case.

**Levin and Lin Tests**

This test for the properties of the panel data in any panel analytical method. It indicates whether there is white noise or unit root in the panel or not, the specification is given below:

**Consider the model**

$$Y_{it} = \rho_i Y_{it-1} + Z_{i't}\Upsilon + \mu_{it},\ i = 1, - - -, N; t = 1, - - -, T \quad \text{---------- (5)}$$

Where $Z_{it}$ is the deterministic component and $V_{it}$ is a stationary process. $Z_{it}$ could be zero, one the fixed effects, $U_{it}$ or fixed effect as well as a time trend, t. The Levin and Lin (1992) (LL) tests assume that $U_{it}$ are IID $(0, \delta^2 u)$ and pi = P for all. This means that the coefficient of the lagged dependent variable is assumed to be homogeneous across all cross-section units of the panel. Also, the individual processes are cross-

sectionally independent. The null hypothesis is that each series in the panel contains a unit root, i.e. $H_0 : \rho = 1$ against the alternative hypothesis that all individual series in the panel are stationary, i.e. $H_i : \rho \angle 1$

Let $\hat{\rho}$ be the OLS estimator of $\rho$ in equation (5) and define

$$Z_t = \left(Z_{it,---,}Z_{Nt}\right)', h(t,s) = Z'_t(\sum_{t=1}^{T} Z_t Z'_t)^{-1} Zs, \tilde{\mu}_{it} = \mu_{it} - \sum_{s=1}^{T} h(t,s)\mu_{is} \text{ and}$$

$$\tilde{y}_{it} = y_{it} - \sum_{t=1}^{T} h(t,s) y_{is}.$$

Then we have:

$$\sqrt{NT}(\hat{\rho} - 1) = \frac{\frac{1}{\sqrt{N}} \sum_{i=1}^{N} \frac{1}{T} \sum_{t=1}^{T} \tilde{y}_{it-1} \tilde{\mu}_{it}}{\frac{1}{N} \sum_{t=1}^{N} \frac{1}{T^2} \sum_{t=1}^{T} \tilde{y}^2{}_{it-1}} \quad \text{---------- (6)}$$

And the corresponding t-statistic, under the null hypothesis is given by:

$$t_\rho = \frac{(\hat{\rho} - 1)\sqrt{\sum_{i=1}^{N} \sum_{t=1}^{T} \tilde{y}^2{}_{it-1}}}{Se} \quad \text{---------- (7)}$$

Where $Se^2 = (1/NT)\sum_{i=1}^{N} \sum_{t=1}^{T} \tilde{\mu}^2{}_{it}$

Virtually all the existing non-stationary panel literature assumes cross-sectional independence. It is true that the assumption of independence across $i$ is rather strong, but it is needed in order to satisfy the requirement of the Linderberglevy central limit theorem. Moreover, as pointed out by Quah (1994), modeling cross-sectional dependence is involved because individual observations in a cross-section have no natural ordering. Conley (1999) presented a model called spatial model of dependence among agents using a metric of economic distance that provides cross-

sectional data with a structure similar to time-series data. He proposed a generalized method of moments (GMM) using such dependent data and a class of nonparametric covariance matrix estimators that allow for a general form of dependence characterized by economic distance.

**Im, Pesaran and Shin (IPS) Tests**

This is another test of stationarity of panel data variables in the model. The Levin and Lin test is restrictive in the sense that it requires $\rho$ to be homogeneous across $i$. As Maddala (1999) pointed out, the null may be good for testing convergence in growth among countries, but the alternative restricts every country to converge at the same rate. Im, Pesaran and Shin (1997) allow for a heterogeneous coefficient of $y_{it-1}$ and propose an alternative testing procedure based on averaging individual unit root test statistics. IPS suggests an average if the augmented DF (ADF) tests when $\mu_{it}$ is serially correlated with different serial correlation properties across cross-sectional units, i.e. $\mu_{it} = \sum_{j=1}^{\rho_i} \varphi_{ij}\mu_{it-1} + \varepsilon_{it}$. Substituting this $\mu_{it}$ in equation (3) we get

$$y_{it} = \rho_i y_{it} - 1 + \sum_{j=1}^{\rho_i} \varphi_{ij} \Delta y_{it} - 1 + Z'_{it}\gamma + \varepsilon_{it} \quad \text{---------- (8)}$$

The null hypothesis is that each series in the panel contains a unit root, i.e. $H_0 : \rho_i = 1$ for all $i$ and the alternative hypothesis is that at least one of the individual series in the panel is stationary, i.e. $H_1 : \rho_i \angle 1$ for at least one $i$. The IPS t-bar statistic is defined as the average of the individual ADF statistics as:

$$\bar{t} = \frac{1}{N}\sum_{i=1}^{N} t\rho_i \quad \text{---------- (9)}$$

Where $t_{\rho i}$ is the individual t-statistic for testing $H_0: \rho_i = 1$ for all $i$ in equation (9). It is known that for a fixed N:

$$t_{\rho i} \Rightarrow \frac{\int_0^1 W_{iz} dW_{iz}}{\left[\int_0^1 W_i{}^2{}_z\right]^{1/2}} = t_{iT} \quad \ldots\ldots\ldots\ldots\ldots\ldots (10)$$

as $T \to \infty$, where $\int W(r)dr$ denotes a weiner integral with the argument r suppressed in equation (28). IPS assumes that $t_{iT}$ are IID and have finite mean and variance. Then,

$$\frac{\sqrt{N}\left(\frac{1}{N}\sum_{i=1}^{N} t_{iT} - \frac{1}{N}\sum_{i=1}^{N} E\left[t_{iT} / \rho_i = 1\right]\right)}{\sqrt{\frac{1}{N}\sum_{i=1}^{N} Var\left[t_{iT} / \rho_i = 1\right]}} \Rightarrow N(0,1) \quad \ldots\ldots\ldots\ldots (11)$$

As $N \to \infty$ by the Lindeberg-levy central limit theorem .

Hence:

$$t_{IPS} = \frac{\sqrt{N}\left(\bar{t} - \frac{1}{N}\sum_{i=1}^{N} E\left[t_{iT} / \rho_i = 1\right]\right)}{\sqrt{\frac{1}{N}\sum_{i=1}^{N} Var\left[t_{iT} / \rho_i = 1\right]}} \Rightarrow N(0,1) \quad \ldots\ldots\ldots\ldots\ldots\ldots (12)$$

As $T \to \infty$ followed by $N \to \infty$ sequentially. The values of $E\left[t_{iT} / \rho_i = 1\right]$ and $Var\left[t_{iT} / \rho_i = 1\right]$ have been computed by IPS via simulations for different values of T and $\rho_i$'s . IPS also suggested a group men Lagrange multiplier test for testing $\rho_i = 1$ . In Monte Carlo experiments, they show that the average LM and t-statistics have better finite sample properties that the LL tests.

The LL and IPS tests require $N \to \infty$ such that $N/T \to 0$, i.e. N should be small enough relative to t. This means that both tests may not keep nominal size well when either N is small or N is large relative to T. In fact, the simulation result of Im, Pesaran and Shin (1997) show that both IPS and LL have size distortions as N gets

large relative to T. Breitung (2000) studies the local power of LL and IPS test statistics against a sequence of local alternatives. Breitung finds that the LL and IPS tests suffer from a dramatic loss of power if individual specific trends are included this is due to the bias correction that also removes the mean under the sequence of local alternatives. Breitung suggests a test statistic t that does not employ a bias adjustment whose power is substantially higher than that of LL or the IPS test using Monte Carlo experiments. The simulation results indicate that the power of LL and IPS tests is very sensitive to the specification of the deterministic terms.

**Residual Based LM Tests**

Hadri (1999) proposed a residual-based Lagrange multiplier (LM) test for the null that the time series for each $i$ are stationary around a deterministic trend against the alternative of a unit root in panel data. Consider the following model:

$y_{it} = Z'_{it}\gamma + r_{it} + \varepsilon_{it}$ ---------- (13)

Where $Z_{it}$ is the deterministic component, $r_{it}$ is a random walk,

$r_{it} = r_{it-1} + u_{it}$

$uit \square IID(0, \sigma^2 u)$ and $\varepsilon_{it}$ is a stationary process. Equation (13) can be written as:

$y_{it} = Z'_{it}\gamma + e_{it}$ ---------- (14)

Where,

$$e_{it} = \sum_{j=1}^{t} u_{ij} + \varepsilon_{it}$$

Let $\hat{e}_{it}$ be the residuals from the regression in equation (14) and $\hat{\sigma}^2 e$ be the estimate of the error variance. Also, let $S_{it}$ be the partial sum process of the residuals, $S_{it} = \sum_{j=1}^{t} \hat{e}_{ij}$. Then, the LM statistic is

$$LM = \frac{\frac{1}{N}\sum_{i=1}^{N}\frac{1}{T^2}\sum_{t=1}^{T}S^2{}_{it}}{\hat{\sigma}^2 e}$$

It can be shown that

$$\mathrm{L}\, LM \to E\left[\int W_i^2 Z\right]$$

As $T \to \infty$ followed by $N \to \infty$ provided $E\left[\int W_i^2 Z\right] \angle \infty$.

Also,

$$\frac{\sqrt{N}(LM \to E\left[\int W_i^2 Z\right])}{\sqrt{Var\left[\int W_i^2 Z\right]}} = N(0,1)$$

As $T \to \infty$ followed by $N \to \infty$.

Consider the nonstationary dynamic panel data model

$$y_{it} = \alpha i0 + \alpha i1 + y^0{}_{it}$$
$$y^0{}_{it} = \beta y^0{}_{it-1} + u_{it}$$

With $\beta =$ exp (C/T). Moon and Phillips (2000) focused on estimating the localizing parameter C and $\beta$, which characterizes the local behaviour of the unit root process. Information about C is useful for the analysis of the power properties of unit root tests, conitegration tests, the construction of confidence intervals for the long run autoregressive coefficient, the development of efficient detrending methods and the construction of point optimal invariant tests for a unit root and cointegrating rank. Moon and Phillips (2000) show that when C≤ 0, it is possible to estimate this local parameter consistently using panel data. In turn, they show how to extract the deterministic trend efficiently using this consistent estimate of C.

**Panel Cointegration Test**

This study adopted the Pedroni (Engle-Granger based) cointegration tests that was introduced by Pedroni (1999, 2004) because it proposes several tests for the null hypothesis, which allow for the consideration of heterogeneity. The Engle-Granger (1987) cointegration test is based on an examination of the residuals of a spurious regression performed using I(1) variables, but in the case where the variables are cointegrated, then, the residuals will be I(0). Contrary to this is a case where the variables are not cointegrated, which makes the residuals to be I(1). It is Pedroni (1999, 2004) and Kao (1999) that extended this Engle-Granger cointegration framework to the panel data analysis.

Pedroni proposes several tests for the cointegration that allow for heterogeneous intercepts and trend coefficients across cross-sections. Let us consider the regression below:

$$y_{it} = \alpha_i + \partial_{it} + \beta_{1i}x_{1i,t} + \beta_{2i}x_{2i,t} + \ldots + \beta_{mi}x_{mi,t} + \varepsilon_{i,t} \qquad (15)$$

For t = 1, …. , T; i = 1, …. , N; m = 1, …., M; where y and x are assumed to be integrated of order one, e.g. I(1). The parameters $\alpha_i$ and $\partial_{it}$ are individual and trend effect that may be set to zero if desired.

In the case of null hypothesis of no cointegration, the residuals $\varepsilon_{i,t}$ will be I(1). However, the general method is to obtain residuals from equation (13) and then test if the residuals are I(1) by running the auxiliary regression,

$$\varepsilon it = \rho i \varepsilon it - 1 + \mu it \qquad (16)$$

or

$$\varepsilon_{it} = \rho_i \varepsilon_{it-1} + \sum_{j=1}^{\rho_i} \psi_{ij} \Delta \varepsilon_{it-j} + \mu_{it} \qquad (17)$$

for each cross-section, Pedroni describes various methods of constructing statistics for testing for null hypothesis of no cointegration ($\rho_i = 1$). Two alternative hypotheses can be distinguished: the homogeneity alternatives, ($\rho i = \rho$) < 1 for all I (that Pedroni called within-dimension test or panel statistics test), and the heterogeneity alternative, ($\rho_i < 1$) for all I (which is called the between-dimension or group statistical test).

The Pedroni panel cointegration statistics $\square_{N,T}$ is constructed from the residuals of either equation (15) or (16). Eleven statistics are generated with varying degree of properties (size and power for different N and T) are generated. The standard statistic is asymptotically normally distributed in Pedroni panel cointegration framework,

$$\frac{\square_{N,T} - \mu\sqrt{N}}{\sqrt{V}} \Rightarrow N(0,1) \qquad (18)$$

Where $\mu$ and V are Monte Carlo generated adjustment terms.

**VIII. The Results**

The descriptive result is shown in table 4 below. From the table, it could be seen that the average real GDP for the 35 selected African countries in this study is about $17.4 billion during the period under review, while the corresponding tourist arrivals and total consumption expenditure for Africa are 1.02 million and $13 billion, respectively. There is high disparity in the real GDP of the selected countries and this could be seen in the standard deviation which is high, though this is relatively low for tourist arrivals.

**Table 4: Descriptive Analysis**

| | RGDP | Tarrivals | Tconsump | GCF | Lforce | Enercons |
|---|---|---|---|---|---|---|
| Mean | 17385.99 | 1.019681 | 13043.42 | 3560.996 | 7308440. | 20853.83 |
| Median | 4784.875 | 0.277000 | 3318.135 | 1127.580 | 4073154. | 8530.000 |
| Std. Deviation | 33964.93 | 1.916097 | 28013.78 | 6923.191 | 9652643. | 33331.31 |
| Skewness | 3.461513 | 3.025010 | 4.623674 | 3.726204 | 2.587045 | 2.976994 |
| Kurtosis | 17.25593 | 13.04629 | 31.42325 | 20.87680 | 11.22560 | 12.87093 |
| Jacque-Bera | 4353.436 | 2309.369 | 15597.18 | 6564.570 | 1648.620 | 1528.180 |
| Observation | 416 | 403 | 419 | 420 | 419 | 276 |

**Source: Computed**

**The Dynamic Panel Result**

This study used two different outcomes of the dynamic generalised method of moment (GMM) analysis, vis a vis, difference and the orthogonal deviation. The dynamic analysis shows that virtually same results were obtained for both outcomes of the model[3]. Except for the fact that in the difference equation result, the lagged real gross domestic product (RGDP) is not statistically significant, while in the orthogonal deviation, all the explanatory variables are statistical significant.

**Table 5: Dynamic Panel Result**

| Variable | Difference | | Orthogonal Deviation | |
|---|---|---|---|---|
| | Coefficient | T-Statistic | Coefficient | T-Statistic |
| Tarrivals | 10.1526 | 12.1086 (0.0000)*** | 4.3259 | 12.7793 (0.0000)*** |
| GCF | 0.7358 | 3.9960 (0.0001)*** | 0.7633 | 7.1574 (0.0000)*** |
| Enercons | 0.6003 | 10.8538 (0.0000)*** | 0.7487 | 18.4882 (0.0000)*** |

[3] This is in terms of the signs of the degree of association and the significancy of the variables.

| | | | | |
|---|---|---|---|---|
| RGDP(-1) | 0.0585 | 0.8014 (0.4238) | 0.5135 | 10.0642 (0.0000)*** |
| Lforce | -0.0006 | -4.4157 (0.0000)*** | -0.0010 | -9.5659 (0.0000)*** |
| Tconsump | -0.1023 | 1.8384 (0.0547)** | -0.2455 | 6.9641 (0.0000)*** |
| J-Statistics | 56.1870 | | 175.8193 | |

**Source: Author's calculation, 2009**
Note: *, ** and *** denote 10%, 5% and 1% level of significant.

The dynamic GMM results indicate that the international tourist arrivals, a measure of tourism export has a significant direct relationship with African economic growth, such that for every tourist arrivals there will be 10% and 4% increase in the level of economic growth for the difference and orthogonal deviation, respectively. This result conform with the studies of Vanegas Sr and Croes (2007), Eugenio-Martin, Morales and Scarpa (2004), Fayissa, Nsiah and Tadesse (2009). Also, the gross capital formulation has a significant positive relationship with growth in African, that is, for every 100% increase in gross capital formation there will be about 74% rise for difference equation, while that of orthogonal deviation is 76% rise in African growth. The level of energy consumption in Africa increases as economic growth rises. This shows that there has been considerable increase in the level of economic activities in the continent, though, the might be from the non-industrial activities, such as individual or domestic energy consumption. The proportion change that will occur to economic growth due to addition increase in the level of energy consumption on the average of both models is about 68%. It could seen from table 5 that economic growth in the present period responded positively to its past values. This means that, the previous values of the real GDP positively determines the present value of the real GDP. However, labour force is inversely related to African economic growth. This is due to the fact that there are pools of unemployed youths in the

continent. Both models (difference and orthogonal deviation) give same results that the more the number of people in the bracket of labour force, the lower growth level experienced (see Kareem 2008). As most of the unemployed people take to anti-social vices in getting there livelihood, such as crime, fraud, rent-seeking, militancy (e.g. Niger Delta of Nigeria), etc. It is interesting to know that the level of total consumption expenditure in Africa is inversely related to economic growth. This reason that is easily available for the result is that, most of expenditures that were made in Africa were channelled to unproductive economic activities, such that it did not have any meaningful growth impact of African economies. The democratic structures of most African governments are too expensive, which give room for corruption and misappropriation of public funds that ought to have been used for the provision of infrastructures that would the growth of tourism and other sectors of their economies.

The result of the panel data properties shows that real gross domestic product (RGDP), tourist arrivals (Tarrivals), gross capital formulation (GCF), number of labour force (Lforce), total consumption expenditure (Tconsump) and total energy consumption (Enercons) are integrated of I(1) in the Levin, Lin and Chu t*, and Im, Pesaran and Shin panel unit root tests. But using the Hadri Z panel unit root test, they are all integrated of order zero, i.e. I(0) variables. This means that these variables that are integrated of order one, i.e. I(1) in the LLC and IPS unit root tests have their probability values not statistically significant at the conventional 5% significant level in the level but rather significant at their first difference (see table 6).

**Table 6: Summary of Panel Unit Root Result**

| Variable | Levin, Lin and Chu t* | | | Im, Pesaran and Shin | | | Hadri Z | | |
|---|---|---|---|---|---|---|---|---|---|
| | Level | 1st Dif. | Order | Level | 1st Dif. | Order | Level | 1st Dif. | Order |
| RGDP | 0.87 | 0.00 | I(1) | 1.00 | 0.02 | I(1) | 0.00 | - | I(0) |
| Tarrivals | 0.10 | 0.00 | I(1) | 0.99 | 0.00 | I(1) | 0.00 | - | I(0) |
| Enercons | 0.99 | 0.00 | I(1) | 1.00 | 0.03 | I(1) | 0.00 | - | I(0) |
| GCF | 0.25 | 0.03 | I(1) | 0.50 | 0.04 | I(1) | 0.00 | - | I(0) |
| Lforce | 0.76 | 0.02 | I(1) | 0.82 | 0.01 | I(1) | 0.00 | - | I(0) |
| Tconsump | 0.37 | 0.00 | I(1) | 0.99 | 0.04 | I(1) | 0.00 | - | I(0) |

Note: The figures in the tables are probability values

Table 6 shows the result of the Pedroni panel cointegration test. We have used the individual intercept as the deterministic trend specification and the kernel method-Bartlett has been used for the spectral estimation, while the Newey-West automatic has been selected for the Bandwidth. The Pedroni panel cointegration test provides eleven test statistics for the panel cointegration, which evaluates the null hypothesis against both the homogenous and heterogeneous alternatives.

**Table 7: Pedroni (Engle-Granger Based) Cointegration Result**

| **Alternative Hypothesis: Common AR Coefs. (Within-Dimension)** | | | | |
|---|---|---|---|---|
| **Test** | **Statistic** | **Prob.** | **Weighted Statistic** | **Prob.** |
| Panel V- Statistic | -3.010370 | 0.0043 | -3.023768 | 0.0041 |
| Panel rho- Statistic | 5.742668 | 0.0000 | 4.387820 | 0.0000 |
| Panel PP- Statistic | 1.956146 | 0.0539 | -4.978444 | 0.0000 |
| Panel ADF- Statistic | 2.310925 | 0.0276 | 1.482222 | 0.1330 |
| **Alternative Hypothesis: Individual AR Coefs. (Between-Dimension)** | | | | |

| | | | | |
|---|---|---|---|---|
| Group rho-Statistic | 6.506463 | 0.0000 | - | - |
| Group PP-Statistic | -7.983015 | 0.0000 | - | - |
| Group ADF-Statistic | 1.313668 | 0.1683 | - | - |

**Source: Computed**

In this study, nine of the eleven statistics in the Pedroni panel cointegration test reject the null hypothesis of no cointegration at the conventional size of 0.05. This means that there is cointegration in the study, which establishes long run relationship between international tourism exports and economic growth in Africa. Also, the forecast ability of the tourism-export led growth hypothesis has been established in this study. That is, tourism exports could be used to forecast future economic growth in Africa and there will not be loss of information in the prediction. Thus, there is long run relationship between international tourism-exports and economic growth in Africa. Kaplan and Celik (2008) and Eugenio-Martin, Morales and Scarpa (2004) got similar results.

Furthermore, the panel granger causality test result shows that the causality between tourist arrivals and RGDP is bidirectional causality, i.e. RGDP ↔ Treceipt. This means that tourist arrivals a measure of international tourism exports cause changes in economic growth in Africa and at the same time the real gross domestic products (RGDP) have been used to propel and enhance tourism arrivals through provision of tourism infrastructure in the continent (see table 8). Put differently, it indicates that revenue from tourism has been contributing to economic growth in Africa and this is due to the drive for the development of tourism industry as means of diversifying the economies of most African countries, which are primarily monocultural in crude products exports. Also, many African governments have been using the growth experienced in their various economies to boost and redeem the

bastardised image of most African destinations, which confirms the results of Odularu and Kareen (2007). Many state governments in Nigeria including the Federal Capital Territory (FCT) have allocated huge amount of their budgets to tourism development. This could also be found in many African countries such as Ghana, Kenya, South Africa, Swaziland, Senegal, Egypt, Algeria, etc. This result is in contrary to the unidirectional causality the Kaplan and Celik (2008) got.

**Table 8: Panel Granger Causality Result**

| **Null Hypothesis** | **F.statistic** | **Prob.** | **Decision** | **Causality** |
|---|---|---|---|---|
| RGDP does not granger cause Tarrivals | 3.5769 | 0.0291 | Reject | **Feedback** |
| Tarrivals does not granger cause RGDP | 6.1515 | 0.0024 | Reject | |
| RGDP does not granger cause Tconsump | 109.428 | 2.E-11 | Reject | **Feedback** |
| Tconsump does not granger cause RGDP | 23.2747 | 3.E-10 | Reject | |
| RGDP does not granger cause Enercons | 0.3518 | 0.7038 | Accept | **Independent** |
| Enercons does not granger cause RGDP | 0.9190 | 0.4004 | Accept | |
| RGDP does not granger cause GCF | 74.1390 | 2.E-27 | Reject | **Feedback** |
| GCF does not granger cause RGDP | 38.5657 | 8.E-16 | Reject | |
| RGDP does not granger cause Lforce | 127.043 | 6.E-42 | Reject | **Unidirectional** |
| Lforce does not granger cause RGDP | 0.0437 | 0.9572 | Accept | |

**Source: Computed**

The causality between economic growth and total consumption expenditure (Tconsump) and gross capital formation (GCF) are bilateral, that is, there are feedback causality between them, which means that as economic growth could be used to propel total consumption expenditure and the gross capital formation in the continent, so also gross capital formation as well as total consumption expenditure (Tconsump) could be use to enhance economic growth in the continent. However,

unidirectional causality exists between economic growth and the number of labour force. This runs from economic growth to number of labour force, i.e. RGDP→Lforce.

## IX. Conclusion

In this study, we have examined the degree of association, direction of causality between international tourism exports and economic growth in Africa and at the same time show whether there is long run relationship between them. The trend of Africa's tourism-exports has been shown in comparison with other regions of the world. Further, African sub-regional tourism exports analysis is done in order to show the sub-region that accounts for the highest tourist destinations in Africa.

The study discovered that there is a significant positive relationship between international tourism exports (measured by tourist arrivals) and economic growth in Africa. The result further shows that African growth will multiply on the average, seven times the number of tourism exports to the destinations. However, after using the panel cointegration test that is put forward by Pedroni (1999, 2004), we were able to establish that there is long run relationship between tourism-exports and economic growth in Africa, which simply means that tourism could be used by African countries to drive economic growth in the continent. Also, it is discovered in this study that there is feedback causality between international tourism exports and economic growth. This is expected because most African countries still use their income to improve the level of tourism infrastructure and sites that are available in their countries in order to woo tourists to their destination so that there will be increase in the level of economic activities in the sector, which will thereby accelerate long run economic growth.

Thus, the study concludes that African international tourism exports have the potentials of translating to long run economic growth and that the economic growth that is experienced by African countries especially the mineral exporting ones could be used to enhance tourism exports. Therefore, African countries should embark on the provision of tourism infrastructure, sites, facilities e.t.c. that can enhance tourists' choice of African destinations. Enabling tourism environment that will attract investors in the tourism industry in African destination should be put in place. While the issue of security of lives and properties of potential tourist and other factors that will enhance tourism-exports should be given utmost attention.

**References**


Agosin, M. (1999) "Trade and Growth in Chile", ***Cepal Review***, vol. 68, pp 79 – 100

Alper, A., Muhittin, K., Ferit (2008) "International Tourism Demand for Turkey" A Dynamic Panel Data Approach" **Munich Personal RePEc Archive Paper No. 10601**, September.

Arrelano, M. And S. Bond (1991) " Some Test of Specification for Panel Data: Monte Carlo Evidence and An Application to Employment Equations", Review of Economic studies, Vol. 58, pp 277-297.

Balaguer, J. and M., Cantavella-Jorda (2000) "Tourism As a Long-Run Economic Growth Factor: The Spanish Case", **Instituto Valenciano de Investigaciones Economicas**, V-2576, June.

Bezmen, T. (2006) "Estimating the Impact of Tourism on Economic Development in Latin America", **Paper Presented at the Academy of Economics and Finance**, Houston, TX, February.

Bhagwati, J. and T., Srinivasan (1979) "Trade Policy and Development", in R.Dornbusch and J. Frenkel, (eds.), International Economic Policy: Theory and Evidence, Johns Hopkins University Press, Baltimore, pp 1-35.

Bharagava, A., Franzini, L., and W., Navendranathan (1982) "Serial Correlation and Fixed Effects Model", ***Review of Economic Studies***, Vol. 49, pp 533-549.

Brau, R., Lanza, A. And F. Pigliaru (2007) "How Fast are Small Tourist Countries Growing? The 1980-2003 Evidence", **Centro Ricerche Economiche Nord SUD Working Paper**.

Breitung, J. (2000) "The Local Power of Some Unit Root Tests for Panel Data," In. Baltagi (ed.), Advantages in Econometrics, Vol. 15: Nonstationary

Panels, Panel Cointegration, and Dynamic Panels, Amsterdam: JAI Press, pp 161-178.

Brida, J.G. and N.A., Risso (2008) "The Tourism as Determinant of the Economic Growth in South Tyrol." www.ssrn.com/abstract.

Brida, J.G. and N.A., Risso (2009) "The Tourism as Determinant of the Economic Growth in South Tyrol." Available at SSRN: www.ssrn.com/abstract.

Bruno, G.S.F. (2005) "Approximating the Bias of the LSDV Estimator for Dynamic Unbalanced panel Data Models", Economic Letters, Vol. 87, pp361-66.

Choi, I. (1999) "Unit Root Tests for Panel Data", **Working Paper** (Department of Economics, Kookmin University, Korea).

Christie, I.T. and D.E., Crompton (2001), "Tourism in Africa", Africa Region Working Paper, Series No.12, The World Bank Washington DC.

Chuang, Y.C. (1998) "Learning by Doing, The Technology Gap, and Growth", ***International Economic Review***, Vol. 39, No. 3, pp 697 – 721.

Conley, T.G. (1999) "GMM Estimation with Cross-Sectional Dependence", ***Journal of Econometrics***, Vol. 92, pp 1-45.

Cortez-Jimenez and M., Pulina (2006) " A Further step into the ELGH and TLGH for Spain and Italy" in *Fondazine Eni Enricco Mattei*, **Working Paper series**, pp. 118-2006.

Cortes-Jimenez I. (2006) "Tourism and Economic Growth at Regional Level: The Case of Spain and Italy", 46th congress of the European Regional Science Association, University of Thessaly, Volos, Greece, 30th August-3rd September.

Crouch, G. (1994b), "The Study of International Tourism Demand: A Review of Findings", **Journal of Travel Research**, Vol. 33, pp. 12-23.

Dawe, D. (1996) "A New Look at the Effects of Export Instability on Investment and Growth", ***World Development***, Vol. 24, No. 12, pp 1905 – 14.

Durbarry, R. (2001), "Tourism Expenditure in the UK: Analysis of Competitiveness using a Gravity-Based Model", **Discussion Paper Series 2001**, Christie Deltaan Tourism and Travel Research Institute, University of Nothingham.

Eilat and Einav, (2004) "Determinants of International Tourism: A Three Dimensional Panel Data Analysis", **Applied Economics 36**, 1315-26.

Engle, R.F., and C. W.J., Granger (1987) "Cointegration Error Correction: Reprsentation, Estimation and Testing", **Econometrica**, Vol. 2, pp 251-76.

Eugenio-Martin, J., Morale, N., and R., Scarpa (2004) "Tourism and Economic Growth in Latin American Countries: A Panel Data Approach", **Note di Lavoro 26. 2004**; www.ssr.com/abstract=504482

Fayissa, B., Nsiah C. And B. , Tadesse (2009) "Tourism and Economic Growth in Latin American Countries (LAC): Further Empirical Evidence", **Department of Economics and Finance Working Paper Series**, March.

Fayissa, B., Nsiah, C. and B., Tadasse (2007) "The Impact of Tourism on Economic Growth and Development in Africa", **Department of Economics and Finance Working Paper Series**, August.

Feder, G. (1983), "On Exports and Economic Growth", ***Journal of Development Economics***, vol. 12, 59-73

Hadri, K. (1999) "Testing the Null Hypothesis of Stationarity Against the Alternative of a Unit Root in Panel Data with Serially Correlated Errors, Manuscript (Department of Economics and Accounting, University of Liverpool)

Hazari, B.R. and A., Ng (1993) "An Analysis of Tourists' Consumption of Non-Traded Goods and Services on the Welfare of the Domestic Consumer", **International Review of Economics and Finance**, Vol. 2, pp. 3-58.

Hazari, B.R. and P.M., Sgro (1995) "Tourism Growth in a Dynamic Model of Trade", the **Journal of International Trade and Economic Development**, Vol. 4, pp. 253-256.

Helpman, E. and P., Krugman (1985) "Market Structure and Foreign Trade", MIT Press, Cambridge.

Herzer, D. Nowak-Lehmann, F. and B. Siliverstovs (2004), "Export-led Growth in Chile: Assessing the Role of Export Composition in Productivity Growth, www.igi.wiwi.uni-goettingen.de

Im, K.S., Pesaran, M.H. and Y., Shin (2003) "Testing for Unit Roots in Heterogeneous Panels", **Journal of Econometrics**, Vol. 115, pp 53-74.

Iyoha, M.A. (1995) "Traditional and Contemporary Theories of External Trade" In: External Trade and Economic Development in Nigeria. ***Selected Papers for the 1995 Nigerian Economics Society (NES) Annual Conference Proceedings***, pp 1 – 23.

Kao, C. (1999) "Spurious Regression and Residual-Based Tests for Cointegration in Panel Data", ***Journal of Econometrics,*** vol.90, no 1- 44.

Kaplan, M. And T., Celik (2008)"The Impact of Tourism on Economic Performance: The Case of Turkey", The International Journal of Applied Economics and Finance, 2(1): 13-18.

Kareem, O.I. (2008a) "A Panel Data Analysis of Demand for Tourism in Africa", **Ibadan Journal of Social Sciences**, vol. 4, No.1, March.

Kareem, O.I. (2008b) "Determinant of Tourism Demand In Africa", Enzo Paci Papers Series, Volume 6, World Tourism Organisation (UNWTO) Statistics and Tourism Satellite Account, October. www.unwto/statistics/malaga/malaga.htm

Katircioglu (2008)"Revisiting the Tourism-led-Growth Hypothesis for Turkey using the Bonds Test and Johansen Approach for Cointegration", **Tourism Management**, Vol. 30, Issue 1, February, pp 17-20.

Kester, I.G.C. (2003), "International Tourism in Africa", **Tourism Economics**, Vol. 9, pp. 203-221.

Komiya, R. (1963) "Non-Traded Goods and the Pure Theory of International Trade", **International Economic Review**, Vol. 8 pp. 132-52

Krueger, A. (1980) "Trade Policy as an Input to Development", **American Economic Review**, Vol. 70, No. 188-292.

Krugman, P.R. and M. Obsfeld (2000) "International Economics: Theory and Policy". Addison Wesley Longman, New Delhi

Lanza, A. And F. Pigliaru (2000) "Why are Tourism Countries Small and Fast Growing?" in A. Fossati and G. Panella (eds), Tourism and sustainable Economic Development, Dordrecht: Kluver Academic Publisher, pp 57-69.

Ledo, P.A. and A.M, Iglesias (2007) "Tourist Activities and Local Development in the Spanish Urban Settlement System", **Boletin de la A.G.E.**, No. 45, pp. 411-13

Levin, A. and C.F., Lin (1992) "Unit Root Test in Panel Data: Asymptotic and Finite sample Properties", ***Discussion Paper***, No. 92-93 (University of California at San Drego).

Maddala, G.S. (1999) "On the Use of Panel Data Methods with cross Country Data", ***Amales DÉconomie et de Statistique,*** Vol. 55-56, pp 429-448.

Maddala, G.S. and S. Wu (1999) "A Comparative Study of Unit Root Tests with Panel Data and A New Simple Test," **Oxford Bulletin of Economics and Statistics, Vol. 61, 631-52.**

Naude, W.A. and A. Saayman (2004), "The Determinants of Tourism Arrivals in Africa: A Panel Data Regression Analysis", A paper Prepared for the International Conference, Centre for the Study of African Economics, St. Catherine's College, University of Oxford, 21-22 March.

Odularu, G. O. and O.I., Kareem (2007) "Tourism and Reputation in Africa: A Panel Data Analysis", **African Journal of Economic Policy**, Vol.14, No.2, December.

Okoh, R.N., (2004) "Global Integration and the Growth of Nigeria's Non-oil Exports, ***A Paper Presented at the African Conference,*** 21-22 March, Oxford, U.K.

Overseas Development Institute (2007), "Can Tourism Offer Pro-poor Pathways to Prosperity?: Examining Evidence on the Impact of Tourism on Poverty", **ODI Briefing Paper**, June.

Pedroni, P. (1999) "Critical Values for Cointegration Tests in Heterogeneous Panels wit Multiple Regressors", **Oxford Bulletin of Economics and Statistics,** Vol. 61, pp. 653-70

Pedroni, P. (2004) "Panel Cointegration; Asymptotic and Finite Sample Properties of Pooled Time Series Tests with an Application of the PPP Hypothesis", **Econometric Theory**, Vol.20, pp. 597-625.

Phillips, P.C.B and H.R., Moon (1999) "Linear Regression Limit Theory for Nonstationary Panel Data", **Econometrics**, Vol. 67, pp 1057-1111

Quah, D. (1994) "Exploiting Cross-Section Variation for Unit Root Inference in Dynamic Data", **Economics Letters**, Vol. 44, pp 9-19

Riezman, R.G. Summers, P.M and C.H. Whiteman (1996) "The Engine of Growth or its Handmaiden? A Time series Assessment of Export-led Growth", ***Empirical Economics***, vol. 21, pp 77 – 113.

Sachs, J. and A. Warner (1995) "Economic Reform and the Process of Global Integration", Brookings, papers on Economic Activity, Vol. 1, pp 1 – 118.

Sequeira, T.N. and C., Campos (2005) "International Tourism and Economic Growth: A Panel Data Approach", **The Fondazione Eni Enrico Matteir Note di Lavoro Series Index**: www.feem.it/feem/pub/publication/Wpapers.

Shan, J. and F. Sun (1998), "On the export – led growth hypothesis: the econometric evidence from China", ***Applied Economics***, 30, 1055-65.

Sinclair, M.T. (1999) "Tourism and Economic Development: A Survey", **Journal of Development Studies**, Vol. 34(5), No. 1-51.

Todaro, M.P (1997) "Economics for Developing World: An Introduction to Principles, Problems and Policies for Development", Longman, London, pp 306 – 310

Vanegas Sr., M. And R., Croes (2007) "Tourism, Economic Expansion and Poverty in Nicaragua: Investigating Cointegration and Causal Relations", **Staff Paper Series P07-10**, June.

World Bank (2007), World Development Indicators, CD Database, Washington D.C.

World Tourism Organisation (2003), "Tourism Highlights", Edition (2003), WTO: Madrid.

World Tourism Organisation (2005) "Tourism Market Trends", November.

World Tourism, Organisation (2003c), "WTO World Tourism Barometer", Vol. 1, No.1.

World Tourism Organisation (2006) "Africa: A Key Resource for Economic and Social Development", Global Envision, October 16.

WTO (2008), **Tourism Highlights.** Edition 2008, www.unwto.org