Evidence of and prerequisites for tourism-led growth in Africa

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It all starts here ™

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ABSTRACT

The relationship between tourism development and economic growth is often described by the tourism-led growth hypothesis (TLGH). It has been a contemporary issue in the tourism economics literature, which has gained momentum over the past couple of years. There is consensus that the broader economy is affected by tourism expansion through several channels, which include: foreign currency earnings; creation of employment; direct, indirect and induced effects on production; and income. However, the nature of the relationship between tourism development and economic growth remains inconclusive.

This study contributes towards the debate on the link between tourism development and economic growth by: (i) investigating evidence in support of the TLGH for African countries; and (ii) exploring evidence of the preconditions for the successful implementation of the TLGH in Africa. The methodology employed in the research consists of three approaches: (i) a review of theoretical and empirical literature on the economic growth theory, the tourism-led growth hypothesis and the critical success factors for tourism development; (ii) an empirical investigation of the evidence of the TLGH for African countries using both a production function and a neoclassical growth function specification; and (iii) exploring the critical success factors for tourism-led growth empirically.

The evidence of tourism-led growth is investigated using cross section and panel data analyses for 53 African countries from 1995 to 2013. A typical production function specification with capital, labour and three different proxies of tourism was used to estimate the effect of tourism on production. Country and region specific factors were included using dummy variables. A neoclassical growth model specification was then employed where output growth was regressed against initial gross domestic product, physical capital, human capital, tourism exports, commodity exports, trade openness and dummy variables which captured country and region specific effects.

The results showed that the determinants of economic growth in Africa are human capital, total factor productivity, commodity metal exports and non-economic effects. Tourism was initially weak or of minimal importance in explaining the differences in the economic growth of African countries. Over time, tourism became increasingly significant for economic growth in the region.

The study further modelled the conditions under which tourism development can contribute to economic growth. 116 research articles for 47 countries were presented indicating the evidence for or against the TLGH. The dependent variable in the analysis is dichotomous and takes the value of 1 where the evidence shows that tourism led to growth for a specific country. Using cross section and panel data from 1995-2013, logistic regressions were performed to determine the factors that contribute to the success of the TLGH. The results showed these to be human capital, financial sector development, tourism safety and security, protection of the environment, trade openness and technological development.

The study makes several contributions to tourism economics literature. The study is the first one to include almost all African countries in empirically testing evidence of the TLGH. The study is also the first one to employ both a production function and growth specification to find robust evidence of the influence of tourism on production and growth. Finally, the study does not simply prescribe tourism growth as a cure for Africa's economic growth problems, but goes a step further to identify the conditions under which tourism can positively affect economic growth in Africa.

Key words: economic growth, tourism-led growth, critical success factors, Africa

ACRONYMS AND ABBREVIATIONS

ADF	Augmented Dickey-Fuller
AfDB	Africa Development Bank
AIC	Akaike's Information Criterion
AIDS	Almost Ideal Demand System
ARDL	Autoregressive Distributed Lag
ARDL-UECM	Autoregressive Distributed Lag- Unrestricted Error Correction Model
BLP	Brau, Lanza and Pigliaru
CGE	Computable General Equilibrium
CIT	Climate Index for Tourism
CO_2	Carbon Dioxide
CSFs	Critical Success Factors
DFID	Department for International Development
ECM	Error Correction Model
EDTGH	Economic- Driven Tourism Growth Hypothesis
ELGH	Export-led Growth Hypothesis
EOD	Ease of Doing Business
FAO	Food and Agricultural Organisation
FDI	Foreign Direct Investment
GARCH	Generalised Autoregressive Conditional Heteroscedasticity
GDP	Gross Domestic Product
GLS	Generalised Least Squares
GMM	Generalised Method of Moments
GNP	Gross National Product
GROWTH	Average per Capita Income Growth Rate
GVA	Gross Value Added
HCI	Human Capital Index
HDI	Human Development Index
HO	Heckscher-Ohlin
HOS	Heckscher-Ohlin-Samuelson
ICT	Information and Communication Technology
IEE	Information and Environmental Education

ILO	International Labour Organisation
IMF	International Monetary Fund
LH	Logarithm of secondary school enrolment as a percentage of gross
LHCI	Logarithm of Human Capital Index
LK	Logarithm of physical capital
LL	Landlockedness
LME	Logarithm of Metal Exports
LRCA	Logarithm of Revealed Comparative Advantage
LTOURP	Logarithm of Tourism Exports as a percentage of Gross Domestic Product
LTOURR	Logarithm of Tourism Receipts
LTRADE	Logarithm of Trade Openness
LY1	Logarithm of initial Gross Domestic Product
MDGs	Millennium Development Goals
ME	Metal Exports
MPP_L	Marginal Physical Productivity of Labour
NAC	North African Country
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
PA VCE	Population Averages with Robust Error Terms
PC	Post Conflict
PSTN	Public Switched Telephone Network
P-VAR	Panel Vector Autoregressive
R&D	Research and Development
RCA	Revealed Comparative Advantage
RE	Random Effects
RER	Real Exchange Rate
SADC	Southern African Development Community
SB	Schwarz Bayesian Information Criterion
SBC	Schwarz Bayesian Criterion
SITC	Standard International Trade Classification
SUR	Seemingly Unrelated Regression
T&T	Travel and Tourism

TCI	Tourism Climate Index
TFP	Total Factor Productivity
TLG	Tourism-led Growth
TLGH	Tourism-led Growth Hypothesis
TOURP	Tourism Exports as a percentage of Gross Domestic Product
TOURR	Tourism Receipts per Capita
TRADE	Trade Openness
TTCI	Travel and Tourism Competitiveness Index
UECM	Unrestricted Error Correction Model
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNWTO	United Nations World Tourism Organisation
USA	United State of America
VAR	Vector Autoregressive
VECM	Vector Error Correction Model
WDI	World Development Indicators
WEF	World Economic Forum
WTTC	World Travel and Tourism Council

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CHAPTER 1

INTRODUCTION

1.1 Background

According to the United Nations World Tourism Organisation (UNWTO) (2014), tourism is a cultural and socio-economic occurrence which involves the movement of people to places or countries outside their usual environment for personal or professional/business purposes. The people that travel are referred to as visitors, and may either be excursionists or tourists, residents or non-residents. Tourism therefore involves their activities, such as tourism expenditure. People have to travel using various modes of transport and there must be displacement in order for tourism to take place. There are two types of international tourism, which are, inbound and outbound tourism. Activities of a non-resident visitor inside the country of reference comprise inbound tourism and activities of a resident visitor outside the reference country are referred to as outbound tourism.

Tourism development has many benefits to the host country which include: increases in foreign exchange income (which can be used to pay for imported capital goods or basic inputs used in the production process); creation of employment opportunities; increase in incomes; spurring investments in new infrastructure; increased competition between local firms and firms in other tourist countries; and positive exploitation of economies of scale by national firms (Andriotis, 2002: 333; Croes, 2006: 458; Lin & Liu, 2000: 22). In addition, tourism results in the diffusion of technical knowledge, it stimulates research and development, and causes the accumulation of human capital and cultural exchange. Tourism development also contributes towards economic growth through government revenue, multiplier effects, the development of infrastructure and entrepreneurial and other skills. Since tourism is a multidisciplinary activity that involves several industries and draws upon a variety of skills, its benefits are spread over a broader section of the society in comparison with other sectors of the economy (Telce & Schroenn, 2006: 444). It is also because of this multidisciplinary nature that tourism is viewed as having the potential to benefit the poor - and hence the introduction of the concept of "pro-poor tourism" (Ashley & Mitchell, 2006a: 2). However, tourism's impact on economic growth may be further enhanced through stronger linkages with other domestic sectors of the economy (Ashley & Mitchell, 2006b: 3).

Tourists usually demand a variety of goods and services, including accommodation, food, transport and entertainment. These goods and services are mostly labour intensive and a significant source of employment creation. It is therefore not surprising that tourism is a large employer and the industry accounts for 30 percent of the world's export services (International Labour Organisation (ILO), 2011:39). As a labour intensive industry, tourism is a significant source of employment to many people across the globe, it requires different skills and capabilities, and allows quick entry into the labour force by those who often struggle to find employment, i.e. young people, women and migrant workers. Tourism contributes to employment directly and indirectly. Direct employment relates to people that are directly employed in the tourism sector and generally includes jobs that involve personal contact with the tourists or visitors, such as workers of airlines, hotels, lodges, car-rental, restaurants, retail and entertainment (ILO, 2011:39). This form of employment is linked to the industry's activities and includes many types of work contracts such as full-time, part-time, temporary, casual and seasonal employment.

There are also many jobs that have an indirect relationship with the tourism sector because the sector often crosses the boundaries between the formal and informal economy. Indirect employment generally involves people working for the industry's suppliers such as airline caterers, laundry services, food suppliers, wholesalers and accounting firms; government agencies; and firms manufacturing and constructing capital goods, exported goods and commodities used in tourism, including steel, lumber and oil (ILO, 2011:39).

Another form of employment which may be directly or indirectly related to the tourism industry is self-employment. Self-employment includes family-and-owner-operated businesses as well as community enterprises. In addition, a number of formal establishments offer black market jobs[1]. There are also opportunities for street vending in high traffic areas of tourists that generate livelihoods predominantly for women and children in activities such as food stalls,

[1] Black market, informal sector, underground economy or informal economy is that part of an economy where goods and services produced and sold are not recorded in official figures. Their sale is not declared either because the activity involved is illegal or in order to avoid paying tax or losing benefits (Grant, 2000: 253; Sloman, 2003: G2).

sale of trinkets, souvenirs and artisan crafts. Contrary to other industries, employment in the tourism sector tends to be youthful and oriented towards people who are under 35 years of age, half of whom are 25 years and below, with women in the majority (ILO, 2011: 39).

It is therefore not unexpected that the employment statistics for the tourism industry is impressive. In 2010 alone, – employment in the tourism industry accounted for more than 235 million jobs (8 percent of the overall number of jobs (direct and indirect) or one in every 12.3 jobs). The sector is expected to provide 296 million jobs in the year 2019 (ILO: 2011:39). Hence, tourism results in primarily low-skilled and unskilled employment creation, which makes it ideal for development of economies with these characteristics. This is also due to the fact that tourism is a labour intensive industry.

It is generally accepted that tourism development leads to increased production, income and employment, which fosters overall economic growth and development in a country. Many developing countries, which are successfully exploiting their natural resources, have been able to climb the ladder of international income rankings due to tourism development. Tourism has become a significant export sector in developing as well as developed economies. There is therefore a general consensus that tourism triggers overall economic growth and development (Husein & Kara, 2011: 923; Katircioglu, 2010: 1100; Brida et al., 2010: 766; Po & Huang, 2008: 5535). These myriad benefits from international tourism spur positive economic growth (Schubert *et al.*, 2010: 378). Hence, most governments and policy makers in developing countries now target tourism development because of its immense contribution to the broader economy (Samimi *et al.*, 2011: 28). Africa is no exception, and enamoured by the promise of these positive externalities, most governments are now pursuing tourism growth as a strategy for achieving economic growth.

The belief that tourism development causes long term economic growth is known in literature as the tourism-led growth hypothesis (TLGH). According to Schubert *et al*. (2011: 377), TLGH is the belief that tourism can promote or cause long-run economic growth of a country. The relationship between tourism development and economic growth is the subject of on-going debate among economists and policy makers. Lanza and Pigliaru (2000) were the first researchers to investigate the theoretical relationship between tourism development and economic growth. The first authors to mention the TLGH concept in particular were Balaguer & Cantavella-Jordá in 2002. Since then, increasing attention has been paid to the concept and to the testing of this hypothesis for various countries. This research contributes to the empirical investigation of the TLGH and its applicability for African countries.

1.2. Factors that contribute to the success of tourism development

It is common cause that successful tourism development should be market driven, and that the viability of the sector is dependent upon the growth of the number of tourists flowing into a country. However, sustained growth is only possible if there is a strong link between all facets of tourism industry. The provision of supply-side support systems is primarily the responsibility of all spheres of government, non-governmental organizations, donors and stakeholders at national, provincial and local levels. While tourism products are directly experienced and consumed by the visitors or tourists, they need to be complemented by a range of indirect systems and services that are of paramount importance to facilitating an enjoyable and hassle-free experience. If these systems or characteristics are in place, only then will tourism development impact positively on economic growth. A country will then be in a position to realise the benefits of tourism development (Department of Economic Affairs, Agriculture and Tourism Provincial Administration of the Western Cape, 2001).

According to the Department of Economic Affairs, Agriculture and Tourism Provincial Administration of the Western Cape (2001); Eja *et al*., (2012: 429); Kareem (2008:17-25); Kareem & Ajide (2010: 301-303); Naude & Saayman (2004: 1-26); and Garin-Munoz & Amaral (2000: 525-529), the critical factors that determine the success of the TLGH are the safety and security of tourists, investment, human resources, sustainable tourism, trade openness, development of the financial sector, environmental factors and technological development. Tourists are highly sensitive to political instability which could threaten their well-being, personal safety and security. Therefore, in addition to developing the physical tourism infrastructure, political stability must be enhanced as an important factor affecting tourism development. Nuemayer (2004: 259) also reported strong evidence linking human right violations, conflict and other violent politically motivated events to a reduction in tourist arrivals. Furthermore, it is reported that autocratic governments, although not resorting to violent suppression, still record less tourist arrivals than democratic governments. It follows that tourism development is only possible in countries which practice democratic ideals, adhere to the rule of law and respect human rights. Tourist areas need to be safeguarded as part of a broader public safety programme. Such a programme will include appropriate signage to indicate suggested tourist routes and a special tourist police force to man and patrol tourist areas (Kareem, 2008: 25; Wilks *et al.*, 2006: 7-8; UNWTO, 1996: 14-18).

For tourism development to take place, investment in the tourism industry is also crucial. Tourism requires a continuous stream of investments for the sector to grow. In this regard, a thorough evaluation of tourism-related infrastructure is required in Africa. Investment in tourism-related infrastructure will upgrade the tourism facilities as well as make them appealing to tourists. There is therefore a need for the promotion of investment opportunities and the creation of incentives to stimulate investment in underdeveloped areas. The provision of investment incentives is a national responsibility. A country can stimulate tourism sector investment through incentives and also through the government's own investment promotion activities (Blackman *et al*., 2004:64; Kareem & Ajide, 2010: 301).

Tourism development cannot take place without the use of human resources. Human resources are critical for the success of the tourism industry since it is labour intensive. In light of the very high unemployment rate in Africa, there is a dire shortage of skills and expertise for tourism. Thus, education and training to impart tourism skills are also critical success factors (CSFs) in promoting the sustainable development of tourism in Sub-Saharan Africa. Educational training institutions have the responsibility to ensure economic development in Africa. The level of awareness of the importance of tourism and of its immense potential economically is generally low. This is worsened by the variations in the quality of customer service. There is therefore a need to develop programmes to address these issues in educational institutions and in the society at large. Improving participation of local communities in tourism development ought to be encouraged (Razzaq *et al.*, 2012: 9-10; Travel and Tourism Competitiveness Report, 2011: 10-13; Milić *et al.*, 2011: 435).

According to UNEP & UNWTO (2005: 9-13) and UNEP (2013: 275-280), encouraging sustainable tourism practices and promoting the general upkeep of tourist destinations is an additional CSF for tourism development. This involves the preservation of natural resources the maintenance of destinations for future generations. The benefits of tourism must be available in the long term to enable future generations to enjoy the current natural resources. These resources must not be exploited by the present generations in such a way that they become extinct. For this reason, sustainable tourism, ecotourism or green tourism must be practised.

Technological development is another key to tourism development. This implies developing a state of the art, integrated tourism system - easy access to reliable, current and quality information is part of the foundation of a successful tourism sector. Information technology plays a fundamental role in the tourism chain of events through advertising, making information about availability accessible, being able to respond quickly to requests, and making bookings (Department of Economic Affairs, Agriculture and Tourism Provincial Administration of the Western Cape, 2001).

In addition, the tourism industry must be free from international trade restrictions. This means that trade openness must be a feature of any country that wants to realise/prosper in tourism development. Keeping the tourism industry market-driven and free from unnecessary regulations enhances tourism development. The tourism industry thrives on open competition and is highly competitive. The industry should be deregulated, where possible and free commercial activity should be encouraged. This helps to facilitate the free/ or easier movement of tourists and goods in and out of a country. In the same vein, there must also be provision of lucrative and affordable travel opportunities for both domestic and international tourists (Department of Economic Affairs, Agriculture and Tourism Provincial Administration of the Western Cape, 2001; Sachs & Warner, 1995: 13-15 and Dollar, 1992: 521-524).

Likewise, environmental factors affect the development of the tourism sector. This especially relates to good climatic conditions which are an important feature of attraction for any tourist destination. Tourists who stay in temperate and colder regions are attracted to destinations with pleasant climate, warmth and ample sunshine. Tourist destinations with favourable climatic conditions and attractions like long sea beaches, waterfalls, sunrise and sunset points as well as fresh water lakes attract a huge number of tourist visitors. Consequently, information about the climatic conditions of destinations should be readily available for tourists (Hamilton & Lau, 2005: 236 and Department of Economic Affairs, Agriculture and Tourism Provincial Administration of the Western Cape, 2001).

The above discussion reveals that there are a myriad of factors that contribute to the success of tourism development and that it is imperative for policy makers to pay attention to them. However, it not evident that all tourism development, even if it is successful, will eventually lead to economic growth. This begs the question: which of these factors need to be in place for a country to grow its economy based on tourism development? In other words, what are the key factors in determining the success of the TLGH? (See Chapter 4 for a detailed discussion of factors that enhance tourism development).

1.3 Problem statement

Africa is blighted with problems of poor economic development, civil wars, poverty, lack of sanitation and a myriad of other challenges. The continent continuously faces the challenge of marketing her tourism to various destinations against competing regions. Sub-Saharan Africa appears to have several development options, among them: (i) expanding and increasing the range of primary products exports from agriculture and mining, (ii) focusing on export-led industrialisation as a strategy for achieving quick and sustained economic growth and (iii) development and promoting tourism because of the existence of an overseas market-demand for it (Dieke, 2001a: 92 and UNWTO, 2012: 9).

Despite efforts to stimulate economic development through increasing the range of primary products exports and export-led industrialisation, the results have not been encouraging at all for the majority of people in Africa. In the contemporary period, Sub-Saharan Africa suffers from endemic economic stagnation leading to chronic poverty. The problem is serious to the extent that the continent is burdened by the international debt crisis, rising inflation levels, fiscal deficits and declining economic growth. According to the UNWTO (2004: 7) and Binns & Nel (2002:235), tourism could become a catalyst or basis for broad-based development and thereby solving Africa’s development challenge. Therefore, it is not surprising that the TLGH has been suggested as a possible panacea to this problem (UNWTO, 2012: 9).

The interaction between tourism and the broader economy has been the subject of a number of studies (Kartircioglu, 2010: 1095, Gunduz & Hatemi-J, 2005: 499). There are several researches that tested the validity of the TLGH for developed economies and developing countries, but with inconclusive results (Gunduz, Husein & Kara, 2011: 917, Kartircioglu 2009a: 17, Kartircioglu 2009b: 2741, Gunduz & Hatemi-J, 2005: 499). Empirically, four main views exist about the interaction between TLGH and the broader economy. Firstly, there is empirical evidence which supports the view that tourism development results in economic development (Fayissa, Nsiya, & Tadesse; 2011: 1365; Schubert & Brida, 2011: 149; Brida, Lanzilotta, Lionetti, & Risso, 2010: 765; Zortuk, 2009: 231; Croes & Vanegas, 2008: 94; Lee & Chang, 2008: 180, Soukiazis & Proenca, 2008: 43; Risso & Brida, 2008; Kim, Chen, & Jang, 2006; 925; Blake & Sinclair, 2003: 813; Vanegas & Croes, 2003: 315; Balaguer & Cantavella-Jordá, 2002: 877). Proponents of this view assert that governments must channel resources towards tourism in order to realise economic growth. Secondly, there is the view that economic growth results in tourism development, and this is referred to as the Economic- Driven Tourism Growth Hypothesis (EDTGH) (Oh, 2005: 39; Narayan, 2004: 413). This view further holds that any policy initiatives that promote economic development should take precedence over measures designed to promote tourism directly. Thirdly, literature has also provided evidence that there exists bidirectional causality between tourism and economic growth (Kassimati, 2011: 79; Chen & Chiou-Wei, 2009: 812; Corte´s-Jime´nez, Pulina, Prunera, & Artis, 2009: 1; Lee & Chang, 2008: 180; Dritsakis, 2004: 305; Durbarry, 2004: 389). Finally, there are reports of no significant evidence for causality (Katircioglu, 2009: 17; Eugenio-Martin, Morales & Scarpa, 2004: 1).

There is therefore a lack of conclusive evidence on the link between international tourism growth and economic growth in the TLGH studies. This may be explained by the differences in the proxies that have been used to measure the variables in the various models, for example, the measurement of tourism receipts, the sampling period, the omission of important variables (such as the exchange rate) and the different methodologies adopted (Husein & Kara, 2011: 917). Table 1.1 below provides a brief summary of selected recent studies that have tested the validity of the TLGH[2].

[2] For a more complete list, see Table 6.2, Chapter 6.

Table 1.1: Comparison of the empirical results for tourism development and economic growth

Authors (year)	Empirical method employed	Period of study	Country/group	Hypothesis supported
Fayissa *et al.* (2011)	Dynamic panel data analysis	1990-2005	18 Heterogenous Latin America countries	TLGH
Kassimati (2011)	Vector Error Correction Model (VECM)	1960-2010	Greece	Bidirectional relationship
Schubert and Brida (2011)	VECM and Granger causality test	1970-2008	Antigua, Barbuda	TLGH
Brida *et al.* (2010)	Cointegration analysis	1987-2006	Uruguay	TLGH
Corte´s-Jime´nez *et al.* (2009)	Cointegration analysis & Granger causality test	1954-2000	Italy	Bidirectional relationship
Corte´s-Jime´nez *et al.* (2009)	Cointegration analysis & Granger causality test	1964-2000	Spain	Bidirectional relationship
Katircioglu (2009)	Johansen cointegration analysis	1960-2006	Turkey	No causality
Zortuk (2009)	VECM	1992-2008	Turkey	TLGH
Carrera *et al.* (2008)	Johansen cointegration analysis	1980-2007	Mexico	TLGH
Lee and Chang (2008)	Panel cointegration	1990-2002	OECD countries	TLGH
Lee and Chang (2008)	Panel cointegration	1990-2002	Non-OECD countries	Bidirectional relationship
Soukiazis and Proenca (2008)	Panel data analysis	1993-2001	Portugal	TLGH
Kim *et al.* (2006)	Granger causality test	1971-2003	Taiwan	TLGH
Gunduz and Hatemi (2005)	Vector Autoregressive (VAR)	1963-2002	Turkey	TLGH
Gunduz and Hatemi-J (2005)	Leveraged Bootstrap Causality	1963- 2002	Turkey	Unidirectional relationship
Oh (2005)	Granger causality test	1975-2001	Korea	EDTGH
Ongan and Demiroz (2005)	Johansen	1980- 2004	Turkey	Bidirectional relationship
Dritsakis (2004)	VECM	1960-2000	Greece	Bidirectional relationship
Durbarry (2004)	VECM	1952-1999	Mauritius	Bidirectional relationship
Eugenio-Martin *et al.* (2004)	Panel Generalised Least Squares (GLS)	1980-1997	Low and medium-income Latin America countries	TLGH
Eugenio-Martin *et al.* (2004)	Panel GLS	1980-1997	High-income Latin America countries	No causality
Narayan (2004)	VECM	1970-2000	Fiji	EDTGH

Table 1.1: Comparison of the empirical results for tourism development and economic growth…continued

Authors (year)	Empirical method employed	Period of study	Country/group	Hypothesis supported
Lanza, Temple, and Urga (2003	Almost ideal demand system (AIDS)	1977-1992	13 OECD countries	TLGH
Balaguer and Cantavella-Jordá (2002	VECM	1975-1997	Spain	Bidirectional relationship

Source: Own collation (2014)

From Table 1.1 above, it is clear that the evidence concerning the TLGH is equivocal. This is true, firstly for different countries where single studies have been conducted, for instance in Greece, Uruguay and High Income Latin American countries. Dritsakis (2004: 305) used the VECM for Greece from 1960-2000 and concluded that there is a bidirectional relationship between tourism development and economic growth. Brida *et al*. (2010: 770) used cointegration analyses for Uruguay for the period 1987-2006 and confirmed a positive relationship between real gross domestic product (GDP) per capita and real tourist expenditure, hence supporting the TLGH. Eugenio-Martin *et al*. (2004) used the Panel GLS method for High-income Latin America countries from 1980-1997, but found no causality between tourism growth and economic growth.

Secondly, there is lack of a consistent causal pattern between international tourism growth and economic growth for a specific country where multiple studies have been carried, such as in Turkey. In two separate studies, Gunduz and Hatemi (2005) applied the VAR model and the Leveraged Bootstrap Causality method for the time period of 1963-2002. Their results were conflicting. For the former method, the results supported the TLGH and the latter concluded that there was a unidirectional relationship between tourism growth and economic growth. Ongan and Demiroz (2005: 880) employed the Johansen method in testing the long-run relationship between economic growth and tourism growth for Turkey from 1980-2004 and found a bidirectional relationship.

It is clear from the above analysis that these inconsistent conclusions may be due to the use of different sampling periods, different methodologies, the parameters in the estimation process and other reasons mentioned above. This creates a dilemma for policy makers who have to implement tourism development strategies. The debate on the validity of the TLGH is therefore unresolved and merits further academic investigation. If the tourism-led growth hypothesis is to be employed to resolve Africa’s poor economic development and various economic challenges, it is important to establish whether and under what circumstances will tourism growth lead to economic growth. The question on whether it is tourism development that causes economic growth or economic growth causes tourism has important policy implications concerning which growth and development strategies to pursue (Husein & Kara, 2011: 917). The current study addresses that void by investigating the validity of the TLGH in African countries and the CSFs necessary for tourism development to enhance economic growth based on tourism development.

1.4 Research question

Is there evidence in favour of the TLGH in African countries? What are the characteristics of the countries that are successful in translating tourism growth into economic growth? This research intends to establish whether the TLGH can be used as an engine to stimulate economic growth in African countries and to determine the CSFs that are necessary for tourism-led growth in African countries.

1.5 Objectives

The main objective of the research is to investigate the applicability and validity of the TLGH for African countries and to shed light on the characteristics of countries in which the TLGH would succeed. This research therefore intends to investigate the extent to which international tourism development is a strategic factor for long term economic growth and to investigate country characteristics which allow tourism development to have a positive impact on economic growth.

Specific objectives are to:-

a) Review empirical literature on the economic growth theory and the TLGH with the aim of identifying the theoretical basis for the latter and come up with the evidence for and against it.

b) Identify the determinants of economic growth in general and for Africa specifically.

c) Establish the extent to which the tourism sector is given a role in the economic growth of African countries.

d) Investigate the kind of relationship that exist between tourism development and economic growth on the African continent by means of both panel data analysis as well as cross section data analyses.
e) Determine, using global evidence, the circumstances under which the TLGH can be successfully used as a policy tool to stimulate economic growth in African countries.
f) Establish the kind of relationship that exists between tourism growth and various CSFs.
g) Draw conclusions and make policy recommendations.

1.6 Motivation

One of the macroeconomic objectives of every country is to achieve economic growth. According to Grant (2000: 285), economic growth has several benefits to citizens of a country with the general standard of living rising. People will also have increased access to goods and services. Economic growth should lead to more choice, not simply in terms of goods and services but also in opportunities. Importantly, the country becomes independent and ceases to depend on aid. With development usually comes a whole set of statistics favourable to the wellbeing of citizens. These include, among others, higher life expectancy, higher literacy rates, lower child mortality or infant mortality rate, more teachers, doctors and nurses per head of population and more televisions, radios, telephones per thousand population. Moreover, economic growth makes it possible to devote more resources to social services without having to cut private consumption (Tutor2u.net, 2016).

According to The Economist (2013), Africa is now one of the world’s fastest growing regions in terms of economic growth. The analysis of The Economist found that six of the world’s ten fastest-growing economies over the ten years to 2010 were in sub-Saharan Africa, as shown by Table 1.2 and Table 1.3 below:

Table 1.2: World's ten fastest growing economies* from 2001-2010†

Country	Annual average GDP growth (%)
Angola	**11.1**
China	10.5
Myanmar	10.3
Nigeria	**8.9**
Ethiopia	**8.4**
Kazakhstan	8.2
Chad	**7.9**
Mozambique	**7.9**
Cambodia	7.7
Rwanda	**7.6**

*excluding countries with less than 10 million population and Iraq and Afghanistan
†2010 estimate
Source: The Economist; IMF: 2013

Table 1.3: World's ten fastest growing economies* from 2011-2015‡

Country	Annual average GDP growth (%)
China	9.5
India	8.2
Ethiopia	**8.1**
Mozambique	**7.7**
Tanzania	**7.2**
Vietnam	7.2
Congo	**7.0**
Ghana	**7.0**
Zambia	**6.9**
Nigeria	**6.8**

*excluding countries with less than 10 million population and Iraq and Afghanistan
‡forecast
Source: The Economist; IMF: 2013

Table 1.2 and Table 1.3 above show that for the 2001-2010 period, Angola topped the list of the world's top ten fastest growing economies. Nigeria, Ethiopia, Chad, Mozambique and Rwanda were also on the list. For the 2011-2015 period, Ethiopia, Mozambique, Tanzania, Congo, Ghana, Zambia and Nigeria were forecasted to be amongst the top ten world's fastest growing economies, although China was top of the list. Africa was expected to take the lead in economic growth over the past five years. This implies that the average African economy will outpace other regions of the world. In support of these projections is Table 1.4 below with figures for real GDP growth rates for the individual African countries.

Table 1.4 - Real GDP Growth Rates 2006-2016 African Countries

Country	2006	2007	2008	2009	2010	2011	2012	2013	2014 (e)	2015 (p)	2016 (p)
Algeria	1.7	3.4	2.4	1.6	3.6	2.8	3.3	2.8	4.0	3.9	4.0
Angola	11.5	14.0	11.2	2.4	3.4	3.9	5.2	6.8	4.5	3.8	4.2
Benin	3.8	4.6	5.0	2.7	2.6	3.3	5.4	5.6	5.5	5.6	6.0
Botswana	8.0	8.7	3.9	-7.8	8.6	6.2	4.3	5.9	5.2	4.5	4.3
Burkina Faso	6.3	4.1	5.8	2.9	8.4	6.6	9.0	6.6	5.0	5.5	7.0
Burundi	5.4	3.4	4.9	3.8	5.1	4.2	4.0	4.5	4.7	4.7	5.0
Cabo Verde	9.1	9.2	6.7	-1.3	1.5	4.0	1.2	0.7	2.0	3.1	3.6
Cameroon	3.2	3.3	2.9	1.9	3.3	4.1	4.6	5.5	5.3	5.4	5.5
Central African Republic	4.8	4.6	2.1	1.7	3.0	3.3	4.1	-36.0	1.0	5.4	4.0
Chad	0.6	3.1	2.5	2.8	13.6	0.1	8.9	3.9	7.2	9.0	5.0
Comoros	2.6	0.8	0.6	1.1	2.2	2.5	3.0	3.5	3.5	3.6	3.6
Congo	6.2	-1.6	5.9	7.5	8.7	3.4	3.8	3.3	6.0	6.8	7.3
Congo, Dem. Rep.	5.6	6.3	6.2	2.8	7.2	6.9	7.2	8.5	8.9	9.0	8.2
Côte d'Ivoire	0.7	1.6	2.3	3.8	2.4	-4.7	9.8	8.7	8.3	7.9	8.5
Djibouti	4.8	5.1	5.8	5.0	3.5	4.5	4.8	5.0	5.9	6.0	6.2
Egypt*	6.8	7.1	7.2	4.9	4.8	1.8	2.2	2.1	2.2	3.8	4.3
Equatorial Guinea	1.3	13.1	12.3	-8.1	-1.3	5.0	3.2	-4.8	-2.1	-8.7	1.9
Eritrea	-1.0	1.4	-9.8	3.9	2.2	8.7	7.0	1.3	2.0	2.1	2.0
Ethiopia	11.5	11.8	11.2	10.0	10.6	11.4	8.7	9.8	10.3	8.5	8.7
Gabon	1.2	4.8	5.3	-2.7	6.9	7.0	5.3	5.6	5.1	4.6	4.7
Gambia	1.1	3.6	5.7	6.4	6.5	-4.3	5.3	4.3	-0.7	4.2	5.2
Ghana	6.1	6.5	8.4	4.0	3.4	14.0	9.3	7.3	4.2	3.9	5.9
Guinea	2.5	1.8	4.9	-0.3	1.9	3.9	3.8	2.3	0.6	0.9	4.3
Guinea-Bissau	2.3	3.2	3.2	3.3	4.4	9.0	-2.2	0.9	2.6	3.9	3.7
Kenya	6.7	7.1	7.4	6.0	7.0	6.4	6.9	5.7	5.3	6.5	6.3
Lesotho	4.1	4.9	5.1	4.5	5.6	4.3	6.0	5.7	4.3	4.7	5.1
Liberia	9.1	13.0	6.2	5.4	6.3	7.9	8.3	8.7	1.8	3.8	6.4
Libya	6.5	6.4	2.7	-0.8	5.0	-62.1	104.5	-13.6	-19.8	14.5	6.3
Madagascar	5.4	6.5	7.2	-3.5	0.1	1.5	2.5	2.4	3.0	4.0	5.1
Malawi	7.7	5.5	8.6	7.6	9.5	3.8	2.1	6.1	5.7	5.5	5.7
Mali	5.3	4.3	5.0	4.5	5.8	2.7	0.0	1.7	5.8	5.4	5.1
Mauritania	11.4	1.0	3.5	-1.2	4.7	3.6	7.0	5.7	6.4	5.6	6.8
Mauritius	3.9	5.4	5.5	3.1	4.2	3.9	3.2	3.2	3.2	3.5	3.6
Morocco	7.8	2.7	5.6	4.8	3.6	5.0	2.7	4.7	2.7	4.5	5.0
Mozambique	8.7	7.3	6.8	6.5	7.1	7.4	7.1	7.4	7.6	7.5	8.1
Namibia	7.1	5.4	2.6	0.3	6.0	5.1	5.2	5.1	5.3	5.6	6.4
Niger	5.8	3.1	9.6	-0.7	8.4	2.3	11.1	4.1	7.1	6.0	6.5
Nigeria	6.0	6.4	6.0	7.0	10.6	4.9	4.3	5.4	6.3	5.0	6.0
Rwanda	9.2	7.6	11.2	6.2	6.3	7.5	8.8	4.7	7.0	7.5	7.5
Sao Tome and Principe	12.6	2.0	9.1	4.0	4.5	4.9	4.0	4.0	4.9	5.1	5.4
Senegal	2.5	4.9	3.7	2.4	4.2	1.7	3.4	3.5	4.5	4.6	5.0
Seychelles	9.4	10.4	-2.1	-1.1	5.9	7.9	6.0	6.6	3.8	3.7	3.6
Sierra Leone	4.2	8.0	5.2	3.2	5.3	6.0	15.2	20.1	6.0	-2.5	2.8
Somalia	...	...	...	...	...	...	...	...	...	...	...
South Africa	5.6	5.4	3.2	-1.5	3.0	3.2	2.2	2.2	1.5	2.0	2.5
South Sudan	...	...	...	...	...	...	...	-26.7	30.7	-7.5	15.5
Sudan	7.7	5.8	3.8	4.5	6.5	0.9	0.5	3.6	3.4	3.1	3.7

Table 1.4: Real GDP Growth Rates 2006-2016 African Countries…continued

Country	2006	2007	2008	2009	2010	2011	2012	2013	2014 (e)	2015 (p)	2016 (p)
Swaziland	3.3	3.5	2.4	1.3	1.9	-0.6	1.9	3.0	2.5	2.6	2.4
Tanzania	6.7	7.1	7.4	6.0	7.0	6.4	6.9	7.3	7.2	7.4	7.2
Togo	3.9	2.1	2.4	3.4	4.0	4.8	5.8	5.4	5.5	5.7	5.9
Tunisia	5.7	6.3	4.5	3.1	2.6	-1.9	3.9	2.3	2.4	3.0	4.1
Uganda	7.0	8.1	10.4	4.1	6.2	6.4	3.6	4.7	5.9	6.3	6.5
Zambia	7.9	8.4	7.8	9.2	10.3	7.6	6.3	6.7	5.7	6.5	6.6
Zimbabwe	-3.5	-3.7	-17.7	5.3	11.4	11.9	10.6	4.5	3.1	3.2	3.3
Africa	**5.8**	**6.0**	**5.4**	**3.4**	**5.7**	**2.8**	**6.7**	**3.5**	**3.9**	**4.5**	**5.0**

Note: *For Egypt fiscal year July (n-1)/June (n)

Source: Africa Economic Outlook, 2016 (Africa Development Bank Statistics Department, various domestic authorities and AfDB

(e) estimates and (p) projections

From the Table 1.4 above, the projected economic growth rates of countries such as Congo Democratic Republic, Cote d'Ivoire, Ethiopia, Mozambique and South Sudan for 2016 are quite impressive at above 8 percent. Mozambique, Kenya, Tanzania and Zambia, to mention a few, have growth rates of above 5 percent throughout the period. This implies good economic growth performance.

As mentioned earlier, of the three suggested development options for Africa, the TLGH has been suggested in this study. Thus, if the tourism sector is developed in Africa, it is expected that the continent will experience sustained growth and African countries will continue to be the top ten fastest growing world economies for long.

However GDP per capita figures for African countries for the period 2008 to 2012 have not been impressive as depicted by Table 1.5 below:

Table 1.5: GDP per capita (current US$) 2008-2014

Country Name	2008	2009	2010	2011	2012	2013	2014
Developed Countries							
Australia	40628.115	42715.132	51845.655	62216.547	67646.104	67652.683	61979.62
Denmark	64181.99	57895.5	57647.67	61304.06	57636.13	59818.68	60718.39
Finland	53401.31	47107.16	46205.17	50787.56	47415.56	49492.83	49842.71
France	45413.07	41631.13	40705.77	43807.48	40850.35	42627.65	42725.74
Germany	45699.2	41732.71	41788.04	45936.08	44010.93	45600.77	47773.94
Greece	31997.28	29710.97	26919.36	25914.68	22242.68	21842.7	21672.67
Ireland	61189.73	51900.27	48260.67	52828.42	48976.93	51814.86	54339.32
Japan	37865.62	39322.6	42909.23	46203.71	46679.27	38633.71	36194.42
Sweden	55746.84	46207.06	52076.43	59593.68	57134.08	60283.25	58898.93

Table 1.5: GDP per capita (current US$) 2008-2014…continued

Country Name	2008	2009	2010	2011	2012	2013	2014
Switzerland	72119.56	69672	74277.12	88002.61	83208.69	84669.29	85616.56
United Kingdom	45195.16	37166.28	38292.87	41020.38	41294.51	42294.89	46296.98
United States	48401.43	47001.56	48374.06	49781.36	51456.66	52980.04	54629.5
Developing Countries							
Botswana	5561.898	5115.119	6244.003	7504.851	6935.594	6882.258	7123.339
Ghana	1234.08	1095.503	1323.099	1587.191	1641.826	1827.101	1441.636
Madagascar	472.3791	417.1783	414.1428	456.3293	444.9585	462.974	449.4008
Malawi	307.5779	351.0798	365.5166	369.6043	270.0875	239.8697	255.0446
Morocco	2905.953	2883.851	2857.673	3066.503	2931.4	3156.175	3190.31
Mozambique	499.8871	461.4252	417.5012	524.8915	564,8125	605.2344	585.6227
Niger	358.1914	344.3756	351.0062	378.2005	393.6434	418.4924	427.3732
Nigeria	1376.857	1091.969	2314.964	2514.149	2739.852	2979.835	3203.297
South Africa	5811.619	5912.143	7389.96	8080.865	7592.158	6889.787	6483.855
Uganda	459.1098	557.5236	608.813	591.4386	656.3981	674.3416	714.5673
Zambia	1365.725	1134.773	1456.127	1654.525	1686.618	1759.193	1721.623
Zimbabwe	327.1196	594.496	674.2687	768.5564	850.8277	905.5003	931.1982

Source: World Bank (2016)

In developed countries, such as Australia, Denmark, France, Germany, United Kingdom and the United States, most people live on more than US$50 per day. This is because developed countries have high per capita GDP as shown in Table 1.5 above. Taking a closer look at an advanced economy like Switzerland, GDP per capita figures reveal that the average Swiss lives on more than US$200 per day. On the contrary, people in Africa are poor, with countries such as Madagascar, Mozambique, Niger, Uganda and Zimbabwe ranking amongst the poorest in the world. In Malawi specifically, the GDP per capita figures reveal that the average Malawian lives well below the poverty datum line[3] of less than US$2 per day. People in Africa can barely afford the basic necessities of life, with only a few exceptions in countries like Botswana and South Africa, which are middle income countries. As mentioned earlier, tourism-led growth is often viewed as a possible cure for African countries to boost their GDPs per capita, so that Africans can then be in a position to live above the poverty datum line. But, does evidence support this claim?

[3] The poverty datum line is the cost of a given level of living which must be attained if a person is deemed not to be poor (ZIMSTAT, 2013: 38).

1.7 Contribution

This research is important for five main reasons. Firstly, it will be an addition to the currently sparse literature and evidence on the validity of the TLGH in African countries. Secondly, the research will be useful as policy guidance for African governments on whether tourism development enhances economic growth for African countries. Thirdly, the research will also establish the relationships that exist between tourism growth and other various explanatory variables through its assessment of CSFs for the TLGH. By identifying the various characteristics and attributes of countries in which tourism development has led to enhanced economic growth, clear policy recommendations can be made. Fourthly, the study has a major contribution to the literature on TLGH because it is the first study to cover almost all African countries (except Somalia which will be excluded due to missing data) on tourism-led growth, and to test the significance of the CSFs (prerequisites) for tourism led growth. Finally, the time span for the study (1995-2013) is also important because several global and African events that took place in this period have a bearing on African tourism growth. This includes events such as the 2007-2008 global financial meltdown, African political disturbances and the Arab Spring which took place from 2010.

1.8 Method

The method in this study consists of three approaches. The first approach reviews literature on economic growth theories as well as on the TLGH. To this end, the CSFs for the TLGH will be identified and examined. These are the prerequisites that are crucial for translating growth in the tourism sector into economic growth on the African continent. The literature will be analysed critically with the aim of providing guidance in the formulation of the models and the identification of CSFs which are to be applied in the study.

The second approach will be the empirical study which consists of an analyses of cross section and panel data for 53 African countries. Africa has 54 countries but the data for Somalia are too limited to allow its inclusion. Whole databases of countries observed from the 1995 to 2013 period will be used. The determinants of output growth for each country will be based on theoretical growth theory to be reviewed in Chapter 2. The determinants are physical capital, human capital, tourism exports, trade openness, commodity exports and non-economic effects captured by a series of dummy variables. The dummy variables are landlockedness, post conflict, ease of doing business and the North African Country dummy (see chapter 5 for a full discussion).

The methodology employed in this research is based on the studies done by Cortés-Jiménez and Paulina's (2010), Holzner (2011) and Figini and Vici (2010). The aggregate production function compatible with the new growth theory and the growth function will be the two approaches for the econometric model specification to be employed in the study. The aggregate production function includes output, physical capital, human capital, tourism, exports, trade openness and several dummy variables, which are, post conflict, landlockedness, ease of doing business and North African countries. Openness to trade also means limited visa restriction for tourists, with important implications to be discussed. The growth function is specified in line with the works of Brau, Lanza and Pigliaru (2004 and 2007) and Figini and Vici (2010).

Two sets of analyses are done, namely, cross-sectional analyses and panel data analysis. The variables used will be averaged over a 5-year period (1995-2009), and a 4-year period (2010-2013) as well as over the full period (1995-2013) for the cross-section estimations. Using this method minimises the risk of missing observations in the regression. However, the effects of particular events and measurement errors involved are smoothed by the averaging of data. Five periods or cross sections will be constructed in which variables in the model take the average value of 1995-1999 (cross section 1), 2000-2004 (cross section 2), 2005-2009 (cross section 3), 2010-2013 (cross section 4) and the full period cross section respectively. The average panel data set will be constructed from the cross section data averages, that is, four time periods with 53 cross sections in each time period. The average panel data set is a combination of time series and cross section data, hence, for a specific variable, a country will have four observations generated from the four average values calculated for the periods 1995-1999, 2000-2004, 2005-2009 and 2010-2013 respectively.

The cross section regressions will be performed for the production function and then for the growth function for robustness. The research will use 3 proxies for tourism exports, which are, tourism receipts per capita (ie, tourism receipts per inhabitant), tourism exports as a percentage of GDP and the revealed comparative advantage (RCA) for tourism. Two proxies for human capital will also be used, which are: secondary school enrolment as a percentage of gross; and the human capital index (HCI). The stepwise application of the cross country regression equations will be performed and the approach follows the study done by Holzner (2011).

Each cross section will be having eight equations for each proxy of tourism exports. Firstly, the most basic specification of real per capita GDP is expressed as a function of physical capital, human capital, and tourism exports. Secondly, the first estimate is enhanced by adding the dummies, which are, post conflict, landlockedness, ease of doing business and North African countries. Further specifications will include testing separately the significance of trade openness and natural resource dependence. The process is repeated for each of the proxies of tourism (that is, tourism receipts, tourism percentage and RCA for tourism). The same process is again repeated for the two proxies of human capital (that is, secondary school enrolment as a percentage of gross and HCI). The presence of heteroscedasticity in the models will be examined. Eight equations will be generated for each tourism proxy and for each of the cross sections.

The same regressions will be performed in a stepwise manner for the growth function using the explanatory variables as well as the initial per capita GDP. The initial per capita GDP is included as an explanatory variable so as to capture the hypothesis of the convergence of incomes stemming the Solow growth model. The most basic specification of real annual GDP growth is expressed as a function of initial GDP, physical capital, human capital and tourism exports. The tourism proxy took the 3 three variations or proxies. Again, the presence of heteroscedasticity in the models will also be examined and eight equations will be derived for each tourism proxy and for each of the cross sections.

The regression estimations will be performed for the average panel data which is a combination of the cross section data sets. These will again be done in the same stepwise manner in which the cross-section regressions are performed. The estimations will finally be executed for the whole period cross section, that is, 1995-2013 time span. Regressions will be run using EViews Version 8 and STATA13.0 econometric packages.

The third approach aims to identify robust prerequisites for the tourism-led growth (TLG) in Africa using global evidence. The major thrust of this approach is to identify and test the CSFs or the prerequisites for the TLGH. A thorough search using all the search engines (that is, Google Scholar, EbscoHost, JSTOR, Science Direct, Scopus, Emerald and so on) will be performed and all articles on TLG will be downloaded. Articles on country evidence will be summarised in tabular form according to author(s), year of publication, journal/ source, time span (frequency), tourist destination, methodology employed, variables used and direction of causality. The articles will then be classified into two categories, that is, those that found that tourism leads to economic growth and those that found that tourism does not lead to growth. Proxies will be used for the key success factors for TLG that are to be identified in Chapter 4.

The dependent variable in this analysis is dichotomous and each country will be coded as either 1 (implying YES, tourism leads to growth in this country), or 0 (meaning NO, tourism does not lead to growth in this country). Some independent data will be dummy variables. Two types of TLGH dependent dummy variables will be generated. The first one is the TLGH1 dummy for any country in the list where there is evidence of tourism development leading to economic growth. The second one is the TLGH2 dummy where there is clear evidence that tourism development causes economic growth and there is no conflicting evidence (most strict dummy). The logistic (logit) panel and cross section regressions will be used to determine the CSFs which are significant predictors for countries where tourism leads to economic growth for the period 1995-2013. For robustness, the logistic regressions will also be executed for the cross total (1995-2013) averages for the variables. STATA13 econometric package will be used for the regressions. The empirical analysis for the third approach is not focused on Africa only and global evidence will be used to guide African policies. There are several countries in the world where there are success stories of tourism-led growth. The third approach will aim to use worldwide evidence in order to identify CSFs for tourism development and growth that can be applicable in the African context. This will be done because tourism success stories and data in Africa is limited.

1.9 The data sources

Evidence of TLG in Africa data for physical capital, human capital, tourism exports, trade openness, metal exports and ease of doing business will be downloaded from the World Bank 2015 website. The dummy for North African countries will be constructed from the World Bank website which has a list of North African countries. Maps of World (2016) has information that 16 African countries are landlocked. The landlocked dummy will be coded 1 to represent a country that is landlocked and 0 if it is not landlocked. The dummy for African countries which have passed through post conflict was constructed from several sources, which include, the United Nations Development Programme (UNDP) (2008), David *et al.* (2011), Derek (2013) and the International Monetary Fund (IMF) (2015).

For the third approach, that is, the CSFs (prerequisites) for the TLG, the dependent variable will be regressed against the CSFs identified in chapter 4. The explanatory variables are the prerequisites for the TLG, which will be identified in Chapter 4. Dummies for the existence of world wonders and the Blue Flag accreditation will be included in the model because they have a bearing on the growth of the tourism sector of a country and they make a lot of economic sense in tourism economics.

Data for investment, trade openness, human resources, a well-developed financial system, technological development, favourable climatic conditions and the protection of the environment will be downloaded from the World Bank 2016 website. Data for safety and security of tourists will be accessed from the World Economic Forum 2015 report. The dummy for World Wonders will be constructed from information from Worldatlas (2015), Wonderslist (2015), (World of New 7 Wonders, 2007) and Skyscanner (2015). The dummy for the Blue Flag accreditation will be constructed from information from the Blue Flag (2015) website.

1.10 Study outline

The study will be structured as follows: Chapter 1 introduces and gives the general overview of the research. Chapter 2 reviews and analyses literature on economic growth theories, and identifies the determinants of economic growth according to theoretical and empirical literature review. Chapter 3 reviews and analyses literature on the TLGH. Chapter 4 examines and identifies the CSFs or the prerequisites that are important for tourism development to translate into economic growth on the African continent. Chapter 5 seeks to provide empirical evidence for the TLG for countries in the Africa continent. Chapter 6 identifies and tests the prerequisites for the TLGH, that is, the conditions which must exist in a country for tourism development to translate into economic growth. Finally, chapter 7 will summarise and conclude the research. Recommendations will also be proffered in this chapter and a comprehensive tourism economic growth strategy will be formulated.

CHAPTER 2

ECONOMIC GROWTH

2.1 Introduction

One of the major macroeconomic objectives of government is to achieve higher and sustainable economic growth, i.e. to increase the growth of real income. Real income is important because it represents the economic well-being of the citizens of a country. Economic growth has been a core concern at the heart of economics from the inception of this discipline, with Adam Smith's publication in 1776 *(An Enquiry into the Nature and Causes of the Wealth of Nations)*. Economists have since, in time memorial, tried to come up with theories to explain economic growth.

Theories help to improve understanding of the real world situation and provide a conceptual basis for policy-making. In reality, however, the situation is much more complicated. Nafziger (2006:123) states that a simple model cannot include all the critical variables that influence growth and there is no single theory which considers all the determinants of economic growth. This created a need for economists to distinguish between the critical variables, on the one hand, and those which are of secondary importance for growth, on the other. However, according to Kindleberger and Herrick (1977: 40) a simple model may omit critical variables found in the real world scenario because reality is so complicated. Despite the fact that mathematical models can handle a large number of variables, these variables have not been very successful in explaining economic growth and development especially for third world countries, such as those in Africa (Nafziger, 2006: 123). Theories of economic growth have been directed to the two central questions: Why do growth rates differ across countries and what are the factors driving this difference? The difference manifests itself in different standards of living and quality of life all over the world.

This chapter aims to review and critically analyse the main economic growth theories. Since this study focuses on tourism as a driver for economic growth, it is important to understand the underlying theories on what determines growth. The theories are going to be presented according to timeline or their chronological order. It must be noted that timeline does not necessarily imply loss of significance of a particular theory. The approximate chronological order of economic growth theories is as follows: classical economic growth theories – 1776-1870s, the Harrod–Domar growth model- 1946, neoclassical Solow-Swan economic growth theory-1956, and finally the endogenous economic growth theories.

The theories will be presented as follows: firstly will be a basic description of the theory, secondly are the criticisms or shortcomings of the theory and finally is the empirical evidence of the economic growth theories. Finally, the chapter will further identify the key contributors or drivers to economic growth.

The chapter is structured as follows: section 2.2 defines economic growth, section 2.3 reviews the classical economic growth theories, section 2.4 analyses the Harrod-Domar growth model, section 2.5 examines the neoclassical economic growth theory, section 2.6 discusses the endogenous economic growth theories, section 2.7 identifies and assesses the key contributors to economic growth and section 2.8 summarises and concludes the chapter.

2.2 Economic growth defined

Economic growth can be defined as the increase in the market value of goods and services produced by a country over a period of time. It is usually measured by changes in the real GDP (Dolan *et al*., 2008: 3). According to Palmer (2012: 1), economic growth refers to an increase in the productive capacity of an economy and as a result, the economy is capable to produce additional quantities of goods and services. Economic growth is synonymous with an increase in the general standard of living. This is because the standard of living is normally measured by the quantity of goods and services available to citizens of a country. Romer (1996: 5) points out that, the levels of economic growth differ vastly among different parts of the world. This difference can be manifest across countries of the world or over a period of time in a set of countries. This may imply that real incomes of developed countries exceed those of developing countries. Additionally, there are vast differences in the standards of living over time as is evidenced by the fact that the world is richer today than it was five hundred years ago, or even twenty years back.

In the history of economics, interest in the study of economic growth has experienced fluctuations. Economic growth was central in the classical political economy from Adam Smith to David Ricardo, and then in its critique by Karl Marx. However, during the so-called ‘marginal revolution’, it moved to the periphery. In an attempt to generalise Keynes’s principle of long run effective demand, John von Neumann and Roy Harrod's growth model re-ignited interest in the economic growth theory. The publication of papers by Robert Solow and Nicholas Kaldor during the mid-1950s elevated economic growth theory to one of the central topics of the economics profession until the early 1970s. From the mid-1980s, economic growth once again became a central topic in economics theorising after a decade of dormancy. The endogenous economic growth theories are the most recent theories on economic growth. According to these theories, growth rate is determined within the model and not exogenously (Salvadori, 2003: xi).

For over half of a century, there have been marked changes in the understanding of economic growth. The economic theory has evolved to account for the successes and failures experienced by countries (Hoff & Stiglitz, 2000: 389). There are different economic growth theories which can be classified according to this school of thought. These include the classical, neoclassical, Keynesian, exogenous growth theory and the endogenous economic growth theories. These theories are discussed in the subsequent sections of this chapter. The reasons for the continuous development and emergence of new theories are also going to be put forward.

2.3 Classical economic growth theories

Classical economics refers to the work done by a group of economists during the eighteenth and nineteenth centuries. The classical economists were influenced by Newtonian physics. Just as Newton posited that activities in the universe were not random but subject to some grand design, the classical economists believed that the same natural order determined prices, rent, and economic affairs (Nafziger, 2006:14). The theories that were developed mainly focused on the way market economies functioned and the dynamics of economic growth. The generalised classical theory of growth and stagnation is a combination of the contributions of economists including Adam Smith, David Ricardo and Robert Malthus. The classical theories of economic growth combine the common stands of thought, within individual growth theories of these famous and renowned classical economists. Individual theories postulated by each of these three economists are explored first in order to understand the generalised classical theory of growth and stagnation.

2.3.1 The classical theories explained

Adam Smith's "An Inquiry into the Nature and Causes of the Wealth of Nations" includes some considerations on what is now referred to as economic growth. Although Smith (1776) does not necessarily develop a long run growth theory, conclusions on growth may be deduced, as he refers to the importance and effects of increasing productivity of labour as well as saving. The stationary state is defined as a situation where population size and capital accumulation have reached their maximum, and as a consequence the economy does not progress any more. In contrast to this rather pessimistic view, Smith also refers to technological progress, which raises the aggregate output, but considers division of labour as an even more important potential for improving the productivity of labour. However, division of labour may not be improved endlessly. Therefore, whether the aggregate economy long run growth is possible in Smith's model is open to interpretation. The crucial point in Smith's theorising is population growth - either it would grow to its possible maximum level, or it could be restrained. It follows implicitly that an increase of per capita output in the long run would be possible if the latter case were to be achieved (Sardadvar, 2011: 9).

When David Ricardo published his now best-known work in 1871, that is, "On the Principles of Political Economy and Taxation", industrialisation was advancing so rapidly that he already felt the need to rewrite those parts dealing with technology in 1821. Like other economists of the industrial era, when the machinery was being prioritised compared to the worker, it was impossible for him to foresee the long run effects. Ricardo was at first confident that productivity-augmentation due to machinery was to benefit all social classes. However, he revised his conclusions after four years to a scenario where profits increase while wages fall was possible (König, 1997: 78). Generally, the conclusion of Ricardo's system concerning economic growth is that technological progress may postpone, but not prevent the incidence of a stationary state (Pasinetti, 1960: 15).

Ricardo assumes an economy made up of two sectors that exhibit constant returns to scale in the manufacturing sector, but decreasing returns in the agricultural sector. Hence, as more land is cultivated, marginal quality of land worsens (Ricardo, 1821). He considers capital owners of capital to be the society's "productive class", since they devote their profits towards the accumulation of capital. This accumulation process cannot go on endlessly due to population growth. As a result, there will be less fertile land cultivated, resulting in the aforementioned decreasing returns in agriculture (Ricardo, 1821). Via feedback effects on productivity and growth of employment, the profit rate will fall until it has fallen to (almost) zero. This will prevent the capitalist class from accumulating capital. At this point, the stationary state will have been reached by the economy, with the landlords taking the entire surplus.

Robert Malthus (1766–1834) was a classical economist and was most famous for his doctrine that population increases geometrically when the means of subsistence increases arithmetically. At this point, according to Malthus, a mismatch occurs between the available resources and growth of population growth, and eventually a population explosion will outstrip man's ability to feed himself. Malthus' theories caused him to be coined "*prophet of gloom and doom"* because he became associated with turning economic thought into a dismal science. He became famous for his predictions which expected the worst regarding the future of humanity. Malthus's major contribution to the economic thinking came in the form of six editions to "An Essay on the Principle of Population", published from 1798 to 1826 (Bowler, 2003: 104).

Unlike Smith and Ricardo, Malthus was more interested in the problems that population growth posed on the economy. According to him, no enquiry could be more important than that which identifies the differences and causes between the actual and potential growth of a country. The concepts that would help understand Malthus' theory of growth are his views on capital accumulation and human resources, the identification of factors that slow the process of growth and the interaction of different sectors in areas that are underdeveloped. Malthus had his own view regarding capital accumulation and human resources. According to him, population growth, to a great extent, depends on the strengths of forces that are physiological and psychological. He also admitted that the growth of the population is limited by the riches of the society. He stated that population increase cannot take place without a proportionate or nearly proportionate wealth increase. Malthus argued that a shortage of wealth is a constraint to the growth of the population. Thus, it became evident that the natural tendency of the growth of a population in Malthusian system does not ensure that income or population will actually increase in a country (Malthus, 1798: 317).

Effective demand, which is the quantity of a good or service that is bought by consumers at the ruling market price, is the main source for propelling the process of growth. Malthus believed that population increase does not provide a catalyst to economic growth as it may not raise effective demand, because oftentimes workers lack purchasing power due to the inadequate demand for their labour. Supporting the views of both Smith and Ricardo, Malthus thought that labour demand is affected by capital accumulation. Yet he differed from both Smith and Ricardo on the conclusion that savings always equals investment and hence, any act of savings would lead to a rise in the wealth of the economy. Rejecting Say's Law of Market, which states that 'supply creates its own demand', Malthus stated that savings reduce effective demand by decreasing the ability of people to consume, in turn bringing down a reduction in investments and profits (Bowler, 2003: 72).

The following equations explaining economic growth process according to Malthus are taken from Misra and Puri (2010: 14-16):

$$Y = R + W, \tag{2.1}$$

where, Y represents national income, R denotes profit and W, wages.

Equation (2.1) may be re-written as:

$$R = Y - W, \tag{2.1a}$$

which explains that profits are equal to total output (income) minus the wages of workers. According to Malthus, national income (Y) is created by investment (I) and consumption (C), which is divided into capitalist consumption (Cc) and consumption by the worker (Cw). Workers earning subsistence wages are too poor to save any amount from their disposable income. This means that, workers spend/consume (Cw) the total of their income. Whereas, capitalist earnings exceed their consumption needs, and allows them to save that extra amount of their income. According to Malthus, the total amount of the savings by the capitalist are not invested, and since savings only produce income to the extent that they are invested, we can substitute this in equation (2.1a) as:

$$R = (I + Cc + Cw) - Cw = I + Cc, \tag{2.1b}$$

where, Cc is the capitalists consumption and I stand for investment.

Since the wages of workers equals their level of consumption, profits are equal to investment (I) plus capitalist' consumption (Cc). Malthus argues that if capitalist forgo consumption, it only contributes to economic growth if the savings are then invested. In cases where this does not happen, the capitalist savings would only slow down the growth process. He also states that when the opportunities for profitable investment are depleted, it is not possible to convert savings into investment. At this point abstinence on the part of the capitalist only reduces the economy's amount of effective demand, thereby limiting/lessening the possibility of growth (Misra & Puri, 2010: 22).

According to Misra & Puri (2010: 43), Malthus identified three main factors which hindered the growth of the economy. Firstly, managers and workers had no incentive to do work and he suggested external trade promotion through improvement of domestic communication and transport. Secondly, the economy was incapable of transforming itself into an industry-based economy. Thus, unemployment increases wherever technology fails and income levels tend to decrease. This implies that technological progress generates employment creation in the industrial sector. Thirdly, a country's progress technologically had to be rapid enough to allow huge investment in the industrial sector.

In the Malthusian economy, it is the interaction of the industrial and agricultural sector which leads to the stationary state. Malthus explained the reasons why some economies remain underdeveloped in terms of sectoral interaction. He asserted that in a state of autarky, which means the absence of trade or a condition of self-sufficiency, the two sectors of an economy, that is, the agricultural and the industrial sectors constitute markets for each other's products. Therefore, due to the dependency between the two sectors, the failure of one sector to grow, makes it exceedingly impossible for the other sector to increase in size. Malthus contended that the industrial sector development in a backward economy is limited by the underdevelopment of the agricultural sector. Likewise, the backwardness of the agriculture and the poverty of the peasantry does not result from the scarcity of land, but from the inadequate demand for agricultural products due to limited development of the industrial sector which stops the landlords and the peasants from taking up any programmes which help the agricultural sector to be developed. Faced with insufficient resources and limitations of the market, farmers have no motivation for more intensive cultivation (Ewugi & Yakubu, 2012: 198-199).

Summing up Malthus's general view, the insufficient effective demand in countries that are less developed prevent development in both the industrial and agricultural sectors. Dualism may exist due to the emergence of a small modern industrial sector in the economy. Employment opportunities may be created by the sector, but the overall effect on the economy is rarely felt. Techniques of production that are labour-intensive in the agricultural sector do permit the absorption of most of the labour force in countries, but it do not generate high enough wages/ income for the workers. This therefore does not lead to an increase in the economy’s effective demand, nor to an increase in the economic growth rate (Misra & Puri, 2010: 65).

2.3.2 Criticism of the classical economic growth theories

The Classical economic growth theories did not escape criticisms. Kaldor pointed out that "it is not possible to determine the position of equilibrium from a given system of data since every successive step taken in order to reach equilibrium will alter the conditions of equilibrium (the set of prices capable of bringing it about) and thus change the final" (Kaldor, 1989:16). This theme was also under consideration in his 1972 paper, where he stated that "the habits of thought engendered by “equilibrium economics” has become a major obstacle to the development of economics as a *science*" (Kaldor, 1972: 1.237). Although he restricted the meaning of "equilibrium economics" to the "general economic equilibrium originally formulated by Walras, and developed, with ever-increasing elegance, exactness, and logical precision by the mathematical economists of our own generation" (Kaldor, 1972:1.237). Kaldor accused Adam Smith of being responsible for the birth of "equilibrium economics" and established a continuous line of the price theory from Smith to Debreu, passing through Walras and Marshall.

A similar position can be found in Joan Robinson (1962), who asserted that the very notion of long-run equilibrium should be abandoned since the real world with an irrevocable past and an unforeseeable future "in which expectations are liable to be falsified cannot be described by the simple equations of the equilibrium path" (Robinson, 1962:25). Besides, the equations of such a model "may determine a path through time. But the time through which such a model moves is, so to speak, logical time, not historical time" (Robinson, 1962:23-4). Finally, Robinson (1962:24) contends that "a model applicable to actual history has to be capable of getting out of equilibrium; indeed, it must normally not be in it".

The same idea is also found in Robinson (1979a), where equilibrium was conceived as incompatible with the uncertainty that surrounds expectations of the outcome of a plan of investment, course of technical progress and behaviour of future prices. The effects of natural and political cataclysms that cannot be reduced to a calculated risk by applying the theorems of mathematical probability are not mentioned, so that its place should be taken by history (Robinson, 1979a:48). The concept of *stability* which relies on mechanical analogy is seen as inappropriate in economic analysis. The Walrasian model of general equilibrium implies that investment and disinvestment, work in progress, windfall gains and losses on stocks that have become inappropriate must be involved for there to be a change in the production pattern. A whole story about the behaviour of the economy when it is out of equilibrium, including the effect of expectations not realised on decisions being taken by inhabitants will have to be filled (Robinson, 1979a: 52).

The classical economists knew the role of entrepreneurs in the production process, yet they never assigned any important position to themselves in their system. Contrary to what was envisioned by the classical economists, capital has become an important determinant in agriculture and is now increasingly replacing land. Even in the industrial sector, growth caused by increasing returns has prevented profit rates from decreasing. Hence, investment activity has not retarded. The classical economists were right to observe that the technical progress was greatly dependent on investment and savings, but the relationship they shared is not as rigid as the one they have assumed in their model. These theories have been criticised for not acknowledging that, while necessary, capital accumulation is not adequate for development to take place. The classical theory failed to account for social, political, and institutional hindrances to development. The classical theory of economic growth also has major contributions to economic policy in general though the theory faces a lot of criticisms. The theory underlies that there is a strong relationship between the agricultural sector performance and industrial growth. The model points to the key determinants of economic growth and the analysis of their interdependence (Eltis, 1984: 35).

2.3.3 Empirical evidence of the classical economic growth theories

According to Ross (2011), the rapid growth of Asia's developing economies is empirical evidence that is strong enough to confirm the classical economic growth theories. A decisive test of the economic theory is a vital practical issue for the standard of living of Asia's billions of people. The Asian group of economies are the world's most rapidly growing economies. Some of these economies were transformed from 'low income developing' economies to 'developed' status. These economies have attained the status of 'developed' and still continue to grow more rapidly than their counterparts in North America, Japan and Europe. China being the largest economy in the group has undergone the most rapid growth in history for more than thirty years.

There are several reasons for the success of Asian economies. If the whole world were to enjoy the same economic growth as East Asian economies, underdevelopment problems and poverty would be overcome (Ross, 2011). This success can be attributed to their adoption of the classical economists' fundamental interrelated propositions that enabled to achieve high economic growth rates. The classical growth theory is characterised by four fundamental, interrelated, propositions which are: increasing division of labour for productivity growth to take place; increasing production and an increasing scale of market for an increase in the division of labour; a historic increase in the percentage of investment in the economy emanating from an increasing division of labour and scale of production; and technological progress as a product of increasing division of labour that is not exogenously but endogenously determined. A theory in economics must be judged by its ability to explain reality and events. According to Ross (2011), Adam Smith's classical theory of economic growth success will continue, since it anticipated the success of Asian economies and also explains the growth of developed countries.

2.4 The Harrod-Domar economic growth model

The Harrod-Domar economic growth model is an extension of Adam Smith's approach to economic growth. The model puts a lot of emphasis on savings and efficiency as the key foundations to attaining economic growth (Beardshaw *et al.*, 2001: 472). The Harrod–Domar model is an early post-Keynesian model of economic growth. It is used in development economics to explain the growth rate of an economy in terms of the level of saving and productivity of capital. It suggests that there is no natural reason for an economy to have balanced growth. The model was developed independently by Roy F. Harrod in 1939 and Evsey Domar in 1946. It is widely acknowledged to be the precursor to the exogenous growth model (Sato, 1964: 380).

Harrod's original model is a dynamic extension of Keynes's static equilibrium analysis. In Keynes's General Theory, the condition for income and output to be in equilibrium (in the closed economy) is that plans to invest equal plans to save (i.e. planned injections must equal planned withdrawals in the circular flow of income). Harrod asked the question that, if changes in income induce investment, then what must be the rate of growth of income for plans to invest to equal plans to save, in order to ensure a moving equilibrium in a growing economy through time. Moreover, is there any guarantee for this required rate of growth to prevail? If not, what will happen? (Thirlwall, 2011: 140).

2.4.1 The Harrod-Domar theoretical model

In its most basic form, the Harrod- Domar growth model argues that economic growth is dependent on three key things: the savings rate, the capital output ratio and the depreciation rate (Beardshaw *et al.*, 2001: 472). In theory, the Harrod-Domar model is a cross between the Classical and Keynesian theories of economic growth. The model emphasises that the prime mover of the economy is investment and it has a dual role to play. It creates demand as well as capacity (Baldwin, 1972: 9). Whereas Keynesians concentrated upon the former (i.e. demand), the classicals emphasised capacity. The variables chosen by the Harrod-Domar model are the broad aggregates, namely investment, capital and output (Ghatak, 2006: 42).

According to Todaro and Smith (2005: 113), this model states that every economy must save a certain proportion of its national income, if only to replace worn-out or impaired capital goods. In order for an economy to realise growth, new investments representing net additions to capital stock are necessary. Assuming a direct economic relationship between the size of capital stock, K, and the total national output (GNP) - it follows that any net additions in the form of new investment will bring about corresponding increases in the flow of GNP. Defining *k* as capital-output ratio and further assuming that *s* represents the national savings ratio, which is a fixed proportion of national output, and that aggregate new investment is determined by the total savings level, Harrod and Domar showed that the following simple model of economic growth can be constructed (Domar, 1939: 14-33):

Saving (S) is assumed to be some proportion, *s*, of national income (Y):

$$S = sY \tag{2.2}$$

Net investment (I) is defined as the capital stock change (ΔK):

$$I = \Delta K \tag{2.3}$$

Because total capital stock, K, bears a direct relationship to total national income or output, Y, as expressed by the capital output ratio, it follows that:

$$\frac{K}{Y} = k \tag{2.4}$$

or $\frac{\Delta K}{\Delta Y}$ = k, implying

$$\Delta K = k\Delta Y \tag{2.5}$$

Finally, net national savings, S, must equal net investment, I:

$$S = I \tag{2.6}$$

From equations 2.3 and 2.5 it follows that

$$I = \Delta K = k\Delta Y$$

Therefore the identity of saving equalling investment shown by equation 2.6 can be written as

$$S = k\Delta Y \tag{2.7}$$

and given equation 2.2,

$$sY = k\Delta Y \tag{2.8}$$

Rearranging equation 2.8, the following expression is obtained:

$$\frac{\Delta Y}{Y} = \frac{s}{k} \tag{2.9}$$

Where the left hand side of Equation 2.9, ΔY/Y, represents the rate of change or rate of growth of GNP (i.e. the percentage change in GNP).

Equation 2.9, which is a simplified version of the famous equation in the Harrod-Domar theory of economic growth, simply states that the GNP growth rate (ΔY/Y) is determined jointly by *s* (the national savings ratio), and *k* (the national capital output ratio). More specifically, it says that in the absence of government, the growth rate of national income will be positively or directly related to the savings ratio (which implies that the more an economy is able to save and invest out of a given GNP, the greater the growth of that GNP) and negatively or inversely related to the capital–output ratio of the economy (that is the higher *k* is, the lower the rate of GNP growth) (Domar, 1939: 19).

The economic logic of Equation 2.9 is that, economies must save and then use a certain percentage of their savings to invest. This will allow nations to grow. The more they are able to save and invest, the faster their rate of economic growth. But the actual rate of growth for any level of saving and investment (that is, how much additional output can be generated from any increase in a unit of investment) can be measured by the inverse of the capital output ratio, k, because this inverse relationship is simply the output-investment or output-capital ratio. It follows that multiplying the rate of new investment, $s = \frac{I}{Y}$, by its productivity, $\frac{1}{k}$, will give the rate of increase in national income (or GNP) (Todaro, 2005:115).

2.4.2 Criticism against the Harrod-Domar economic growth model

Despite its major contribution to economic growth, the Harrod-Domar growth model has sparked criticisms. Harrod-Domar model rely greatly on a capital theory of value. While labour can be introduced into the system, the two factors, capital and labour, should always remain in fixed proportion. This is a highly unrealistic assumption adopted in the model (Sen, 1975: 89). Capital accumulation has a dual character: on the one hand, it generates income, and on the other, it increases the capacity of the economy. This duality in the character of capital accumulation puts capital accumulation at the centre of the problem of steady growth. The increased capacity may result in larger output and may thus contribute to prosperity. Alternatively it may result in unemployment and become a potential cause of poverty and sufferings. What actually happens will depend on the behaviour of income. Furthermore, the problem of estimation of capital is not easy in any country (Robinson, 1956: 19) and is particularly difficult in less developed countries.

The Harrod-Domar economic growth model assumes that all the sufficient conditions required for proper economic growth are a healthy and educated workforce, a good infrastructure (roads, water, electricity etc.), political stability, and the existence of working financial institutions such as banks to channel savings into investment. Yet, most of these conditions are lacking in underdeveloped countries, which might explain the lack of growth in these economies. However, assumptions with regard to the constancy of propensity to save and the capital-output ratio are not in line with reality, since both are likely to change in the long run (Solow, 1956: 66). As investment increases, the law of diminishing returns is expected to apply. Therefore capital-output ratio may well be reduced with each successive unit of new capital, as investment becomes less productive (Ghatak, 2006: 43).

Solow (1956: 65) further criticises the model by stating that financing the savings gap by borrowing from foreign or international lenders could cause debt repayment problems in the future. In addition, the general price level is assumed to be constant in the models of Harrod and Domar, while, in reality, prices do change over time. Had these models made some allowance for price flexibility, the system would have had greater stability than these models suggest. Furthermore, the assumption of the constancy of interest rates is both unrealistic and unnecessary, even though interest rate may not be a major factor in investment decisions (Solow, 1956: 67).

2.4.3 Empirical literature of the Harrod-Domar economic growth model

According to Easterly (1997: 1), for over 40 years, economists working on developing countries have applied the Harrod-Domar model to calculate short-run investment requirements for some target growth rate. They calculate a *Financing Gap* between the required investment and available resources. This *Financing Gap* was often filled with foreign aid. Economists still apply the Harrod-Domar growth model to poor countries in order to determine a *required* investment rate for a target growth rate.

2.5 Neoclassical economic growth theory

The neoclassical economic growth theory, also known as the Solow–Swan growth model or exogenous growth model, is a class of economic models of long-run economic growth set within the framework of neoclassical economics. Neoclassical growth theory attempts to explain long run economic growth by considering productivity, capital accumulation, population growth and technological progress. The neoclassical model can be seen as an extension to the 1946 Harrod–Domar model with the inclusion of a new term: productivity growth.

Important contributions to the model came from the 1956 work of R. Solow and T.W. Swan, who developed relatively simple growth models independently. Solow was also the first economist to develop an economic growth model which distinguished between vintages of capital. In Solow's model, capital that is new is more valuable than old (vintage) capital. This is because capital is produced based on known technology, and technology improves with time. New capital will produce more compared to capital that is old. Today, economists use Solow's sources-of-growth accounting to estimate the separate effects of capital on economic growth, labour and technological change (Haines & Sharif, 2006: 106).

The Harrod-Domar economic growth model was criticised by Robert Solow (1956: 65) when he identified its assumption of fixed proportions of capital and labour as the cause of an equilibrium growth that in fact balances on a knife's edge. As a tendency toward instability is particularly dissatisfying for any approach dealing with problems in the long run period, Solow (1956) and Swan (1956) turned to neoclassical production functions with varying shares of capital and labour inputs. They proposed the first neoclassical long run economic growth model that marked the starting point for most researches on economic growth up to the present day.

2.5.1 Solow growth model

Solow's (1956) long-run growth model exhibits that in the event of no technological progress the impact of decreasing returns to scale would result in disappearance of economic growth (Aghion and Howitt, 1992: 323). The neoclassical model is premised on a single commodity output. The rate at which it is produced is represented by Y(t). This is in fact society's real income. It can be consumed or saved, and what is saved, is also invested. The output that is saved is represented with a constant s, hence the rate of savings is designated by sY(t). The society's stock of capital is represented by K(t). The society's net investment is the rate at which capital stock is increasing dK/dt or $\dot{K}$ (Solow 1956: 66), thus the resultant identity is:

$$\dot{K} = sY \qquad (2.10)$$

Capital and labour are the only production factors involved and are utilised at the rate L(t). Technological progress is denoted by production function.

$$Y = F(K, L) \qquad (2.11)$$

The production function is based on the assumption of constant returns to scale. It is further assumed that the underlying endowment is not land, as it is scarce and would exhibit decreasing return to scale in both capital and labour.

Substitution of equation 2.11 in 2.10 yields

$$\dot{K} = sF(K, L) \qquad (2.12)$$

There are two unknowns, K and L. Demand for labour can be added to the equation where Marginal Physical Productivity of Labour (MPP_L) is equal to real wage rate. Furthermore, the supply of labour can also be added, leading to a complete system. The supply of labour depends on real wage and can be equalled to subsistence level. This will result in three unknowns K, L and real wage (Solow, 1956:67). In the event of no technology progress then population grows at an exogenous rate, n, and this is equal to Harrod's natural rate of growth:

$$L(t) = L_0 e^{nt} \tag{2.13}$$

Equation 2.13 is equivalent to supply curve of labour. It shows that labour force grows exponentially (e^{nt}). It takes the vertical shape and is able to shift to the right when labour force increases in conformity to equation 2.13.

Substitution of equation 2.13 into 2.12 yields

$$\dot{K} = sF(K, L_0 e^{nt}) \tag{2.14}$$

This highlights the time path it will take to accumulate capital as well as for labour to be fully utilised (Solow, 1956: 67). Thus, real wage rate will settle at a point where all labour, so far available, is fully utilised (Solow 1956: 67-68).

Equation 2.14 is a differential equation and it has one variable, K(t). Deriving its solution, results in the profile of the society's capital stock as well as full utilisation of the available labour. If the time path of capital stock and labour force is known, the corresponding time path of real output, of the real wage rate, is determined by the equation that exhibits marginal productivity. In summary, full employment of stock of capital available is assumed (Solow 1956:68).

2.5.2 The Solow-Swan theoretical model

The Solow model concentrates on a closed economy where output (Y) is produced by the factors capital (K) and labour (L). The model and subsequent equations are from Sardadvar (2011: 12-21). The production function takes the same form as described in equation 2.11, but it is restated the time subscript (i.e. discreet time):

$$Y_t = f(K_t, L_t) \tag{2.15}$$

where, *t* represents time. The production function critical assumption is that it shows constant returns to scale. Solow (1956) departs here from the classical assumption of land that is scarce land or any non-augmentable resources. Romer (1996) interprets the constant returns to scale assumption to mean that the economy under consideration is huge enough that the specialisation gains have been exhausted.

Technically speaking, the production function of the neoclassicals is homogenous of degree one and implies that both factors of production must be available, or else output would equal zero (that is, the economy would be non-existent). The function allows for an unrestricted substitutability between labour and capital, which implies that to produce any given amount of output, any amount of capital can be efficiently used with the sufficient amount of labour. As a consequence of this assumption, the capital-output ratio can take on any value which is not negative. Furthermore, Equation (2.15) possesses positive and decreasing marginal products (quasi-concave) with f (0) = 0, $f'(\cdot) > 0$, $f''(\cdot) < 0$. There is constant growth of the factors of production:

$$\dot{L_t} = nL_t \tag{2.16}$$

$$\dot{K_t} = S_K(K_t, \ L_t) \tag{2.17}$$

where, a dot over a variable denotes a derivative with respect to time, and the growth rate of the labour force *n* as well as the saving rate S_K are exogenous or fixed parameters.

Equation 2.16 implies that $L_t = L_0 e^{nt}$ and can be looked at as a supply curve of labour, with the labour force growing at an exponential and completely inelastic rate (Solow, 1957: 67). Since L_t denotes both labour supply in Equation (2.16) as well as total employment in Equation (2.15), the model implies that full employment is maintained perpetually. Under the conditions of full employment and supply of both capital and labour that is inelastic at any point in time, both factors earn their marginal product, where the real wage v and the real interest rate r are given by

$$v_t = \partial Q_t / \partial L_t \tag{2.18}$$

$$r_t = \partial Q_t / \partial K_t \tag{2.19}$$

and the price level is assumed to be constant. These two assumptions, of market-clearing conditions at any point and of constant price levels, are viewed by some as weak points of the neoclassical theory. These should be briefly commented upon at this point of the study, as both are seldom found in the real world. With respect to market-clearing conditions, Krelle (1988: 89) notes that a constant degree of monopolisation of markets shifts both income distribution and the propensity to save, thus changing the numerical results, but ineffective on the main results. As for price levels, the underlying assumption may be understood as not being important enough to matter for long run growth or, alternatively, its fluctuations are being brought under control. The latter argument also applies to monetary and fiscal policies. As long as closed economies are considered, output equals income by definition, therefore, it follows from Equations 2.15, 2.18 and 2.19 that

$$Y_t = v_t L_t + r_t K_t \tag{2.20}$$

which is the sum of profits and wages. In the macroeconomic accounting terminology, equations 2.15 and 2.20 equal gross value added (GVA) at t. Since indirect taxes are assumed to equal zero, gross value added is equal to GDP. Furthermore, if there is no migration in physical capital, GDP is equal to GNI.

The capital-labour ratio k_t is defined as

$$k_t = K_t / L_t \tag{2.21}$$

The derivative of Equation 2.21 with respect to time is

$$\dot{k}_t = \dot{K}_t L_t - K_t \dot{L}_t / L_t^2 = \dot{K}_t / L_t - n k_t \tag{2.22}$$

Since the production function is homogenous of degree one, output per labour unit y_t can be expressed as:

$$y_t = f(k_t) \tag{2.23}$$

where, $(k_t) \geq 0 \; for \; k_t \geq 0.$. Similar to Equation 2.15, Equation 2.21 also exhibits positive and diminishing marginal products with $f(0) = 0, f(.) > 0, f(.) < 0.$

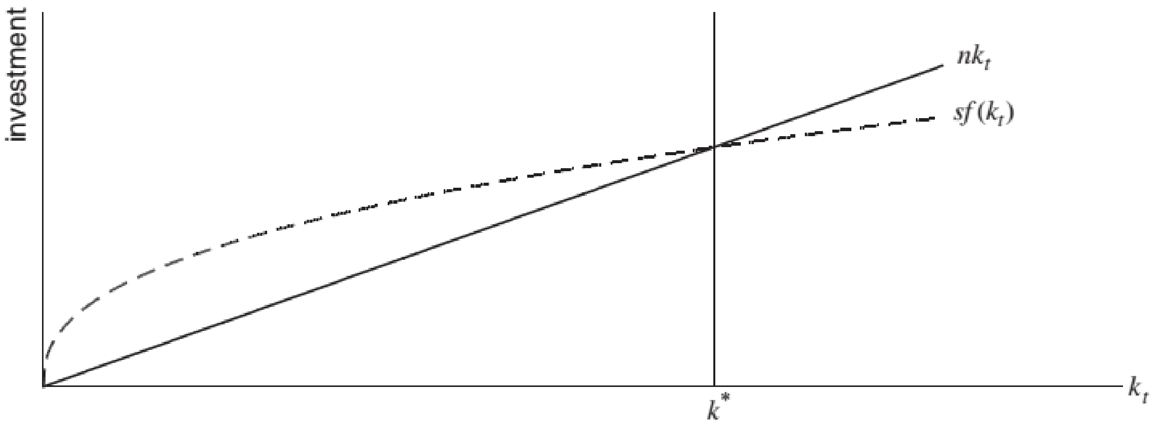
From Equations 2.17, 2.22 and 2.23, it implies that physical capital equipment per labour unit grows at:

$$\dot{k}_t = \frac{S_K f(K_t, L_t)}{L_t} - n k_t = S_K f(k_t) - n k_t \tag{2.24}$$

The differential equation 2.24 is the Solow model important equation as it states that the rate of change of the capital stock to labour unit is the difference between two terms. The first term, $S_K f(K_t)$, displays the increase of capital and represents actual investment per labour unit; the second term, nk_t, accounts for the increase of labour and as such represents the break-even investment necessary to keep k_t at its existing level. When $\dot{k}_t = 0$, the capital-labour ratio is constant, and subsequently (with no depreciation) the aggregate capital stock K must be increasing at the same rate as the labour force n. If this is the case, the system is in equilibrium and is defined as being in a state of balanced growth (Solow 1956, 70). Hence, the main core for economics (and particularly for neoclassical theory) is to study and explain efficiency. In this respect, growth is simply the dynamic dimension of market efficiency.

The stability of the balanced growth path is shown in Figure 2.1 below: if the current capital-labour ratio k_t is smaller than the equilibrium capital-labour ratio k^*, then actual investment per labour unit is more than break-even investment and the capital-labour ratio rises with $\dot{k}_t > 0$. If $k_t > k^*$, then $\dot{k}_t < 0$, and hence k_t will decrease toward k^{**}. Whatever the starting point of the system, it converges to the equilibrium value of $k_t = k^*$, with $\dot{k}_t = 0$. Once this point has been reached, represented by the intersection of the two lines in Fig. 2.1 at $k_t = k^*$, the system stays there - thus the equilibrium is stable with $\dot{k}_t = 0$. If for some reason the economy moves temporarily away from equilibrium, it will be forced to return to the balanced growth path. In general, a situation in which the various quantities grow at constant rates is defined as a *steady state.*

Figure 2.1: Capital stock per labour unit in equilibrium



Source: ***Sardadvar, 2011: 14***

2.5.3 The solution with technological progress and a Cobb-Douglas production function

Both Solow (1956) and Swan (1956) were primarily interested in economic growth as a consequence of capital accumulation, and studied the case of technological progress briefly in their original papers. In a successive paper, Solow (1957) estimates technological progress for a 1909-1949 time series as a residual of capital and labour for explaining output growth of the US economy. The conclusion arrived at is that technological progress appears to be neutral when it comes to scale effects. Shifts in the production function is therefore ineffective on marginal rates of substitution at given capital-labour ratios (Solow 1957, 316).

In general, a production function that takes the form as given in Equation 2.25, where technological progress enters as labour-augmenting, is defined as Harrod-neutral:

$$Y_t = f(K_t, A_t L_t) \tag{2.25}$$

where, A_t represents the level of technology at t. If technological progress is capital augmenting of the form:

$$Y_t = f(A_t K_t, L_t) \tag{2.26}$$

it is defined as Solow-neutral. Finally, if technological progress simply multiplies the production function by an increasing scale factor as:

$$Y_t = A_t f(K_t, L_t) \tag{2.27}$$

it is defined as Hicks-neutral. In 1995, Barro and Sala-i-Martin show that technological progress can always be expressed as labour-augmenting. In this context they prove mathematically that only labour-augmenting technological change is consistent with the existence of a steady state. A Cobb-Douglas production function with Harrod-neutral technological progress therefore takes the form:

$$Y_t = K_t^a (A_t L_t)^{1-a} \; with \; 0 < a < 1, \tag{2.28}$$

where, the exponents a and 1−a denote the output elasticities of capital and labour, respectively. The marginal product of each factor is very large when its amount is sufficiently small, and becomes very small when the amount becomes large. This satisfies the Inada-conditions (Barro and Sala-i-Martin 1995, following Inada 1963) of the production function, in particular, that the limit of the derivative towards zero is positive infinity, and that the limit of the derivative towards positive infinity is zero. These conditions are fulfilled by a Cobb-Douglas production function, whose intensive form is found by dividing Equation 2.28 by technology-augmented labour ($AtLt$) so that, $\hat{y}_t \equiv \frac{Y_t}{A_t L_t}$:

$$\hat{y}_t = \left(\frac{K_t}{A_t L_t}\right)^a = \hat{k}_t^a \tag{2.29}$$

where, output per unit of effective labour $\hat{y}_t$ is a function of capital per unit of effective labour$\hat{k}_t$. It follows from Equation 2.28 that output per labour unit at t equals

$$y_t = A_t^{1-a} K_t^a \tag{2.30}$$

which corresponds to GVA per worker at t.

If capital stock depreciation is considered in the equation that determines the evolution of the capital stock, Equation 2.6 takes the form

$$\dot{K}_t = S_K Y_t - d K_t \tag{2.31}$$

where, d is the rate of depreciation. Therefore, the aggregate capital stock grows as long as the left-hand term on the right side of Equation 2.31 is greater than the right-hand term. In steady state, the amount of capital per unit of effective labour is constant; therefore break-even investment has to take technological progress into account:

$$\dot{\hat{k}}_t = S_K \hat{k}_t^a - (n + g + d)\hat{k}_t \tag{2.32}$$

where, g is the rate of technological progress:

$$\dot{A}_t = gA_t \tag{2.33}$$

Thus it can be seen that if steady state growth is defined as an equilibrium where the growth rate of output per unit of effective labour $\hat{y}$ is zero, while output per unit of labour (i.e. per worker = per capita) y grows with technological progress *g*, then aggregate output (Y) grows with population growth (n) and technological progress (g). In the steady state, the ratio of capital to effective labour is constant, therefore growth of the physical capital stock per effective labour in the steady state equals zero. In other words, Equation 2.29 expresses output per labour unit corrected for technological progress, which serves two illustrative purposes. The first is the growth per unit of effective labour in the steady state which is a straight line, as can be seen from Figure 2.2. Secondly, if the question of interest is growth per capita that is not due to technological progress, correcting for technological progress makes comparisons easier.

The steady state level of $\hat{k}$ is calculated from the right-hand side of Equation 2.32 by setting both terms as equal:

$$\hat{k}^* = \left(\frac{s_K}{n+g+d}\right)^{\frac{1}{1-a}} \tag{2.34}$$

From Equations 2.29 and 2.34, it follows that the steady state output per unit of effective labour equals

$$\hat{y}^* = \left(\frac{s_K}{n+g+d}\right)^{\frac{1}{1-a}} \tag{2.35}$$

With A and L growing at constant rates, the model at steady state can be solved at any *t* for output per labour unit

$$y_t^* = A_t \hat{y}^* = A_0 e^{gt} \left(\frac{S_K}{n+g+d}\right)^{\frac{1}{1-a}} \tag{2.36}$$

and aggregate output in steady state at any t equals

$$Y_t^* = A_t L_t \, \hat{y}^* = A_0 L_0 \, e^{(g+n)t} \left(\frac{S_K}{n+g+d}\right)^{\frac{a}{1-a}} \tag{2.37}$$

From Equations 2.35, 2.36 and 2.37, it follows that an increase in the saving rates S_K increases output and therefore long run income. An increase in the savings rate will cause growth in output to be more until the economy has reached its new steady state growth path. In other words, a savings rate change has a level effect in the long run: if the saving rate rises, growth will temporarily be higher. Long run growth, however, is not affected: output growth rates per labour unit (i.e. per capita), of the capital stock per labour unit and of the wage rate will equal the rate of technological progress as soon as the economy returns to its balanced growth path (Sardadvar, 2011: 18).

2.5.4 Criticism against the neoclassical growth model

The neoclassical growth model is criticised on grounds that it fails to explain the most basic facts of the actual growth behaviour. This failure stems to a large extent directly from the model's prediction that per capita income approaches an exogenous steady-state path. This implies that the growth rate is determined outside the model and is independent of preferences, most aspects of the production function, and the behaviour of policy. This means that the model suggests either that all economies shall converge to the same growth rate. In reality, however, different countries have maintained different per capita income growth rates over long period of time. The growth rates seem to be systematically related to the characteristics of various economies. For example, growth rates are higher in economies which devote a greater proportion of their output to investment (see Romer, 1986: 1002; 1987: 165, 1989: 86 and Lucas, 1988: 39).

The neoclassical model predicts that per capita incomes between rich and poor countries will converge. Empirically this cannot be validated (Van den Berg, 2013: 1). Therefore the Solow growth model is a poor predictor. The model states that if all countries have the same taste and technology parameters, and the same population growth rate, then according to the neoclassicals, they should have the same steady level of per capita income. Therefore, with time, per capita income levels of different countries should converge to a common value, with the rapid growth of low income countries catching up with countries which had high per capita incomes (McCallum, 1996: 52).

It is not a prerequisite of the neoclassical model that population growth rates have to be the same in various countries. This means that taste and technology parameters are different. Convergence in the "unconditional" sense of the foregoing discussion is not, it can be argued, relevant to the performance of the neoclassicals. What that model does imply, according to authors such as Barro and Sala-i-Martin (1992: 223, 1995: 31) and Mankiw, Romer and Weil (1992: 407), is a concept that has been termed "conditional convergence".

Mankiw, Romer and Weil (1992) modified the neoclassical growth model by adding human capital as an additional explanatory variable to physical capital and labour. A society can enhance its productive capacity by investing in its citizens through expenditures on education, training, research, and health. Although physical capital experiences diminish returns, there are constant returns to all (human and physical) capital (Lucas, 1988: 3).

Moreover, the neoclassical growth model still has several weaknesses, including the assumptions that markets are perfectly competitive (essential for calculating the marginal products and the human capital exponent), that technological change is exogenous, and that the level of technology is the same throughout the world. According to the neo-classical explanation, the technical progress takes place completely independent of decisions by people, firms, and governments (Nafziger, 2006: 155).

Nevertheless, the above criticisms do not imply that the neoclassical analysis was unproductive. On the contrary, it played a critical and essential role in the development of modern day economic theory (McCallum, 1996: 52).

2.5.5 Empirical evidence of the neoclassical economic growth theory

The major thrust of the neo-classical growth theory is that income levels of poor economies will tend to catch up with or converge towards income levels of rich countries. The opposite empirical result has been observed on average since the 1950s. If the average growth rate of countries since, for example 1960, is plotted against initial GDP per capita (that is, per capita

GDP in 1960) a positive relationship will be observed. This implies that the developed world appears to have grown at a faster rate than the developing world, the opposite of what is expected according to a prediction of convergence. However, there are observable contradictions. Some countries, like Japan, which used to be poor, now appear to have converged with advanced economies. In the case of Japan, their productivity actually exceeded certain countries. Japan's poor growth recently has been caused by expected convergent growth rates. Seck (2015: 132) concedes that even after convergence has occurred, there is still over-optimistic investment and actual recession.

The evidence for convergence is stronger within countries. For example, the GDP per capita levels of the southern states of the United States of America have tended to converge to the levels in the northern states. The conditional convergence concept was adopted due to these observations, since it was proposed that several factors determine whether convergence occurs or not. These factors of the country or the region in question include, institutional arrangements, internal free market and trade policy with other countries and also the educational policy of the country (Agénor, 2004: 439–462).

The evidence for conditional convergence comes from multivariate, cross-country regressions. If productivity were associated with high technology then the introduction of information technology should have led to a noticeable acceleration of productivity during the past twenty years. On the contrary it has not. An econometric analysis of Singapore and the other East Asian Tigers has produced interesting and surprising results. Although output per worker has been increasing, almost none of their rapid growth had been due to a rise in the per capita productivity (they have a low "Solow residual") (Barro, 2008: 68-94).

2.6 Endogenous economic growth theories

The 1980s saw the resurgence of interest in growth theory taking place and it involved the development of endogenous growth models. These arose in response to a perception that the neoclassical growth theory was severely inadequate for the analysis of the actual growth experiences (McCallum, 1996, 50). According to Aghion and Howitt (1998: 1), the endogenous growth theory explains long run growth as coming from economic activities that create new technological knowledge.

Endogenous growth is long run economic growth at a rate determined by forces that are internal to the economic system, particularly those forces governing the opportunities and incentives to create technological knowledge. In the long run the rate of economic growth, as measured by the growth rate of output per person, depends on the total factor productivity (TFP) growth rate, which is determined in turn by the technological progress rate (Howitt, 2000: 829). The neoclassical growth theory of Solow (1956) and Swan (1956) assumes the technological progress rate to be determined by a scientific process that is separate from, and independent of, economic forces. The neoclassical theory thus implies that economists can take the long run growth rate as given by external forces or exogenously from outside the economic system (Solow, 1956: 65).

The endogenous growth theory challenges this neoclassical view by proposing channels through which the rate of technological progress, and hence the long-run rate of economic growth, can be influenced by economic factors (Romer, 1986: 1005). It starts from the observation that technological progress takes place through innovations, in the form of new products, processes and markets, many of which are the result of economic activities. For example, because firms learn how to produce more efficiently from experience, a higher pace of economic activity can raise the pace of process innovation by giving firms more production experience. Also, because many innovations result from research and development (R&D) expenditures undertaken by profit-seeking firms, economic policies with respect to trade, education, taxes, competition, and intellectual property can influence the rate of innovation, by affecting the private benefits and costs of engaging in R&D (Romer, 1990: 71).

In this spirit, Paul. M. Romer (1986) developed a model in which the creation of new knowledge by one firm is assumed to have a positive externality effect on the production possibilities of other firms. This non-rivalry of knowledge is further developed by Lucas (1988), who assumes that human capital releases spillovers whereby each producer in an economy benefits from the average level of human capital in the economy. Endogenous growth theory has spawned further noteworthy approaches, such as those by Romer (1990), Grossman and Helpman (1991), and Aghion and Howitt (1992), whose models focus mainly on the interdependence and feedback effects of various producers and sectors of the economy. These models are able to explain the developments and interdependence of factors within one economy, but become highly complex when mutual influence of various economies is considered. As a result, they are problematic where unambiguous results are needed for empirical tests.

The endogenous growth theories reviewed in this study include: Human capital as an additional factor of production, the AK Theory, Innovation Based Theory, Romer (1990) Model of Endogenous Technological Change and Nelson and Phelps Two Models of Technological Diffusion.

2.6.1 Human capital as an additional factor of production

The model of human capital is one of the main contributions which developed the endogenous growth theory. A controversial conclusion drawn from the Solow economic growth model and its successors is the implication of immense incentives to invest in economies where the marginal productivity of capital is high, implying that the rates of return across economies differ according to the model. According to the Solow economic growth model as presented above, one would expect capital flows from rich economies (those with currently huge stocks of physical capital, which for this reason should show a relatively low marginal productivity of physical capital) to poor countries (where conditions are the opposite). In addition, within the model these capital flows are supposed to happen incidentally, that is, not hindered by time or space (Sardadvar, 2011: 18-19).

Capital of course always does flow from rich countries to poor countries - a process which is commonly understood to be one of the most important characteristics of the world economy today. These flows have grown significantly since 1990 (The World Bank, 2004a), although disagreements still exist (The World Bank, 2004b). The vast majority of investments take place in the economy where capital originates from, and the huge majority of foreign direct investments (FDI) take place within the advanced economies (The World Bank, 2008). This phenomenon is often referred to as the Lucas paradox, as discussed by Lucas (1990). He identifies differing endowments of human capital and capital market imperfections as candidate answers for the question of why standard neo-classical predictions on capital flows fail, at least in part, when confronted with reality.

Mankiw, Romer and Weil (1992) explore this issue by augmenting the original Solow model to include the human capital accumulation in addition to physical capital. The Mankiw- Romer-Weil model focuses on economies that converge to their steady states as long as the levels of both human and physical capital per worker increase, where human capital is supposed to be embodied in workers who are skilled. The rates of population growth, technological progress and saving are taken as exogenously given. With a Harrod-neutral Cobb-Douglas production function assumed, production at any point in time *t* is given by

$$Y_t = K_t^a H_t^b (A_t L_t)^{1-a-b}, a > 0, b > 0, a + b < 1 \quad (2.38)$$

where, K exclusively captures the physical capital stock, H is the human capital stock, b denotes the output elasticity of human capital, and the other variables are defined as in the Solow model. From Equation 2.38, there is a clear distinction between human capital (H), and abstract knowledge (A). Human capital is defined as consisting of the skills, abilities, and knowledge of particular workers, and is thus rival and excludable (Romer, 1996: 126). Furthermore, although human capital is embodied in workers and hence represents, in fact, a specific kind of labour, it is treated as a second type of capital in analogy to physical capital. This definition of human capital has two major effects within the modelling framework. Firstly, introducing human capital implies that the sum of shares of output paid to capital of both kinds is raised. Secondly, devoting more resources to the accumulation of either type of capital increases the amount of output that can be produced in the future.

Dividing the production function of Equation 2.38 by technology-augmented labour A_tL_t yields output per unit of effective labour:

$$\hat{y}_t = \hat{k}_t^a \hat{h}_t^b \quad (2.39)$$

where output per unit of effective labour is now a function of physical capital per unit of effective labour and human capital per unit of effective labour. The evolution of the economy is determined by the key equations:

$$\dot{\hat{k}}_t = S_K \hat{y}_t - (n + g + d)\hat{k}_t \quad (2.40)$$

and

$$\dot{\hat{h}}_t = S_H \hat{y}_t - (n + g + d)\hat{h}_t \quad (2.41)$$

where, S_H is the fraction of output invested in human capital, so that $S_H \hat{y}_t$ represents the part of current aggregate output devoted to the expenditure on education. Note that human capital underlies the same assumptions as physical capital, in particular that human capital depreciates at the same rate, *d*, as physical capital. With the right hand sides of Equations 2.40 and 2.41 set to zero, this system of two equations is solved for the steady state values of physical capital:

$$\hat{k}^* = \left(\frac{S_k^{1-b} S_H^b}{n+g+d}\right)^{\frac{1}{1-a-b}} \tag{2.42}$$

and the steady state of human capital:

$$\hat{h}^* = \left(\frac{S_k^a S_H^{1-a}}{n+g+d}\right)^{\frac{1}{1-a-b}} \tag{2.43}$$

and, as it follows from Equation 2.39, steady state output equals:

$$\hat{y}^* = \hat{k}^{*a} \hat{h}^{*b} = \left(\frac{S_k S_H}{(n+g+d)^{a+b}}\right)^{\frac{1}{1-a-b}} \tag{2.44}$$

The economy is on a balanced growth path if:

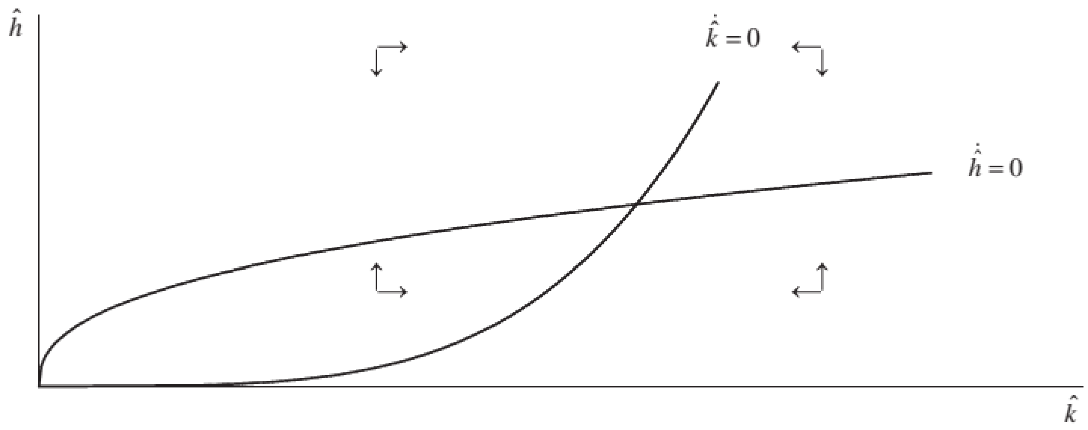
$$\dot{\hat{k}} = 0 \ and \ \dot{\hat{h}} = 0,$$

in which case output per effective labour unit is constant. The output per worker growth rate in the long run thus equals the rate of technological progress *g*; it applies to the growth rates of both production factors and is identical to the original Solow model. Accordingly, changes in either $S_K \ or \ S_H$ will have a shift-effect on output (equivalent to those sketched in Fig.2.3), but will not change long run growth.

The phase-diagram (for the method see Chiang and Wainwright, 2005) in Fig. 2.2 displays the two differential equations stability given in Equations 2.40 and 2.41. Whatever the initial values of $\hat{k} \ and \ \hat{h}$, the system converges to the intersection point of the two curves $\dot{\hat{k}} = 0 \ and \ \dot{\hat{h}} = 0$.

Once the intersection point is reached, the economy stays there. Although the system becomes more complex with the inclusion of a third factor, it remains stable. If the economy has moved away from equilibrium, it will return to the intersection point and hence to the balanced growth path.

Figure 2.2: The dynamic stability of the Mankiw-Romer-Weil model



Source: Sardadvar, 2011: 21

While the similarity of the Mankiw-Romer-Weil model's qualitative conclusions to those of the Solow model follows from the model's structure, the introduction of human capital has a considerable impact on quantitative analysis. In particular, raising either the rate of saving, or both of them, will have shift-effects on long-term levels of output. Depending on *b*, output elasticities with respect to S_K, S_H, g and n will differ significantly from those of the Solow model. The influence of *b* can be observed most easily by taking the natural logarithm of steady state output per unit of effective labour, $\hat{y}^* = \hat{k}^* \hat{h}^{*b}$

$$\ln \widehat{y^*} = \frac{a}{1-a-b} lnS_K + \frac{b}{1-a-b} lnS_H - \frac{a+b}{1-a-b} \ln(n+g+d) \qquad (2.45)$$

In an empirical test, Mankiw, Romer and Weil (1992) show that their model is able to explain considerable cross-country differences in income levels. The test also serves to explain why it may not be that attractive to invest somewhere just because the current level of physical capital is low. Furthermore, this model provides a seamless expansion of the Solow model, with long run growth still viewed as identical to technological progress – an aspect now seen as a characteristic feature of neo-classical models of (long run) growth.

The 1980s marked not only a deepening interest in the role and importance of human capital, but also in the origins of technological progress. Models of long run growth were developed that explained technological progress within the model (sometimes called "endogenised") by relating it to other economic forces. From these models, the new growth theory (also called endogenous growth theory) has evolved, which tries to model growth and technological progress. In other words, it postulates that long run growth rate can in fact be affected by economic factors.

2.6.2 AK theory

The second endogenous growth theory was the AK theory, which did not make an explicit distinction between technological progress and capital accumulation. In effect it lumped together the human and physical capital whose accumulation is studied by the neoclassical theorists with intellectual capital that is accumulated when innovations occur. An early version of the AK theory was produced by Frankel (1962), who argued that the aggregate production function can exhibit a constant or even increasing marginal product of capital. This is because, when firms accumulate more capital, some of that increased capital will be intellectual capital that creates technological progress, which will in turn offset the tendency for the marginal product of capital to diminish (Frankel, 1962: 995). In the special case where the marginal product of capital is exactly constant, aggregate output Y is proportionate to the aggregate stock of capital K:

$$Y_t = AK_t \tag{2.46}$$

where, A is a positive constant. Hence the term 'AK theory'.

According to this theory, an economy's long-run growth rate depends on its saving rate. For example, if a fixed fraction (s) of output is saved and there is a fixed rate of depreciation (d), the rate of aggregate net investment is:

$$\frac{\partial K}{\partial t} = sY - \delta K \tag{2.47}$$

which along with 2.46 implies that the growth rate is given by:

$$g \equiv \frac{1}{Y}\frac{dY}{dt} = \frac{1}{K}\frac{dK}{dt} = sA - \delta \tag{2.48}$$

An increase in the saving rates will therefore lead to a permanently higher growth rate. Romer (1986: 1035) produced a similar analysis with a more general production structure, under the assumption that saving is generated by intertemporal utility maximisation instead of the fixed saving rate of Frankel. Lucas (1988: 40) also produced a similar analysis, focusing on human capital rather than physical capital. Following Uzawa (1965), he explicitly assumed that technological knowledge and human capital were one and the same.

2.6.3 Innovation-based theory

The AK theory was followed by a second wave of the endogenous growth theory, generally known as 'innovation-based' growth theory, which recognises that intellectual capital, as the source of technological progress, is distinct from physical and human capital. Physical and human capital accumulates through saving and schooling, but intellectual capital grows through innovation. One version of innovation-based theory was initiated by Romer (1990), who assumed that aggregate productivity is an increasing function of the degree of product variety. In this theory, innovation causes productivity growth by creating new, but not necessarily improved, varieties of products. It makes use of the Dixit–Stiglitz–Ethier production function, in which final output is produced by labour and a continuum of intermediate products (Romer, 1990):

$$Y = L^{1-\alpha} \int_0^A x(i)^\alpha \, di, \quad 0 < \alpha < 1 \tag{2.49}$$

Where the aggregate supply of labour L, is assumed to be constant, x(i) is the flow input of intermediate product, and A is the measure of all different intermediate products that are available for use. Intuitively, an increase in product variety, as measured by A, increases productivity by allowing society to spread its intermediate production sparsely across a larger number of activities, each of which is subject to diminishing returns, and hence exhibits a higher average product when operated at a lower intensity. Romer also puts across the fact that the catalyst to economic growth is technological progress. This proposition is discussed in section 2.6.3 below.

The 'Schumpeterian' theory developed by Aghion and Howitt (1992) and Grossman and Helpman (1991) is the other version of the innovation-based growth theory. Early models were produced by Segerstrom, Anant and Dinopoulos, 1990, and Corriveau, 1991. The Schumpeterian theory pays attention to quality-improving innovations that render old products obsolete, through the process that Schumpeter (1942) called 'creative destruction' (Aghion, & Howitt, 1992: 323).

In the Schumpeterian theory the aggregate output is again produced by a continuum of intermediate products, this time according to:

$$Y = L^{1-\alpha} \int_0^1 A(i)^{1-\alpha} x(i)^{\alpha} \, di, \tag{2.50}$$

Where there is a fixed measure of product variety, normalised to unity, and each intermediate product has a separate productivity parameter A(i). According to Schumpeter (1942: 175), each sector is monopolised and produces its intermediate product with a constant marginal cost of unity. The monopolist in sector *i* faces a demand curve which is given by the marginal product: $\alpha = (A(i)L/x(i))^{1-\alpha}$,

of that intermediate input in the final sector. Equating marginal revenue (α times this marginal product) to the marginal cost of unity, yields the monopolist's profit maximising intermediate output: $x(i) = \varepsilon L A(i)$

where, $\varepsilon = \alpha^{2/(1-\alpha)}$. Using this to substitute for each x(i) in the production function (2.50) yields the aggregate production function:

$$Y = \theta A L \tag{2.51}$$

where, $\theta = \varepsilon^{\alpha}$, and where A is the average productivity parameter defined as:

$$A \equiv \int_0^1 A(i) \, di.$$

According to Howitt (2000: 841), innovations in Schumpeterian theory create better versions of old products. An innovation in sector *i* consists of a new version whose parameter of productivity A(i) surpasses that of the previous version by the fixed factor $\gamma > 1$. Suppose that the probability of an innovation arriving in sector *i* over any short interval of length (dt) is $\mu.dt$. Then the growth rate of A(i) is:

$$\frac{\mathrm{dA(i)}}{\mathrm{A(i)}} \cdot \frac{1}{\mathrm{dt}} = \begin{pmatrix} (\gamma - 1).\frac{1}{\mathrm{dt}} \text{ with probability } \mu.\mathrm{dt} \\ 0 \text{ with probability } 1 - \mu.\mathrm{dt} \end{pmatrix}$$

Therefore the expected growth rate of A(i) is:

$$E(g) = \mu(\gamma - 1) \qquad (2.52)$$

The flow probability of an innovation in any sector is proportional to the current flow of productivity-adjusted R&D expenditures:

$$\mu = \lambda R/A \qquad (2.53)$$

where, R is the amount of final output spent on research and development, and where the division by A takes into account the force of increasing complexity. That is, as technology advances it becomes an ever-increasing expenditure on R&D just to keep innovating at the same rate as before. It follows from 2.50 that the growth rate (g) of aggregate output is the growth rate of the average productivity parameter A (Howitt, 2000: 843). The law of large numbers guarantees that g equals the expected growth rate of each individual productivity parameter. From this and 2.52 it follows that:

$$g = (\gamma - 1)\lambda R/A$$

and therefore the growth rate depends on the fraction of GDP spent on research and development, n = R/Y, according to:

$$g = (\gamma - 1)\lambda\theta L n \qquad (2.54)$$

Thus, the innovation-based theory implies that the way to rapid growth is not to save a greater percentage of output but to devote a large proportion of output towards R&D. The theory is explicit about how R&D activities are affected by various policies, who gains from technological progress, who loses, how the gains and losses depend on social arrangements, and how such arrangements impact the society's ability and willingness to create and cope with technological change, the ultimate source of economic growth (Aghion & Howitt, 1999: 325).

The implications from this theory are that policies which embrace competition, change, openness, and innovation will promote growth. Conversely, policies which have the effect of limiting or retarding change by protecting or favouring particular existing firms or industries are likely, over time, to slow growth. This is a disadvantage to the community (Howitt, 2000: 844). According to Schumpeter (1942: 64), economies that stop transforming themselves are predetermined to fall off the path of economic growth. The countries that most deserve the title of “developing” are not the countries of the world that are poor, but those that are the richest. They need to engage in the continuous process of economic development if they are to enjoy continued wellbeing and prosperity.

Aghion and Howitt (1992) expanded on Schumpeter’s ideas with a model of growth through creative destruction in which technology developed by the research sector becomes the source of economic growth. While a full review of this model is beyond the scope of this study, the main policy conclusions that can be derived from the model include: (i) economic growth is influenced by technological changes, which lead to competition for the firms involved in research to produce technology, and (ii) the potential of monopoly rents encourages research firms and therefore technology production (Aghion & Howitt, 1992: 349).

2.6.4 Romer (1990) model of endogenous technological change

Romer’s model of endogenous technological change is founded on three assumptions. The first assumption is that technological progress is the engine that drives economic growth. The second assumption is that technological progress is initiated by individuals who are motivated by what the market offers them. The last assumption is that the fundamental basis is that directions for working with inputs are not the same with economic products (Romer, 1990: 73).

The model contains four different inputs namely: capital, labour, human capital and the composite index of the level of technology. Labour services (L) are inherent skills and are measured in terms of individuals who have to be counted. Human capital (H) is measured by conventional education as well as on-job training (Romer, 1990: 78-79).

The model specifies the following Cobb-Douglas production function:

$$Y(H_Y, L, x) = H_Y^{a} L^{\beta} \sum_{i=1}^{\infty} x_i^{1-a-\beta} \qquad (2.55)$$

where, x_i represents all the inputs used by the firm. This production function is homogenous of degree one. Therefore the final output in the production sector can be based on the activities of one representative “aggregate” firm, which is a price taker.

There is a unique firm for each durable product. That means for example to produce a durable product i a firm needs to buy or produce a design for product i before it can embark on its production $(x(i))$. The firm is then able to acquire patents on the design (Romer 1990: 80-81). There is a need for the model to comply with the requirements of national income accounting protocols. In this case it is important to define total capital (K) in terms of η units of consumption forgone. Hence, K(t) is derived from the rule, such that

$$K(t) = Y(t) - C(t)$$

where, C(t) presents aggregate consumption at period t. K is related to durable products and is used in the production process following the rule:

$$K = \eta \sum_{i=1}^{\infty} x_i \quad = \eta \sum_{i=1}^{A} x_i \tag{2.56}$$

Therefore H and L are fixed while K increases by consumption so far forgone. A(t) represents accumulation of new designs.

Equation 2.55 written in continuous time is

$$Y(H_Y, L, x) = \ H_Y^{\alpha} L^{\beta} \int_0^{\infty} x(i)^{1-\alpha-\beta}\, di \ \ , \tag{2.57}$$

Based on this definition, the production of the new design by researchers becomes a continuous function used to determine the raw material used. In the event that the researcher has human capital (H) and can access a portion from the total stock of knowledge from past designs (A), the rate of production of new designs by researcher *j* is $\delta H^J A^J$, with *δ*, the parameter of productivity (Romer, 1990: 83). Adding all individuals involved in the research, the aggregate stock of designs will be:

$$\bar{\dot{A}} = \ \delta H_A A \ , \tag{2.58}$$

where, H_A represents total human capital employed in the research.

There are two major assumptions: The first is that channelling more human capital into research, results in higher rate of new designs production; and the second is that the larger the total stock of knowledge and design, the higher the engineer's productivity while working on the research sector. There are also two operational form assumptions that: production of designs is linear in respect of each of H_A and A in the event that the other is held constant. The assumption of linearity in A is what causes unconstrained growth to take place. The marginal product of human capital H_Y absorbed in the production sector increases in proportion to A. In the event that A is substituted in equation 2.58 by a concave function of A, it will cause the marginal productivity of human capital not to increase in proportion to A in the research sector. Human capital will then be fully utilised in research, and would move out of research to production for as long as A increases in size (Romer, 1990: 84).

When the new design is ready, prospective suppliers of the new product often bid to use it. Such suppliers will assume the price of the design as P_A, and it is assumed that the interest rate and the price for the capital goods are given. However when a firm starts production, it can fix a price that enhances profit (Romer, 1990: 85).

If H_Y and L is the aggregate amount of human capital and labour utilised in the manufacturing of final output, then the total demand for durables can be derived, given the values of H_Y and L, under the following condition:

$$max_x \int_0^{\infty} [H_Y^a L^\beta x(i)^{1-a-\beta} - p(i)x(i)]d_i$$

The differential of the above results in an inverse demand function:

$$p(i) = (1 - a - \beta)H_Y^a L^\beta x(i)^{-a-\beta} \qquad (2.59)$$

The producers of durables will equate their price to the demand curve of equation 2.59 in order to maximise profit. Thus a firm will always have a fixed cost spent on design and will select the level of production in order to maximise revenue upon taking H_Y, L and r as given (Romer 1990: 86). This will be achieved when

$$\pi = max_x p(x)x - r\eta x$$

$$= \max(1 - a - \beta)\, H_Y^a L^\beta x^{1-a-\beta} - r\eta x \qquad (2.60)$$

where, p(x)x represents the flow of rental income. The cost is the interest cost on the ηx units of output required to manufacture x durables. (Romer, 1990: 86-87)

In the model, every manufacturer of durables eventually rents its production to a significant number of final-products' manufacturers capable of producing at various levels. The firms discount future net revenue stream and compare it with the cost P_A of the original investment in a particular design. Due to the competitiveness in the designs market, those who bid for the price for designs will do so up to the point that it is equal to the net revenues' present value in which monopolistic firm is able to gain (Romer, 1990: 87). Romer (1990: 87) shows that excess revenue generated above marginal cost is just enough to pay for interest cost of original investment in a design.

Economic growth according to Romer is driven by technological change that arises from investment decisions that are intentional. These decisions are made by profit maximising agents. Romer made several conclusions from his theory. He concluded that human capital stock determines economic growth. Further, he concluded that less human capital is devoted to research in equilibrium. Another conclusion was that the growth rates of economies are increased by the integration of countries into world markets. A final conclusion was that, the fact that a country has a large population does not necessarily imply that economic growth will be generated.

2.6.5 Two models of technological diffusion

The underlying hypothesis for the models of technology diffusion is that: in a technologically gifted economy, management of production will depend on how well there is acceptance and adaptions of change. A manager who is schooled will introduce new technology quicker in production. It also means schooled individuals are thinkers and innovators. Education facilitates innovation and spread of technology (Nelson & Phelps, 1966:70).

In the first model, production is represented by Y and produced with the following production function:-

$$Y(t) = F[K(t), A(t)\, L(t)] \qquad (2.\ 61)$$

where, A(t) represents the index of innovation being used, K(t) represents the capital that has just been bought, L(t) represents the labour using it and Y(t) is the production arising from it. A(t) is therefore a measure of how well the innovation is being utilised in the various types of capital goods that are being bought. A(t) is also a mean index of innovation applicable to various forms of capital, new and old (Nelson & Phelps, 1966:71).

The model introduces a theoretical level of technology represented by T(t). It is the appropriate level of innovation that would exist if there is spread of technology and measures the body of knowledge accessible to producers of technology. Thus,

$$\mathrm{T(t)} = T_0^{e^{\lambda t}} \qquad (2.62)$$

The first model states that the period it takes to come up with a new technology and its acceptance, is a decreasing function that involves some mean educational achievement, represented by *h*, for those capable to invent (Nelson & Phelps, 1966: 72). If *w* represents the lag, then:

$$A(t) = T\big(t - w(h)\big), \quad w'(h) < 0, \tag{2.63}$$

which states that the magnitude of technology available in use is equal to the magnitude of technology available in theory in the past *w* years and a decreasing function of *h* (Nelson & Phelps, 1966: 72).

Inserting equation 2.62 into equation 2.63 gives

$$\mathrm{A(t)} = T_0 e^{\lambda(t-w(h))} \tag{2.64}$$

There are two conclusions from the above: firstly, that the magnitude of technology available in use has the same growth rate, λ, as the magnitude of technology available in theory; and secondly, that the direction of technology in use assumes an increasing function of *h*, because *h* reduces the time it takes between T(t) and A(t) (Nelson & Phelps, 1966: 72).

A key result of the model is that the yield on education is quicker when the magnitude of theoretical technology is increasing. This is shown by differentiating A with respect to *h*:

$$\frac{\partial A(t)}{\partial h} = -\lambda w^1(h) T_0 e^{\lambda\left(t-w(h)\right)} = -\lambda w'(h) A(t) \tag{2.65}$$

In addition, it is also an increasing function in respect of λ.

Using equation 2.61 and equation 2.64 then output is given by:

$$Y(t) = F(K(t), T_0 e^{\lambda(t-w(h))} L(t)) \tag{2.66}$$

Differentiating with respect to *h* delivers:

$$\frac{\partial Y(t)}{\partial h} = \lambda T_0 e^{\lambda\left(t-w(h)\right)} L(t)(-w'(h)) F_2$$

$$= -\lambda w'(h) \times wage\ bill\ , \tag{2.67}$$

which shows that the marginal productivity of education is in fact an increasing function which is represented by λ at the present wage rate (Nelson & Phelps, 1966: 72).

The second model postulates that the rate at which the latest theoretical technology is realised in improved technological practice depends upon the level of education attained, and upon the gap between the level of theoretical technology and the level of technology in practice (Nelson & Phelps: 1966:73) Nelson and Phelps (1966: 74) shows that in an economy where technology is static (λ = 0), the gap will be nearer to 0, given h > 0. In an economy where technology is increasing ($\lambda > 0$), there is an equilibrium gap, which is positive given h and λ.

In the first model it was apparent that marginal productivity of educational achievement is indeed a function of λ, which is assured to be positive when λ > 0. Since this is the case, a second long run model is necessary (Nelson and Phelps 1966:74). The logic of the two models is that the rate of return in education is much higher in the economies where technology is advancing. Furthermore, the contribution of education to economic growth shows another source of variation between social and private return to education (Nelson and Phelps 1966:75).

2.6.6 Criticism against the endogenous growth theories

According to Sachs and Warner (1997: 184) and Barro and Sala-i-Martin (1992:223), the endogenous growth theories have been criticised for their collective failure to explain the conditional convergence reported in the empirical literature. The endogenous theories assume some form of diminishing returns to capital, and many view this assumption as unrealistic. Parente (2001: 15) contends that the endogenous growth theories are complex, but even with added complexity, they have not proven to be more successful than the neo-classical growth theory in explaining the income divergence between the rich and poor countries. Empirically, the endogenous growth theories are criticised, but their proponents have responded to the criticisms by modifying them so that they conform to the evidence of the critics. A frequent criticism dwells on the cornerstone assumption of diminishing returns to capital. The new growth theory has proven no more successful than the exogenous growth theory in explaining the divergence of income between the developed and developing (despite usually being more complex) (Howitt, 2000: 829).

2.6.7 Empirical evidence of endogenous economic growth theories

Mankiw, Romer and Weil (1992: 408), Barro and Sala-i-Martin (1992: 248) and Evans (1996: 1027) showed, using data from the second half of the 20th century, that most countries seem to be converging to roughly similar long-run growth rates, whereas endogenous growth theories seem to imply that, because many countries have different policies and institutions, they should have different growth rates in the long-run. But the Schumpeterian model of Howitt (2000), which incorporates the force of transfer of technology, whereby the productivity of R&D in one country is improved by innovations in other countries, implies that all countries that perform R&D at a positive level should converge to parallel growth paths in the long-run.

The key to this resultant convergence is what Gerschenkron (1952) called the ‘advantage of backwardness’; that is, the more a country falls behind the technology frontier, the bigger the average size of innovations, because the greater the gap between the frontier ideas incorporated in the country’s innovations and the ideas incorporated in the old technologies being replaced by innovations. This increase in the size of innovations keeps raising the laggard country’s growth rate until the gap separating it from the frontier finally stabilises.

Likewise, Jones (1995: 759) has argued that the evidence of the United States and other OECD countries since 1950 refutes the ‘scale effect’ of the Schumpeterian endogenous growth theory. This means that, according to the growth equation $\{g = (\gamma - 1)\lambda\theta Ln\}$, an increase in the population size should raise growth in the long-run by increasing the size of the workforce (L), thus providing a bigger market for a successful innovator and inducing a higher rate of innovation. But in fact, productivity growth has remained stationary during a period when population, and in particular the number of people engaged in R&D, has risen dramatically. The models of Dinopoulos and Thompson (1998: 314), Peretto (1998: 383) and Howitt (1999: 729) counter this criticism by including Young’s (1998: 43) insight that, as an economy increases in size, proliferation of product varieties reduces the effectiveness of R&D aimed at quality enhancement, by causing it to be spread more thinly over a larger number of different sectors. When modified this way the theory is consistent with the observed coexistence of stationary, TFP growth and rising population, because in a steady state the growth-enhancing scale effect is just offset by the growth reducing effect of product proliferation.

As a final example, early versions of the innovation-based growth theory implied, counter to much evidence, that growth would be negatively impacted by competition laws that are stronger, which (by reducing the profits that imperfectly competitive firms can earn) ought to decrease the incentive to innovate. However, Aghion and Howitt (1998: 171) describe several channels through which competition might in fact stimulate economic growth. The work of Aghion *et al*. (2001: 467) provided one such channel and showed that, although an increase in the competition intensity will tend to decrease the absolute level of profits realised by a successful innovator, it will nevertheless tend to further decrease the profits of an innovator that is not a successful innovator. In this variant of the Schumpeterian theory, stiff competition can have a positive impact on the rate of innovation, because firms will want to escape the competition that they would face if they were to loose whatever technological advantage they have over their competitors.

The fact that much of the variation in the cross-country growth rates is attributable to productivity growth differences rather than rates of capital accumulation differences suggests that the endogenous growth theories, which aim to provide an economic explanation of productivity growth differences, will continue to attract the attention of economists for years to come (Howitt, 1999: 715). The cardinal principle about the endogenous growth theories is that growth is driven by factors stemming from within. Tourism may be one such factor.

The next section explains the determinants of economic growth or economic growth drivers from both theoretical and empirical evidence.

2.7 Economic growth drivers

Economic growth theories have identified various economic growth drivers and various studies have investigated the underlying factors to economic growth. These studies have emphasised different sets of explanatory variables by the use of differing methodological and conceptual viewpoints. In addition, they have also offered insights to the economic growth sources (Lichtenberg, 1992: 5; Basu *et al*., 2005: 3; Lensink & Morrissey, 2006: 478). Each of these sources is briefly discussed, since it influences the empirical growth estimations in this study.

(i) Investment:

Investment is the most fundamental determinant of economic growth (Artelaris *et al*., 2007: 2) identified in literature by both the endogenous and neo-classical economic growth models. However, investment has an impact on the transitional period in the neoclassical model, while it has more permanent effects as argued by the endogenous growth models. Due to the importance attached to investment by the neoclassical and endogenous growth models, a lot of empirical studies trying to examine the relationship between economic growth and investment have emerged (Podrecca & Carmeci, 2001: 177, Bond *et al.*, 2001; Easterly & Levine, 1997: 1203; Sala-i-Martin, 1997: 178; Barro & Sala-i-Martin, 1995: 321; Auerbach *et al.*, 1994: 789; Mankiw et al., 1992: 407; Levine & Renelt, 1992: 942; Kormendi & Meguire, 1985: 141). Nevertheless, there is no conclusive evidence of the relationship between the two.

(ii) Human capital:

Several endogenous economic growth models and one of the neo-classical growth models' key extensions have identified human capital as the main source of economic growth. The term "human capital" principally refers to the acquisition of skills by workers as well as know-how through training and education. Hence, the quality of human capital has been measured using proxies related to education (for example, tests of mathematics, scientific skills, school enrolment rates). A lot of studies have found evidence supporting the view that a key determinant of economic growth is an educated population (see Hanushek & Kimko, 2000: 1184; Brunetti *et al.*, 1998: 353; Barro & Sala-i-Martin, 1995: 321; Mankiw *et al.*, 1992: 407; Barro, 1991: 407). However, several other scholars have opined against the findings and questioned human capital as a key determinant affecting economic growth (e.g. Pritchett, 2001: 367; Krueger & Lindahl, 2001: 1101; Topel, 1999: 2943; Benhabib & Spiegel, 1994: 143; Levine & Renelt, 1992: 942).

(iii) Innovation and research and development:

A key determinant which plays an important role in economic progress by increasing productivity and growth is innovation and research and development (R&D) activities. This is made possible by the increasing use of technology that enables new and superior products and processes to be introduced. Several endogenous economic growth models have stressed this role, and many studies have empirically confirmed the strong relation that exists between economic growth and innovation/R&D (Ulku, 2004: 28; Lichtenberg, 1992: 35; Fagerberg, 1987: 17).

(iv) Economic policies and macroeconomic conditions:

Other determinants of economic performance which have attracted a lot of attention are economic policies and macroeconomic conditions (Barro & Sala-i-Martin, 1995: 332; Easterly & Rebelo, 1993: 4; Fischer, 1993: 485; Barro, 1991: 408, 1997; Grierand & Tullock, 1989: 138; Kormendi & Meguire, 1985: 141). This is so because they are capable of setting the framework within which economic growth can take place. Economic policies can affect many aspects of an economy through human capital investment and infrastructure, an improvement in the legal and political institutions and so on. This is despite the fact that there is no agreement in terms of which policies are more conducive for economic growth. According to Fischer (1993: 502), the necessary but not sufficient conditions for economic growth are the macroeconomic conditions. Generally, a stable macroeconomic environment favours growth, reduction of uncertainty. Macroeconomic instability negatively affects economic growth through its consequences on investment and productivity, for example, higher risk. Several macroeconomic factors which affect economic growth have been identified in literature, but fiscal policy, inflation, tax burdens and budget deficits have been given a lot of attention.

(v) Trade openness:

According to Artelaris *et al.* (2007: 16), a major determinant extensively used on economic growth performance is trade openness. There have been sound theoretical reasons to believe that a strong and positive causal link exists between economic growth and openness to trade. There are several channels through which trade openness impacts economic growth. These are, the technology transfer and knowledge diffusion, comparative advantage exploitation, exposure to competition and increasing scale economies. Trade openness is usually measured by the ratio or proportion of exports and imports to GDP. A lot of empirical literature trying to investigate the type and nature of relationship that exists between growth and openness has been growing. A large part of empirical literature has found that countries that are more open to capital flows and trade have higher per capita GDP, and have been found to grow faster (Dollar & Kraay, 2000: 4; Edwards, 1998: 383). However, several scholars have criticised the robustness of these findings with regard to the methodologies employed and measurement grounds (Dollar & Kraay, 2000: 4; Vamvakidis, 2002: 57; Rodriguez & Rodrik, 1999: 3; Levine & Renelt, 1992: 942).

(vi) Foreign Direct Investment:

Foreign Direct Investment (FDI) has of late played an important role of internationalising economic activity. FDI is a primary source of economic growth and the transfer of technology. Several endogenous growth theory models have stressed this major role. The empirical evidence investigating the impact of FDI on economic growth has come up with consistent findings which affirm a significant positive causal link between FDI and economic growth (Lensink & Morrissey, 2006: 478; Hermes & Lensink, 2000: 142; Borensztein *et al.*, 1998: 115).

(vii) Institutions:

Institutional framework is another important source of economic growth emphasised in empirical literature. This is despite the fact that a long time ago there was an acknowledgement of the important role institutions play in shaping economic performance (Ayres, 1962: 16; Lewis, 1955: 69). Empirically, these factors have been examined in a way that is more consistent (Acemoglu *et al.*, 2002: 1231; Rodrik, 1999: 385; Hall & Jones, 1999: 83; Knack & Keefer, 1995: 208; Mauro, 1995: 682;). Rodrik (2000: 3) highlights five key institutions, namely: regulatory institutions, property rights, macroeconomic stabilisation, conflict management and social insurance. These institutions do not only affect economic growth but other factors affecting economic growth such as investment, human and physical capital, processes of economic growth and technical changes. Based on this background, Easterly (2001: 3) argued that if a trustworthy and stable institutional environment has not been developed, then no traditional factors would have economic performance impact. The quality of institutions are most frequently measured empirically by risk of expropriation, property rights, corruption, repudiation of contracts by the government, bureaucratic quality and rule of the law (Knack & Keefer, 1995: 210).

(viii) Political factors:

The relationship between economic growth and political factors has come to the forefront through the work of Lipset (1959: 48) who investigated how the political regime affects economic development. Since then, research on the issues has increased, making it clear that the political environment plays a key role in economic growth (Lensink, 2001: 299; Lensink *et al.*, 1999: 379; Grier & Tullock, 1989: 259; Scully, 1988: 652; Kormendi & Meguire, 1985:

141). The most basic form is that uncertainty increases whenever there is political instability. This in turn discourages investment and eventually hinders economic growth. There is also a relationship that exists between the degree of democracy and economic growth. This is despite the fact that the relationship is much more complex, since democracy has the potential to retard and enhance economic growth. This is dependent on the various channels that it goes through (Alesina *et al.*, 1994: 466). Empirically, the quality of the political environment has been measured using variables such as political and civil freedom, political instability, and political regimes. Brunetti (1997: 165) distinguishes five categories of relevant political variables, which are, subjective perception of politics, political volatility, government stability, democracy and political violence.

(ix) Socio-cultural factors:

Various social-cultural factors have an effect on economic growth, and recently there has been a growing interest in these (Barro & McCleary, 2003: 12; Zak & Knack, 2001: 295; Inglehart & Baker, 2000: 19; Landes, 2000: 9; Temple & Johnson, 1998: 965; Granato *et al.*, 1996: 608; Huntington, 1996: 17). An important variable that belongs to this category is trust. Trusting economies are expected to have stronger incentives to accumulate physical capital, exhibit richer human resources and innovate (Knack & Keefer, 1997: 1252). Ethnic diversity, in turn, may have negative consequences on growth by increasing polarisation, reducing trust, and promoting the adoption of policies that have negative or neutral impacts in terms of growth (Easterly & Levine, 1997: 1203). Several other social-cultural factors have been examined in literature, such as, language, beliefs, religion, ethnic composition and fragmentation, attitudes and social/ethnic conflicts. However, their relationship to economic growth seems to be unclear and indirect. Cultural diversity has been viewed to have a negative impact on growth due to the emergence of social conflicts, social uncertainty, or a positive effect since it may come up with a pluralistic environment where cooperation can flourish.

(x) Geography:

The importance of geography on economic growth has long been noted. Geographic factors have been formalised and entered into models, and recently a lot of interest has developed on these factors (Gallup *et al.*, 1999: 179). Several geography proxies have been used by researchers. These include distances from the equator, absolute values of latitude, proportion of land within 100km of the coast, soil quality, disease ecology, average temperatures and average rainfall (Easterly & Levine, 2003: 3; Rodrik *et al*., 2002: 5; Hall & Jones, 1999: 83). A number of recent empirical studies (Armstrong & Read, 2004: 6; Masters & McMillan, 2001: 167; Bloom & Sachs, 1998: 207; Sachs & Warner, 1997: 335) confirm that climate, natural resources, topography and 'landlockedness' affect economic growth, directly influencing productivity in agriculture, transport costs, economic structure, and competitiveness. However, others (Easterly & Levine, 2003:5; Rodrik *et al.*, 2002: 8) found that geography has no effect on economic growth.

(xi) Demographic trends:

Over the years, the relationship between economic growth and demographic trends has attracted a lot of interest. This is despite the fact that many demographic aspects remain unexplored today. Amongst those examined, population density, population growth, age distribution and migration, seem to play a key role in economic growth (Kelley & Schimdt, 2000; Bloom & Williamson, 1998: 419; Barro, 1997: 407; Kelley & Schmidt, 1995: 543; Dowrick, 1994; Kormendi & Meguire, 1985: 141). For instance, high growth of population could affect economic growth by negatively influencing the saving and investment behaviour, dependency ratio, and quality of human capital. The population composition also has critical implications for growth. Conducive to growth is a large working-age population, whereas population with a high proportion of young and elderly dependents impedes economic growth. As a result of the diffusion of knowledge, increased specialisation and so on, population density ends up being positively related to economic growth. Migration also, may have consequences on the growth potential of both the countries which sends migrants and those which receive them. Nevertheless, the findings on demographic trends are inconclusive because there has been conflicting evidence with some studies reporting strong or no correlation between demographic trends and economic growth (Pritchett, 2001: 367; Grier & Tullock, 1989: 259).

(xii) Inequality in income distribution:

Another important factor that affects economic growth is income distribution. This dates back to Simon Kuznets (1955) whose research focused on whether income distribution increases or decreases as a country develops. Inequality in income distribution has attracted a huge research effort, both theoretically and empirically in the 1990s. According to Dabla-Norris *et al.* (2015:

4), the defining challenge of modern day economics is the widening income inequality. The gap between the rich and the poor in advanced economies is at its highest levels in decades. The extent of inequality and its drivers in developed as well as developing countries has become one of the most heated debates of policy makers and researchers. According to the IMF (2014: 4, 7), income inequality is harmful for the pace and sustainability of economic growth.

Rising inequality in income distribution has received widespread concern and attention amongst political and religious leaders coining it as the "defining challenge of our time" and the "economy of exclusion" (Dabla-Norris *et al.*, 2015: 5). Just like fairness, equality is an important value in many societies. Irrespective of culture, ideology and religion, people are concerned with inequality as it can signify lack of opportunities and income mobility. Inequality is a reflection of particular segments of the society being disadvantaged. Widening inequality has serious consequences for economic growth and macroeconomic stability, since it has the potential to concentrate decision making and political power in the hands of the minority. In addition, it leads to suboptimal use of human capital resources, reduces investment and negatively affects political and economic stability. Broadly speaking, income inequality raises crisis risk (Dabla-Norris *et al.*, 2015: 5-18; OECD, 2014: 1-3; IMF, 2014: 4-13).

However, some degree of inequality may not necessarily be evil as it provides incentives for people to work hard, excel, invest and save in order to move ahead with life. This can be evidenced with returns to education and labour earnings differentiation, which spurs accumulation in human capital and economic growth, despite being associated with income inequality. Income inequality also positively affects economic growth by providing incentives for entrepreneurship and innovation. Relevant also for developing countries, is the fact that individuals can accumulate the minimum needed to start businesses and get good training and education (Barro, 2000: 5-10).

2.8 Summary and conclusions of the chapter

An understanding of the economic growth theories helps to explore the driving forces of economic growth of a country and to explain how a country can attain high growth. The aim of the chapter was to review and critically analyse economic growth theories. This was done by giving a basic description of the theories reviewed, discussing the criticisms levelled against them and presenting the empirical evidence for them. The theories reviewed by the chapter were the classical growth theory, the Harrod-Domar growth model, the neoclassical growth theory and the endogenous growth theories.

The proponents of the classical economic growth theory are Adam Smith, David Ricardo and Thomas Malthus during the eighteenth century. The theory postulated that economic growth is only a temporary phenomenon due to limited resources and population explosion within a country. The theory focused on the way capitalist economies function and visualised the economy entering a stationary or steady state. The classicals were of the belief that temporary increases in per capita GDP cause population explosion that will finally cause the realised GDP to decrease. It was also believed that if real GDP rose above the subsistence level of income, it would have the potential of increasing population, and in turn bring back the real GDP to its subsistence level. Part of the population would die if real GDP fell below the subsistence level. The classical economic growth theories explain growth in terms of the rate of technological progress and population growth. The group of economists opined that technological progress (dependent on capital accumulation) leads for some time but eventually falls/declines when capital accumulation is prevented by a decrease in the rate of profits. The economy then declines into a stagnation state. Hence, the main components of the classical economic growth theory are the production function, investment, technological progress, the size of the labour force, the determinants of profits and the system of wages.

The Harrod-Domar growth model was an extension of Adam Smith's approach to economic growth. The model states that an economy's rate of economic growth depends on the savings level and the capital output ratio. A country with a high level of savings has sufficient funds which firms can borrow from and use for investment purposes. The capital stock level of the economy will be increased by the increase in investment and ultimately generate economic growth through an increase in the production of goods and services. The theory further stated that the productivity of investment that takes place is measured by the capital output ratio. A decrease in the capital output ratio will cause the economy to be more productive. This is due to higher quantities of output being generated from fewer inputs, again leading to higher economic growth. The Harrod-Domar growth model suggests that developing countries can realise economic growth through encouraging savings, thereby supporting technological advancements so as to reduce the capital output ratio of the economy.

The neoclassical economic growth theory also known as the Solow-Swan model of 1956, outlined how a steady economic growth rate is achieved with proper amounts of capital, labour and technology. This growth theory was seen as an extension of the Harrod-Domar growth model. It states that if amounts of capital and labour are varied in the production function, the equilibrium state will be realised. The availability of new technology means that capital and labour quantities need some adjustment in order to maintain the economic growth equilibrium. The neoclassical growth theory therefore emphasises that the major economic growth factor is technological change and that advances in technological change happen by chance. The theory argues that economic growth will only take place as long as there are continuous technological advances.

The endogenous economic growth theories state that the economic growth process is internal and hence, is generated within the system as a result of direct internal processes. Endogenous growth models arose as a result of the neoclassical growth theory being perceived to be grossly inadequate in explaining the actual economic growth experiences of various economies. Proponents of the endogenous growth models included Lucas, Aghion, Howitt, Romer, Nelson and Phelps. The theories specifically note that a nation's human capital enhancement is the critical factor for economic growth through new forms of technology which are developed, as well as effective and efficient means of production. The endogenous growth theories digresses from the neoclassical growth model which view technological progress and external factors as the main causes of economic growth. The endogenous growth theories say it is the endogenous or internal factors which affect economic growth. The supporters of the endogenous growth theory argue that if a comparison is done between the present day industrialised economies and their state during the pre-industrialisation eras, there is evidence pointing to the fact that economic growth was created and sustained from within the country system and not through international trade. The development of the economic growth theories over time occurred in such a way that a new theory was either formulated from the weaknesses or shortfalls of previous theories, or as an addition to them. Endogenous growth implies that growth is determined within the system (endogenously). The tourism-led growth hypothesis can be located within this broad group of theories since tourism by its very nature is endogenous. Investment has been highlighted by these economic growth theories as an important determinant of economic growth. Thus government policy should pay particular attention to investment in tourism which can result in tourism development and consequently have a permanent impact on the long run growth.

These economic growth theories were presented in chronological order in this chapter. Chronological order does not mean loss of importance of a theory. While a current theory at a particular point in time will criticise the previous theory or theories, it can either dismiss or build on the weaknesses of the previous theory. However, all the theories have strengths, criticisms and empirical evidence as highlighted by the chapter. All the theories of economic growth are important and applicable in the present day economics in one way or another. This research will make use of the theories identified by the chapter in the formulation of the methodology to be adopted as well as the variables to be used in the empirical modelling processes in chapters 5 and 6. The conclusions to be drawn by this research will also be based on the economic growth theories.

The chapter went on to identify the economic growth drivers mentioned by the economic growth theories, namely, investment, human capital, innovation and research and development, openness to trade, economic policies and macroeconomic conditions, foreign direct investment, to mention a few. Of particular importance is the openness to trade driver because tourism is some form of trade which is very sensitive to the trade openness, international trade or otherwise of an economy.

In conclusion, this chapter has reviewed economic growth theories in chronological order starting from the classical economic growth theories, the Harrod-Domar growth model, the neoclassical economic growth theory and finally the endogenous economic growth theories. The classical economic growth theories components were the production function, investment, technological progress, the labour force size, profits determinants and system of wages. The Harrod-Domar growth model was an extension of the classical economic growth theories. The neoclassical economic growth theory was an extension of the Harrod-Domar growth model as it emphasised external factors being the determinants of economic growth. Finally, the endogenous economic growth theories digressed from the neoclassical economic growth theory by giving prominence to internal factors within a system as the determinants of economic growth. The endogenous economic growth theories are the present day economic growth theories at the centre of play. The TLGH falls within the endogenous economic growth theories and hence the focus of this study. The next chapter provides a critical discussion on the extant literature on tourism-led growth hypothesis and the direction of causality.

CHAPTER 3

REVIEW AND ANALYSIS OF LITERATURE ON THE TOURISM-LED GROWTH HYPOTHESIS

3.1 Introduction

Chapter 2 reviewed the literature on economic growth theories revealing the various growth drivers causes of economic growth. While these drivers mainly consist of physical and human capital, and technology, other factors such as institutions, geography and economic policies have recently received increasing attention. Together with exports, international tourism has also been identified as an engine for economic growth in a country. However, there is an unverified question whether international tourism can be a source of economic growth. Studies about the relationship between economic growth and tourism development are, unfortunately, blurry, caused by the diverse empirical results for different countries. This may be due to different time periods considered for the same country and different methodologies for testing the validity of TLGH used in different regions (Lee & Chang, 2008: 181). Researchers have tested the validity of the TLGH for developed and developing economies, but with inconclusive results. Their work will be reviewed in section 3.6 of this chapter.

Morgan *et al.* (2002b: 335) points out that the top ten world tourist destinations are visited by 70% of all tourists. These destinations are France, United States, Spain, China, Italy, Turkey, Germany, United Kingdom, Russia and Thailand. This is according to the UNWTO 2013 rankings (UNWTO, 2014). It leaves the rest of the world sharing the remaining 30% of tourists, indicating the intensity of competition for the other less known destinations. According to Ritchie and Geoffery (1993: 8), the management and development of tourism should be in line with the new competitiveness paradigm in order for the industry to be profitable. Competitiveness is now widely accepted as the most important factor determining the long term success of the organisations, industries, regions and countries (Kazak & Rimmington, 1999: 275). In the past it was believed that it was enough to have only the tourists and attractive exchange rates for them to compete and be successful in the international tourism industry.

Porter (1985: 148) points out that the search for a favourable competitive position in an industry is referred to as the competitive strategy, with the objective of establishing a sustainable and profitable position against forces that determine competition in an industry. Dwyer *et al*. (2003: 109) opine that the search for the factors and forces which are the determinants of the tourism industry's competitiveness is an area that has not been fully researched yet. The concept of competitiveness has been applied to different settings in the tourism concept. Several authors have applied the concept to marketing and strategic perspectives, economics, quality, satisfaction and price.

A competitive destination shows an increasing number of visitors and financial returns. The approach supports the opinion that there should be a direct relationship between competitiveness, high visitor numbers and rising destination income. However, the growth in tourism may sometimes crowd out other economic activities; hence tourism may end up replacing industries that have been in existence before it. Some researchers link destination competitiveness to a country's economic prosperity. According to Ahiawodzi (2013:189), the competitiveness of a destination should be linked with the ability to deliver an experience that brings more satisfaction compared to what other destinations are offering.

The attractiveness of a destination is reflected by the opinion and feelings of its visitors about its perceived ability to satisfy their needs. A destination is perceived to be more attractive and likely to be chosen if it is able to meet the needs of the tourists. According to Mayo and Jarvis (1980: 16), attractiveness is the perceived competency of a destination in delivering individual benefits. This ability is enabled by the attributes of a destination. These attributes are important because they help people to evaluate the attractiveness of a destination and end up making relevant choice. People are encouraged to visit and spend time at a tourist destination based on its attractiveness. Hence, destination attractiveness has a pulling effect on tourists. Tourism does not exist if there is no attractiveness and there could be little or no need for tourist services and facilities. It is only when people are attracted to a tourist destination that services and facilities follow (Ferrario, 1979: 19).

Development of any form will bring with it varying impacts on the economic, social, and physical environment in which it takes place. There are two schools of thoughts on this issue. The first one being that tourism has negative consequences on the environment in which it is operated. Francillon (1990: 65) concluded that promoting tourism not only can lead to environmental, but also cultural pollution or cultural erosion. This implies that the direct interaction of the tourists and local population can bring change in values and behaviour. The negative socio-cultural impact of tourism is counteracted by the second school of thought which Mckean (1973: 27) and McTaggart (1980: 458) belong to. According to these authors, tourism can help stimulate interest in and conserve aspects of cultural heritage which aids in the preservation of ancient monuments, historic buildings and sites, traditional arts and crafts.

This chapter aims to review and critically analyse the literature on the TLGH. Literature has formulated four hypotheses regarding the relationship between tourism development and economic growth, as discussed in chapter 1 (section 1.3). The overview of the structure of the chapter is as follows: section 3.2 explains the link between tourism and the economy; section 3.3 analyses the background and origins of the TLGH; section 3.4 analyses the interaction between tourism and economic growth; section 3.5 reviews and analyses theoretical literature on the TLGH; section 3.6 reviews and analyses empirical evidence for the TLGH and finally section 3.7 provides the summary and conclusion of the chapter.

3.2 Tourism and the economy

Tourism, as defined by Hunziker and Krapf (1942: 2), is the totality of relationships and phenomena that arises from the stay of strangers, where their 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. Mathieson and Wall (1982: 15) talk 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 emphasises two important elements, that is, journey to the destination and a stay which should be temporary. The definition includes international travel, not long-term stay or permanent migration. Inbound international tourism refers to visits to a country by non-residents of that country while outbound international tourism is visits by the residents of a country to another country. International tourism however, involves people travelling to different countries and crossing international boundaries. Domestic tourism, on the other hand, refers to travelling by people within their own countries (UNWTO, 2010)

The TLGH is the belief that tourism growth in a nation promotes the country’s economic growth. Indeed, the debate on whether or not countries should promote their tourism sector to achieve long-run economic growth is a relatively new issue. According to Cortés-Jiménez *et al*. (2009: 2), the view that tourism can play a fundamental role for developing countries to achieve economic growth and development is increasingly and widely accepted. The hypothesis is strongly supported by international organisations such as the World Travel and Tourism Council (WTTC).

Even if, theoretically, tourism may affect the growth of a country, there is little concrete evidence to support this intuition. Economists, in fact, rarely analyse the relationship between tourism and growth. For instance the classical literature about economic growth takes into account many determinants of growth, but not tourism (see chapter 2). The few recent studies that have analysed the relationship between tourism and growth empirically are heterogeneous, not only in terms of data, period of time and methodology, but also in terms of aims. In fact, despite some more "generic" empirical works which explore tourism as a possible determinant of growth, such as Balaguer and Cantavella-Jordá (2002: 877) and, especially, Eugenio-Martin, Morales and Scarpa (2004: 1), other studies centre upon more specific aspects regarding tourism. For example, there have been studies on trying to establish whether small countries that specialise in tourism tend to grow faster than other countries (see Lanza and Pigliaru, 1999: 1; Brau, Lanza and Pigliaru, 2003: 2).

A search for economic literature that can shed light on the link between economic growth and the tourism industry leads to two distinct strands of thought. The first is on international trade and is, based on the reasoning that tourism can be thought of as a form of international trade in services. Ahiawodzi (2013: 190) points out that despite the fact that trade in services accounted for 20% of the value of international trade in 1999, relatively little research has been done on the subject area. The current study focuses on the second strand of literature, which is empirical literature on tourism economics. Each strand of literature is subsequently discussed in the following sections.

3.2.1 Tourism within the context of international trade literature

It is worthwhile to incorporate international tourism in the review of international trade in order to uncover a few aspects about international tourism. International trade is carried out by a large number of countries in the real world. These countries trade in a vast range of goods and services because countries are interdependent on one another to realise mutual benefits from trade. These benefits include :(i) consumers will have access to variety; (ii)consumers benefit from increased competition in the form of better quality and lower priced goods and services;(iii) firms will have access to larger markets and they can benefit from economies of scale; (iv) international relations are fostered; (v) international trade catalyses the economic growth and development of a country (vi) international trade enables an extension of division of labour at a global scale, the output of goods and services increases and material standards of living are raised (Sloman, 2003: 648).

Historically, theories focussed on explaining why trade takes place, and only recently was the link between trade and growth explored. Various trade theories have been put across to explain the pattern of trade between different countries of the world. These theories attempt to answer questions like: what are the determinants of a country's exports and imports, and what are the trading partners of a certain country? (Bukhari *et al*., 2005: 308). The development of these theories is briefly summarised.

Smith (1776) explained trade based on the theory of absolute advantage. The theory considers two countries with a capacity to produce two goods, and proposes that a country has an absolute advantage over the other if it is more efficient in the production of one of the commodities. Therefore, both countries will benefit from trading with each other if they each specialise in the production of that commodity over which they each have an absolute advantage (Schumacher, 2012: 64-67).

Ricardo's (1817) theory of comparative advantage states that even if one of the two countries has an absolute advantage in the production of both commodities, specialisation and trade can still benefit both countries, provided each country has a comparative cost advantage. The principle involved is called the *Principle of Comparative Costs*. Comparative cost refers to the production of a commodity at lower opportunity costs and not at absolute costs (Schumacher, 2013: 86-93; Aldrich, 2004: 386-395)

Heckscher (1919) and Ohlin (1933) developed the factor proportions model to explain the pattern of international trade. This model is called the Heckscher-Ohlin (HO) model and was amended by Samuelson (1949) to create the Heckscher-Ohlin-Samuelson (HOS) model. The HO principle states that the law of comparative advantage was established by economists as an explanation for the existence and pattern of international trade based on the relative cost advantages between different countries that produce different commodities. The law of comparative advantage, however, says nothing about why or how a comparative advantage exists. According to Heckscher and Ohlin, the advantage arises from the different relative factor endowments of the trading countries. A country will export those commodities that are intensive, that is, capital-intensive or labour-intensive, in the factor in which it is most well-endowed (Bannock *et al*., 1984: 200).

The factor proportions model postulates that the pattern of world trade is determined by differences in the relative factor endowments or factor proportions. The theory says that countries that are relatively well endowed with labour will tend to use labour intensive methods of production and engage in the export of relatively labour intensive exports. This implies that countries which are relatively capital intensive will export capital intensive exports. The model suggests that the phenomenon for the pattern of trade is largely a supply-side. Hence, the model proposes that the pattern of world trade is determined by differences in relative factor endowments (Bukhari *et al*., 2005: 309-310).

According to the HOS theory, trade makes it possible for each country to specialise. Each country exports the product that it is most suited to produce in exchange for products it is less suited to produce. This implies that if a country is well endowed with natural scenery of tourist attractions, it will export tourism to other countries of the world. However, the HOS model was criticised by Leontief in 1953. Leontief examined the import and export data for the United States of America (U.S.A) in 1947 and discovered that the U.S.A exports were on average relatively labour intensive while empirically the U.S.A imported relatively more capital intensive goods. The U.S.A was and still is widely perceived to be a country which has abundant capital relative to other countries of the world. This finding contradicted the HOS model and it became popularly known as the "Leontief Paradox". The HOS was criticised also because of data and methodology problems. Many of the assumptions of the factor proportions theory were criticised for being unrealistic. For example, the assumptions of full employment, identical technology across countries and perfect factor mobility are largely untenable in the developing-country setting (Bharadwaj, 1962: 106; Bowen *et al*., 1995: 270; Deardorff, 1984: 468).

Linder (1961), instead of attempting to broaden the HOS model so that it explains stylised facts, developed an alternative model. The HOS model focused on supply-side orientation as an explanation of the pattern of world trade. However, the Linder theory focuses on the demand-side as an explanation of the pattern of international trade. The Linder theory postulates that the pattern of trade between countries is derived from "overlapping demand". This means that countries obviously produce goods for the domestic market, while the surplus is exported. It can be concluded that other countries that have an interest in acquiring this surplus would have demand patterns similar to those of the exporting country. Therefore, Linder predicted that most of the world trade should occur between countries with similar resource endowments so that there will be no paradox, but instead, a natural result of demand-driven pattern of trade (Bukhari *et al*., 2005: 310).

In 1962, Jan Tinbergen postulated the gravity model in international trade. He made use of an analogy with the Newton's universal law of gravitation to describe the aggregate bilateral trade patterns between two countries. The model asserts that bilateral trade between two countries is directly proportionate to their respective sizes (measured by their GDP), and inversely proportionate to the geographic distance between the two countries (Silva & Tenreyro, 2006: 642). Tinbergen was of the view that previous international trade theories predicted that a gravity relationship for trade between countries flows analogous to the Newton's law of gravitation. These previous theories were based on different foundations such as endowments, technological differences and increasing returns to scale. The simplest form of the gravity equation for trade states that: the trade that flows from country i to country j, denoted by T_{ij}, is proportional to the product of the two countries' GDPs, denoted by Y_i and Y_j and is inversely proportional to their distance, D_{ij}, broadly interpreted to include factors that might create trade resistance. In its simplest form, the gravity equation is as follows:

$$T_{ij} = \propto_0 Y_i^{\propto 1} Y_j^{\propto 2} D_{ij}^{\propto 3} \tag{3.1}$$

where, α1, α2 and α3 are unknown parameters. Trade and the physical force of gravity analogy clashes with the observation that there is no set of parameters for which equation (3.1) will hold for an exact arbitrary set of observations. To account for deviations from theory, empirical studies use stochastic versions of the gravity equation. The gravity equation has over time been recognised for its consistent empirical success in explaining many different types of flows such as tourism, migration, commuting and commodity shipping (Bergstrand, 1985: 474)

The traditional theory on international trade predicted that trade between countries would be inter-industry, for example wine from Portugal being traded with wool from England. The theory also predicted a positive relationship between trade and specialisation, and that there would be a great volume of trade among countries whenever there were differences in factor supplies and/or technological development. Traditional theories also predicted that free trade enhances economic welfare through mutual specialisation. However, the theories had limited success in explaining world trade patterns and the consequences of trade liberalisation. By the 1980s actual trade patterns appeared to being mostly intra-industry as opposed to being inter-industry (for example, Europeans buying Boeing jets while Americans buy Airbus). Trade was now taking place between countries with similar factor supplies and technological levels. Countries which were liberalising were being observed to diversify their production and trade instead of specialising. The gains from trade based on comparative advantage were surprisingly estimated to be small, compared to the powerful role that trade expansion played in the global economy growth during the post Second World War era. These puzzling patterns were partly explained by the new trade theory (Ciuriak *et al*., 2011: 2-3).

In the late 1970s and early 1980s, the new trade theory was developed by Helpman (1981), Krugman (1979) and Lancaster (1980). The failure of traditional theories of international trade to explain some of the most significant facts about the post Second World War trade data motivated its development. According to Deardoff (1984) and Helpman and Krugman (1985), the new trade theory was postulated as an explanation of three major facts. Firstly, that the trade to GDP ratio has increased. Secondly, that trade has increasingly become more concentrated among the industrialised and advanced economies. Lastly, that the trade amongst the advanced industrialised countries is largely intra-industry trade (Bergoeing & Kehoe, 2003: 1).

The new trade theory asserts that the unit of trade analysis is no longer the country but the industry. Models of the new trade theory incorporated increasing returns to scale, differentiated products and the fact that consumers had a taste for different varieties. The standard industry market structure was monopolistic, with all firms using the same production technologies. The policy case for trade was strengthened by the new trade theory by pointing to new sources of gains. These sources include: a rise in efficiency resulting from increased scale of production; and welfare gains for consumers due to increased variety and lower import costs (Krugman, 1995: 327; Krugman, 1979: 469, Deardoff, 1984: 467).

How a country can achieve high economic growth is one of the fundamental questions in economics. One of the answers to this fundamental question is the export-led growth hypothesis (ELGH). The emphasis of this hypothesis is on the role of exports in promoting economic growth. It states that exports are very important in stimulating economic growth. This is because the export of goods and services are an important source of foreign exchange reserves, which reduces the difficulties of balance of payments, and creates employment opportunities. According to Abou-Stait (2005: 2-4), through various policies, an export-led growth strategy aims to provide producers with incentives to export their goods. The thrust of the strategy is to increase the capability of producing goods that can compete on the international market using advanced technology. This will generate the foreign currency needed for the importation of capital goods. Exports assist a country to integrate into the world economy, and help to cushion the impact of external shocks on the domestic economy. Therefore, domestic production achieves a high level of economies of scale as a result of exports.

Tsen (2006: 285-286) pointed out that the experiences of the East Asian economies provide empirical examples of how the export sector is important to economic growth and development. This means that exports are a catalyst or the engine of economic growth and development. According to the ELGH, exports accelerate the economy through trickle down effects, spill-overs of technology and other external effects. Exports have stimulating effects because export industries are viewed as key drivers to economic growth. If a country is exposed to the international market because of exporting, increased efficiency is a prerequisite and this encourages product innovation. International market exposure implies increased specialisation, which results in economies of scale being exploited. Exports are regarded as external economies of scale for firms in sectors that are not exporting, but internal to the broader economy. Human and capital stock also blossom due to an increase in exports, so that the whole economy benefits. For this reason, the ELGH purports that an increase in exports causes the overall economy to gain in terms of productivity and economic growth (Marin, 1992: 678-680).

3.2.2 Tourism economics literature

According to Ahiawodzi (2013:190), for tourism, however, the most important factors of production are unique and hard to measure or quantify (for example, the Whli Water falls in Ghana, the Eiffel Tower in Paris, Table Mountain of South Africa, the Pyramids in Egypt, or white, sandy beaches), and the success is best measured by the number of tourist visits. Similar to trade literature, tourism literature developed firstly to explain why people travel to certain destinations. These theories gave reasons which range from psychological factors, motivational factors and personal push to destination pull factors. However, a full discussion thereof falls beyond the scope of this research. Nevertheless, unlike in trade, tourism flows are very sensitive to factors such as external conflicts and ethnic tensions, since it involves the travelling of consumers to the destination where consumption takes place. Standard trade models usually overlook these aspects and are therefore not always suited in analysing tourism.

Similar to the ELGH, there is the tourism-led growth hypothesis which postulates the existence of various arguments for which tourism would become a main determinant of overall long-run economic growth. In a more traditional sense, the flow process is that tourism brings with it foreign exchange, which can in turn be used for the importation of capital goods that are used to produce goods and services, ultimately leading to economic growth (McKinnon, 1964: 388).

There are various channels through which international tourism is widely seen to positively impact on long run economic growth. These channels are that tourism earns foreign currency, contributes to infrastructure development, stimulates other sectors of the economy, creates employment, causes positive economies of scale and reduces budget deficits. Each of these channels is subsequently reviewed.

Firstly, tourism is a significant earner of foreign exchange which can be used to purchase capital goods and intermediate goods that are used in the production process (McKinnon, 1964: 389). The objective of many countries, especially developing countries, is to have an increase in foreign exchange earnings. Foreign exchange earnings are in turn used to pay for imports and maintain the international reserves level. For instance, Spain used its foreign exchange earnings to finance the industrialisation process which led to economic growth (Nowak *et al*., 2007: 516).

Because of its potential in foreign earnings, tourism also contributes to the balance of payments of a country since it represents a service export. Tourism exports are calculated as a percentage of total exports and these are usually high for small islands. In terms of tourism contribution to the GDP, small islands rank amongst the top tourist destinations of the world because they are highly specialised in tourism activity (Schubert *et al.*, 2010: 377). Brau *et al*. (2007: 603) find that small economies, such as the Virgin Islands, Bahamas, St Lucia and the Cayman Islands, grow fast only when there is high specialisation in tourism activity. The share of tourism earnings to GDP for these small economies is usually more than 60% (Vanegas & Croes, 2003: 315). However, a more recent empirical study by Figini and Vici (2010: 789), employing a sample of more than 150 countries, found that tourism-based economies have not grown at a higher rate compared to non-tourism-based economies. Top ranking destinations in terms of tourist arrivals, that is, France, United States of America, China and Italy, reached growth rates of below 10% in terms of international tourist arrivals. The only exception is Spain with 18.4%

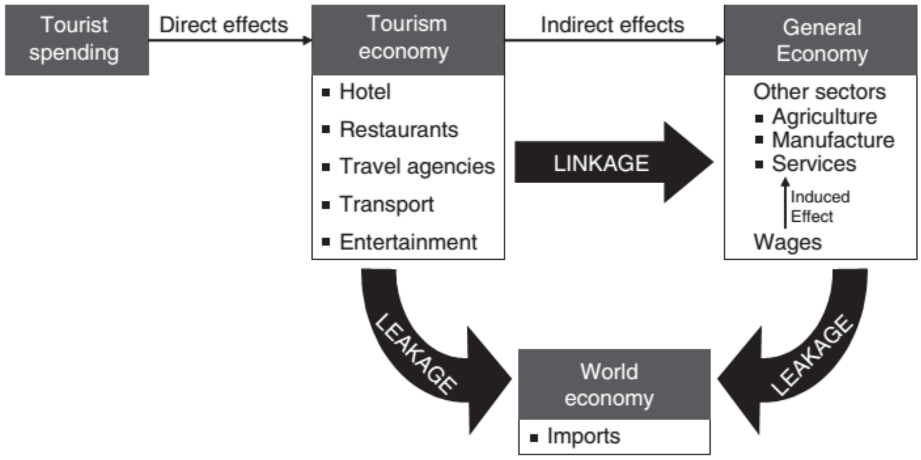
growth rate. This imply that these countries realise high foreign exchange earnings from tourism.

Secondly, tourism stimulates new infrastructure investment or development of infrastructure. Physical capital includes a wide range of public and private infrastructure such as roads, airports, hotels and restaurants, harbours and rail networks. Physical capital is a key productivity and commerce driver (Sakai, 2009: 266-279). A crucial requirement to the achievement of a competitive tourism destination is the expansion of new infrastructure. The challenge, however, for many tourist destinations is finding the correct equilibrium between expansion in supply and the sustainable growth path (Capo´, Riera Font, & Rossello´ Nadal, 2007: 711; Vanegas & Croes, 2003: 316).

Another important factor for growth and productivity of the tourism sector related to tourism infrastructure is technology. This is a fact in the current global economy where information and communication technology (ICT) has given rise to many challenges; despite creating many opportunities for tourism destinations. For example, Kumar and Kumar (2012: 360) find that ICT investment and the development of the tourism market are crucial factors for economic growth in Fiji. The tourism businesses may through cooperation become more competitive given the dynamic economic environment (Feng & Morrison, 2007: 588; Lemmetyinen & Go, 2009: 31). This is because improved technology stimulates tourism development.

Thirdly, tourism may impact other economic industries through, direct, indirect and induced effects on host economies, corresponding to its primary (direct) and secondary (indirect and induced) channels as illustrated in Figure 3.1 below.

Figure 3.1: Effects of Tourism: Direct, Indirect and Induced



Source: Leja´rraga and Walkenhorst, 2010: 418

Figure 3.1 suggests that direct impacts accrue from initial tourist spending in the tourism industry – for instance, on hotel accommodations, transportation and entertainment. Indirect impacts are generated when tourist expenditures flow from the tourism economy to the general economy through purchases of goods and services from non-tourist sectors of the local economy – for example, on food and beverage supplies, equipment and furniture and merchandise. Finally, induced effects are attributable to the increased income of wage-earners related to the tourism economy, such as waiters, tour operators and construction workers, who in turn buy goods and services in the general economy (Lejárraga & Walkenhorst, 2010: 418).

Related industries will experience overall increase in economic activity, and the overall increase in economic activity will be greater than the initial injection in spending. This means that tourism growth has trickle down effects: a process known as the multiplier effect. The best way of enhancing the economic benefits is to integrate tourism into the national economy. This can be done by establishing strong linkages between tourism and other economic sectors, such as, manufacturing, agriculture, construction, transport, banking, fisheries and other service sectors. (Cernat & Gourdon, 2012: 1045).

Tourism will strengthen other sectors of the economy by providing them with additional income as it uses goods and services produced within the local economy. Hence, tourism has a multiplier effect on the overall economy, which is empirically calculated either through the Tourism Satellite Account (Spurr, 2009: 283-299) or the computable general equilibrium (CGE) models (which are based on input–output tables) (Blake *et al*., 2006: 1100; Dwyer, Forsyth, & Spurr, 2004: 307). These methodologies also allow leakages to be estimated. Cernat and Gourdon (2012: 1046) explain that internal linkages do not relate to imports only, but they may also refer to foreign staff salaries, repatriation and local interest paid on duties in the tourism sector. Jackman and Lorde (2010: 3) argue that the Barbados TLGH results are inconclusive due to imports leakages. Hence, such a demand driven process only enhances short run growth.

Fourthly, one of the main pillars of tourism is labour. Tourism contributes to the generation of employment and thereby increasing income. Tourism activity is regarded as an opportunity for the creation of new jobs. As WTTC (2014: 1) reports, Travel and Tourism constituted 8.9% of total employment generated both directly and indirectly (265,855,000 jobs) in 2013. The WTTC projected a rise in Travel and Tourism employment to 346,901.000 jobs in 2024, signifying an increase of 2.4% per annum constituting 10.2% of total employment. According to the same source, the total contribution of the Travel and Tourism to the GDP was US$6,990.3 billion (9.5% of GDP) in 2013. The figure was forecasted to rise by 4.2% per annum to US$10,965.1 billion in the year 2024, constituting 10.3% of GDP. Hence, tourism is an important industry in many countries, whether developing or developed.

Labour is a factor of production comprising of education, skills and professional training. Professional training is one of the elements that enhance the competitiveness and efficiency of the labour force (Blake, Sinclair & Campos Soria, 2006: 1099). Tourism is often regarded as a low-technology sector and the employment generated is regarded as low-skilled, however, Di Liberto (2013: 749) finds that it is always beneficial to increase endowments in human capital when the development strategy focuses on tourism sector expansion.

As a key source of employment creation, tourism activates income for residents through the direct, indirect and induced multiplier effects (explained above). Local businesses are financed by international tourism expenditure. A part of this income is allocated for repaying the factors of production (i.e. rents, wages, and interest payments) and the remainder becomes profit. This extra income will then activate new consumption that produces further economic income and benefits amongst local economic agents. Nevertheless, there is no homogeneity between the contributions of the tourism sector to the local economy. Andriotis (2002: 335), for example, shows that large-scale firms may increase the revenue generated by the public sector through a higher level of taxes, but they tend to trade less with suppliers in the local market. Hence, he concludes that in order to stimulate local multiplier effects, tourism activity should create more employment opportunities and activate greater participation of local investors.

Fifthly, tourism results in positive economies of scale and scope (Andriotis, 2002: 337; Croes, 2006: 453). The former implies that businesses reduce their average cost per unit of production as their size, or scale, increases. The latter refers to a decrease in average total cost as a result of an increase in scale of production. For instance, as international tourism demand increases, hotel firms tend to expand their size and to diversify their facilities. This may result in the realisation of positive economies of scale and scope (Weng & Wang, 2004: 763).

Sixthly, since international tourism contributes to almost every sector of the economy, including the government sector, budget deficits also benefit from these activities via tax revenues (Karticioglu, 2009: 17). The government's budgetary position changes as a result of an increase in tourism demand. Government revenue increases as tourists buy taxed goods and services. Industries will also expand or contract depending on the tax rates being levied. The overall impact on government revenue can either be positive or negative. If an increase in tourism expenditure has a positive impact on government revenue, the government has to determine how to react, and this reaction would affect economic activity. The government can choose to have an increasing or decreasing budget deficit. Economic activity can be positively impacted by further increase in government activity, especially if relates to infrastructure development.

The government can alternatively affect economic activity through cutting its expenditure. The economic policy stance of a government helps to determine the extent of the economic impact of tourism growth. Inescapably, tourism development is linked to the size of the public sector in many countries. For example, tourism expansion implies increased demand for airport facilities, road and rail transport, utilities and other infrastructure. Many of these services are wholly owned by the government or by semi government authorities and may be funded wholly or partly by government tax revenues (Woodside & Martin, 2008: 465).

Finally, the rapid expansion of the national GDP may further expand international tourism. The globalisation process tends to enhance international trade amongst countries of the world, hence facilitating exports (Wahab & Cooper, 2001: 83). There is an increasing international ownership of restaurant chains and franchising of many hotels in the global economy. These have become big players around the world. However, these international organisations may have very little or no commitment to the host destination. According to Andriotis (2002: 338), this undermines the potential local economy multiplier effects. Hence, sometimes tourism expansion can have a negative impact on the GDP of a country.

The next section explains the origins and background of the TLGH.

3.3 Origins and background of the TLGH

According to Brida *et al*. (2014: 1), more than a decade has passed since the TLGH publication in 2002 of the first paper on the TLGH. Since then, a wave of empirical studies has appeared in an attempt to understand the temporal relationship that exists between tourism and economic growth. Before 2002, there was already interest in the relationship between tourism activity and the growth of national income and/or national production. This is despite the fact that the theoretical ground for such a relationship was not explicitly defined. The 2002 study by Balaguer & Cantavella-Jordá, published in Applied Economics, was the first empirical research to formally refer to the TLGH, thereby offering both the theoretical and empirical linkages between tourism development and economic growth. Spain was the country under analysis. Spain is an internationally recognised case study of a tourism success story with the trickle down benefits for the economy resulting in economic growth (Cortés-Jimenez & Clave; Nowak *et al.*, 2007: 517). Theoretically, the TLGH was directly derived from the ELGH. The ELGH postulates that economic growth can be generated through the expansion of exports and not solely by the traditional belief of increasing the amount of capital and labour within the economy (Brida *et al*., 2014: 1).

The 'new growth theory', developed by Balassa (1978: 181), suggests that exports have an important contribution to economic growth through two main channels, namely: improving efficiency in the allocation of the factors of production; and expanding the volume of exports. The increase in efficiency is obtained by several sources: expanding competition externally and internally; developing positive externalities for other sectors by promoting the diffusion of technical knowledge and skills; and facilitating the exploitation of economies of scale and scope in the export sector (Grossman & Helpman, 1991: 15; Krueger, 1980: 192). Exports also promote economic growth by increasing investment levels. This linkage is made possible by several causes, which include, among others,: the foreign exchange shortages relief that leads to the expansion of imports of intermediate goods and capital (McKinnon,1964: 388); voluntary domestic savings and investment opportunities due to savings by the government;

and an improved external capital and banking system (Ghirmay, Grabowski, & Sharma, 2001: 389).

International tourism is often regarded as a non-standard type of export, since it implies a source of receipts and consumption in situ. Economic literature tends to focus on the exports of primary and manufactured products, hence neglecting the services sector. This is due to the fact that there are difficulties encountered when measuring tourism activity, for example. Analogous to the ELGH, the TLGH analyses the possible short and long run temporal relationship that exists between tourism development and economic growth. This all centres on whether it is tourism activity that leads to economic growth, alternatively, economic growth driving tourism growth, or indeed a bi-directional relationship existing between the two variables.

The next section explains the interaction between tourism development and economic growth.

3.4 Interaction between tourism and economic growth

It has not yet been verified whether tourism development actually causes economic growth, alternatively, whether it is economic expansion that has strongly contributed to tourism development instead. To date, studies that have analysed the relationship between economic growth and tourism sector demonstrated mixed results. According to Chatziantoniou *et al*. (2012: 2), Brida *et al*. (2010: 766) and Oh (2005: 40), there are four hypotheses examined with regard to the interaction between tourism development and economic growth which are:-

a) The TLGH. This is the empirical evidence which supports the view that tourism development results in economic growth. According to this hypothesis there is an unambiguously uni-directional causality from tourism development to economic expansion, making tourism-led economic growth practical. The recognition of the causal relationship between international tourism and economic growth has important implications for the development of different tourism marketing and policy decisions. Proponents of the TLGH assert that governments must channel resources towards tourism in order to realise economic growth.

b) The EDTGH. It proposes that unlike the assertions of the TLGH, an opposite causality exists between tourism development and economic growth. According to this hypothesis, economic growth is essential for the expansion of the tourism industry. This view further holds that any policy initiatives that promote economic development should take precedence over measures designed to promote tourism directly.

c) The two-way causal relationship which combines the two views, a) and b), where the causality between tourism and economic growth may run in both directions. This implies that there exists bidirectional causality between tourism and economic growth. If tourism development and economic growth have a reciprocal causal relationship, then a push from both areas will be beneficial for their development.

d) Finally, there is no significant evidence of causality in the relationship between tourism growth and economic development. In this case, the strategies of tourism managers and decision makers such as enthusiastic tourism promotion may be ineffective.

There is therefore a lack of conclusive evidence concerning the validity of the TLGH. This may be explained by the differences in the proxies used to measure the variables in the various models, these include, among others, the measurement of tourism receipts, the sampling period, the omission of important variables such as exchange rate and the methodologies adopted (Husein & Kara, 2011: 917) (see chapter 1 section 1.3).

Hence, it is evident that there is heterogeneity of results in tourism-led growth analysis. The results differ in terms of data used, methodologies employed as well as countries/ destinations. Tugcu (2014: 207-208) investigated the tourism-economic growth nexus for the Mediterranean region using panel causality analysis and classified the TLG under four different hypotheses, which are growth, conservation, feedback and neutrality. The growth hypothesis refer to tourism playing a crucial role in the process of economic growth either directly or by complementing other production factor. The growth hypothesis is supported if there is uni-directional causality from tourism to economic growth. Hence, policies which aim at subsidising tourism have a positive impact on economic growth. The second hypothesis, which is the conservation hypothesis, means that there is dynamism of economic growth strengthening the tourism sector. The validity of this hypothesis is proved if there is a uni-directional causality running from economic growth to tourism. Under this scenario, transferring subsidies from the tourism sector to other sectors of the broader economy will not negatively affect economic growth. The third hypothesis, which is the feedback hypothesis convey a reciprocal relationship between tourism development and economic growth. This hypothesis is supported if there is a bi-directional causality between tourism and economic growth. As for the validity of this hypothesis, policies on tourism conservation may reduce economic growth performance, and similarly, economic growth changes are reflected back to the tourism sector. Finally, the fourth hypothesis, which is the neutrality hypothesis, indicates no causality between tourism and economic growth. No causality between tourism and economic growth provides evidence of the neutrality hypothesis presence.

According to Turgu (2014), classifying the TLG in this modern way, which was not found in any previous studies prior to his, makes the causal relationship between tourism and economic growth more specific in terms of the explanations as to why in some countries, tourism drives economic growth while the reverse hold for other countries. The research by Turgu (2014: 211-212) found that the causality direction between tourism and economic growth is country and indicator specific. Several reasons were proposed by the research for such a scenario.

Firstly, if the tourism sector generates income considered among leakages, it will not be proper to assume that increased tourism revenues and/or expenditures necessarily indicate faster economic growth. If the economy imports most tourism inputs, income generated by the tourism sector becomes a leakage. Hence, for such an economic structure, there would be a disappearance of the expected causal impact on tourism development on economic growth. However, for some countries, even though the tourism sector inputs are import-oriented, the direction of causality from tourism to economic growth will be noted. This may arise due to the fact that the growth effect is driven by the initial conditions of the country, such as, lower national income and/or the economy's population. The growth effect originating from tourism can be relatively enormous for economies with worse initial conditions compared to economies with better conditions. This implies that the marginal physical product of inputs allocated to tourism in those economies may be relatively higher (UNCTAD, 2013: 7-14; Ardahaey, 2011: 212).

Secondly, the explanation for varying causality can be attributed to the interconnections amongst different sectors of the economy. Making an assumption of tourism are linked to many other sectors, the expectation will be that development of the tourism sector will cause other sectors to produce more and, finally, the economy will grow faster, and *vice versa*. The direction of causality between tourism and economic growth is also influenced by the tourist attraction. Countries with established tourist attraction will benefit from the long run inflow of tourists which, in turn, causes economic growth. However, places without a long history of tourism success rely on their material resources in order to maintain an inflow of tourists.

Economic growth will be realised when tourist inflows are sustained through investment in tourism. In such cases, the development of the tourism sector diminishes when there is no economic growth. It can therefore safely be anticipated that the direction of causality between tourism and economic growth runs from tourism to growth in countries with tourist attractions which are established, whereas causality will be from growth to tourism for countries having the material ones (UNCTAD, 2013: 1, 7-8).

Thirdly, according to Adamou & Clerides (2009: 1-2), many developing economies have been able to rapidly climb the global income rankings by exploiting their natural resources successfully. The question that still arises is whether there are limitations on the extent to which tourism can continuously carry the entire economy forward. In the long run, there are expectations of diminishing returns setting in, limiting the extent to which tourism can contribute to a nation's well-being. Considering the impact of labour cost, as an example, wages will rise as a tourism country develops. This results in an increase in the price of tourism services, which are mostly labour-intensive. Other countries may be begin to develop their own tourism sectors and, starting from a lower point of development, these countries will be offering a similar product at a relatively lower price. Hence, the country specialising in tourism will become less competitive as it gets richer. This theoretical mechanism is consistent with the causal observation empirically, for example, the traditional Mediterranean destinations such as Cyprus, Greece and Spain face relatively tough competition from newcomers such as Croatia, Egypt and Turkey. Hence, tourism specialisation is often associated higher economic growth rates at low levels of specialisation but, as diminishing returns set in tourism's contribution to economic growth becomes minimal. This means that for economic growth to be sustained, other economic activities ought to be developed to minimise the reliance of the economy on tourism-led growth.

Fourthly, economic growth may itself play a critical role in the determination of the direction of causality between tourism and economic growth. This is because growth may also imply distribution of income, since growth may result in resource allocation inefficiency. Unequal allocation of resources amongst sectors of the economy result in some sectors receiving insufficient resources for development purposes. Therefore, if the proportion of resources allocated to tourism is relatively less to the tourism sector's contribution to the growth of the economy, it is impossible to construct a causality link from economic growth to tourism, despite the fact that there is a causal link from tourism to economic growth (Bhatt & Munjal, 2013: 381-383, 398-399).

Finally, the heterogeneity of results in TLG analysis may be explained by the differences in the proxies that have been used to measure the variables used in the regressions. For example various tourism proxies were used by different empirical studies, including total international tourist arrivals, real tourism receipts, international tourism expenditure and tourism earnings. The empirical research also used different time spans. Different methodologies were employed by various researchers, for example, ARDL, VECM, VAR, Granger causality and bounds testing approach. Some researchers also omitted important explanatory variables and they were conducted on countries with different characteristics using either time series, cross sectional or panel data (Husein & Kara, 2011: 917). Due to these reasons, results will not be homogenous but heterogeneous. These are all possible explanations for why tourism causes economic growth in some countries, for some countries causality runs from economic growth to tourism. Other possible conclusions are no causality evidence and bi-directional causality. Hence results are ambiguous. In conclusion, modelling these inconclusive circumstances should be the direction of future studies.

The question which still remains is whether tourism growth can spearhead economic growth for African economies. The next section looks into the theoretical framework of the TLGH.

3.5 The theoretical framework of the TLGH

A study of the relationship between tourism and economic growth, from a TLGH perspective, needs to be underpinned by solid economic theoretical foundations. After analysing tourism development in the context of international trade and tourism economics literature in section 3.2, this section provides the theoretical framework of the TLGH.

From a theoretical point of view, two main approaches exist. The first approach is the demand side model, which is be based on the standard Keynesian function. In this model, tourism is treated as an exogenous variable. However, the research by Figini and Vici (2010: 795) point out that such a setting is static and can be related to the equilibrium in the short run period. The demand model can be further expanded by the inclusion of receipts from tourism, the price of real tourism and real GDP, as endogenous variables, and analysing tourism demand function shocks (Brida & Risso, 2010: 15; Narayan, 2004: 195; Tang, 2013: 273).

The second approach, is commonly based on a production function underpinned on the Solow neoclassical growth theory (see chapter 2, section 2.5.1), and expanded by Balassa (1978: 185). This model includes the standard production inputs, which are, physical capital, labour and tourism, which are non-standard types of export. This theoretical setting is expanded by Lanza and Pigliaru (2000: 77) who developed a two-sector model such as the one developed by Robert Lucas. Natural resources were included as a further input in the process of production. Their results show that in order to correct the technological gap, those destinations specialised in tourism may exploit natural resources. Small countries endowed with natural resources are more likely to specialise in tourism and hence achieve higher economic growth rates. Brau *et al*. (2007: 603) identified two alternative scenarios within the theoretical two-sector setting. The scenarios were labelled as optimistic interpretation and pessimistic interpretation with the former based on the low elasticity of substitution between manufacturing commodities and the tourism hypothesis. This means that tourism specialisation is supposed to be valued highly given consumer preferences. A consumer cannot easily substitute tourism services with manufacturing goods which are cheap. Therefore, an elasticity less than unity, leads to the terms of trade effect that are strong. This results in a tourism sector that surpasses the manufacturing sector growth. As the authors emphasised, the optimistic interpretation which underlies the TLGH, suggests that such growth is sustainable because it is driven by the appreciation of tourism services continuously.

The negative interpretation is based on the high substitution elasticities assumption between manufacturing commodities and tourism. Given the preferences of consumers, specialisation in tourism is relatively supposed to be valued less, and the consumer representative tends to substitute services of tourism with goods manufactured. Hence, an elasticity greater than unity, leads to a terms of trade effect which does not favour the tourism sector. However, as authors pointed out, if the TLGH were to be assessed, the source of this economic growth is more likely to be dependent on the expansion of output due to the rapid increase in the natural resources exploitation, rather than the terms of trade. In this case, an improvement in growth through expansion of tourism possibly compromises the development and sustainability of tourism destinations in the long run (Brida *et al*., 2014: 5-6).

Another line of research from the theoretical view point is the so-called ‘Dutch disease’ which was first developed by Corden and Neary (1982: 825). Corden and Neary hypothesised a two sector economy. It consists a booming non-traded goods sector (natural gas sector), and lagging traded sectors (two manufacturing traded goods sectors). In the model, there is deindustrialisation caused by a shift in labour taking place from the lagging sector to the booming sector. According to Pegg (2010: 14), a ‘resource curse’ may result due to the reallocation of resources. The framework of the Dutch disease was extended to the tourism sector, as a highly labour intensive sector, and one that is also characterised by a certain market power because of the heritage endowment and natural resources abundance of the destination (Copeland, 1991: 515; Deng, Ma & Cao, 2013a: 10). In this case, foreign capital inflow is likely to result in an increase in housing prices, rentals or land, causing a crowding-out effect on domestic or local business. Besides, there can be an overall loss of welfare due to the booming tourism sector attracting labour force from the lagging sectors. In his theoretical framework, Sheng (2011: 1223) concludes that the effects of interventions by the government (such as subsidising the lagging sector and levying tax on the booming sector) in order to internalise these negative consequences on the domestic or local economy, still needs an in-depth empirical investigation.

The endogenous growth model fits on the demand side as well as on the production side of the economy for economic growth to be realised. The endogenous growth theories assert that economic growth is primarily as a result of internal (or endogenous) and not external (or exogenous) forces. The theory says that investment in human capital, innovation and knowledge are the key contributors to economic growth. The endogenous growth models emphasise on the emergence of new products for economic growth to be enhanced (Romer, 1994: 3). In tourism, it is the unique products that attract tourists and they end up spending. Hence, there will be more export earnings realised which will finally stimulate economic growth.

The following section reviews various model specifications of the TLGH. The studies were selected based on the types of data they use, which are, time series, cross section and panel data. Only studies based on a strong theoretical base were considered. They therefore provide a link between tourism-led growth models and the economic growth theories reviewed in Chapter 2.

The studies reviewed are the following: section 3.5.1 tourism export-led growth in a panel of countries, by Kareem in 2013; section 3.5.2 tourism and growth in a cross section of countries, by Figini and Vici in 2010; section 3.5.3 tourism and growth in selected countries, by Cortés-

Jiménez *et al*. in 2009; and section 3.5.4 reviews tourism and growth using alternative specifications, by Srinivasan *et al*. in 2012.

3.5.1 Tourism export-led growth in a panel of countries

Kareem (2013: 130-140) determined the impact of tourism exports on Africa's economic growth using panel data. The ELGH was adapted, which states that exports are an engine for enhancing and accelerating long run economic growth. There has been a lot of theoretical disagreements as far as the ELGH is concerned. The ELGH has two perspectives which are the demand side and the supply side. When the domestic market is small, the demand-side perspective argues that demand growth cannot be maintained sustainably. This is because the economic impulse based on the expansion of the home demand is bound to be exhausted quickly. This is contrary to the fact that the export market cannot be exhausted since it does not involve growth restriction on the demand side (Kareem, 2013: 135).

Agosin (1999: 79) was of the opinion that exports as a component of gross domestic product could be a catalyst of economic growth. The expansion of exports, as the supply-side of the ELGH, could enhance and promote output growth through a rise in total factor productivity (TFP). This stems from the fact that expanding exports results in the encouragement of and specialisation in sectors that have a comparative advantage in the country. This will then lead to a reallocation of resources from the relatively inefficient non-trade sector to the export sector, which is believed to be more productive. The growth of exports can increase productivity by offering larger economies of scale (Helpman & Krugman, 1985: 113). Feder (1983: 61) also opined that the growth in exports might affect TFP through dynamic spillover effects on the broader economy.

Studies have concentrated on the rate at which some countries bridge the gap between their positions and their destined long-run growth paths. For the Kareem (2013) study, a neoclassical Cobb Douglas production was adapted from Herzer *et al*. (2004) with some modifications. This was done to enable the examination of the responsiveness of income growth rate to revenue generated from tourism and typical sources of economic growth. The model specification for the study under investigation starts with a Cobb-Douglas neo-classical production function based on the views of Krugman and Obstfeld (2000) that the neoclassical model is better to work with as it conveys a deeper understanding of how resources may drive trade patterns. The neoclassical Cobb Douglas production function formed the basis of the study:

$$Y_t = A_t K_t^{\propto} L_t^{\beta} \tag{3.2}$$

where, Y_t denotes the aggregate real output (GDP) of the economy at time t, and A_t, K_t and L_t are the levels of TFP, the capital stock and the labour stock respectively.

The Solow-Swan model also employed the Cobb-Douglas Production function. It also specified capital and labour as key determinants of economic growth (see sections 2.5.3 and 2.5.4 in Chapter 2). A Cobb-Douglas production function with Harrod-neutral technological progress therefore takes the form:

$$Y_t = K_t^{a}(A_t L_t)^{l-a}, 0 < a < 1 \tag{3.3}$$

where, the exponents a and 1− a denote the output elasticities of capital and labour, respectively.

Mankiw, Romer and Weil (1992) (section 2.5.4 Chapter 2) augmented the original Solow growth model to include human capital accumulation in addition to physical capital. A Harrod-neutral Cobb-Douglas production function was assumed and adopted. Production at any point in time t is given by:

$$Y_t = K_t^{a} H_t^{b} (A_t\ L_t)^{1-a-b}, \quad a>0,\ b>0,\ a+b<1 \tag{3.4}$$

where, K represents the stock of physical capital, H denotes the stock of human capital, b denotes the output elasticity of human capital, and the other variables are defined as in the Solow model.

The aim of the Kareem (2013: 130) study was to investigate if exports affect economic growth through increasing productivity. The TFP was expressed as a function of non-exports, capital goods import, investment and energy consumption. TFP is also called multi-factor productivity and is defined as the variable which takes into account the total output growth effects relative to growth in traditionally measured inputs of capital and labour. Hence, TFP can be viewed as total output growth. The rationale for the inclusion of these variables is to prevent spurious conclusions regarding the TLGH and to endogenise the growth equation. Any study that does not consider the endogenous nature of the growth process, to a large extent, is liable to simultaneity bias and will give conclusions that are unreliable (Shan & Sun, 1998: 1057). Since a rise in total factor productivity promotes growth, the TFP was expressed as:

$$Y_{it} = V_0 + \propto K_{it} + \beta L_{it} + aT_{it} + bE_{it} + cY_{it-1} + dC_{it} + e_{it} \quad (3.5)$$

where, Y_{it} is the real gross domestic product of country i in time t, K_{it} is country i gross capital formation at time *t*, L_{it} is labour at time t in country *i*, T_{it} is country *i* total tourist arrivals, and E_{it} is total energy consumption. Y_{it-1} is the past value of the real gross domestic product and C_{it} is the tourists final expenditure consumption in destination *i* at time *t*. In equation 3.5 all the explanatory variables are expected to have a positive effect on real GDP, that is the coefficients α, β, a, b, c, d > 0.

The variables which Kareem used for his model are similar to the ones used in the economic growth theories of Chapter 2. Kareem expressed TFP as a function of various explanatory variables and this is similar to the endogenous growth theory where, the rate of economic growth in the long run, as measured by GDP per capita growth rate, depends on the growth rate of TFP, which is in turn determined by the rate of technological progress (Howitt, 2000: 829) (see section 2.7, Chapter 2). The study concluded that there is a significant positive long run relationship between African international tourism exports and economic growth. According to Kareem (2013: 138) this implies that African countries can use tourism as a driver of economic growth.

3.5.2 Tourism and growth in a cross section of countries

Figini and Vici (2010: 699) assessed the relationship between tourism specialisation and economic growth. Data from countries exceeding 150, covering different time frames from 1980 and 2005 was used. The study employed the Brau, Lanza and Pigliaru (BLP) (2004 and 2007) econometric specification that is used for the growth regression, that is:

$$\text{Growth} = \beta_0 + \beta_1\text{Tourism} + \beta_2\text{X} + \beta_3\text{v} + \varepsilon \quad (3.6)$$

where, Growth is the average growth rate per capita income during the period under consideration; *Tourism* is a measure of the degree of tourism specialisation; *X* is a vector of control variables based on the neoclassical growth theory (see section 2.5, Chapter 2) and on empirical literature which investigates the factors affecting economic growth. The vector includes the initial level of per capita GDP (to control for the convergence hypothesis emanating from the Solow economic growth model (see section 2.5.1, Chapter 2)). The vector includes measures of investment in human and physical capital, as a proxy of the factors affecting technological progress in human capital models, all of which considered human capital as a critical factor for economic growth. This is also captured in section 2.5.4 where

Mankiw, Romer and Weil (1992) augmented the original Solow model by including accumulation of human capital in addition to physical capital, sections 2.6.1, 2.6.2 and 2.6.3 on endogenous growth economic theories. The vector also includes the share of public expenditure in the GDP and a measure of trade openness which aims to control the ELGH (see section 2.7 on economic growth drivers). The vector *v* captures a series of dummy variables often used in growth analysis to capture non-economic effects. These include, for example, the world region that the country belongs to and whether or not the country is a less developed country, a producer of oil or a small country.

Figini and Vici concluded that during the period 1990–2005 (1995-2005), there was no significant causal relationship between tourism specialisation and economic growth. This divergence in the results was probably due to three different and interacting reasons, which are, data problems, BLP model misspecification and the omitted variable bias. The study provided evidence which contrasts with most empirical literature review by simply concluding that tourism specialisation may not be a panacea to solve economic development and economic growth problems.

3.5.3 Tourism and growth in selected countries

The study by Cortés-Jiménez *et al*. (2009) expanded existing empirics by considering exports and tourism as determinants of economic growth using longer time-series data. While trade of goods has proven to be an engine for economic growth, the research wanted to cover the gap of scarcely examined literature on inbound tourism as non-traditional exports affecting economic growth (Cortés-Jiménez *et al*., 2009: 1). Data for Italy and Spain over the period 1954-2000 and 1964-2000 respectively was used for both goods and tourism exports. A Cobb Douglas production function within the neoclassical framework was employed as follows:

$$Y_t = K_t^{\alpha} . H_t^{\beta} . A_t \qquad (3.7)$$

where, output (Y) is a function of physical capital (K), human capital (H) and production technology (A). The production function is expanded according to the endogenous neoclassical growth model postulated by Barro and Sala-i-Martin (1995). Exports are regarded as a catalyst to economic growth (Boriss & Herzer, 2006: 320; Mankiw, 2004: 69; Grossman & Helpman, 1991: 171); hence the Cobb Douglas production function (3.7) was modified to include exports:

$$Y_t = K_t^{\alpha} . H_t^{\beta} . X_t^{\gamma} . A_t \qquad (3.8)$$

According to Durbarry's (2004) contribution, exports can further be decomposed into XG (goods exports) and TX (tourism exports). Hence the economic specification adopted by the research was:

$$Y_t = K_t^{\alpha}.H_t^{\beta}.XG_t^{\gamma}.TX_t^{\delta} \tag{3.9}$$

where, *Y* is real output, *K* is physical capital and *H* is human capital. *XG* and *TX* are already defined. Equation (3.9) was expressed in linear logarithmic form given by equation (3.10)

$$Y_t = \mu + \alpha K_t + \beta H_t + \gamma XG_t + \delta TX_t + v_t \tag{3.10}$$

where, t denotes a time series analysis and *v* is the stochastic disturbance error term with mean zero and variance which is constant.

The Cobb Douglas production function employed by the study was also employed in the Solow-Swan model (see section 2.5.2). The model considers physical capital, human capital and disaggregated components of exports, which are, exports of goods and tourism exports as determinants of economic growth. The Solow-Swan model had two determinants of economic growth, that is, labour and capital. Production technology (A) in equation (3.7) is another determinant of growth. This is also in line with the endogenous growth theory (see section 2.6.3), especially Romer's (1990) model of endogenous technological change that identifies technological progress as the key driver of economic growth. The model by Cortés-Jiménez *et al*. (2009) also incorporated exports as a key determinant of economic growth, which is in line with the endogenous growth theories (see section 2. 6). The research concluded that both exports and tourism specialisation contribute significantly towards the long run growth with some peculiarities for each country. The export-led and tourism-led growth hypotheses were therefore verified for both Italy and Spain.

3.5.4 Tourism and economic growth using alternative specifications

Using the Autoregressive Distributed Lag (ARDL) bounds testing approach, Srinivasan *et al*. (2012) examined the impact of tourism on economic growth in Sri Lanka using time series data. The study covered the period 1969-2009 (Srinivasan *et al*., 2012: 211). Annual GDP and official tourist receipts (both in US$ million) were used in the model. The ARDL model originally introduced by Pesaran and Shin (1999) and further extended by Pesaran, Shin and Smith (2001) was employed. The approach is based on the estimation of an Unrestricted Error Correction Model (UECM) and has several advantages over the conventional types of cointegration techniques (Srinivasan *et al.*, 2012: 216). Hence the ARDL-UECM used in the research study has the following form:

$$\Delta lnG_t = \beta_0 + \sum_{i=1}^{p} \delta_1 \Delta \mathrm{InT}_{t-i} + \sum_{i=0}^{q} \delta_2 \Delta \mathrm{InG}_{t-i} + \beta_1 \mathrm{InG}_{t-1} + \beta_2 \mathrm{InT}_{t-2} + \varepsilon_t \qquad (3.11)$$

Where, *G* and *T* are gross domestic product and tourism receipts respectively, Δ denotes a first difference operator; it represents natural logarithmic transformation. Natural logarithms were also used to measure elasticities by Mankiw, Romer and Weil (1992) (see section 2.5.4); β_0 is an intercept and ε_t is a white noise error term. Using ordinary least squares (OLS), equation 3.11 was estimated and this helped to establish the long run relationship among the variables (Srinivasan *et al.*, 2012: 215). The second step was to estimate the conditional ARDL long run for *G* given by equation (3.12) below:

$$In\ G_t = \beta_0 + \sum_{i=1}^{p} \beta_1 In\ G_{t-i} + \sum_{i=0}^{q} \beta_2 InT_{t-i} + \varepsilon_t \qquad (3.12)$$

Estimating equation 3.12 involved selecting the orders of the ARDL (p, q) model using the Schwarz Bayesian Criterion (SBC). In the third step, the short run dynamic parameters by estimating an ECM with the long run estimates is obtained. The equation is specified as follows:

$$\Delta InG_t = \beta_0 + \sum_{i=1}^{p} \delta_1 \Delta InG_{t-i} + \sum_{i=0}^{q} \delta_2 \Delta InT_{t-i} + \varphi ECM_{t-1} + \varepsilon_t \qquad (3.13)$$

where, δ1 and δ2 are the short-run dynamic coefficients of the model's convergence to equilibrium, φ is the speed of adjustment parameter and ECM is the error correction term that is derived from equation 3.11 estimated equilibrium relationship (Srinivasan *et al*., 2012: 217).

The study revealed that tourism has both a short run and long run positive impact on economic growth. The study recommended that in order to attract more tourist arrivals, the government of Sri Lanka had to focus on political solutions for sustainable long term conflict resolution. This would help the country to enhance economic growth (Srinivasan *et al.*, 2012: 222). It is therefore evident that the main specifications used in the TLGH are based on the neoclassical growth model. The next sub-section reviews and analyses the empirical views of the TLGH.

3.6 Review and analyses of empirical evidence for the TLGH

In the previous section, the theoretical framework of the TLGH was discussed. This section is structured as follows: section 3.6.1 reviews and analyses of empirical literature which supports the TLGH (the view that tourism development results in economic growth), section 3.6.2

reviews the EDTGH, section 3.6.3 focuses on bidirectional causality - the view that tourism development and economic growth Granger causes each other and section 3.6.4 provides an overview of no significant causality evidence.

3.6.1 Empirical evidence for the TLGH

This section reviews empirical literature which supports the view that tourism development has a positive impact on economic growth. The section first reviews empirical evidence which supports the TLGH for developed countries, followed by a review for the developing countries, and finally reviews evidence for studies which included a combined sample of developed and developing countries. This will allow for conclusions on TLGH empirical literature to be easily drawn.

Dragouni *et al*. (2013: 1- 33) employed a VAR spill-over index developed by Diebold and Yilmaz in 2012 to investigate the relationship between tourism and economic growth for ten developed European countries, which are, Austria, Cyprus, Germany, Greece, Italy, Netherlands, Portugal, Spain, Sweden and the United Kingdom. The sample period ran from January 1995 to December 2012 and the results of the study revealed three findings. Firstly, the relationship between tourism and the economy is not stable over time in terms of both the direction and its magnitude. Secondly, the relationship shows patterns of its magnitude and/ or direction during economic events, such as the most severe economic slowdown of 2009 and the Eurozone debt crisis in 2010. Lastly, these economic events impact on the relationship between the economy and tourism sector as was the case in Greece, Portugal, Spain and Cyprus which were the hardest hit by the severe economic downturn since 2009. These results suggest that tourism actors and policy makers should pay particular attention to time varying relationships and factors that influence it when designing tourism strategies.

Using quarterly data for the period 1997 to 2010, Bento and Santos (2012: 1759 – 1765) investigated the role of tourism in Portugal's long run economic output growth. They employed the augmented Granger causality test approach developed by Toda and Yakamoto in 1995 to ascertain the causality direction between the variables in a bi-variate vector autoregression (VAR) system using the Seemingly Unrelated Regression (SUR) method. Their results provided evidence of a unidirectional causality between tourism and economic growth which supports the TLGH.

Husein and Kara (2011: 917-924) empirically re-examined the possible causal link between real exchange rate, tourism receipts and economic growth for Turkey by using annual data (1964–2006). The Johansen multivariate cointegration analysis revealed the existence of a 'stable' and significant long-run equilibrium relationship between real GDP, tourism receipts and real exchange rate (RER). Granger causality tests based on the error correction model indicated a unidirectional causality from tourism receipts and RER to real GDP.

Katircioglu (2010: 1095–1101) empirically investigated the TLGH in the case of Singapore by employing the bounds test for cointegration, error correction models and Granger causality tests using annual data from 1960 to 2007. The results confirmed the existence of a long-term equilibrium relationship between international tourism and economic growth in Singapore as real income growth converged significantly toward its long-term equilibrium level of 51.4% in accordance with the tourism-led growth hypothesis model. The major finding of the research was the confirmation of the TLGH for the Singaporean economy in the long term as a result of conditional Granger causality tests.

Balaguer & Cantavella-Jordá (2002: 877-884) examined the role of tourism in the long run economic development of Spain for the period 1975Q1 to 1997Q1. Through cointegration and causality testing, the TLGH was confirmed. The results indicated that during the three decades, the Spanish economic growth was sensitive to the persistent expansion of international tourism. Increase in tourism expansion had multiplier effects over time. The economic growth of Spain was also affected by external competitiveness.

In terms of studies conducted in developing countries, Kristo (2014: 39-51) evaluated the causal link between economic growth and tourism for Albania. The methodology employed was the error correction mechanism approach. Comparison was made between the fluctuations in the total economic contribution of the travel and tourism sector to the economy and the real effective exchange rate, with real GDP changes growth rate. Using a long run cointegration method analysis and the error correction mechanism to investigate the short run dynamics of the model, the research concluded that an increase of 5 percent in net earnings from Albania's travel and tourism accounted for an increase in real income of more than 1.7 percent. It was also concluded that in the event of a long run equilibrium break between economic growth and tourism, 26.3 percent of the disequilibrium would be cleared per quarter. This means that it takes almost one year (11.4 months) to weather a tourism sector economic shock and get it back to its equilibrium in the long run. Generally speaking, the results of the study by Kristo support the hypothesised conviction that development in tourism supports higher GDP growth rates.

Kareem (2013: 130-140) carried out an empirical study to determine the effects of tourism exports on Africa's economic growth. A panel cointegration analysis from 1990 to 2011 for thirty African countries was used and revealed that tourism exports have significant positive long run effects on growth in Africa. The policy implication is that, tourism has the potential of accelerating long run economic growth. The study also concluded that African growth can be used in the development of tourism exports.

Bouzahzah and Menyari (2013: 1-13) examined the impact of tourism development on economic growth of Morocco and Tunisia. The study adopted the error correction framework, cointegration and Granger Causality tests between real tourism receipts, real effective exchange rates and economic growth for these two countries, for the annual period 1980-2010. The research concluded that the TLGH is only valid for the short term in the two Maghreb countries and that there is a strong unidirectional causality from economic growth to international tourism receipts in the long run.

Jayathilake (2013: 22-27) investigated the role of international tourism on economic growth in Sri Lanka. A tri-variate model of real GDP, international tourist arrivals and real effective exchange rate was employed to investigate the relationship between the dynamics of the long-run and the short-run between tourism and economic growth. Annual data from 1967 to 2011 were used and the Johansen's cointegration results showed that there is evidence of a long run relationship between the variables under investigation. In particular, results confirm the TLGH; tourism has a positive impact on developing countries like Sri Lanka's economic growth. Moreover, unidirectional causality running from tourist arrivals to economic growth was revealed by the Granger causality test. The finding validates that in order to realise growth and sustainable development in the industry, there is a need for government involvement in increasing and promoting international tourism demand.

Kibara *et al*. (2012: 517-528) examined the dynamic relationship between tourism development and economic growth for Kenya using annual time series data. The study used an ARDL bounds testing approach to examine the linkages and also incorporated trade as an intermittent variable between economic growth and tourism development in a multivariate setting. The results showed uni-directional causality running from tourism development to economic growth irrespective of whether causality was estimated in the short or long run. The results also showed that tourism growth Granger-causes trade, while trade Granger-causes economic growth for both short and long run periods.

Tang (2011: 97-101) re-investigated the validity of Malaysia's TLGH. The study used a data set of 12 different tourism markets from January 1995 to February 2009. The error correction modelling-based cointegration test methodology was employed and the results showed cointegration between international tourist arrivals and economic growth for all tourism markets. The Granger causality results showed no Granger causality between all international tourism markets and economic growth. The conclusion of the research was that the identification of potential tourism markets is vital for the implementation of effective tourism marketing policies.

Schubert *et al*. (2011: 377-385) studied the impact on economic growth of a small tourism-driven economy caused by an increase in the growth rate of international tourism demand. They presented a formal model and empirical evidence. The ingredients of the dynamic model are a large population of intertemporally optimising agents and an AK technology representing tourism production. The model showed that an increase in growth of tourism demand leads to transitional dynamics with gradually increasing economic growth and increasing terms of trade. In their empirical application, the econometric methodology was applied to the annual data of Antigua and Barbuda from 1970 to 2008. They performed a cointegration analysis to establish the existence of a long-run relationship among variables of economic growth, international tourism earnings and the real exchange rate. The exercise confirmed their theoretical finding that the growth in tourism demand gradually increases economic growth and the terms of trade of a country.

Seetanah (2011: 291-308) used a panel data of 19 island economies (which include, Antigua and Barbuda, The Bahamas, Bahrain, Barbados, Belize, Cyprus, Dominican Republic, Fiji, Grenada, Guyana, Haiti, Jamaica, Mauritius, Papua New Guinea and Singapore) for the years 1990 to 2007. The study explored tourism's potential contribution to economic growth and development within an augmented Solow growth mode. Since economic growth is argued to be essentially a dynamic phenomenon, the study made use of the GMM method to account for these issues of whether tourism development causes economic growth. The results showed that tourism significantly contributes to the economic growth of island economies. Moreover, the tourist-growth nexus was observed to be a dynamic phenomenon, and the Granger causality analysis revealed a bi-causal relationship between tourism and growth. Comparative analysis with samples of developing and developed countries showed that tourism development on island economies may have comparatively higher growth effects.

Brida *et al*. (2010: 765–771) analysed the effects of tourism on the long-run economic growth performance of Uruguay. Quarterly data was used for the period 1987 to 2006. The research used cointegration analysis and showed the existence of a cointegrated vector amongst Uruguayan real per capita GDP, Argentinean tourism expenditure (the principal source of tourism in Uruguay) and the real exchange rate between Uruguay and Argentina. It also showed that there is a positive causality relationship between the Argentinean tourism expenditure and the real GDP per capita of Uruguay.

Lean and Tang (2010: 375–378) extended the Gunduz and Hatemi-J study on the TLGH within Malaysia. The rolling subsample causality test was employed to demonstrate the validity and stability of the tourism–growth causality relationship. The results showed that the causal relationship was valid and stable over the 1989-2009 sample period.

Brida *et al*. (2009: 13-27) investigated the contribution of tourism to economic growth in Colombia. In this study, an ex-post analysis that quantifies the contribution of tourism to economic growth for the time span running from the early 90's until 2006 was performed. This was done by disaggregating growth in real GDP per capita into economic growth generated by tourism as well as by other industries. Further, the study analysed whether international tourism was a strategic factor for Colombia's long-run economic growth. The hypothesis was empirically tested using the Johansen cointegration test and the Granger Causality test. The research found one cointegrated vector between real GDP per capita, real exchange rates and Colombian tourism expenditures. The last two variables were weakly exogenous to the model. The Granger causality test suggested that causality in the model was running from tourism expenditures to real GDP per capita.

Lee and Chang (2008: 180-192) investigated the long-run co-movements and causal relationships between economic growth and tourism development for OECD and non-OECD countries. The study applied the new heterogeneous panel cointegration technique. The countries included those in Latin America, Asia and Sub-Saharan Africa for the 1990–2002 time-frame. After allowing for the heterogeneous country effect on the global scale, the study identified a cointegrated relationship between tourism development and the GDP. The research found out that tourism development has a greater impact on the GDPs of non-OEDC countries' GDP than those of OECD countries, with the greatest impact seen in the countries of Sub-

Sahara Africa (when the tourism variable is receipts). In addition, the real effective exchange rate has a significant effect on economic growth. Finally, the panel causality test showed unidirectional causality from tourism development to economic growth in OECD countries in the long run, bidirectional causality relationships in non-OECD countries, but only weak causality in Asia.

Po and Huang (2008: 5535-5542) used cross sectional data (1995–2005 yearly averages) for 88 countries (which include a mixture of developed and developing nations) to ascertain the nonlinear relationship between economic growth and tourism development when using a threshold variable. The degree of specialisation in tourism (q_i, defined as the proportion of international tourism receipts to GDP) was used as the threshold variable. The results of the nonlinearity tests indicated that the data for the 88 countries had be separated into three different regimes or groups in order to analyse the nexus between tourism development and economic growth. The threshold regression results showed that when the q_i was less than 4.0488% (regime 1 – 57 countries) or greater than 4.7337% (regime 3 – 23 countries), a significantly positive relationship between economic growth and tourism growth existed. However, when the q_i was greater than 4.0488% and less than 4.7337% (regime 2 - 8 countries), there was no evidence of such a significant relationship.

3.6.2 Empirical evidence for the EDTGH

This section reviews empirical evidence proving that economic growth results in tourism development, starting with the most recent studies.

Ahiawodzi (2013: 187-202) carried a study for Ghana to examine the cointegration and causality relations between tourism earnings and economic growth in the long run for the period 1985 to 2010. The study employed a simple regression model specified with economic growth as the dependent variable and tourism earnings as the independent variable. Relevant time series techniques were used for the analysis included the Augmented Dickey-Fuller unit root test, Johansen and Juselius cointegration test and Granger Causality test for causal relationships. The study revealed a long-run cointegration relationship between economic growth and tourism earnings in Ghana. The Granger causality tests showed the presence of unidirectional causality running from economic growth to tourism earnings. The policy implications are that government should pay attention to economic growth policies in order to promote international tourism.

Jackman and Lorde (2012: 203-215) examined the supply side hypothesis of tourism demand, to answer the question: Does economic growth in Barbados spur tourism growth? Results suggested that a long-run relationship exists between real GDP in Barbados and tourist arrivals. Specifically, they found that a 1% expansion in real GDP is associated with a 1.2% increase in tourist arrivals. Furthermore, the Granger causality test suggested that the supply-side hypothesis is valid for Barbados.

He and Zheng (2011: 212-217) carried out a study on the Sichuan Province in China to investigate the validity of the TLGH for the period 1990 to 2009. They estimated a VAR model and used impulse response functions and variance decomposition methodology to analyse the results. The study concluded that the development of tourism is dependent on economic growth, but also that economic growth needs tourism development.

Katircioglu (2009: 2741-2750) investigated Cyprus's long-run equilibrium relationship between tourism, real income growth and trade, as well as causality among the variables. He made use of the bounds test for cointegration and Granger causality test. The results showed that tourism, real income growth and trade are cointegrated, hence, establishing a long-run equilibrium relationship between three variables under consideration. On the other hand, the growth in international trade (that is, in both exports and imports) were stimulated by real income growth and the island's international tourist arrivals as suggested by the results of the Granger causality test. Furthermore, an increase in Cyprus' international tourist arrivals was stimulated by the growth in both exports and imports (that is, international trade). Finally, Cyprus' real exports growth was stimulated by the real growth in imports.

3.6.3 Empirical evidence for bi-directional causality

This section reviews empirical evidence which supports a bi-directional relationship between tourism development and economic growth, again starting with the most recent evidence.

Padachi *et al*. (2011: 1-22) used a panel Vector Autoregressive (VAR) model to take into account the issue of endogeneity and causality. They investigated the contribution of tourism to national income based on a sample of 40 African countries for the period 1990 to 2006. Results from the study confirmed tourism to be an important ingredient of African development, although private investment, openness and human capital remained the main drivers. Furthermore, the analysis revealed the existence of reverse causation from national income to tourism development, thus confirming both tourism-led economic development and economic driven tourism growth. Thus, the study concluded that a bi-causal and reinforcing effect exists. Tourism was also observed to enhance private investment. Finally, the presence of bi-causality between private investment, education and income level is observed.

Samimi *et al*. (2011: 28-32) examined the direction of causality and long-run relationships that existed between tourism development and economic growth in 20 developing countries. The methodology employed was that of the panel vector autoregressive (P-VAR) approach for the time span running from 1995 to 2009. The results revealed a bi-directional causality and a positive long-run relationship between economic growth and tourism development. In other words, the tourism-led growth hypothesis is confirmed, although they also concluded that output level, which relates to economic well-being and level of development, is important in attracting tourists.

Lee and Chien (2008: 358-368) examined the issue of whether regime changes have broken down the long-run stable relationship between Taiwan's real GDP and tourism development for the 1959 - 2003 period. The study empirically investigated a multivariate model for the co-movements and the causal relationships among tourism development, real GDP, and the real exchange rate. The two different tourism variables were the number of international tourist arrivals and international tourism receipts. The methodology allowed for a structural break, and employed unit root tests and the cointegration tests. The results showed a bi-directional causality between tourism and economic growth. Finally, the study revealed that the cross-strait and international political change, the relaxation of some tourism policies and controls, and economic shocks would break down the stability of the relationships between economic growth and tourism development. Cross-strait relations refer to the intersecting political, economic, military, social and cultural relationships between mainland China and Taiwan.

3.6.4 Empirical evidence for no causality between tourism development and economic growth

This section reviews empirical literature which seeks to prove the absence of a relationship between tourism growth and economic growth.

Ekanayake and Long (2012: 61-63) investigated the relationships between tourism development and economic growth in developing countries using the newly developed heterogeneous panel co-integration technique. This study examined the causal relationship between tourism development and economic growth using the Granger causality tests in a multivariate model, and using the annual data for the 1995 to 2009 period. The study found no evidence to support the TLGH. The results showed that, though the elasticity of tourism revenue with respect to real GDP is not statistically significant for all regions, its positive relationship indicates that tourism revenue makes a positive contribution to developing countries economic growth. The results of the study suggested that developing countries governments should focus on economic policies which foster the promotion of tourism as an economic growth potential source.

Katircioglu (2009: 17-20) empirically revisited and investigated the TLGH in the case of Turkey by employing the bounds test and Johansen approach for cointegration, using annual data from 1960 to 2006. For the Turkish economy, he results rebutted the tourism-led growth hypothesis since no cointegration was found, and the error correction mechanisms plus causality tests could not be executed for the long term.

Ozturk and Asaravci (2009: 73-81) investigated the long-run relationship between real GDP and international tourism in Turkey during the time period 1987-2007. The TLGH is tested by using two different methods: a vector error correction model (VECM) and an autoregressive distributed lag model (ARDL). The results of the Johansen cointegration test as well as of the ARDL bound test show that there is no unique long-term or equilibrium relationship between real GDP and international tourism. The study concluded that the TLGH could not be verified for Turkey given the absence of cointegration between international tourism and real GDP.

Ghosh (2011: 347) probed the TLGH for India by employing the bounds test and Johansen approaches of cointegration using annual data for the time span of 1980 to 2006 in a multivariate framework. Empirical results revealed the absence of a long-term equilibrium relationship between international tourist arrivals and economic activity in India. The study failed to establish any short-run relationship between tourist arrivals and economic growth in an unrestricted vector regression framework. Therefore, the study rejected the TLGH for India.

Oh (2005: 39-45) investigated the causal linkages for the Korean economy between tourism growth and economic expansion. A bivariate Vector Autoregression (VAR) model and the Engle-Granger two-stage approach were employed. There were two principal results that emerged from the study. Firstly, the results of a cointegration test indicated the non-existence of a relationship between the two variables in the long-run equilibrium, indicating that there is no relationship in the long-run between Korean tourism growth and economic growth. Secondly, an economic-driven tourism growth (that is a one-way causal relationship) was implied by the outcomes of Granger causality test. The study concluded that there is no evidence of the TLGH for the Korean economy.

3.7 Summary and conclusions of the chapter

This chapter reviewed and critically analysed literature on the TLGH. Tourism has been found to have a link with the broader economy, which is facilitated by two strands of literature, namely, international trade and tourism economics literature.

The first strand of literature is international trade since tourism is essentially a form of international trade, that is, a form of an invisible trade component. In this regard, the chapter reviewed various theories of international trade that explain the pattern of world trade. The point of departure was the theory of absolute advantage by Adam Smith in 1776. Added to Smith's theory, was the comparative advantage theory by David Ricardo (1817). The HOS model also built onto Ricardo's theory by stating that for trade to take place, the comparative advantage arises from different relative factor endowments of countries. Linder in 1961 focused on the demand side, and postulated that the pattern of trade between countries is derived from overlapping demand, which result in surplus being exported. In 1962, Jan Tinbergen applied the gravity model, which predicts that bilateral trade flows based on economic sizes of countries (often measured using GDP figures) and the distance between the two countries. The new trade theory was developed in the late 1970s and early 1980s, and was designed to account for unexplained facts, including the increase in the ratio of trade to GDP, with trade, particularly intra-industry trade, becoming more concentrated among industrialised countries. Each and every theory had some weaknesses and criticisms. Most of the theories were built on the weaknesses of the previous theory or they were a complete digression from the previous theory.

The second strand of literature is tourism economics literature. Here, international tourism is believed to have a positive effect on long run economic growth through several channels. Empirical literature has found that tourism impacts the economy through earning foreign currency, infrastructure development, other sectors of the economy are stimulated, employment is created, positive economies of scale are realised, budget deficits are reduced and finally, the rapid expansion of GDP will in turn encourage further tourism development.

Further, the chapter comprehensively defined the TLGH. This hypothesis originated from the new growth theory by Balassa in 1978, where exports are seen to stimulate economic growth.

The coining of the TLGH began in 2002 by Balaguer & Cantavella-Jordá in their study on Spain. Ever-since 2002, various researchers have analysed the link between tourism and economic growth. Four hypotheses can be derived and these are the tourism-led growth hypothesis (TLGH), the economic driven tourism-led growth hypothesis (EDTGH), bi-directional causality and no causality. There is therefore no conclusive causal pattern between tourism development and economic growth. Heterogeneity of results could be due to several reasons which include: (i) leakages from the mainstream economy; (ii) different sectors of the economy not interconnected together; (iii) limitations on the potential of the tourism sector to continuously carry forward the economy; (iv) the influence of economic growth on income distribution; and (v) differences in proxies used to measure variables, sampling period used, omission of important variables and the methodologies employed. Hence the issue of heterogeneity will continue to be a challenge to TLG empirical studies.

The chapter also reviewed the theoretical framework of the TLGH. Models of TLGH were selected based on different data types, which are, panel, cross section and time series. These models were found to be representative of broader literature. The models were also found to provide a solid growth theoretical foundation and could therefore be linked with the economic growth theories reviewed in Chapter 2.

Finally, the chapter reviewed and analysed empirical evidence on the TLGH. Many empirical studies undertaken supported the TLGH, although the results are not unanimous. There is also evidence of the existence of the other three hypotheses; EDTGH, bi-directional causality and no causality. This means that the majority of empirical studies overwhelmingly show that there is a strong link between tourism and economic growth, although a few show no causal link. Such empirical evidence points to a strong fact that tourism can be used to spearhead economic growth of African countries. Chapter 1 also pointed that Africa being blighted by low/poor economic growth has several development options of which the TLG has been suggested (see section 1.3). Hence, this research focuses on finding evidence of the tourism-led growth as well as the critical success factors which must exist for tourism development to translate into economic growth in the African context. The next chapter 4 will identify and examine the critical success factors that are necessary for tourism development to positively affect long run economic growth.

CHAPTER FOUR

CRITICAL SUCCESS FACTORS FOR THE TOURISM-LED GROWTH HYPOTHESIS

4.1 Introduction

The aim of this chapter is to examine and identify the critical success factors (CSFs) that are crucial for growth in the tourism sector to translate into economic growth on the African continent. In other words, what are the conditions that must prevail for tourism growth to lead to economic growth in Africa? There is a need for African governments and relevant stakeholders in the tourism sector to place greater emphasis in developing the competence and strengths in those CSFs that improve the overall destination competitiveness both at local as well as global levels (Shan & Marn, 2013: 495).

Tourism is a highly competitive business for tourism destinations all over the world. Competitive advantage is increasingly becoming man-made rather than natural. It is also driven by science, information technology and innovation. It is therefore not simply the stock of natural resources of any African country that will determine the country's share in the tourism market, but rather how these resources are well-managed and intertwined with other competencies to create a competitive advantage (Jonker *et al*., 2004: 1). All countries have to ensure that they have the necessary level of competitiveness if the benefits from increasing globalisation are to be shared (Dwyer, 2001: 30).

According to Kim and Dwyer (2003: 55), the increasing challenge for any tourist destination is maintaining competitiveness. Travel destinations are constantly growing, the quality of existing ones are being enhanced, and this puts a lot of pressure on authorities of destinations to be creative and innovative to maintain competitiveness. This goal can be achieved by a better understanding of forces and success factors that are critical in the determination of the competitiveness of major tourist destinations. Identifying and integrating the success factors of a specific tourist destination ensures sustainable growth for the destination within a competitive environment (Jonker *et al*., 2004: 1). A concern has been raised about why some economies grow much faster than others, and why their tourism performance is better than that of others. It is important to understand the causes of such differences and the policies that governments should pursue to improve the relative performance of their economies compared to others. These concerns are related to the issue of competitiveness of nations (Fagerberg *et al*., 2005: 2).

According to the United Nations Conference on Trade and Development (UNCTAD) (2002: 1, 4), the relationship between competitiveness and economic growth is receiving increased attention due to globalisation and its implications on sustained economic growth and welfare. Policy makers are worried about national competitiveness and its achievements. In a capitalist economy, firms compete for customers, and competition provides incentives for firms to outperform others by producing high quality goods and services at the cheapest possible price. Competition results in entrepreneurial activity and the entry of new firms into the market. This rewards efficient firms, while inefficient firms are sanctioned. The entry of new firms stimulates adjustments, and the ability to adjust and the speed of adjustments are a measure of the efficiency and competitiveness of firms. Competition is therefore a key driver of economic growth.

The structure of the chapter is as follows: section 4.2 provides an overview of CSFs, what they are and how they can be identified; section 4.3 analyses the major CSFs to tourism growth, factor by factor; section 4.4 reviews empirical evidence on the characteristics of countries where tourism has been identified as a contributor to economic growth; and section 4.5 provides a summary and conclusion of the chapter.

4.2 Overview of Critical Success Factors

This section is divided as follows: section 4.2.1 defines CSFs; section 4.2.2 explains the importance of CSFs; and section 4.2.3 identifies and integrates CSFs.

4.2.1 Defining Critical Success Factors

CSFs are defined as a limited number of options to ensure a successful competitive performance of an organisation (Rockart, 1979 cited in Hua *et al*., 2009: 61). According to Caralli (2004: 7), Ronald Daniel was the first person to introduce the concept of CSFs in the 1960s. The foundation of the theory is the need to eliminate irrelevant factors that do not contribute to a company’s planning process. The theory assumes that each industry has three to six factors that determine its success. Ronald Daniel’s concept was further developed and used by Kenichi Ohmae in the 1960s as a planning mechanism and implementation strategy (Alagse, 2000). Another definition of CSFs is provided by Leidecker and Bruno (1984 cited in Baker, 1998: 82), who state that these are the characteristics, attributes or conditions that, when managed correctly, can result in the significant success of a firm competing in a particular industry.

The concept of CSFs can also be used in determining an industry's competitiveness (Shan *et al*., 2013: 498). Further, Rockart (1979: 81-93) used CSFs to identify the information needs of an executive manager, suggesting that the concept can be useful as an information systems methodology. According to Bullen (1995: 13), many organisations and businesses subsequently used the CSFs approach as a framework for strategic planning.

Table 4.1 below shows various definitions of CSFs found in literature. While the definitions in Table 4.1 may seem to differ, there are several common aspects that help explain the nature and characteristics of CSFs. These aspects include that CSFs: are the sub-goals and/or success outcomes directly related to the attainment of an organisation's vision, mission and long term goals; can be internal areas in an organisation for example skills, resources, competencies, and attributes such as product features and profitable market segments; ensure the successful competitive performance of an organisation; can be used to measure the success of an organisation (Hoyle, 2012: 38; Gates, 2010: xi; Caralli, 2004: 2; Jonker *et al*., 2004: 2; Bullen, 1995: 13; Rockart, 1979: 81-93).

Table 4.1: Selected Definitions of Critical Success Factors

Author	**Definition of CSFs**
Jenster, 1987: 102	CSFs are events, conditions, circumstances or activities. Specifically, they are the limited number of areas in which the results, if they are satisfactory, will ensure the successful competitive performance of the organisation.
Hardaker and Ward, 1987: 114	The sub-goals, end statements, characteristics, conditions or variables that are critical for the organisation's attainment of its mission and ultimate success.
Pollalis and Grant, 1984: 12	The most important factors governing the success are those which are consistent with the company's goals and objectives.

Table 4.1: Selected Definitions of Critical Success Factors…continued

Author	Definition of CSFs
Bullen, 1995: 13	The CSF method directs managers to determine those things that must go right in order to succeed in achieving goals and objectives. The ultimate value that the CSF method brings is the ability of management's to focus its attention on what needs to be done well to achieve success.
Johnson and Scholes, 2002: 151	Those product features that are particularly valued by a group of customers and therefore, where the organisation must excel to outperform competition.
Lynch, 2003: 102	The resources, skills and attributes of an organisation that are essential to deliver success in the market place.
Caralli, 2004:2	Key areas of performance that are critical to an organisation for the accomplishment of its mission.
Gates, 2010: xi	Key areas where it is an obligation for an organisation to be consistent in its performance so as to achieve its mission.
Hoyle, 2012: 38	Factors upon which the achievement of an organisation's specified objectives depend.
Cambridge Dictionaries Online, 2015	The most important things that a company or business must perform well in order for the success of its business or work.

Source: Jonker et al., 2004: 2; Caralli, 2004: 2; Gates, 2010: xi; Hoyle, 2012: 38; Cambridge Dictionaries Online, 2015

4.2.2 The importance of CSFs

CSFs are important from three perspectives which are organisational success, firm competitiveness and industry success. With respect to organisational success, Brotherton (2004a: 951; 2004b: 22) views CSFs to be a series of activities and processes that are designed to support the achievement of set desired outcomes or results outlined by the organisation's goals and objectives. These can be controlled partially by the management. There is therefore an interconnection between the performance management of an organisation, measurement and CSFs. In fact, CSFs have to be identified to provide focus for organisation performance management and measurement (Kellen, 2003: 45; Flanagan, 2005: 23). This view is supported by Rockhart (1979: 68) who states that CSFs are vital to the planning and control needs within the firm.

The identification process of CSFs has frequently proven to be as important as achieving the mission or vision of the organisation (Sogaard, 1993: 229). CSFs are important to the prosperity of an organisation because of the effects they have on the potential performance of the organisation. According to Brotherton (2004a: 944; 2004b: 19), CSFs are those factors that are capable of providing the greatest competitive advantage upon which resources should be channelled. Flanagan (2005: 15) points out that CSFs are the position where the pricing strategy of an organisation is regarded to be in the domain of competitive pricing, and where the technical capacity of the organisation beats or matches competition.

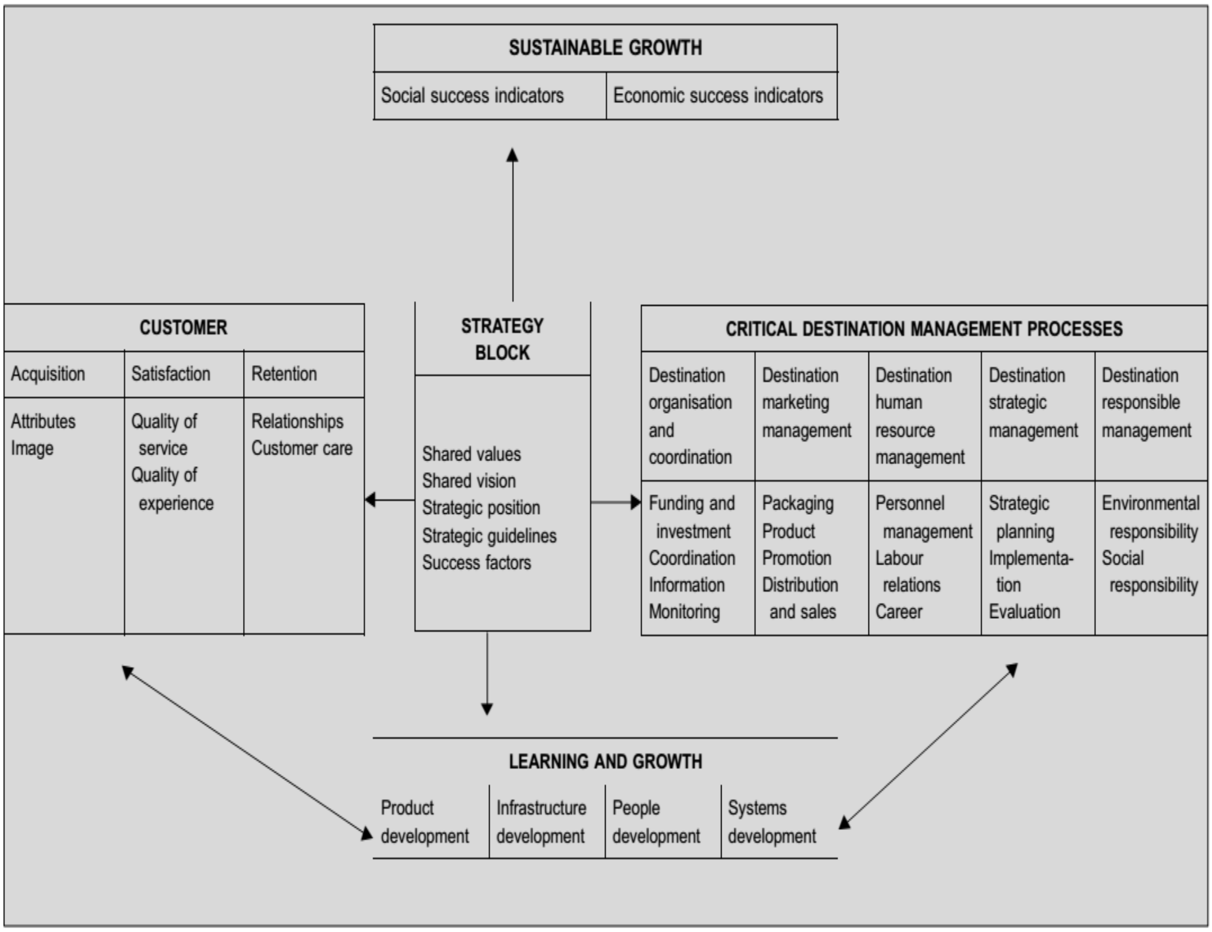
In addition, CSFs are important for the firm's competitiveness. The management of a firm often neglect or grasp the value of determining CSFs for its sustainable management and effectiveness. CSFs identification is also important for quality service delivery. The quality of service is largely dependent on effective management, with specific emphasis on the management of the key success factors of the business (Simon *et al*., 2008: 359). Enhanced quality service delivery improves the competitiveness of a firm.

CSFs are also important for an industry's success. According to Haktanir and Harris (2005: 21), there is a discernible connection between CSFs, the industry context and the performance measurement of the industry. For example, the frameworks of performance measurement and the associated performance measures provide information that is needed to inform and support the industry's CSFs. From the supply perspective, CSFs are seen as crucial because they enhance the multiplier effects to the growth of any industry. The multiplier effects may be in terms of greater disposable income, resulting in an increase in consumption. This has the ripple effects of increasing employment in industries due to an increase in the demand for goods and services (Edgewell *et al*., 2008:116). Therefore, the industry's performance under which a tourism business operates should not be ignored for the enterprise to succeed. Once clearly defined, CSFs are those variables that influence the competitiveness of an organisation and industry (Sogaard, 1993: 229).

4.2.3 The identification and integration of CSFs

CSFs can be identified and integrated using the following perspectives: (i) sustainable growth, (ii) the customer, (iii) management processes of the destination, and (iv) learning and growth. This is shown in Figure 4.1 below:

Figure 4.1: The strategic integration of destination success factors



Source: Framework adapted from Kaplan & Norton, 1998: 60

The sustainable growth perspectives measure the sustainable growth that the tourism destination generates for all key players or stakeholders. Economic and social indicators measure the level of sustainable growth. Profitable tourism enterprises are critical for the economic success of tourism growth. Social success indicators include the environmental sustainability of the tourism sector, employment creation and communities which support the tourism industry (Hassen, 2000: 239; WTTC, 2001). This aspect highlights the importance of CSFs for the sustainable growth in the tourism industry of a country.

The customer perspective is broken down into three categories, which are, acquisition, satisfaction and customer retention. Under customer acquisition, the CSF is destination image, since this is what draws a tourist to a destination. The quality of service and quality of experience are the generic CSFs identified under customer satisfaction. This is because if a tourist is happy with the quality of service after visiting a tourist attraction or finds the tourist area appealing, chances are that the tourist will go back to the attraction in the near future, and may also spread the news about the attraction to friends and relatives. This will result in the tourist area receiving more visitors in the future. Customer retention has two CSFs, which are, relationships and customer care, with the aim of enticing repeat visitation where the tourist destination is found to be attractive (Fakey & Crompton, 1991: 12; Kim, 1998: 341, 388; Otto & Ritchie, 1996: 167; Gronroos, 1995: 250).

Destination management processes include convention and visitor bureaus, national and regional tourism organisations. All these have overall responsibility over the entire destination product. They can facilitate product development through creation of local partnerships for the delivery of seamless experiences. There are five types of destination management processes, which are, destination organisation and coordination, destination marketing, destination human resource development, destination strategic management and destination responsibility management. These processes, if attained, result in tourism growth (Kaplan & Norton, 1996: 63; Dwyer, 2001: 74, 77; Buhalis 2000: 108; Ritchie & Crouch, 2000: 3; Crouch & Ritchie, 1999: 149, Bueno, 1999: 321).

Learning and growth is another integration perspective. It identifies the infrastructure that a destination ought to build in order to create long term growth and improvement. Tourism destinations are not likely to meet their sustainable growth targets by focusing on current technologies and capabilities. International competition requires destinations to continuously improve their infrastructure, products, systems and capabilities for delivery to all key players. This will enhance tourism growth. Learning and growth comes from three principal sources, that is, people, systems and procedures. Another source of learning and growth is product development. To reveal the strategic gaps, there must be analysis of the present and desired capabilities, competencies, products and infrastructure of the destination. To close the gaps, the destination can embark on the following: new product development; new infrastructure building; investing in reskilling employees; information technology and systems enhancement; and the alignment of organisational procedures and routines (Kaplan & Norton, 1996: 63, 94).

CSFs need to be strategically intertwined for tourism growth to be realised. In terms of this study, the importance of CSFs and tourism development for economic growth are highlighted from an integrative perspective, since new production, new infrastructure and human and technological development are all sources of long-run economic growth. When tourism growth has been attained based on this perspective, long run economic growth becomes achievable.

From the discussed definitions of CSFs, this study adopts the definition that CSFs refer to the characteristics, attributes or conditions that when managed correctly, can result in the significant success and growth of a tourism firm competing in the tourism industry. With this understanding, it was shown in this segment that CSFs are not only important for firms, but also for industry and destination competitiveness. Furthermore, it was shown that CSFs are essential for ensuring sustainable growth in the industry and also for the economy. The next section focuses on the tourism industry and analyses the major CSFs for tourism growth.

4.3 Analysis of major CSFs for tourism growth

This section analyses the major CSFs for tourism growth. CSFs have proven to be the foundation of developing and executing the strategy of any industry. They are the entry point of many investors, service providers, local communities and other stakeholders in order to justify their views and to give recommendations on the industry's growth. The growth in the industry will enhance overall growth of the whole economy, as was highlighted above (Shan & Marn, 2013: 496). According to Jonker *et al*. (2004: 6-14) and Dupeyras and MacCallum (2013: 17), the CSFs for the growth of the tourism industry include: investment in tourism; investment; the safety and security of tourists; human resources; a well-developed financial system; technological development; favourable climatic conditions; protection of the environment; and trade openness. The section will analyse each CSF in more detail in the context of this study. This section will also discuss the variables which shall be used in chapter 6 logistic regressions. Chapter 6 will focus on an empirical analysis to determine the CSFs or prerequisites necessary for tourism growth to spearhead economic growth, based on international evidence.

4.3.1 Investment

Tourism investment is a crucial component for tourism growth. This is because in order for businesses to support tourist visitations and experiences, investment in tourism products and infrastructure is essential. Long term profitability, innovation and growth in the tourism sector will be driven by a lot of investment in the industry. In low income economies governments ought to put emphasis on investing in the tourism industry since tourism is a catalyst to economic growth and it enables poor people to get a share of economic benefits (World Bank: 2015). The Ontario Tourism Investment Attraction Research Study (2009: 2) justified the necessity of tourism investments because: (i) tourism is an engine for economic growth and social development. Additionally, investment in tourism results in a larger market, easy accessibility, good image, highly qualified staff and better standards of living for the country; (ii) since tourism is a consumer good, investment in tourism is necessary for the product to be appealing to tourists: (iii) the tourism product has to develop and without investment, this is not possible; (iv) the growing number of tourist visitors will require additional capacity in lodges, recreations, attractions and various tourism related infrastructure: (v) employment generation by the tourism industry will require investment in human capital; and (vi) global competition demands new investments for tourism destinations to remain continuously relevant and attractive to potential tourists. Investment in tourism minimises risk to existing investors and also contributes to a tourism environment that is friendly.

Investment in the tourism sector should be tackled by the combined effort of all tourism stakeholders, which are, the government, private sector, non-governmental organisations and foreign investors. However, it is the government which must spearhead this investment. Tourism stakeholders put forward arguments in support of government participation in tourism investment. These include the government supporting private sector activities in cases of market failure which arise due to externalities/non-appropriability of gains, indivisibilities and uncertainty, and risk (Dwyer & Forsyth 1992: 17, 1994: 357). According to Driml *et al*. (2010: 27), the government has several roles in tourism investment, and these include, among others: financing/funding tourism and transport infrastructure; public private partnerships for provision of infrastructure; promoting tourism investment through policy development and implementation; funding planning processes, for example, short and long term development plans; regulating the planning of tourism investment as well as the processes of project assessment; support for soft infrastructure programmes, for example the development of digital technology; and managing and funding of national parks and other cultural and natural resources. Unfortunately sectoral investment is not always available and therefore Chapter 6 will use Gross Capital Formation (as a percentage of GDP) (formerly gross domestic investment) as a proxy for investment. It consists of outlays on additions to the economy's fixed assets plus net changes in the inventories level. Fixed assets include land improvements (drains, ditches, fences and so on); machinery, plant and equipment purchases; and the construction of railways, roads and the like, including schools, hospitals, offices, private residential dwellings, and industrial and commercial buildings. Inventories are stocks of goods held by firms to meet unexpected or temporary fluctuations in production or sales, and "work in progress" (World Bank, 2016) (see section 6.4.2.1).

The provision of infrastructure is one major aspect of investment in tourism which stakeholders should provide for the tourism sector to grow. It is therefore important to highlight this aspect in this part of the study.

Provision and facilitation of tourism-related infrastructure

According to Jamieson (2001: 15), travel infrastructure networks are a determinant of tourism facilities, services and networks. These networks include transport, energy/power, supply of water, disposal of waste and telecommunications. There is some uncertainty towards the view that before tourism activity can take place, infrastructure networks must be in place. This is due to the fact that in some developing countries, tourist resort areas appear to function adequately and to clients' satisfaction without fully fledged infrastructural systems in place.

The best case scenario in tourism growth is for infrastructure development to come first before the completion of tourist facilities. This implies that infrastructure installation ought to be a public responsibility for the following reasons: the network of services will be available to local residents and to tourists as well; the desire to achieve consistency in standards; the facilitation of non-tourism development within the region due to the construction of an integrated infrastructure system; the facilitation of development that contributes to the economic welfare of the resort area or the region at large; and the maintenance of the network by public agencies ensuring that certain laid standards are met (Jamieson, 2001: 15-16).

Since investment in infrastructure is an important stimulant of economic growth (see sections 2.4.1; 2.6.1 and 2.7, chapter 2), each of the different categories of infrastructure are further analysed. These include transport infrastructure, water supply systems, energy and power, post and telecommunication services, infrastructure on which tourists spent money on, and healthcare, emergency and safety systems.

a) Transport infrastructure

The transport system bridges the gap between places of transport origin and the destination. The resource potential for tourism, i.e. natural and man-made attractions and amenities, cannot be of any benefit in the absence of transport. Therefore tourism planning in an area is fruitless if the transport system is not organised. The modes of transport include air, sea or water routes, inland routes which include road and rail transport. Modes of transport are meant to carry travellers and tourists from one point to another. For tourism to be most attractive, a country must have a variety of alternative transport facilities to offer tourists (Khadaroo & Seetanah, 2007: 1023).

b) Water supply systems

An adequate and continuous supply of safe water for drinking purposes as well as for domestic and recreational use is one of the most important prerequisites for the development of tourism facilities. The responsibility for the supply and treatment of water lies with the tourist development project, and in some cases the government takes up the responsibility in the interests of residential communities and visiting tourists. The need for water is increasing and diverse. Water in tourism is needed for the following uses; domestic, hotels and restaurants, laundries, swimming pools and other recreational facilities, street cleaning, irrigation and fire fighting. To ensure adequate water supply, storage systems are needed in order to provide a reserve against flow interruptions, and for emergency requirements. This implies that the siting and location of the water reservoirs are critical and has to be incorporated and integrated into the tourism infrastructure plan (Jamieson, 2001: 18-20).

c) Energy and power

Energy and power are some of the standard services which international visitors demand as they are accustomed to them. Adequacy of power supply is critical to meet peak load requirements. It is rare for a major resort and hotel to be responsible for its own power supply. This suggests that the public system has to be designed to meet the demands of tourism development such as, air-conditioning, swimming pools and other water circulation systems, cooking and food preparation, dry cleaning, lighting, entertainment, basic hotel servicing, cleaning, elevators and residential needs.

d) Posts and telecommunication services

Reliable communication is critical to a traveller, especially the business traveller. Post and telecommunication services infrastructure encompasses postal services, mobile cellular phone services, telephones, telefaxes, facsimile, Wi-Fi as well as radio and television. Some large tourism resorts may operate their own internal systems in addition to public networks.

However, for post and telecommunication services, there is need for infrastructure plans to identify transmission route exchanges and relay stations, antenna systems and relays. This area of infrastructure is susceptible to rapid technological changes that must be taken into consideration in infrastructure development. To measure this aspect, Chapter 6 will include internet users per 100 people and mobile phone users per 100 people as proxies for posts and telecommunication services infrastructure. Internet users will be used as a proxy for posts and telecommunication services due to the fact that if the number of internet users in a country increase, it signifies an increase in a country's investment level in communication infrastructure. This is a component that is essential to tourism. Internet is therefore an important "tourism infrastructure" which enables tourists to access information and communicate before visiting, at the destination and even after visiting a tourist destination. An increase in mobile cellular users also shows that there is an increased improvement in communication infrastructure, which enable tourists to easily access information (see section 6.4.2.1).

e) Health care, emergency and safety systems

The extent to which the government prioritises the tourism sector has an impact on the competitiveness of the sector (Blanke & Chiesa, 2007: 6). In particular, tourism competitiveness is driven by, among others, health, emergency and safety systems. The principal facilities provided in this group are healthcare facilities such as hospitals, medical and accident centres, advice on disease prevention, pest eradication and ambulances. Emergency and safety services are also provided, for example, fire prevention, police, beach rescue and emergency services. It is also becoming common in major tourism areas to maintain proper hygiene and sanitary standards on premises as well as in the immediate surroundings, for example, the Victoria Falls on the border between Zambia and Zimbabwe, the Kruger National Park in South Africa, Blue Flag beaches in several countries in the world (Olorunfemi & Raheem, 2008: 210-216). The blue flag beaches are of particular interest because the Blue Flag is a voluntary eco-label across the globe which is awarded to more than 4000 beaches and marinas in 49 countries. These countries include South Africa, Tunisia, Morocco, Brazil, Canada, New Zealand, Europe and the Caribbean Islands. The Blue Flag works towards the sustainable development of beaches and marinas. This is done through strict criteria as far as Safety, Water Quality, Environmental Management, Information and Environmental Education (IEE) and other services are concerned. The Blue Flag is sought for beaches and marinas as an indication of their high environmental and quality standards (Blue Flag, 2015). This then is an indication to tourists about the areas to visit.

f) Entertainment, recreation and related infrastructure

Tourists spend money on accommodation, food and beverages, shopping, travel and tour services, recreation and entertainment. The development of infrastructure for these facilities is therefore important for tourism development and growth.

Accommodation and restaurants, which comprise mostly of private investment, are the most expensive facilities in tourist destinations. It is essential to undertake a detailed survey of existing tourist accommodation and a projection of trends and requirements during the early stages of integrated plan preparations. Assessments of the geographical positioning and arrangement as well as preferred architectural designs should be done, in line with the market demand. Old designs have to undergo refurbishments and upgrading for them to meet the tastes of travellers. There is an assertion that the crucial determinant of tourist satisfaction at a tourism destination is the provision of food outlets and good restaurants. A range of international cuisine is emerging as a result of the changing demand of both local and indigenous cuisine. This demand is as a result of the independence of restaurants from hotels and integrated destinations (Raina & Agarwal, 2004: 304).

According to Murphy *et al*. (2010: 4-27), shopping is a complementary experience that contributes to the overall attractiveness of a tourism destination. An integrated tourism plan must therefore consider shopping opportunities as part of the tourism offered at a destination. Improving the attractiveness of shopping is important and can be done by paying attention to the detailed design of shopping areas and shopping precincts. Consideration must also be made of the trading hours of these shops. The merchandise or goods to be sold in the shops should give variety to tourists, for example, imported retail quality goods, indigenous handicrafts, duty free merchandise and leisure wear. Two principal tourism planning issues have to be considered and these are: (i) the location and distribution of shopping facilities; and (ii) the range of goods available, especially the potential that lies with locally produced goods.

An essential element of the national integrated tourism plan is travel and tour services. These services bridge the gap between tourism destinations and the actual or potential tourist visitors. Travel and tour services cover a variety of functions including greeting services, airport transfers, tour operations, sightseeing, providing ticketing and accommodation reservation services. Travel and tour service providers also provide a link between the local tourism services, facility operators and the visitors. Travel and tour operators pay attention to detail when, for example, supervising the standard of accommodation booked on behalf of visitors as well as the standard of vehicles. Standard tour guiding is also another element of travel and tour services, and is especially suited for local or indigenous entrepreneurs. These entrepreneurs are especially important to the development of ecotourism (Dwyer, 2007:155-172).

Recreation and entertainment facilities create an image of vitality and excitement. The provision of recreation and entertainment facilities is determined by the visitor profile, the resultant demand and the scale and location of the resort area. These facilities include cinemas, multipurpose halls, open air theatres, libraries and reading rooms, museums and galleries, night clubs and dance halls, casinos, parks and play grounds, sporting halls, swimming pools and golf courses (Jamieson, 2001: 26).

In conclusion, the government must play a leading role in spearheading investment in the tourism sector with the provision of road and transport infrastructure, water, electricity and sanitation, and health services. All other players in the market will follow suit. If investment is in place, it is easier for the tourism sector to grow and economic growth will be realised in the long run. The next section analyses safety and security as a critical success factor for tourism growth.

4.3.2 Tourism safety and security

An indispensable condition for travel and tourism is safety and security. Increasing tourism safety and security enhances tourism growth. Tourism safety and security refers to the protection of life, health, physical, psychological and economic integrity of tourists or visitors, tourism staff and the community at large, including the consideration of tourist security interests of sending and receiving states and their tourism entrepreneurs and establishment operators (UNWTO, 1996)

It has however been indisputable that safety and security issues have gained increasing importance during the last two decades in tourism. The last two decades have been characterised by terrorist acts, civil wars, natural disasters, epidemics and pandemics that significantly reduced the safety and security of tourism. The travel and tourism industry has not been immune to the negative impacts and consequences of these happenings, with the negative consequences of reduced tourism activity spilling over to the economy as a whole. The vulnerability of tourism on global, regional and local levels was exposed by some of these events and therefore Olorunfemi (2008: 211-212) concludes that it becomes vital to study the problems of safety and security in the tourism industry.

Security issues are a major concern for local, regional and national governments because of the likely negative impact on economies. Government policies towards the future of the tourism sector may change because of fragility and potential instability. Governments may need to consider the following variables to mitigate negative consequences associated with the safety and security in the tourism sector: the level of security measures at the affected destinations; short, medium and long term government policies towards tourism; direct/indirect operational involvement of government in tourism; direct/indirect financial involvement of government in tourism; and the direct/indirect involvement of government in tourism marketing and advertising (Wilks *et al*., 2006: 7-8).

The following questions have to be answered as far as issues of safety and security of the tourism sector are concerned. Firstly, what is the importance of safety and security issues in the age of global tourism? Secondly, what are the determinants or main factors influencing security issues? Thirdly, what are the key elements of tourism safety and security in the present day setup? Fourthly, how do safety problems affect tourists or visitors when choosing tourism destinations? Finally, what are the responsibilities and tasks of tourism actors, including the tourists themselves, in reducing the negative consequences? The answers to these questions influence the management tools and working plans of all of the stakeholders in the tourism industry, and also reduce the risks likely to be suffered (UNWTO, 1996: 15-17; Olorunfemi, 2008: 212).

The tourism industry, over the years has been seriously undermined by the growing lack of security among citizens. This has been manifested in different ways, which include; direct robbery of tourists as they move around; theft; vehicle attacks at airports, hotels and on highways ; rape; murder; kidnappings; piracy; larceny; tourist attacks as they visit national parks; officials acts of corruption at ports of entry; dishonest charging of exorbitant fees or rates for transportation; host communities exposure to criminal activities of some tourists; and the undermining of community values and culture through certain tourist activities (Mansfeld & Pizam, 2006: 2-3, Wilks *et al*., 2006: 6).

Issues concerning the safety and security of tourists create perceptions of risk, which influence changes by tourists of their travel decisions. This could be in the form of cancellation of bookings; avoiding holiday trips to affected destinations or moving to safer places; and sometimes even returning to their home countries. Hence, the behaviour of tourists is critical in order to formulate crisis management plans (Mansfeld & Pizam, 2006: 5).

Stakeholders of the tourism industry do not normally coordinate their reactions whenever there are safety and security threats. Each stakeholder performs an independent individual assessment of the other's in mitigation of the negative consequences. In the wake of evolving security situations, the following are the most common variables characterising the behaviour of the tourism industry: tourist evacuation by tour operators; the behaviour of local investors; the investing behaviour of multinational or transnational companies; the restructuring behaviour of the human resource element; destination inclusion or exclusion on tour operator's brochures; ceasing doing business; assessment of the cash flow; profitability; image projection of the destination by travel agents and tour operators; and the extent of economic interest in tourism business at the destination (Mansfeld & Pizam, 2006: 7-8).

Safety and security incidents are regarded by media as important generators of news whenever disturbances take place. This provides potential tourists with up to date information pertaining to a particular destination of interest. However, in some cases, the information and assessment provided by the media about the extent of incidents and the real risk involved in travelling to the affected area may be biased, and be magnified or exaggerated . The following variables are useful to consider in mitigation of the bias of negative media publicity: the extent of coverage of the incident; the media coverage forms; the relative coverage of security situations by media platforms; the level of biased information; the level of biased interpretation of security situations; the impact of media warnings; and the extent of media messages directly aimed at potential tourists (Mansfeld & Pizam, 2006: 9).

The World Economic Forum Safety and Security 2013 index will be the proxy for measuring the tourists' safety and security (see section 6.4.2.4 in chapter 6). The proxy is a critical factor that determines a country's travel and tourism competitiveness. It is often postulated that tourists do not travel to dangerous regions or countries, hence making it less attractive to develop the tourism sector in those destinations. The major factors taken into account are the costliness of common crime, violence, terrorism and the extent to which police services can be relied upon so as to provide protection from crime (WEF, 2015: 6-27).

4.3.3 Human resources

One of the benefits of tourism is the creation of employment. Tourism generates various jobs and business opportunities in developing countries, helps to equalise economic opportunities of citizens, provides governments with substantial tax revenue, and stops rural-urban migration. Hence, tourism is an important development strategy for rural community development or broadly speaking, tourism is a catalyst for socio-economic development especially in rural areas (Razzaq *et al.*, 2012: 10).

Milić *et al*. (2011: 434) highlight that tourism is an industry that is highly labour intensive since a large number of people are employed. This helps in overcoming the latent problem of high unemployment in developing countries. In times of economic crisis in developing countries, it is important for tourism resources to be utilised efficiently since a significant number of people are hired in the tourism sector. Though tourism has direct effects on employment, it is also critical to consider the fact that the tourism sector contributes to the employment growth rate indirectly. The Travel and Tourism Competitiveness Report (2011: 10) points out that human resources are a critical success factor to tourism development and competitiveness. Human capital is an important source of economic growth, referred to as human capital development (see also sections 2.5.4 and 2.6.3 in Chapter 2). Human capital development enhances tourism growth.

According to Esu (2012: 276), the National Tourism Policy must include the development of human capital. This is because the effective provision of human capital determines the survival of a tourist destination. The quality of service delivery of a tourist area is a mirror image of the quality of its human capital. Milić *et al*. (2011: 435) point out that the quality of human resources depends on several factors including the perceived level of education and training of employees. Human resources are an important component of tourism management and have a role of bridging the gap with tourist service users. There is a direct relationship between the quality of human resources, tourism service quality and tourism sector competitiveness. The tourism sector faces the challenge of hiring employees with specific abilities, skills and knowledge about the future. This is despite the fact that there is increased demand for workers in the industry. Hence an increase in tourism sector competitiveness depends to a large extent on the quality of human resources improvement.

Page and Connell (2009: 267) stress that the development of highly qualified human resources is crucial in order to improve the level of competitiveness of the tourism sector. The tourism sector in developing countries has been crippled by workforce that is not well educated, trained or skilled. There is therefore need for speedy implementation of human resource development in the tourism sector.

Based on the above, Chapter 6 will use four proxies to measure the impact of human resources on tourism development. Similar to chapter 5, the proportion of active population that have attained secondary level of education [secondary school enrolment (% of gross)] and the human capital index (HCI) will be the proxies used to measure human capital. In addition, two more proxies, that is, labour force as a percentage of population and the human development index (HDI) will be used for robustness (see sections 5.4.2.3 and 6.4.2.3). Human capital is considered as the main source of economic growth by several endogenous growth models (see chapter 2 section 2.6). Tourism is also a sector which is labour intensive. It employs skilled, semi-skilled and unskilled workers, hence human capital is a prerequisite for TLG (see chapter 1 section 1.1 and chapter 3 section 3.2).

4.3.4 A well-developed financial system

A well-developed and functioning financial sector is critical for the growth and development of the tourism sector. According to Department for International Development (DFID) (2004: 6-7), the financial sector includes banks, insurance companies, stock exchanges, credit companies, money lenders and microfinance institutions. Financial services act as a catalyst for the tourism sector. It is well accepted that financial intermediaries and markets which function well reduce information and transaction costs. This fosters efficient resource allocation and ultimately speeds up the long run economic growth (Bencivenga & Smith, 1991: 195; Bencivenga *et al*., 1995: 53-54; King & Levine, 1993a: 717; Levine *et al*., 2000: 36-37).

The modern theories of economic growth identify two specific channels by which the financial sector has an impact on long-run economic growth. Firstly, the financial sector has an impact on capital accumulation. Secondly, the financial sector affects technological progress. These effects come about as a result of the intermediation provided by financial institutions which enables the financial sector to: mobilise the savings needed for investment; encourage and facilitate foreign capital inflows, such as foreign direct investment (FDI), bonds, portfolio investment and remittances; and optimise capital allocation between competing uses, ensuring that there is productive use of capital (DFID, 2004: 7).

A developed financial system can affect capital accumulation positively and may result in technological progress. Tourism and financial development coexist. The former cannot exist without the latter. The financial sector produces cash flow for the tourism industry, where foreign exchange inflows and financial forms of investments of realised income are important. In addition, the tourism industry also needs capital funds for its expansion and modernisation (Karadžova & Dičevska, 2011: 177).

In order to stimulate and support tourism development in an economy, various financial intermediaries such as commercial banks, savings banks, credit cooperatives, pension funds, insurance companies and investment banks are needed for risk management, savings mobilisation, information on investment opportunities and monitoring (DFID, 2004). In many developing countries, the domestic financial sector's involvement in real estate investments in the tourism sector is limited. Though banks and other financial intermediaries are willing to support the real estate, they lack specific knowledge about how to support the tourism value chain like accommodation, distribution and tourist attractions so as to enhance tourism growth. As a result, investment in tourism is often seen as too risky in developing countries. Tourism, just like any segment in the economy needs finances and investments for growth to be realised.

The tourism sector in developing countries is normally organised into two types of enterprises, which are, micro and small scale enterprises. These types of enterprises lack access to credit and other forms of finance. Financial markets do not consider them as clients because they lack collateral and are not creditworthy. However, financial markets in developing countries are not developed enough to support tourism growth. Moreover, government support towards the tourism industry is geared towards attracting foreign direct investment (FDI) and not oriented towards the expansion of the domestic tourism business (Van der Sterren & Nawijn, 2006; Endo, 2006: 600-601). This implies that appropriate (tailor made) financial instruments that neatly fit into the needs of the tourism industry have to be developed. These financial instruments may include investment subsidies, tax concessions and measures, leasing and long term loans, and insurance products. Commercial banks can become innovative and play a leading role in financial markets in tourism activities. Uncollateralised lending techniques can also be embarked on. For developing countries that emerge as tourist destinations, their governments should facilitate the domestic financial sector reform and delivery of specific financial products geared towards tourism growth and development. Hence, evidence of successful tourism growth is normally shown by increased numbers of tourist arrivals and expenditures in hard currencies by tourists (Karadžova & Dičevska, 2011: 178; Sterren, 2008: 35-36).

The World Bank domestic credit provided by the financial sector (as a percentage of GDP) and depth of credit information index (0=low to 8=high) will be the two proxies used to measure a well-developed financial system in chapter 6 (see section 6.4.2.5). According to Economy Horizons (2014), the financial development and increasing private sector role in an economy is one of the indications of economic development and prosperity. Domestic credit provided by the financial sector (as a percentage of GDP) means that financial resources such as loans and non-equity securities are provided to the private sector by financial institutions like banks and other financial corporations all measured as a proportion of GDP. If this measure is higher, it means that financial resources or financing is directed to the private sector thereby enabling the private sector to develop and grow including any players in the tourism sector. Depth of credit information index ranges from 0 to 8, with higher values indicating more credit information being available. The information is available from either a private bureau or public registry so as to facilitate lending decisions. The information is of relevance to the development of an economy since access to finance can expand development opportunities. Higher levels of access and use of banking services are associated with lower financing obstacles for people and businesses in, for example, the tourism sector (Index Mundi, 2017).

4.3.5 Technological development

Technological development is a CSF for tourism growth to take place. It plays a major role in tourism economic progress by increasing productivity and growth. This is because increasing the use of technology enables introduction of new and superior products and processes. The role of technological development in economic growth has been stressed by the various endogenous growth models discussed in Chapter 2. Aghion and Howitt (1992), Grossman and Helpman (1991), Romer (1990), and Romer (1986) postulate that aggregate productivity is an increasing function of the degree of product variety. In these theories, innovation and R&D cause productivity growth by creating new and not necessarily improved varieties of products (see Chapter 2 sections 2.6.1, 2.6.2 and 2.6.3). Through innovation and R&D, tourist products are continuously developed and diversified. A variety of tourism products attract more visitors and this enhances tourism growth. The concept of sustainable tourism has received attention over the last decade. Sustainable tourism development is concerned with the environmental consequences of rapid and unplanned mass tourism development. The concept has been criticised for being vague, sectoral, ambiguous, too conceptual and even confused with environmental issues (Sharpley, 2009: 57-60). However, according to Briassoulis (2002: 1065-1066), the discourse of sustainable tourism development emanates from the need to manage the natural, built and socio-cultural resources of host communities in order to promote economic well-being, while preserving the natural and socio-cultural capital. This will achieve intra and inter-generational equity in the distribution of costs and benefits, leading to self - sufficiency and satisfaction of the tourists needs. The principles guiding sustainable tourism include, minimising environmental impacts, conservation of resources, reflection of community values, provision of mutual benefits to tourists and local capacity building (Sharpley, 2009: 31-33).

Product development and diversification in terms of tourism activities has been identified as one of the strategies that will result in sustainable tourism. It focuses, among others, on distributing tourism activities and benefits to other areas of a country (Rotich *et al*., 2012: 111) Product development also refers to activities that focus on the improvement of existing products, not only on new product creation. This may include decisions such as maintaining products of current product range, modernising existing products or introducing of new products. Updating the product function of market demand is called product modernisation. The process results in the emergence of a modernised product or a completely new product. Tourism products need to be modified, updated and developed continuously with the aim of maintaining their competitiveness. Modern informed customers expect the process of constant product renewal (Clarke, 2000: 80).

According to Palmer (2014: 49), there are circumstances that result in the creation of new products or services. These are: when a service has come to the maturity stage of its product life cycle; new services are developed to maximise capacity use; new products may balance the tourism industry’s existing portfolio; reducing the risk of dependence on a few services; keeping clients/customers and obtaining their loyalty; and to have an edge over market competition. New services can take on various forms, including existing services that have been superficially changed, existing services that have been substantially improved, services currently available on the market but new for the business which has decided to adopt them, or completely new services for new markets (Moraru, 2011: 128).

A concept closely related to product development, is diversification. Diversification is divided into two categories, that is, macro and micro level. Diversification may be in the form of:

market diversification of demand (consumption); diversification of production (offer); diversification of distribution and distribution channels; diversification of communication; diversification in terms and means of payment; and so on. Diversification at macroeconomic level refers to the enlargement of national economic structures by the development of new branches, sectors and domains of activity. Diversification at microeconomic level refers to the extension of product ranges of a company, by the assimilation of new products (Moraru, 2011: 127, Leja´rraga, I. & Walkenhorst, 2007: 3-4). According to Florescu *et al*. (2003, 218-219), three forms of diversification at microeconomic level may be observed. These are concentric, horizontal and conglomerate diversification. Concentric diversification involves new products being introduced to new groups of consumers. Horizontal diversification means that new products that have no technological connections to existing ones are introduced to the same consumer groupings. Conglomerate diversification refers to organisations approaching new domains, regardless of the absence of connections to existing technologies, markets or products as well as new technologies. Organisations can sometimes pursue geographical diversification strategies which involve venturing into different geographical markets. Diversification of services is related to innovation that is, offering differentiation by creating something novel. The innovation may be in the form of incremental or radical innovation. Incremental innovation, which is addressed to a well-known clientele, means responding to consumer demands for existing services improvement. Radical innovation is the creation of completely new services (Bacher, 2005: 34).

According to Moraru (2011: 129), the development of tourism services and diversification are the result of several factors which include reshaping the international context, dynamics in the tourism industry and fierce competition. Consumer behaviour transformation, multiple possibilities being offered by tourism services, tourism services development and diversification represent ways that promote growth of tourism competitiveness. These call for the constant development and diversification of tourism services so as to adapt to the evolving needs of tourists.

According to Johnson and Gustafsson (2003: 6), the production of services where consumers are also involved as co-producers, is the most important element in the development and innovation of services. The interaction between the producer and the consumer opens multiple options for services development and diversification, since consumers normally initiate new ideas. Solutions for attenuation of tourism seasonality and growth of economic efficiency may be presented by the development and diversification of tourism services. The concentration of tourist flows in certain destinations at peak seasons is brought about by seasonality. This has the direct consequences of equipment overload, overcrowding and even destinations suffocation. An improvement or emergence of new services and also the diversification of existing ones may offer solutions for the extension of seasons. This has benefits for both the tourists and suppliers of services. According to Juran and Blanton (2004: 23-30), the development and diversification of tourism services are ways of improving their quality. New market emergence, changing consumer behaviour and preference, force tourism businesses to redefine their target market and develop new products and services so as to be competitive. The unpredictable international climate emphasises the need to develop and diversify in order to satisfy the demands and preferences of tourists.

As a consequence of growing interest in active rest ways, the diversification of tourism services includes active holidays. This has emerged as a direct consequence of two factors, which are, the increase of free time and the suffering of inhabitants of big crowded cities from stress. Hence, there is a gradual shift of the interests of tourists from passive holidays to active ones. By offering such holidays, there is some form of diversification with particular attention to entertainment services. Viable solutions are represented for obtaining superior economic results by tourism businesses and for the evolution of tourism activity locally and nationally (Moraru, 2011: 129). Innovation is in line with endogenous economic growth theories (see Chapter 2 section 2.6.2). The AK theory and Romer say that for growth to take place, there must be innovation through research and development activities within an organisation.

High technology exports (as a percentage of manufactured exports) is the proxy which will be used to measure technology in chapter 6 (see section 6.4.2.6). Gani (2009: 31) carried out a research to determine the relationship between high technology exports and GDP per capita for three groups of countries classified as technology leaders, potential leaders and dynamic adopters. The study concluded that low income countries with low technological achievement levels and growth may need to focus on new product development with technological content which is high in order to be competitive in the global environment. This will enhance economic growth and development. Anand *et al.* (2012: 1-14) found that new dataset on export sophistication is revealing a progressive increase in the importance of modern services as well as sophistication on manufactured and service exports. These sectors which are sophisticated will catalyse broad based economic growth. The tourism sector is not spared in this case as it has the potential to spearhead economic growth of developing countries such as those found in Africa.

4.3.6 Trade openness

Increased trade openness promotes growth by affording a country the advances in technological knowledge of its trading partners, and bigger markets access. In addition, trade openness also encourages R&D to improve through innovation and the provision of access to investment and intermediate goods, which are important for the development processes of developing countries (Dollar, 1992: 523; Sachs & Warner, 1995: 15 and Edwards, 1998: 384). Trade openness is an important engine for tourism growth and development in an economy. The high degree of trade openness for any country enhances the market access of its goods and services sectors, including the tourism sector, which depends on the diversity of the supporting industries. There is also a direct positive impact of trade openness on the inter-and intra- cross border firm activities, which have a tendency of facilitating international travel and also encouraging international tourism (Keintz, 1971: 137; Turner & Witt, 2001: 22).

Trade liberalisation affects tourism growth through several channels including the exploitation of comparative advantage, technology transfer and diffusion of knowledge, increasing scale economies, fostering international travel and increased competition. This will further cause domestic prices to be lowered and lead to an increase in the quality and variety of goods (Wong & Tang, 2010: 968-969) (see also Chapter 2 section 2.7).

According to Cai *et al*. (2005: 12) and Grosso *et al*. (2007: 3), trade openness has direct and indirect effects on the tourism sector. Direct effects refer to international tourists consuming final goods and services from different sectors of the host country. These sectors are, for example, banking, hotels and restaurants, financial, travel and transport, telecommunications and retail. Export trade for the host country is promoted in this way. The indirect effects are as a result of the purchasing intermediate goods and services abroad by the host country's tourism related sectors. This creates opportunities for higher import trade. Tourism, therefore encourages the host nation to open itself to more international trade.

In the empirical analysis (Chapter 6) trade openness will be measured by the sum of a country's imports and exports of goods and services, as a percentage of GDP (see section 6.4.2.2). In this research trade openness also imply no visa restrictions for tourists. Suleiman & Albiman (2014: 49) carried out a research to investigate a positive inter-relationship between tourism, trade, infrastructure and economic growth for Malaysia. The study used the same trade openness proxy as proposed by this research. The findings indicated that tourism, trade, infrastructure and economic growth interact and reinforce each other directly or indirectly. Wong & Tang (2010: 965-966) explored the causality relationship between tourism and trade openness for Singapore and her top five trading partners. The study found that further trade liberalisation of Singapore with major trading partners may not necessarily encourage tourist arrivals from those countries but can act as an important catalyst for tourism growth and development. An increase in tourism activities could also encourage Singapore to open itself to more international trade.

4.3.7 Favourable climatic conditions

Tourists' decision making is influenced by climate and weather, which serve as a pull factor to a destination. This impacts on the successful operation of businesses in the tourism industry. Climate is defined as the average prevailing condition observed in the long term for a certain location. Weather, on the other hand, is the manifestation of climate at a specific place and point in time (Becken, 2010: 2). This section reviews literature on the importance of weather and climate as a determinant of tourism demand. Firstly, the destination choice of tourists is affected by climatic conditions and influences tourist flows nationally and globally. Secondly, climatic conditions are important factors in tourists' satisfaction, activity participation and visitors' safety. Finally, the role of climate and weather is discussed as a determinant of tourism demand.

4.3.7.1 Tourism destination choice and global flows

According to Lim *et al*. (2008: 1099) and Crouch (1994: 42), climate has been identified as a key driver or factor for tourism, and also a critical destination attribute, though most tourism demand strategies focus on economic variables. In the case of beach destinations, climatic conditions are the main resource (Kozak *et al*., 2008: 81-82). Tourism activities are made possible and enjoyable by the facilitation of climatic conditions and climatic attributes whose importance is reflected in tourism advertising materials. Destination image construction is also portrayed by climatic conditions (Gomez Martin, 2005: 571; Pike, 2002: 541).

The elements that are considered under climatic conditions are attributes such as temperature, effects of wind chill, radiation, humidity, speed of the wind and snow depth. Climatic parameters can be aggregated to a single index that gives a cue of a tourist destination's suitability for specific touristic activities. Mieczkowski (1985: 220-233) developed the Tourism Climate Index (TCI) which was a merge of seven climatic parameters applicable to tourism sightseeing. The TCI was further developed and applied to different scenarios and settings, for example the environment at beaches (Morgan, 2000, cited in de Freitas *et al*., 2008), global tourism flows and climatic change impact (Amelung *et al*., 2007, 285-296). De Freitas *et al*. (2008) came up with a new Climate Index for Tourism (CTI) which takes into consideration the thermal, physical aspects of weather and aesthetic conditions paying particular attention to beach tourism. Studies have also confirmed that climatic conditions are important for tourism and have to be given considerable attention in the development of an index (Becken, 2010:4). Maddison (2001: 193-194) found that besides climatic conditions at tourist destinations, the climate in tourists' home of origin is very important. Unfavourable climatic conditions or poor weather serve as push factors for tourists to those with favourable conditions (Lise & Tol, 2002: 429).

4.3.7.2 Tourists weather experience

There are many reasons for placing importance in the weather conditions experienced by tourists at a tourism destination. Weather can either allow or become a barrier to participation in certain activities. This is especially true for outdoor activities, such as, skiing, swimming, playing golf and visiting of national parks and wildlife. Poor weather or climatic conditions reduce the participation of tourists in certain recreational activities (Becken, 2010: 5-6). Weather also affects how enjoyable an experience can be, and hence influencing visitors' satisfaction. Additionally, the safety of tourists depends on weather. For instance, the lives of tourists are at stake whenever there are heat waves, extreme wind events, cyclones, hurricanes, avalanches (Becken, 2010: 5).

According to de Freitas (2003), different facets of tourism climate are classified into aesthetic, physical and thermal. The thermal facet describes how good or comfortable the tourist feels. The physical dimension looks at non-temperature climatic conditions and the aesthetic aspect describes the psychological component. This is shown in Table 4.2 below:

Table 4.2: Facets of climate and impact on tourists

Facet of climate	Impact on tourists
Aesthetic	
Sunshine/cloudiness	Enjoyment, site attractiveness
Visibility	Enjoyment, site attractiveness
Day length	Daylight hours available
Physical	
Wind	Blown belonging, sand, dust etc.
Rain	Visibility reduced, wetting by rain
Snow	Activities participation
Ice	Property damage, personal injury
Air quality	Allergies, physical well-being, health
Ultraviolet radiation	Sunburn, suntan, health
Thermal	
Integrated effects of air temperature, wind, solar radiation, humidity, long wave radiation, metabolic rate	Environmental stress, heat stress Physiological strain, Hypothermia Potential for therapeutic recuperation

Source: Becken & Hay, 2007; De Freitas, 2001

There are different behaviours a tourist can display as a result of weather conditions. These behaviours indicate whether tourists are comfortable or not as well as the extent to which they are willing to adapt. According to de Freitas (2003: 50), on-site behaviour by tourists can be categorised as follows: avoid unfavourable weather or climatic conditions; a change of activity to suit weather conditions; use of structural or mechanical aids; adjust thermal insulation of the body; and the adoption of passive acceptance.

4.3.7.3 Tourist safety

Whenever weather and climatic conditions are favourable, the safety of tourists is guaranteed. Recently, a number of heat waves in Europe saw tourists experiencing thermo-physiological discomfort which ended up in increased hospital admissions and fatalities (Morabito *et al*., 2004: 158). For instance, the 2003 heat-wave in France resulted in 15 000 deaths. Tourists reacted by moving away from the traditional resorts in the Mediterranean region towards the Western or Northern beach locations (UNWTO, UNEP & World Meteorological Organisation, 2008). The risk of forest fires, increase in hot weather conditions (Scott & Lemieux, 2009), and tropical storms, such as hurricanes, also have a severe impact on tourism (Organisation of Eastern Caribbean States, 2005, in Becken & Hay, 2007; Jackson, 2002). For ski reports, poor snow conditions have negative consequences on the personal safety of tourism numbers (Koetse & Rietveld, 2009). Other negative consequences of weather conditions are transport delays, cancellations of visits by tourists and accidents (Eads, 2000, in Koetse & Rietveld, 2009; Koetse & Rietveld, 2009).

4.3.7.4 Weather and climate information

Tourists must actively seek climatic information which is critical for their decision making as well as holiday experience. According to Scott and Lemieux (2009), climatic information about tourist destinations is made available by many types of media providers, such as, organisations which market tourism, travel agents, guide books, online information on the internet, televisions, newspapers, radio, brochures and hand-held devices. This information should be provided to tourists and must be representative of the actual locations that tourists are likely to visit (Hamilton & Lau, 2005: 236).

To include weather in the analysis empirical of Chapter 6, the percentage of population in the geographical tropics and cereal yield (kilograms per hectare) will be the proxies to indicate favourable climatic conditions in chapter 6 (see sections 6.4.2.9 and 6.4.2.10). Geographical tropics are a robust determinant of economic growth (Bloom & Sachs, 1998: 3). This will also indirectly affect tourism development as explained in section 5.2.2 in chapter 5. Hence a country with a higher proportion of its population living in geographical tropics will have low tourism growth. High cereal yield (kilograms per hectare) signify good climatic conditions. Tourists prefer to visit destinations where the climatic conditions are conducive for habitation.

4.3.8 Protection of the environment

It is well-known that tourism is one of the largest and fastest growing sectors in the world. Tourism is an important source of income; it generates employment and has created wealth for many countries. However, the rapid expansion of the tourism industry has resulted in detrimental environmental and socio-cultural impacts in many regions of the world (Neto, 2003: 1, 4). Tourism has brought with it major environmental problems including land degradation, desertification, pollution, damage to natural species and wildlife, waste and inadequate use of natural resources. This has resulted in many species becoming endangered, extinct or even destroyed. Several problems affect a nation as far as the relationship between tourism and the protection of the environment is concerned. These are fragmented legislation, ineffective law enforcement, inadequate health, poor safety and environmental practices for pollution and waste management. The problems are worsened by the lack of people or community involvement in tourism management (Muhanna, 2006: 15). Hence, tourism growth can result in the negative economic growth of a nation if it is not properly managed.

This discussion brings to the fore two important terms as far as tourism and protection of the environment are concerned. These are sustainable tourism and eco-tourism. Sustainable tourism refers to tourism activities which result in the management of natural resources in such a way that economic, social and aesthetic needs are fulfilled while at the same time maintaining cultural integrity, essential ecological processes, biological diversity and systems that support life (UNEP & UNWTO, 2005: 11-12) (refer also to section 4.3.5). According to UNEP (2013: 275-280), ecotourism is a trend of tourism that is managed by the host country or region, which commits itself to: maintaining and establishing the tourist sites with the participation of local residents: marketing the tourist areas appropriately; enforcing regulations; using the tourism proceeds or earnings to fund the area's land management; as well as community development.

Tourism growth is normally associated with the depletion of natural resources and environmental degradation. Normally, when tourists reach their destinations, they choose to maintain their relatively high patterns of consumption or generation of waste. This can create serious problems for countries that are still developing and regions with inadequate means of protecting their natural resources and ecosystems from pressures of mass tourism. Tourism has two main areas of environmental impact, namely, pressure on natural resources, and damage to the ecosystems. In addition, uncontrolled tourism expansion does not only lead to environmental degradation, but environmental degradation also poses a serious threat to tourism activities (Muhanna, 2006: 14).

The Blue Flag Beaches accreditation dummy is used as a proxy to measure environmental quality in beach destinations. A country is awarded the Blue Flag certification if it meets certain environmental and quality standards, indicating a protection of the natural environment.

4.3.8.1 Pressure on natural resources

There are natural resources that are at risk because of tourism development. These include land, fresh water and marine resources. Rapid tourism development can intensify competition for land resources if there is no careful land-use planning. This can lead to rentals increasing and poses pressure to build on land designated for other uses. Natural landscapes are threatened by intensive tourism development through deforestation, loss of wetlands and soil erosion. An increasing concern worldwide is on tourism development in coastal areas. The construction of infrastructure such as hotels, roads and airports, has led to sand mining, beach erosion and other form of land degradation. The availability of fresh water is becoming one of the most critical natural resource issues because of competition between the need for household, agricultural and industrial water. The problem is exacerbated with the rapid expansion of the tourism industry, which is extremely water intensive. This has resulted in considerable pressure being placed on the scarce water supply in many tourist destinations. The scarcity of water as a critical resource can pose a serious limitation to the development of tourism in the future (Neto, 2003: 5).

4.3.8.2 Damage to ecosystems

In addition to consuming large amounts of natural resources, tourism generates a lot of waste and pollution. In developing countries, there are problems associated with the disposal of solid and liquid waste generated by the tourism industry. Often the challenge is that these countries suffer from a lack of capacity to treat these waste materials. Disposal of untreated waste has contributed to the reduction of the availability of natural resources such as, fresh water. In addition to contamination of fresh water, tourist activities also lead to contamination of land from solid waste and the pollution of marine waters and coastal areas. Relatively high levels of energy consumption by the tourist industry, for example, cooking and heating, energy for air conditioning as well as fuel used by tourism related transportation contributes significantly to air pollution. The effect is that local air and noise pollution and urban congestion tends to discourage tourists from visiting certain destinations (Muhanna, 2006: 14-16). These negative impacts of tourism growth retards economic growth.

Due to uncontrolled tourism expansion, there can be severe disruption of wildlife habitats and increased pressure on endangered species. For instance, tourist vehicles in national parks can disrupt the behaviour of wildlife (Mastny, 2001). Tourism can lead to the clearance of local vegetation so as to pave way for the development of new tourism facilities. Fragile areas such as rainforests and wetlands are threatened by intensive or irresponsible tourist activity. Pollution of coastal waters by sewage, solid waste and untreated chemicals leads to the deterioration of coastal ecosystems, harming the value of tourism. Ecosystems of mountainous regions are threatened by increasing popular tourist activities such as skiing, trekking and snowboarding. Deforestation arising from increasing consumption of firewood by the tourism industry is a serious environmental problem in mountainous areas in the developing world. This has resulted in not only destruction of local habitats and ecosystems but accelerated processes of landslides and erosion. Tourist activities in mountainous regions have led to the migration by wild animals, sewage pollution of rivers, excessive water withdrawals from streams that supply resorts and the accumulation of solid waste on trails (Neto, 2003: 6). Hence, if tourism is not managed properly managed and leads to negative economic growth, then sustainable tourism and ecotourism must be always prioritised for tourism to foster economic growth. The converse is true: a destination that preserves its natural resources may benefit more than other destinations in developing a successful tourism industry.

Four proxies will be used to measure the protection of the environment in chapter 6. These are: forest area (as a percentage of land area) and CO_2 emissions (metric tons per capita) were used to measure a country's protection of the environment. Dummies for world wonders and the Blue Flag accreditation can belong to this category as well (see sections 6.4.2.7; 6.4.2.8 and 6.4.2.9). A high proportion of forest area to land area signify protection of the environment. This means that there is conservation of forests and human activity like deforestation is minimal. High CO_2 emissions (metric tonnes per capita) pollutes the environment and atmosphere resulting in pollution of the environment. This has the effect of reducing tourist arrivals in a country. The dummies will be included as variables in the empirical model in chapter 6 borrowing the postulation from the Heckscher-Ohlin (HO) and the Heckscher-Ohlin-Samuelson (HOS) theories of international trade. The theory states that trade takes place between countries due to different factor endowment or the existence of different resources (see chapter 3 section 3.2.1).

In conclusion, the CSFs discussed above are fundamental for successful tourism growth and development. Both the sustainable growth perspective and the learning and growth perspective to the strategic integration of destination success factors, predict that this will also lead to the promotion of economic growth. These CSFs are investment, tourism safety and security, human resources, a well-developed financial system, technological development, openness to trade, favourable climatic conditions and environmental protection. The next section reviews empirical studies on the characteristics of countries where tourism has been identified as a contributor to economic growth.

4.4 Empirical review of factors contributing to the success of the TLGH

This section reviews empirical studies on the characteristics of countries where tourism has been identified as a contributor of economic growth. There are several countries in the world where evidence shows that tourism growth has resulted in long run economic growth. This section seeks to review the CSFs for the TLGH success stories and empirical evidence from developing economies as well as developed countries, starting with the most recent studies. These studies were chosen because they show success stories where tourism development enhanced economic growth and the channel through which this success is made possible.

According to Mpande & Kannan (2014: 3), the marginal increase in growth in the Seychelles economy from to 2.8% in 2012 to 3.5% in 2013 can be attributed to growth in the tertiary sector. The tertiary sector, with tourism as its main contributor, contributes approximately 70% to GDP. The tourism sector's contribution to the GDP increased from 24% in 2012 to 29% in 2013 because of a 10% increase in the number of tourist arrivals compared to the previous year. The reasons for the increase in tourist arrivals and the subsequent positive effects on growth included the following: (i) the extensive marketing of the tourism industry by the government; (ii) the easing of the European markets' financial crisis; and (iii) investment projects, including the construction of further resorts and hotels. The authors concluded that other factors which resulted in the growth in tourist arrivals included: sound government policies; economic cooperation, regional integration and trade; sound political and economic governance; financial sector reform; natural resource management and environmental protection; and human resources development.

Makochekanwa (2013: 42-56) analysed the contribution of tourism to economic growth in Southern African Development Community (SADC) member countries. The research found a significant relationship between the GDP, tourism, employment, export receipts and investment. Though there was a variation in the contribution of the tourism sectors among the SADC countries, the research found that the two island economies of Seychelles and Mauritius rely heavily on the tourism sector for GDP growth, employment creation, investment, and export earnings. The study found that, investment is a critical success factor for tourism growth and on average; a 1% increase in tourism receipts caused a 0.16% rise in GDP per capita. Similarly, a 1% increase in tourism related investment resulted in a 0.29% increase in GDP per capita. This confirmed the importance of tourism in the SADC member states.

Yazdi and Mastorakis (2013: 172-180), empirically investigated the TLGH in the case of Iran. Autoregressive Distributed Lag (ARDL) models for the period 1975-2011 were employed in an attempt to test the long run relationship between international tourism and economic growth. A model of real GDP, capital formation, international tourist arrivals, international trade, energy consumption and real effective exchange rate was used by the study to statistically infer the long run and short run relationship between tourism and economic growth. The results of the study confirmed the TLGH. The Granger causality test revealed evidence of unidirectional causality running from tourist arrivals to economic growth and not vice versa. According to the research, the critical success factor for TLGH in Iran is the government involvement in promoting and marketing international tourism.

Samimi *et al*. (2011: 28-32) examined long-run relationships and causality between tourism arrivals (TOUR) and economic growth (GDP) in 20 developing countries using the P-VAR approach (panel vector autoregressive) for the period 1995-2009. The research revealed bilateral causality and positive long-run relationship between tourism development and economic growth, hence, confirming the TLGH. The output level which relates to the economic well-being of a country and the level of development was found to be attracting tourists. The study also showed that since tourism expansion has a significant impact on the economies of developing countries, governments should intervene in promoting and increasing tourism demand, by providing tourism facilities, infrastructure and tourism resorts.

Padachi *et al*. (2011: 1-22) also used a panel vector autoregressive (P-VAR) model to take into account the issue of endogeneity and causality to investigate the contribution of tourism to the national income of 40 Sub-Saharan African countries for the period 1990-2006. The research found that tourism is an important determinant of African economic growth with private investment, openness and human capital as the main economic growth drivers or CSFs. The research also observed that tourism enhances private investment.

Ibrahim (2011: 50-58) carried out a study to identify the characteristics of the Egyptian economy that enhance international tourism flows. An annual panel data set including the number of tourist arrivals from important tourist origin countries and various explanatory variables was modelled for the period 1990 to 2008. The study found that the tourism industry had been an important contributor to the Egyptian economy. According to this research, the tourism industry affects the Egyptian economy positively, increasing foreign exchange earnings and employment opportunities.

The tourism industry in Egypt is identified as one of the major sources of economic growth and is therefore very important to the economy. The factors supporting tourism growth in Egypt include trade openness, advertising and market expenditure of tourism products, security at tourist destinations, and the lower cost of living in the Egypt relative to the tourist countries of origin.

Khadaroo and Seetanah (2007: 1022-1030), investigated the significance and importance of transport infrastructure as a factor in the tourist destination development of Mauritius. They wanted to show that transport infrastructure is a part of the classical demand for tourism functions internationally. A panel data framework was employed to investigate the effect of transport capital on the total tourist arrivals and on the arrivals from Europe, Asia, America and Africa into the island. The static and dynamic data estimation methodology techniques were used and transport infrastructure was found to contribute positively to tourist arrivals, particularly from Europe, Asia and America, while non-transport infrastructure was of importance to tourists from Europe and America. In 2005, tourism receipts constituted 14% of GDP and this confirmed that tourism is the backbone of the Mauritius economy. The characteristics of the Mauritian economy which position the tourism sector as a significant contributor to economic growth were found to be the well-known hospitality of the Mauritians, and the multilingual ability of people in Mauritius which enhances their communication with tourists from around the world. Mauritius is an attractive tourist destination because of its cultural diversity, political stability and racial harmony. The country has, to date, been a beach destination and the government has recently started to diversify the tourism product base using the concept of ecotourism. The findings of the study also applauded the government policy on its significant marketing at international level to further promote tourism products in the country. Credit was also given to the government for constantly upgrading the infrastructure base around the island since the 1980s. The findings of the research by Khadaroo and Seetanah are also in line with the findings of a study by Seetanah (2005: 55-73) on Mauritius.

Balaguer and Cantavella-Jordá (2002: 877-884), examined the role of tourism in the long run economic growth development of Spain. They tested the TLGH. The results of their research indicated that the Spanish government had been paying attention to the persistent expansion of international tourism. The increase in tourism activity produced ripple multiplier effects over a period of time. Tourism in Spain has grown to such an extent that Spain is rated third among the top ten world tourist destinations, and the country receives around 60.7 million international tourist arrivals per annum (UNWTO, 2014). The factors contributing to long run tourism growth in Spain have been found to be external competitiveness, supportive government policy and the promotion of tourism activity (Balaguer & Cantavella-Jordá, 2002: 877).

From the evidence above, it is clear that the following CSFs were always present for tourism to grow in the respective countries, and these are, investment in tourism and supporting infrastructure, human resources development, trade openness, sound political and economic governance, financial sector reform, natural resources and environmental management, and extensive external tourism industry marketing. Further grouping the empirical researches reviewed above, the countries can be divided into developed and developing countries. Spain is a developed country and the CSFs for tourism development in the country were found to be supportive government policies and destination competitiveness. The rest of the countries reviewed are developing countries and the CSFs were found to be investment, trade openness, human capital development, political stability, financial sector development, sound government policies, protection of the environment and cultural diversity. Coming closer home and paying particular attention to African countries reviewed above, the CSFs for tourism development were found to be trade openness, human capital development, financial sector reform and investment. In addition, safety and security of tourists, political stability, supportive government policies, natural resource management and protection of the environment were also found to be CSFs for tourism development in Africa. The successful growth in tourism was shown to be important for economic growth in all of the cases cited above. The next section summarises and concludes the chapter.

4.5 Chapter summary and conclusions

The CSFs for the TLGH are the sub-goals, characteristics, conditions or variables that are critical for the attainment of tourism development. In other words, the CSFs are the important factors which have to exist, without which, tourism development would not attain the levels of success that it should in any country. CSFs can therefore be thought of as the drivers of tourism development, since they are crucial for overall tourism destination competitiveness both locally and abroad. To this end, this chapter reviewed the CSFs for successful tourism development and identified factors such as, investment, safety and security, human resources, a well-developed financial system, technological development, good climatic conditions, protection of the environment and trade openness.

The chapter found investment to be a key driver for tourism development. One major form of tourism investment is the provision of infrastructure. Different categories of infrastructure were analysed, namely, transport infrastructure, water supply systems, energy and power, waste disposal systems, post and telecommunication services, pollution control mechanisms, accommodation and restaurants, shopping, travel and tour services, recreation and entertainment, healthcare, and emergency and safety systems.

Increasing tourism safety and security is also a CSF for tourism development. The chapter looked at the nature of tourism related safety and security incidents, and explained the impact of safety and security threats on tourists' behaviour. This was followed by an analysis of the impact of safety and security issues on the tourism industry and on the host government. A discussion of media behaviour and its influences on this CSF was provided.

Human resources have also been identified as CFS for tourism development. This is because without human resources, tourism cannot take place. Moreover, the quality of human resources for any particular tourist destination determines its competitiveness. Furthermore, a well-developed financial system is a key factor to tourism development, because tourists will need to have access to banks and financial institutions to perform their transactions. They will need to have access to local or foreign currencies, traveller's cheques and so on. Therefore, various financial instruments must be easily accessible so as to facilitate tourists' movement from one area to another, shopping, payment of certain fees and so on. Without access to finances, tourists will be grounded. Consequently, tourism businesses will need the support of the financial sector to facilitate their investments.

The chapter also reviewed technological development as a CSF. Thus tourism products and services need to be continuously developed and improved because the tourism industry is dynamic, consumer behaviour keeps on changing, and there is fierce competition in the tourism market and the need for growth in tourism competitiveness. Favourable climatic conditions were also identified as a CSF to tourism development. Tourism destination choice and global flows, tourists' weather experiences, activity participation and satisfaction, tourism safety, and weather and climate information will be affected by climatic conditions. Protection of the environment is also a CSF for tourism development. Two main areas of tourism impact on the environment were explained, that is, pressure on natural resources and damage to the ecosystem. The last CSF reviewed by the chapter is trade openness. This is because trade openness enhances market access of a country's goods and services thereby fostering tourism growth and development.

The chapter also reviewed empirical studies on the characteristics of countries where tourism has been identified as a contributor to economic growth, with the aim of finding evidence of the factors that might determine the success of the TLGH. The empirical evidence that was reviewed was for both developing and developed countries. The characteristics of the countries were, among others, investment, supportive government policies, human capital development and political stability. It is evident that there is an overlap between these factors and the CSFs identified for successful tourism development. However, no studies could be found that tested the link between the CSFs for successful tourism development and economic growth, making this research the first of its kind.

Several conclusions can be drawn from the chapter. The CSFs are vital to the planning process of the tourism delivery and in addition they are important for quality service delivery. The characteristics of the CSFs are that; each CSF does not work independently. CSFs are not divorced from each other, but rather reinforce each other. For instance, favourable climatic conditions can enhance the safety and security of tourists. The CSFs are therefore intertwined or interconnected, for example, investment in the tourism sector can result in better quality human resources. This implies that if one CSF has been achieved, it can result in trickle down effects on the achievement of other CSFs. Finally, CSFs overlap each other in fostering tourism development; and they are integrated for the overall success of tourism development. For instance, a well-developed financial system overlaps into technological development as a CSF. The next chapter analyses the methodologies used in the empirical part of this study.

CHAPTER 5

EVIDENCE OF TOURISM-LED GROWTH IN AFRICA

5.1 Introduction

Chapter 3 reviewed and critically analysed the literature on the TLGH. The empirical evidence presented in literature found four hypotheses regarding the type of relationship that exists between tourism development and economic growth. These are; the TLGH; the EDTGH; the two-way or bidirectional causal relationship; and, that there is no significant evidence of causality in the relationship between tourism development and economic growth (see Chapter 3, section 3.4). The chapter found that empirically, there is inconclusive evidence on the impact of tourism development on economic growth. However, tourism was indisputably found to have a link with the broader economy of a country. International trade and tourism economics are the two strands of literature that facilitate this link.

The aim of this study is to find evidence of tourism-led growth in Africa and to identify the prerequisites or the CSFs for tourism development that affect economic growth positively in the African context. To this end, this chapter seeks to provide empirical evidence for the TLGH in Africa. The chapter gives an outline of the methodologies used in the research in terms of the theoretical model followed, the data used and sources thereof, as well as the justification. The cross section and average panel regression results are also discussed in this chapter.

The rest of the chapter is laid out as follows: section 5.2 gives an overview of economic growth in Africa to set out the context of the study; section 5.3 explains the methodological approach for testing the TLGH in Africa; section 5.4 gives an outline of the data and data sources used in the study; section 5.5 provides the cross section results; section 5.6 outlines the average panel results; section 5.7 summarises regressions results of the cross section spanning the whole period; section 5.8 discusses the regression results: and section 5.9 summarises and concludes the chapter.

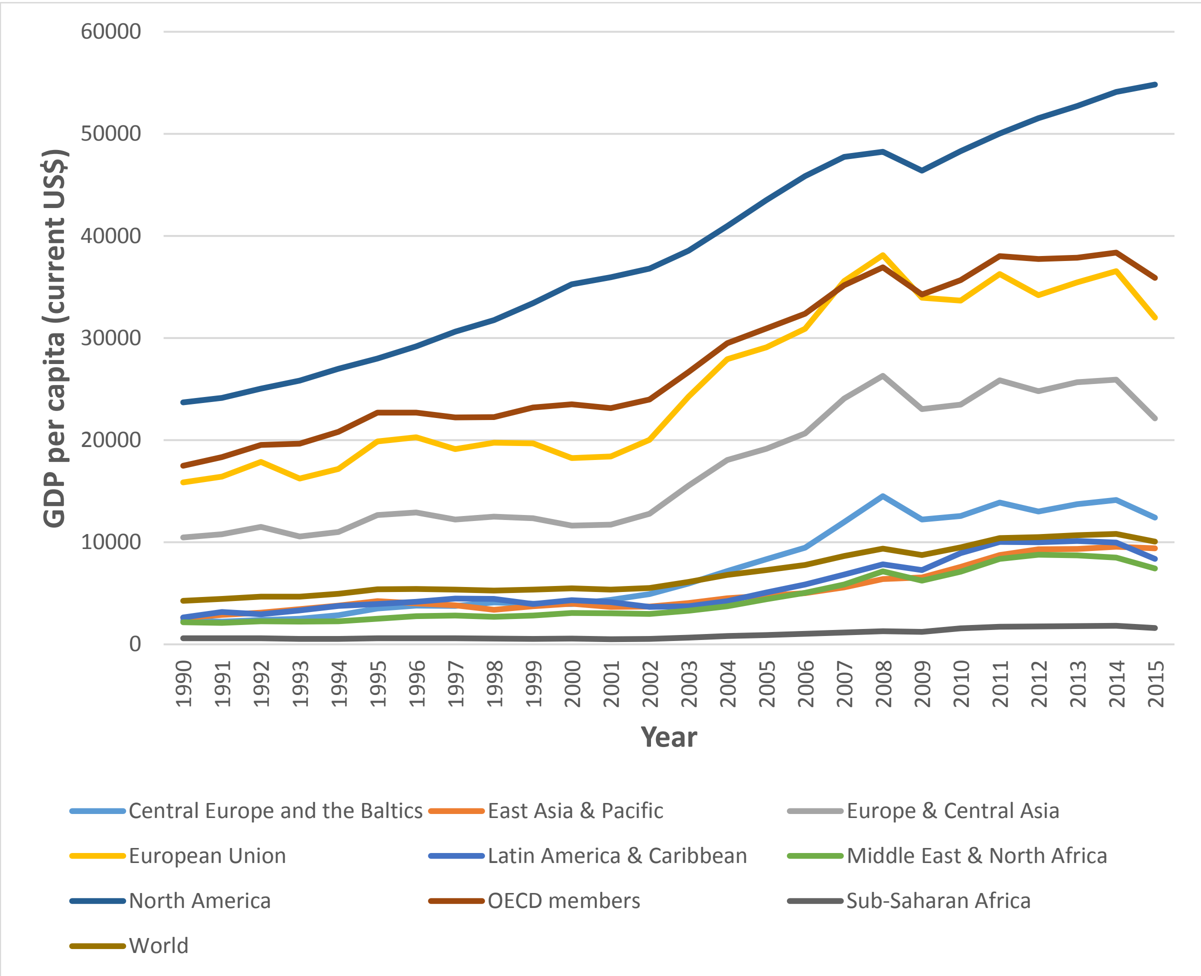
5.2. Economic growth in Africa

The performance of the economic growth in Africa has been unique compared to that of the other continents of the world. There is lack of understanding why growth is different in Africa if one is to pursue growth regressions. Tourism-led growth can be a development option which has been suggested to spearhead African economic growth. The dismal economic performance has a lot of negative consequences on human welfare, with millions of Africans becoming directly impoverished (Artadi & Sala-i-Martin, 2003: 17). This section will document Africa's economic growth performance in comparison with that of other areas around the world, and the determinants of Africa's economic growth performance. Since the TLGH focuses on growth, understanding economic growth in the African context is paramount.

5.2.1 Africa's economic growth performance

Poverty in Sub-Saharan Africa is one of the most topical issues of the world economy. Africa has remained world's poorest region for the entire post-Industrial Revolution period because of its slow economic growth rates (Bloom & Sachs, 1998: 2). Figure 5.1 below shows the most reliable estimates of GDP per capita for the regions of the world from 1990-2015.

Figure 5.1: GDP per capita (1990-2015)



Source: World Bank, 2016

Figure 5.1 shows Africa's estimated long term economic growth profile in comparison with other world regions. Throughout the period, from 1990-2015, Africa's GDP per capita lagged far behind the average income of the whole world. The figure also shows that average income in Africa is the least compared to other world regions such as North America, Europe and Central Asia and the OECD members. Amongst countries considered to be poor, Africa is still at the bottom in terms of GDP per capita. This dramatically highlights the extent of the economic plight of Africa.

Table 5.1 below shows Africa achieving impressive economic growth over the period 2000-2014 with the average real GDP growth rate of above 2.9% and 3.9% for the whole African region and Sub-Saharan Africa respectively. During the global economic meltdown in 2009, several world regions recorded negative real GDP growth but Africa and Sub-Saharan Africa achieved positive 3.6% and 3.9% growth rates respectively. Over the last two years in the table, growth has been more moderate; this trend was expected to continue in 2016, but strengthen in 2017.

Table 5.1: Real GDP growth rates (%) by Major World Region, 2000-2014

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Africa	4.8	4.4	5.2	5.5	6	5.8	6.1	6.5	5.5	3.6	5.8	2.9	6.4	3.9	3.6
Asia and Pacific	5.6	3.8	5.2	6.2	7	7.3	7.9	8.8	5.1	4.2	8.5	6.3	5.7	5.7	5.5
Central America	3	1.9	3	3.7	4.3	4.7	6.3	7	3.9	-0.6	3.7	5.5	4.8	3.6	3.9
Europe	4.7	2.8	1.9	2.4	3.5	2.9	4.3	4.2	1.5	-4.9	2.5	2.2	0.3	0.5	1.3
Middle East	6.1	0.9	2.3	12.8	10.9	5	6	5.5	4.7	0.7	5.5	6.5	3.2	2.4	3.1
South America	3.1	0.9	0.2	2.1	7.3	5.2	5.7	6.8	5	-1	6.7	4.9	2.6	3.4	0.3
Western Europe	3.9	2.2	1.2	1.1	2.3	2	3.2	2.9	0.2	-4.3	2.1	1.5	-0.4	0.2	1.4
European Union	3.9	2.3	1.5	1.5	2.7	2.3	3.6	3.3	0.6	-4.3	2.1	1.7	-0.4	0.3	1.6
Latin America & Caribbean	3.8	0.6	0.4	2	6.3	4.7	5.6	5.9	4	-1.8	6.1	4.6	3	2.9	1
Sub-Saharan Africa	4.1	5	6.5	5.1	7.2	6.4	6.3	7.1	5.9	3.9	7	5	4.3	5.2	5.1
World	4.8	2.5	3	4.3	5.4	4.8	5.5	5.7	3	-0.1	5.4	4.2	3.5	3.3	3.6

Source: IMF, 2016

Few African countries had notable success stories on economic growth and these were Equatorial Guinea and Mozambique with average growth rates of 8.4 and 5.5% per annum respectively. Due to significant discoveries and offshore oil development, Equatorial Guinea grew at a rate of 21% per annum from 1992-1995. Fast growing African economies, including Botswana and Mauritius, had per capita income growth rates of more than 4% per year. Uganda and Ghana achieved growth rates of 3.3% and 1.5% per annum respectively. Due to better policy reforms coupled with good weather conditions, the average per capita growth for Africa in 1995 was 1.7%. Per capita income growth for 1996 and 1997 reached 1.6% and 0.8% respectively, showing a decline again. According to the IMF (2013), Africa has fifteen of the twenty world's poorest countries. In 1990, the proportion of Africans who lived on less than one United States dollar per day or those who lived in abject poverty was 47%. According to the human development index (HDI), 32 of the 40 poorest countries of the world (and 19 of the bottom 20) are in Sub-Saharan Africa (UNDP, 1997). The HDI measures the living standards of people and takes into account measures like life expectancy, literacy rate and GDP per capita.

According to UNCTAD (2014: 2), Africa experienced high economic growth during the new millennium as evidenced by Table 5.1. This prompted analysts to argue that the continent had reached a turning point in its history of development. Analysts forecasted Africa to be playing a more significant role in the twenty-first century global economy. The average annual real output growth rate increased from 1.8% for the 1980-1989 period to 2.6% for the 1990-2000 decade, and to 5.3% for the 2000-2010 period. In addition, over the 2000-2010 period 12 African countries had average growth rates of 6.1%, which was above developing country averages. Angola and Equatorial Guinea experienced double digit economic growth rates from 2006-2008 (see table 1.4 in chapter 1). In comparison to the 1980s and 1990s, Africa's average economic growth rate since the new millennium has been above the average growth rate of the world economy. This is shown by Table 5.2 below.

Table 5.2: Average annual growth rates of real output (Percentage)

	1970-1980	1980-1989	1990-2000	2000-2010	2008-2012
World	3.80	3.26	2.82	2.77	1.65
Developing Economies	5.80	3.53	4.89	6.07	5.17
Africa	4.22	1.81	2.62	5.28	3.79
America	5.97	1.76	3.12	3.64	3.02
Asia	6.18	5.34	6.24	7.13	6.09
Eastern Asia	7.80	9.66	8.13	8.30	7.20
Oceania	2.86	3.79	2.38	2.87	3.41

Source: UNCTAD, 2014: 3

During the 2008/2009 global financial and economic crisis, the African continent experienced a significant slowdown in economic growth rates (Osakwe, 2010: 203). However, in the post-crisis period (2008-2012), the average economic growth rate was about 2% higher than that of the world economy. According to UNCTAD (2014:3), Africa's relatively impressive economic growth performance was as a result of both internal and external factors. Internal factor included high domestic demand, better macroeconomic management and stability in the political environment. Favourable commodity prices, higher official development assistance, stronger economic cooperation with emerging economies and an increase in foreign direct investment were the external factors that contributed to the economic growth process.

Though Africa has achieved strong economic growth performance after the turn of the new millennium, the continent has continued to experience development challenges such as, high unemployment, food insecurity, inequality, poverty, dependence on primary commodities, a lack of economic transformation, environmental degradation and low integration of the region into the global economy. Tourism-led growth has been suggested as a possible solution for economic growth to be realised in Africa (UNWTO, 2012: 9) (see section 1.3). One of the benefits of tourism is the earning of foreign currency (see section 3.2.2). In comparison with other world regions, Africa has performed well in terms of economic growth but dismally in terms of per capita income as evidenced by Table 5.1 and Figure 5.1 respectively. High foreign currency earnings increase GDP per capita of economies and hence, Africa's per capita incomes will no longer be at the bottom when compared with other world regions as depicted in Figure 5.1 above.

The next section addresses factors that have been found to affect economic growth in Africa.

5.2.2 Determinants of economic growth in Africa

There are many factors that have been most frequently invoked to account for the dismal performance of Africa's economic growth. These factors include: (i) low levels of investment, and poor human capital: (ii) the decline in the terms of trade and volatility due to Africa's heavy dependence on a small number of primary products exports: (iii) internal politics, corruption, authoritarianism and political instability: (iv) poor economic policies because of too much protectionism, fiscal profligacy and statism: (v) rapid population growth due to demographic change; (vi) social conditions caused by deep ethnic divisions within the African society, as is evident from Africa's ethnolinguistic societies, low levels of social capital and religious diversity (Artadi & Sala-i-Martin, 2003: 9-17, Bloom & Sachs, 1998: 3). Many of these factors have also been mentioned in Chapter 2 (economic growth theories) and Chapter 4 (critical success factors to tourism growth)(see sections 2.3 – 2.6 in chapter 2 and sections 4.3 -4.4 in chapter 5). These determinants of economic growth are also the same as those highlighted in empirical panel research by Robert J. Barro (2003, 1999, 1996, 1991), Tsangarides (2012), Arvanitidis (2009) and Artadi and Sala-i-Martin (2003), but also include literature on the African growth dummy by Berger and du Plessis (2006). Hence, the determinants of economic growth in Africa are:-

a) Investment

Investment is very low in Africa compared to the other regions of the world and the continent has failed to attract the kind of investment that enables its recovery and the attainment of economic growth. Collier and Pattillo (2000: 53) argued that Africa's rate of return on investment is about 33% compared to the other regions. Investment risk in Africa is high due to: volatile prices, political instability, a tendency of governments engaging in policy reversals and an uncertain macroeconomic environment. Sala-i-Martin, Doppelhofer and Miller (2004: 826-828) found that investment goods were very expensive in Africa compared to other areas. Africa had a relative price of investment slightly above 120 which compared unfavourably to 70 for OECD countries and East Asia. Therefore, the investment goods are expensive relative to consumer goods in the continent, which leads to low economic growth rates.

b) Human Capital

Accumulation of human capital is an engine for economic growth (see chapter 2, section 2.6.3). Human capital includes aspects such as, education, training and the health of the workforce. Differences in human capital endowments explain the differences in the growth rates of economies. The modern growth theory suggests a positive relationship between human capital and economic growth. Differences in living standard among nations exist because of differences in the human capital (Lucas, 1993: 270). Artadi and Sala-i-Martin (2003: 11) argued that if primary school enrolment rate for Africa since the gaining of independence had been as high as that of OECD countries, Africa would have managed to achieve an average annual growth rate of 1.47% instead of the recorded 0.9% over the four decades. The stock of human capital education is low in Africa compared to the rest of the world. Gyimah-Brempong *et al*. (2006: 511) suggested that the low stock of human capital in Africa is attributed to the inefficiency in its education systems and the emigration of educated people.

c) Trade openness

The relationship between trade and economic growth has been deemed highly important. Hence it is believed that the degree of openness is a catalyst for economic growth (see Chapter 2, section 2.7). Economies that are open benefit from free trade, and have better access to outside technological progress through foreign direct investment. Trade openness enhances a nation's access to a wider variety of goods and services, knowledge and technology. It also stimulates private sector entrepreneurship, attracts private and foreign capital, generates employment, reduces price relativity distortions, promotes the development of comparative advantage activities and increases foreign currency earnings. These factors enhance economic growth (Goff & Singh, 2013: 1; Seetanah, 2012: 3). Tragically, most African economies are quite closed in terms of trade openness.

d) Public Expenditure

High public expenditure, that is, public consumption and public investment, is not good for economic growth. Public consumption normally does not have a positive relationship with economic growth because it has to be financed through taxes, which distorts economic growth. Public consumption spending as a percentage of GDP was 16%, 16.4% and 12% for Africa, Sub-Saharan Africa and North Africa, respectively. During the same time period, the corresponding GDP for OECD countries and East Asia was 7% and 6% respectively (Artadi & Sala-i- Martin, 2003: 15). Therefore Africa has high public expenditure as a proportion of GDP compared to other regions, which negatively affects Africa's economic growth.

e) Military conflicts and ethno-linguistic fractionalisation

Since Africa became independent in the 1960s, the continent has been plagued by wars and violence. Algeria, Angola, Burundi, Chad, Cote d'Ivoire, Democratic Republic of Congo, Djibouti, Eritrea, Ethiopia, Guinea-Bissau, Liberia, Libya, Madagascar, Mauritania, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sierra Leone, Somalia, South Africa, Sudan, Togo, Uganda and Zimbabwe have experienced military conflicts – some of which have lasted for decades. Military conflicts have resulted in the mushrooming of human tragedies, which have gone beyond direct suffering from the violence to negatively impact on economic growth, increased poverty, terror and misery to the masses (UNDP, 2008: xvii-xviii, 3; Artadi & Sala-i-Martin, 2003: 15-17).

According to Easterly and Levine (1997: 1204-1206), the central problem for the majority of African countries is the unusually large ethno-linguistic fractionalisation which stems from the arbitrary division of the continent by colonial powers into unrelated ethnicities. Ethno-linguistic fights generate inefficient economic outcomes and in the worst scenario, wars.

Groups fighting for control over resources through politics also give rise to bad economic consequences.

f) Geography

According to Bloom and Sachs (1998, 3), geography is a robust determinant of economic growth rate. For instance, the economic growth rate of a country is affected negatively if a fraction of the country is located in the tropics. Tropical weather is normally not good for economic growth. Yet, 85% of the African territory lies within the tropics and 92% of Sub-Saharan Africa is located in the tropics. This is contrary to the 3% of OECD countries and 60% of the East Asian territory that are located in the tropics (Artadi & Sala-i-Martin, 2003: 13).

Several empirical research results (AfDB *et al.*, 2015: xi; Bloom & Sachs, 1998: 4-5; Sachs & Warner, 1997: 4; Sachs, 2003: 2) have pointed out that countries that are situated in the tropical areas have adverse economic growth prospects mainly because of the frequent disease outbreaks which reduce the productivity of workers. Moreover, tropical areas tend to have less productive agriculture due to erratic rainfall patterns, and in Africa, this is worsened by the absence of weather specific agricultural technologies to improve productivity.

In conclusion, the dismal economic growth performance of Africa has been seen as the worst economic tragedy of the twentieth century. This tragedy has been caused by several factors including; lack of investment; low education levels, poor health of human capital; unfavourable geography and climatic conditions; closed economies; too much public expenditure by the government; and too many military conflicts and civil unrest. These challenges in the African continent have to be addressed urgently to avoid their perpetuation beyond the twenty-first century.

g) The African growth dummy

Sub-Saharan economies have, since the early 1960s, experienced poor economic performance compared to other regions of the world. This has frustrated policy makers and contradicted any explanations offered by the empirical economic growth literature. Several empirical studies that did not include a regional dummy variable in standard cross country growth regressions have not been able to explain the sluggish growth of economies in Sub-Saharan Africa (Berger & du Plessis, 2006:3). Due to this finding, there has been an emergence of theoretical as well as empirical literature attempting to explain the uniqueness of African growth and to identify the reasons why growth in Africa is considerably and significantly lower than what traditional models predicted.

This has seen what is referred to as the inclusion of the “African growth dummy” in regressions. The dummy takes a value of one if a country is situated in Africa and zero otherwise. According to Solow (1956), the basic economic growth models postulated that long-term economic growth is dependent upon the initial GDP, the initial level of technology, the savings rate, technological progress, labour force growth, the rate of depreciation, the output share of capital, and the convergence rate to the steady state. Empirical analysis of economic growth used similar models and found economic growth well explained in a cross section as well as a panel of countries.

The first empirical research to include an African dummy in the estimated equations was by Barro (1991). The research found the dummy to be significant. Barro concluded that there appeared to be adverse effects on growth from being a Sub-Saharan African country. He provided a figure for the African growth gap of -1.14% GDP growth (Barro, 1991: 437). Ever-since Barro’s seminal paper, a lot of empirical research were conducted in order to explain the mystery of African growth, using the so called African growth dummy in the regressions. The phenomenon started with varying success degrees. Using other measures, some authors failed to explain the African growth dummy. Mauro (1995: 681) failed to explain the dummy by including a bureaucratic efficiency index. Easterly and Levine (1997: 1203) were not able to show that ethno-linguistic heterogeneity is a plausible explanation for the African growth dummy. Temple and Johnson (1998: 965) failed to replace the African dummy by social arrangements.

Other researchers established sets of variables which could render the African growth dummy to become insignificant. These included research done by Sachs and Warner (1997: 335), who replaced the dummy by a mixture of policy and structural variables, such as, landlocked, climate, trade openness, government savings and institutional quality. Barro (1997) found that government consumption was significant, while Englebert (2000: 1821) found state legitimacy to be explaining the African growth dummy. Berger and du Plessis (2006:2), challenged the previous findings regarding the robustness of the African growth dummy. They expanded the list of variables to include the ones which Easterly and Levine (1998) as well as Sachs and Warner (1997) suggested. The research employed the Bayesian Averaging of Classical

Estimates approach. The conclusion was that the African growth dummy does not appear robustly related to growth. This supported the interpretation that the African dummy presence in other studies was as a result of model misspecification. The research contributed to the Africa growth strategies debate by assessing the robustness of divergent perspectives offered in recent literature.

Knedlik and Reinowski (2008: 1) reproduced the Systems-Generalised Method of Moments (GMM) approach with an extended sample. Their results found the African dummy to be significant. The analysis was extended by a search for possible explanations of the African growth dummy. The analysis found access to high technology, infrastructure, research and development and the business environment to be the factors that explained part of the African growth process anomaly. The millennium development goals (MDGs) reflected the specifics of the growth process in Africa only partially and this implied that the MDGs should not be the sole focus of growth-oriented economic policy. Jerven (2011: 288) critically surveyed literature on African economic growth performance. The survey found that cross sectional studies of post-colonial Africa economic growth have overwhelmingly focused on African economic growth failure. This has prompted stylised facts with their own qualifications and when these are taken into consideration, African economic growth explanations appear inconsistent. The notion of a chronic economic growth failure in Africa has diverted attention from the economic growth process and important questions not addressed. The quest for the African growth dummy has delivered transferable conclusions with a strong impact on African economic history writing. Jerven's (2011) critical survey of literature on Africa growth dummy argued that there is indeed a need to evaluate African economic performance from a different perspective.

Paudel (2014: 26-27) examined the determinants of developing countries' economic growth, putting emphasis on the role of geography, and especially landlockedness. The results confirmed the previous findings on the negative impact of landlockedness on economic growth, especially among countries that are developing. However, the magnitude of the negative impact of being landlocked was sensitive to alternative estimation methods. The research found evidence of trade openness and good governance assisting in ameliorating the negative impact of landlockedness. Contrary to the "resource curse" hypothesis, the results suggested that natural resources rent extraction contributed significantly to the economic growth of landlocked developing countries. The research found no evidence suggesting that the average economic growth performance of African countries which are landlocked was significantly different from other landlocked developing countries.

Since the publication by Barro (1991) that identified the mystery surrounding the disparity between economic growth in Africa and other regions of the world, there has been burgeoning empirical and theoretical literature attempting to explain why African growth is considerably and significantly lower than is predicted by the traditional models. This manifests the failure and inability of several empirical studies to explain the slow growth of African economies. Although a number of alternatives are proposed, to date, there has not been consensus on the explanations for the African growth dummy.

5.3 Methodology

This section firstly explains the methodological approach that will be used in this chapter to test the TLGH in Africa, before the methods to be used are reviewed.

5.3.1 Methodological approach

The approach discusses and evaluates the methodologies employed by three recent and encompassing empirical studies, which were carried to test the relationship between tourism and economic growth. The empirical studies are by Figini and Vici (2010), Cortés-Jiménez and Paulina (2010) and Holzner (2011). The methodological approach to be employed by this research lends from and builds on some aspects of the methodologies which were adopted by these 3 empirical studies. Hence the methodology encompasses the 3 empirical research methodologies. These studies were chosen because they are all based on the theories of economic growth discussed in Chapter 2 (see section 2.2 to section 2.6).

This research differs from the three studies because it focuses only on 53 African countries for the period 1995 to 2013. The study by Figini and Vici (2010) focussed on a cross section of 150 countries for the 1980-2005 period. Cortés-Jiménez and Paulina's (2010) study focussed on Spanish and Italian economies for the 1950s and 1960s respectively. Holzner's (2011) research empirically investigated the Dutch Disease for a sample of 134 countries for the period 1970 to 2007. Section 5.3.1.1 will discuss the approach by Figini and Vici, section 5.3.1.2 the approach by Cortés-Jiménez & Paulina and section 5.3.1.3 the approach by Holzner.

5.3.1.1 Tourism and growth in a cross section of countries

Figini and Vici (2010: 789) sought to assess the empirical relationship between tourism specialisation and economic growth. The study updated the findings of previous papers written on the same issue. Data for more than 150 countries was used that covers various time spans ranging from 1980 to 2005. The research found that the economic growth rates of tourism-based countries were not higher than those of non-tourism based countries, with the exception of the 1980-1990 period where international tourism data was not fully reliable. These results contradicted previous research findings of, among others, Brau *et al*. (2004 and 2007).

The studies by Brau *et al*. left a lot of room for in-depth analysis in at least three tourism economics areas. These economics areas were, i) a robust confirmation of the positive correlation between specialisation in tourism and the pace of economic growth in small countries; ii) economic sustainability and environmental considerations as far as tourism specialisation potential effect is concerned; and iii) issues to do with whether tourism-led growth translate into social inclusion and poverty reduction. Figini and Vici (2010: 790) stressed that their research contributed to tourism-led growth by focusing empirically on the cross country relationship between economic growth, the size of a country and tourism specialisation. Future researchers were left to investigate whether tourism-led growth is pro-poor or reduces the extent of inequalities within a country.

The research by Figini & Vici made use of the Brau *et al.* (2004, 2007) benchmark to carry out an in-depth sensitivity analysis for a cross section of more than 150 countries. Three versions of data were used, that is, data for 1995-2005 from the World Development Indicators (WDI) online, 1990-2005 data synchronised by merging WDI data with UNWTO online data and 1980-2005 data collected by merging the data from previous versions of WDI (World Bank, 2000 and 2004). The variables used in the model formulation had strong theoretical backing. The econometric specification for growth regressed by the research assumed that the growth measured by per capita average growth rate is a function of tourism measured by the degree of tourism specialisation and a vector of control variables specified as follows:

$$Growth = \delta_0 + \delta_1 Tourism + \delta_2 X + \delta_3 \ddot{Y} + \mu \qquad (5.1)$$

Where *Growth* is per capita income average growth rate in the period under scrutiny, *Tourism* measures the degree of country specialisation in tourism, and X is a vector of control variables. The control variables are initial GDP, investment in physical capital, investment in human capital, share of public expenditure to GDP and trade openness. The control variables have theoretical underpinnings based on the neoclassical growth theory, the Solow growth model, Lucas (1988), Barro (1990) and the Hecksher-Ohlin model. The vector Ÿ included a series of dummy variables often used in economic growth analysis to capture non-economic effects. These indicate the world region that a country belongs to, whether or not a country is an OECD member, a producer of oil, or small (Figini & Vici, 2010: 792-793).

The WDI, just like other international data sets, normally have missing values for certain combinations of countries and years. The research averaged out the variables used in the econometric regression analysis. This was consistent with the empirical literature cross country growth. The variables used in the econometric exercise were averaged out over 5-year periods. This helped to avoid the risk of missing observations due to the lack of data in a certain specific year, and to smooth out the effect of particular events and measurement errors. Five periods were constructed in which variables took the average values of the periods 1980-1984, 1985-1989, 1990-1994, 1995-1999 and 2000-2005, respectively (Figini & Vici, 2010: 793). A similar approach is used in this study, except that the focus of this study is only on Africa.

The research by Figini & Vici found no significant causal relationship between tourism specialisation and economic growth for the 1990-2005 and 1995-2005 periods. According to Figini and Vici (2010: 803) these contradicting results were probably due to flaws in previous studies such as data problem emanating from tourism specialisation collection and model misspecification culminating from endogeneity and omitted variable bias. The study found that tourism specialisation may not be the solution to the problems to do with economic growth and development, and it contradicts empirical evidence in the area of tourism economics. This is because, theoretically, conditions or CSFs for tourism based growth are necessary for its success, despite the lower-than-average technological progress within the tourism sector. Hence, a tourism-based country on average, is not at all unique and does not have different economic growth in comparison with any other type of country.

Figini and Vici (2010: 803) recommended future researches to focus on three areas, namely: robust and more conclusive evidence about the long run relationship between tourism and economic growth; comprehensive assessments of whether tourism-led growth automatically translates to poverty reductions and inequalities; and careful assessment of different tourism development strategies effects.

5.3.1.2 Inbound tourism and long-run economic growth

The research by Cortés-Jiménez and Pulina (2010: 61) was an investigation into the historical empirics of the tourism sectors in the Spanish and Italian economies for the 1950s and 1960s, respectively. Literature on demand-based growth is the theoretical underpinning of the study. The research employed the cointegration and multivariate Granger causality in a vector autoregressive model methodology.

The authors focused on Spain and Italy for the following reasons. Spain is a famous case of tourism expansion and economic development. During the 1960s, the Spanish government opened up borders to tourists and foreign investment and this led to a boom in the tourism sector. Sinclair (1998: 2) and Nowak *et al*. (2007: 515) pointed out that an economy can develop out of the outstanding contributions of international tourism receipts. Special attention has to be given to the role of the imports of capital goods. Spain is among the top ten destinations, ranking third both in terms of international tourist arrivals and second in terms of international tourism receipts (UNWTO, 2014: 8). The country is among the most important world tourist destinations and its tourism evolution is on an upward trend.

Italy also has a long history of tourism and is an important tourist destination. According to Jenkins (2006: 43), the two Great Wars, that is, the first and second world wars caused a lot of damage to the tourism infrastructure in Italy. The public sector intervened actively to such an extent that by 1950, Italy had regained its popularity as a tourist destination. Italy is among the top ten world tourist destinations, ranking fifth in terms of tourist arrivals and sixth in terms of tourist receipts (UNWTO, 2014). Italy is mentioned as the most popular European tourist destination in long-haul markets such as the USA and Japan (Cortés-Jiménez & Pulina, 2010: 64).

It is therefore clear that these authors chose Spain and Italy as case studies for their research because of their economic histories during the past five decades and their proximity and geographical location in the Mediterranean area as tourism destinations. Spain and Italy do not have any similarities but they attract large numbers of international tourist visitors that come to view the classic model of the sun, sand, sea and cultural tourism.

The empirical model used by the study consists of an aggregate production function compatible with the new growth theory. The model included output (Y), physical capital (K), human capital (H) and tourism exports (T) specified as follows:

$$Y_t = \partial_0 + \partial_1 T_t + \partial_2 K_t + \partial_3 H_t + \tau_t \quad (5.2)$$

Where t denotes a time series analysis and τ_t is the residual term which is assumed to have a mean of zero and constant variance.

The output was proxied by per capita real GDP, and the physical capital was measured by investment as a fraction of GDP. The proxy for human capital was the proportion of active population, with secondary level of education for the Spanish case and by the proportion of population with secondary education for the Italian case. Tourism exports were measured by international tourism receipts per capita. These variables were included in the models based on economic theory and past empirical studies. To interpret the coefficients as elasticities, the values of all variables were expressed in natural logarithms (Cortés-Jiménez & Pulina, 2010: 65-66). It is especially the variables used by these researchers which influenced the selection of variables in this study.

The sample period 1964-2000 for Spain and 1954-2000 for Italy, provided sufficient time spans for cointegration and causality analyses to be undertaken. A multivariate approach which follows Feder (1982) was adopted and it was applied mainly in the exports literature. The econometric methodology consisted of analysing the time series integration properties, checking variables for cointegration and studying the Granger causality, using a Vector Error Correction Model (VECM).

The research found that real output, international tourism, human capital and physical capital should not be singled out. It also found that misleading results may be produced by the traditional bivariate approach. The empirical findings of the study revealed that the major determinants of economic growth were variables such as, human and physical capital. The proposed multivariate approach could easily be applied to developing countries' settings, with the aim of establishing tourism activity as a way of achieving economic growth, and not in isolation. The TLGH for Spain was found to be bidirectional, but for Italy it was the unidirectional Granger causality running from tourism expansion to economic growth. Physical and human capital accumulation were found to be important catalysts for economic growth in both countries (Cortés-Jiménez & Pulina, 2010: 67-72).

5.3.1.3 Tourism and economic development: The beach disease?

Holzner (2011: 922-933) empirically analysed whether the Dutch Disease is an imminent danger over the long run, for countries which are dependent on tourism. The author referred the Dutch Disease Effect in the tourism context as the “Beach Disease Effect”. Using a sample of 134 countries for the period 1970-2007, which is almost four decades, the research investigated whether tourism-dependent countries exhibit less dynamic economic development. Prior to this study, a comprehensive analysis of the relationship between tourism specialisation and economic growth had been lacking in empirical literature. Empirical literature had only focused on single countries or islands case studies. Granger causality tests were employed by most of the case studies and they provided evidence of both the TLGH and growth-led tourism development. The study by Capó, Font and Nadal, (2007: 615-627) was the only other empirical study which analysed the possibility of the Dutch Disease Effect caused by tourism for the Balearics and the Canary Islands.

The research combined two strands of literature. The first is the impact of tourism specialisation and long run economic growth across several countries of the world (see Sequira & Nunes, 2008: 2432-2441).The second strand of literature was the possible channels through which tourism specialisation affects economic development (see Lanza *et al.*, 2003: 315-316), based on Copeland’s (1991: 515-529) theoretical model.

The econometric analysis methodology employed by Holzner was similar to the one used by Gylfason (2001: 847-849) and Sachs and Warner (2001: 830-833) in order to derive empirical evidence from cross country relationships between economic growth and natural resource abundance. The methodology was modified to include tourism sector dependence instead of natural resource abundance. The transmission channels were studied and for each channel, calculations were performed for the relationship between the indirect effects of tourism and economic growth. This followed the research by Papyrakis and Gerlagh (2004: 181-193, 2007: 1011-1039).

A panel data framework was applied using GDP per capita levels that allowed the checking of results and focused attention on the time dimension. The approach allowed for reverse causality, non-linearity and interactive effects controls. The justifications for the procedure used by Holzner were: to determine whether tourism can negatively affect economic growth across countries: to establish the channels through which tourism may impact economic growth: and to validate cross section and time series results of economic growth and economic development in a more complex framework.

The model employed by the research is the cross country analysis growth model. The Solow growth model with the Cobb Douglas production incorporating physical capital and human capital was used. Following literature developed by Warner (2001), Romer (1996), Sala-i-Martin (1995), Levine and Renelt (1992: 942) and Barro (1991: 407), growth of output per labour unit was expressed as a function of the initial output per labour unit, physical and human capital. The growth model was expressed as follows:

$$g = f(\gamma_0, k, h, x) \qquad (5.3)$$

Where, g is the growth of output per labour unit and is a function f of the initial output per unit of labour γ_0 (according to the income convergence theory of economic growth), k and h are the physical and human capital inputs respectively, x is an indicator of the tourism dependency of a country. The variable x was assumed by the study to represent 'tourism capital' in the production function. The tourism capital stock could include natural amenities, such as, scenery, climate, cultural heritage of all kinds, infrastructure related to tourism and the hospitable attitudes of local populations. It could also be argued that tourism enhances total factor productivity. The growth testable equation was expressed as follows:

$$g_i = \alpha_0 + \alpha_1\gamma_{0i} + \alpha_2 k_i + \alpha_3 h_i + \alpha_4 x_i + \varepsilon_i \qquad (5.4)$$

Where, i corresponds to each country in the data set, α_0 is the constant term, $\alpha_1 - \alpha_4$ are the coefficients of the respective explanatory variables and ε is the error term. The average annual growth of the natural logarithm of real GDP per capita (valued at Purchasing Power Parity – PPP) between 1970-2007 was used as a proxy for g. The proxy for *k* was the investment share of real GDP per capita, averaged over the period 1970-2007. The proxy used for *h* was the gross secondary school enrolment ratio averaged for the period 1970-2007. The proxy for tourism dependency or tourism capital *x* was the share of travel services exports as a percentage of GDP averaged for the period 1970-2007.

The growth equation 5.4 was augmented to find out more about the channels through which tourism affects economic growth. The variables used in the augmentation process were similar to the ones used in models by Copeland (1991: 530) and Chao *et al.* (2006: 501) to explain the relationship between tourism dependency and economic development.

The long run relationship between tourism development and economic growth from a panel data analysis perspective was also analysed. The rationale for this approach it is that it is more advantageous to use panel data as it allows simultaneous analysis of both cross section and time series data. Panel data estimators are more accurate even if identical sample sizes were used. Panel data sets yield efficient estimators compared to a series of independent cross sections. The cross country results were checked in a panel data framework on GDP per capita levels that allowed controls of reverse causality, non-linearity and interactive effects. The traditional Cobb Douglas production function and Trans-log production function were developed (Holzner, 2011: 927-928).

The results showed that the countries in the sample during the study period did not suffer from "Beach Disease Effect". Tourism-dependent countries were not facing any real exchange rate distortion and deindustrialisation, and they had higher than average economic growth rates. Investment in physical capital, for example, transport infrastructure was found to be a complementary to tourism investment (Holzner, 2011: 929).

The following section discusses the models that will be estimated, based on the papers reviewed above.

5.3.2 Method

This section explains the methodology adopted in this chapter in order to provide empirical evidence for the TLGH in Africa.

5.3.2.1 Econometric specification of the model

Two approaches for econometric model specification were used by the study. These are, the aggregate production function – compatible with the new growth theory – and the growth function.

A) The production function

The model adopted in the study was inspired by, among others, Feder (1982). It was applied by Ukpolo (1994), Ghatak *et al*. (1997), Durbarry (2004) and especially Cortés-Jiménez and Pulina (2010). In this study, the model was modified accordingly for context analysis. The aggregate production function includes output, physical capital, human capital, tourism, exports and trade openness. It also includes several dummy variables such as post conflict, landlockedness, ease of doing business and North African countries. The production function was expressed as follows:

Y = f (K, H, T, TRADE, ME, PC, LL, EOD, NAC)

Where *Y* is real per capita GDP, *K* is physical capital, *H* is human capital, *T* is tourism exports, *TRADE* is trade openness, *ME* is exports of primary commodities. In this research commodity metal exports were taken as the proxy for exports, and dummies: *PC* for post conflict countries; *LL* for landlocked countries; *EOD* for ease of doing business; and *NAC* as the North African Country dummy. Expressing the function in a linear logarithmic regression form, the multivariate relationships can be written as follows (for the panel regressions):

$$Y_{it} = \varphi_0 + \varphi_1 \mathrm{K}_{it} + \varphi_2 \mathrm{H}_{it} + \varphi_3 \mathrm{T}_{it} + \varphi_4 \mathrm{TRADE}_{it} + \varphi_5 ME_{it} + \varphi_6 \mathrm{PC}_{it} + \varphi_7 \mathrm{LL}_{it} + \varphi_8 \mathrm{EOD}_{it} + \varphi_9 \mathrm{NAC}_{it} + \mu_{it} \qquad (5.6)$$

Where subscripts *i* or *t* denote the various countries and time throughout, and μ is the error term or the disturbance term assumed to have a mean of zero and constant variance. All the variables were expressed as logarithms enabling the coefficients to be interpreted as elasticities.

B) The growth function

The growth function was specified in line with the works of Brau, Lanza and Pigliaru (2004 and 2007) and Figini and Vici (2010). The econometric specification for the growth regression used by the study was written as follows:

$$Growth_{it} = \emptyset_0 + \emptyset_1 Tourism_{it} + \emptyset_2 \mathrm{Z}_{it} + \emptyset_3 \mathrm{D}_{it} + \mu_{it} \qquad (5.7)$$

Where *Growth* is the average per capita income growth rate for the period under scrutiny; *Tourism* measures the country's tourism exports; Z is a vector of control variables based theoretically on the neoclassical theory of economic growth and empirical literature which investigates economic growth determinants by using Barro (1991) regressions. The vector includes: the initial level of per capita GDP which checks the hypothesis of convergence stemming from the Solow growth model; and the measures of investment in physical and human capital, exports and trade openness. The vector D includes a series of dummy variables which are normally used in growth analysis to capture non-economic effects. These include post conflict countries (*PC*), landlocked countries (*LL*), the ease of doing business index (*EOD*) and North African countries (*NAC*). Similar to the production function, all the independent variables were expressed as logarithms to enable the coefficients to be interpreted as elasticities.

5.3.2.2 Cross Section Estimations

For robustness, the cross section regressions were performed for the production function and then for the growth function. The proxies for tourism exports are tourism receipts (LTOURR), tourism receipts as percentage of GDP (LTOURP) and the revealed comparative advantage for a country (LRCA). Human capital is also included in the regressions using two proxies; gross secondary school enrolment (LH) and the human capital index (LHCI). The cross-section regressions were manually performed with stepwise addition of more variables than the standard growth estimation. The approach adopted by the study follows the research done by Holzner (2011).

A) The Production Function

As indicated above, the regression equations were estimated in a stepwise manner and each cross section had eight equations for each proxy of tourism exports as follows: (i) the most basic specification of real per capita GDP was expressed as a function of physical capital (*K*), human capital (*H*) and tourism; and (ii) the first estimate is enhanced by adding the dummies (*NAC, PC, EOD* and *LL*). Further specifications included testing the significance of trade openness (*TRADE*) and natural resource dependence (*ME*) separately. The process was repeated for each of the proxies of tourism (that is, tourism receipts, tourism percentage and RCA for tourism). The same process was again repeated for the two proxies of human capital (that is gross secondary school enrolment, H, and human capital index, HCI). The presence of heteroscedasticity in the models was also tested. Hence, 8 equations were derived for each tourism proxy and for each of the cross sections as shown below (the numbers in the tables correspond with the equation specification for ease of interpretation):

Equation 1: LY = f (C, LK, LH, LTOURR)
Equation 2: LY = f (C, LK, LH, LTOURR, NAC, PC, EOD, LL)
Equation 3: LY = f (C, LK, LH, LTOURR, NAC, PC, EOD, LL, LTRADE)
Equation 4: LY = f (C, LK, LH, LTOURR, NAC, PC, EOD, LL, LME)
Equation 5: LY = f (C, LK, LHCI, LTOURR)
Equation 6: LY = f (C, LK, LHCI, LTOURR, NAC, PC, EOD, LL)
Equation 7: LY = f (C, LK, LHCI, LTOURR, NAC, PC, EOD, LL, LTRADE)
Equation 8: LY = f (C, LK, LHCI, LTOURR, NAC, PC, EOD, LL, LME)

B) The Growth Function

The same regressions were performed by adding additional dummy variables and explanatory variables in a stepwise manner for the growth function. The initial per capita GDP is included as an explanatory variable in order to capture the hypothesis of the convergence of incomes stemming from the Solow growth model. The most basic specification of real GDP growth was expressed as a function of initial GDP (Y_1), physical capital (*K*), human capital (*H*) and tourism. The same process was repeated in the same manner as it was done for the production function.

The tourism proxy again took the three variations. The 8 equations will then be re-estimated for the alternative tourism proxies LTOURP and RCA. The presence of heteroscedasticity in the models was also tested. Similar to the production function specification, eight equations were derived for each tourism proxy and for each of the cross sections as shown below:

Equation 1: GROWTH = f (C, LY1, LK, LH, LTOURR)
Equation 2: GROWTH = f (C, LY1, LK, LH, LTOURR, NAC, PC, EOD, LL)
Equation 3: GROWTH = f (C, LY1, LK, LH, LTOURR, NAC, PC, EOD, LL, LTRADE)
Equation 4: GROWTH = f (C, LY1, LK, LH, LTOURR, NAC, PC, EOD, LL, LME)
Equation 5: GROWTH = f (C, LY1, LK, LHCI, LTOURR)
Equation 6: GROWTH = f (C, LY1, LK, LHCI, LTOURR, NAC, PC, EOD, LL)
Equation 7: GROWTH =f(C, LY1, LK, LHCI, LTOURR, NAC, PC, EOD, LL, LTRADE)
Equation 8: GROWTH = f (C, LY1, LK, LHCI, LTOURR, NAC, PC, EOD, LL, LME)

Where the definitions of the variables are the same as in the above.

Neoclassical traditional growth models assume universal and exogenous technological progress and diminishing returns to capital accumulation, they predict convergence of countries to the same steady-state of growth and level of GDP per capita, with countries which are initially poor catching up, but not overtaking, the leaders. Endogenous growth models, by contrast, assume productivity growth is the outcome of incentive structures that may be different across countries, entertain the possibility of persistent divergence in the performance of growth and thus of the overtaking of one country by another or of ever-widening gaps between the followers and the leaders. The root of the difference between the production function and the growth function of economic growth is in their treatment of technical change and returns to capital accumulation. The neoclassical treatment is exogenous, while the endogenous growth model treats technical change and returns to capital as endogenous (Quora, 2017). Hence, the use of stock versus flow variables in the alternative specifications of production or growth. There are theoretical and empirical issues at stance when considering, for example, investment rather the stock of physical capital used in the economy, or whether measures of stock rather than investment in education are better proxy of the concept of human capital in growth literature. Proxies used to measure the variables used in this research are justified in section 5.4.2.

5.3.2.3 Average Panel Estimations

The regression estimations were also performed for the average panel using the average panel data. These were also done in the same stepwise manner explained above.

5.3.2.4 Cross section regressions for the full period

In order to improve robustness, easy analysis as well as interpretation of the results, a cross-section for the full period under investigation (1995-2013) was also estimated. A similar process was used as explained above (see section 5.3.2.2) and therefore both a production function and growth equation specification were again used.

Regressions were done using EViews Version 8 and STATA14. The results of the cross sections and average panel estimations are summarised in tabular format in the following sections for each respective proxy of tourism exports. This enables easy comparison and interpretation of the results. The following section explains the data sources and expected results.

5.4 Data

This study consists of an analyses of cross section and panel data for 53 African countries. Africa has 54 countries but analysis was done for 53 countries with the exception of Somalia because it had missing data for 6 of the variables used in the model. A complete database of countries observed from 1995 to 2013 is used in the analysis.

The determinants of output growth for a country according to this research were based on the factors identified in section 5.2 for Africa, as well as identified by growth theory (chapter 2). These variables include physical capital, human capital, tourism exports, trade openness, commodity exports and non-economic effects captured by a series of dummy variables. The dummy variables were, North African countries, ease of doing business, landlockedness, and post conflict dummy.

5.4.1 Data Sources

Data, and especially good quality data, are essential for national governments, organisations and institutions to plan and forecast accurately, and fund as well as evaluate development activities. Data problems can have implications for both academic interpretations and policy advice. This implies that data should be accurate, timely and readily available. African data might not be all-encompassing, but that what is available is of good quality comparable with that in other world developing regions. African data are far from being a tragedy, however, the data revolution in Africa should be brought about by African countries themselves through institutional building and dedicated capacity. The data revolution in Africa has taken root, but its sustainability will require a robust domestic debate (Kiregyera, 2015).

This research used reliable data sources to ensure that the results of the research can be relied upon. Data for per capita GDP, real GDP growth rates, physical capital, human capital, tourism exports, trade openness, commodity metal exports, international tourism receipts and ease of doing business was downloaded from the World Bank 2015 website. Data for the human capital index was downloaded from the Penn World Table Version 9.0. The Penn World Table version 9.0 is a database with HCI data covering 182 countries between 1950 and 2014. The dummy for North African countries was constructed after getting information from the World Bank website which has a list of North African countries. The Maps of World (2015) website reports that 16 African countries are land locked. Therefore, a dummy for landlockedness was constructed. The dummy for African countries which have passed through post conflict was constructed from several sources such as the United Nations Development Programme (UNDP) (2008), David *et al*. (2011), Derek (2013) and the International Monetary Fund (IMF) (2015).

5.4.2 Proxies used to measure variables and justification

This segment discusses the proxies that were used to measure the variables used in this research. The justification for using them is also clearly explained.

5.4.2.1 Output growth

Economic growth is measured by the per capita real gross domestic product (GDP) for the production function. This proxy is in line with the study used by Cortés-Jiménez and Pulina (2010). The average growth rate of per capita income for the period under scrutiny is used as a proxy for growth in the growth function in accordance with the research by Figini and Vici (2010).

5.4.2.2 Investment

According to Artelaris *et al*. (2007: 2), the most fundamental determinant of economic growth is investment. This has also been identified in theoretical literature by both the neoclassical and endogenous growth models. Investment affects the transitional period in the neoclassical model. The endogenous growth models argue that investment has permanent effects on economic growth. This research used the gross capital formation as a percentage of GDP to measure investment in physical capital.

5.4.2.3 Human capital

Education is investment in human capital, which is considered as a key production factor similar to investment in physical capital. Investment in human capital is regarded as a more efficient way to allocate scarce resources and it produces positive externalities. Several endogenous growth models as well as the neoclassical growth model consider human capital as the main source of economic growth. Human capital normally centres on workers' acquiring skills and know-how through training and education. For this reason, the majority of empirical studies measure the quality of human capital using proxies related to education (Mankiw *et al*., 1992: 409; Barro & Sala-i-Martin, 1995: 321).

Two proxies were used in this research to measure human capital for both the production function and the growth function. Human capital was measured by the proportion of active population that have attained secondary level of education (see Cortés-Jiménez & Paulina, 2010; Kehinde *et al*., 2013: 55; Ashgar *et al*., 2012: 135; Adetoso *et al*., 2012: 139,), and the human capital index (HCI) (Mswell, 2015: 144; Kraipornsak, 2009: 37).

According to the World Bank (2015), gross secondary school enrolment is the total secondary education enrolment, regardless of age. It is expressed as a proportion of the official population within the secondary education age group. The gross secondary school enrolment figure could exceed 100% with the inclusion of under-aged and over-aged students, caused by late or early school entrances and grade repetitions. The HCI measures the ability of a country to maximise and leverage its endowment of human capital. HCI per person provides an index of human capital which is related to average years of schooling and the return to education (Groningen Growth and Development, 2016). **Growth and Development Growth and Development Cen**

5.4.2.4 Tourism exports

According to the TLGH, a country's economic growth can be realised not only by increasing the amount of physical and human capital, but also by increasing tourism exports (Bote, Gomez & Sinclair, 1996: 90; McKinnon, 1964: 389; Sinclair, 1998: 12). Tourism development has many benefits for a country which leads to economic growth. These include foreign exchange income increases, employment creation, new infrastructure investments, exploitation of economies of scale, technical knowledge diffusion, research and development stimulation, cultural exchange, increase in government revenue and development of entrepreneurial and other skills (Andriotis, 2002: 333; Croes, 2006: 458; Lin & Liu, 2000: 22; Telce & Schroenn, 2006: 444).

Three proxies were used to measure tourism exports for both the production function and the growth function. The first proxy is international tourism receipts per capita, following from the empirical example by Durbarry (2004), Dritsakis (2004) and Cortés-Jiménez and Pulina (2010) to capture international tourism growth evolution. The "per capita" is per person or per inhabitant in the country. Hence, per capita receipts refer to average spending per inhabitant in the country. Tourism expenditure per inhabitant is monotonically linked to economic growth since the proxy is more directly linked to the direct effect on GDP per capita.

The second proxy is the degree of tourism specialisation for a country. The proxy follows the studies by Lanza and Pigliaru (1995) and Figini and Vici (2010) for checking the hypothesis of growth enhancing tourism development. The degree of tourism specialisation was the share of international tourism receipts in the GDP (that is tourism percentage).

Thirdly, a country's revealed comparative advantage (RCA) was also used as a measure of tourism exports. Building on Ricardo's theory of comparative advantage, a country's production specialisation is reflected by its revealed comparative advantage, given the differing opportunity cost ratios of production in two trading countries (Peterson, 1988: 355). To establish whether a country has a revealed comparative advantage in, say tourism exports, the share of tourism exports in a country's total exports should be compared with the share of the country's tourism exports in world's total exports. The study calculated the RCA of tourism exports denoting tourism specialisation using the Balassa (1965) index as follows:

$$\mathrm{RCA}_{ij} = \frac{T_{ij}/\sum_i T_{ij}}{\sum_j T_{ij}/\sum_i \sum_j T_{ij}} \qquad (5.5)$$

Where T_{ij} is tourism sector exports from country j. The numerator simply represents the percentage share of tourism exports in national exports. The denominator represents the percentage share of tourism exports in world exports. When RCA is greater than one, the country is said to show specialisation in the tourism sector exports, that is, it reveals a comparative advantage. When RCA is below one, the country does not possess a revealed comparative advantage.

5.4.2.5 Exports

In terms of the ELGH, the expansion of exports is the key driver or catalyst to the promotion of long-run economic growth. David Ricardo's theory of comparative advantage explains that an economy should specialise in the production of those goods and services where lower opportunity cost is involved in comparison with its trading partners. The country must then exchange these with the rest of the world. A country which exports its goods and services will realise several benefits, among them, the earning of foreign currency which can be used to import commodities needed by the local economy. The ELGH leads to better allocation of resources, creation of economies of scale and production efficiency through technological development, employment generation and capital formation. A country which produces and exports specialised commodities will earn more revenue and be in a position to acquire imports (Feder, 1982: 59-60; Jung & Marshall 1985: 1; Shan & Sun 1998: 1055).

According to the African Development Bank (2007: 96) and Lundgren *et al*. (2013: 1-14), Africa is blessed with many natural resources and very rich environments. The continent is endowed with productive land and valuable natural resources, which include, renewable resources, such as forestry, fisheries and water. Non-renewable resources include gas, coal, oil and minerals. Many African economies are dependent on natural resources for survival and so are the livelihoods of the majority populace which reside in rural areas. Not only do these resources form the basis of subsistence and income for Africa's large population segments, but they are also the main source of foreign revenue through exports as well as public revenue. Economic growth, development and transformation from primary to secondary production can be catalysed by a natural resource boom under normal circumstances. With the correct approach, natural resources discovery can aid transition from a poor economy that depends on primary products exports, to one where labour-intensive manufacturing is substantial.

For this research, commodity metal exports were used because Africa's export is commodity-based. Ores and metal exports (as a percentage of merchandise exports) were used as a proxy for commodity metal exports. Ores and metals comprised those commodities in Standard International Trade Classification (SITC) sections 27 (crude fertilizer, minerals); 28 (metalliferous ores, scrap); and 68 (non-ferrous metals) (World Bank, 2015). The proxy captures the dependence of African economies on natural resources, which are a source of foreign currency earnings and can be used to foster economic growth.

5.4.2.6 Trade Openness

According to Artelaris *et al*. (2007: 16) trade openness is a determinant of economic growth. Theoretical literature points to a strong and positive causal link between trade openness and economic growth. African economies have been found to be closed and if they become open to trade, the continent will experience high economic growth (see section 5.3). Openness to trade affects economic growth through several channels which include the exploitation of comparative advantage, transfer of technology and knowledge diffusion, exposure to competition and economies of scale. Empirical evidence has found that economies that are more open to trade experience capital flows, have experienced higher per capita GDP and have grown faster (Edwards, 1998: 383, Dollar & Kraay, 2000: 4). Following the work by Figini and Vici (2010), this study used the ratio of exports and imports to GDP as a proxy for trade openness.

5.4.2.7 Post Conflict dummy

The United Nations Development Programme (UNDP, 2008) highlights that there are several consequences of economic and political violent conflicts in a country, which include, substantial loss of life, loss of employment and income generation, poverty, debilitated infrastructure, collapse of state institutions, lack of rule of law, continued insecurity and damaged social networks. These negative consequences seriously impede economic growth. Africa is blighted by too many military conflicts and civil unrest resulting in the dismal economic growth performance (see section 5.2.2 on the determinants of Africa economic growth). The following table summarises African post conflict countries.

Table 5.3: UNDP List of Post Conflict Countries

Country	Major Conflict Episodes	Current Status
Angola	1975-1994, 1997-2002	Peace
Burundi	1991-2002	Peace with implementation challenges
Chad	1995-1998, 1990.2006-2007	Revived insurgency
Congo, Democratic Republic of the	1996-1997, 1998-2001	Ongoing insurgency
Cote dVoire	2002-2004	No comprehensive settlement

Table 5.3: UNDP List of Post Conflict Countries…continued

Eritrea	1974-1991	Peace with unresolved border disputes
Ethiopia	1974-1991	Peace with unresolved border disputes
Guinea- Bissau	1998-1999	Peace
Liberia	1989-1990, 1992-1997, 1999-2003	Peace
Mozambique	1976-1992	Peace
Namibia	1973-1989	Peace
Rwanda	1990-1993, 1994, 1998-1999, 2001	Peace
Sierra Leone	1991-1996, 1997-2001	Peace
Somalia	1988-1991	Unresolved territorial status
Sudan (North/ South conflict)	1983-2002	Peace
Uganda	1979-1991	Peace

Source: UNDP, 2008: 5

It is evident from table 5.3 above that there are several post conflict African countries with some whose conflicts are still unresolved and ongoing. These conflict affect the economic growth which would have been realised by these African countries.

The Arab Spring, or Middle East uprisings, was a series of protests in the Middle East region that erupted as a result of unrest in Tunisia towards the end of 2010. The Arab Spring managed to overthrow and bring down regimes in some Arab countries, sparking mass violence in these countries. With a mix of repression, some governments managed to delay the trouble, promised reformation and state largesse (Al Azm, 2011: 224). The following table list countries which were part of the Arab Spring:

Table 5.4: The Arab Spring

Country	**Date Started and Ended**
Tunisia	18 December 2010- 2011
Algeria	29 December 2010 – January 2012
Egypt	25 January 2011 to present
Djibouti	28 January 2011 to March 2011
Somalia	28 January 2011 and ended in 2011
Sudan	30 January 2011 to present
Libya	17 February 2011 to present
Morocco	20 February 2011 to April 2012
Mauritania	25 February 2011 and ended in 2011

Source: Lutterbeck, 2013; Rosiny, 2012: 1-8; UCDP, 2016; Rózsa, 2012: 1-19.

Table 5.4 above also show African countries suffering from the Arab Spring and the worst case scenario is found in countries like Egypt and Libya where the uprisings have not yet come to an end. This has serious negative consequences on the economic growth of these countries. In addition, according to the World Bank and IMF (2015), Zimbabwe is both a post conflict and a fragile state ever since the year 2000 when the minority white farms were occupies by the black majority. The post conflict dummy took a value of one during the period of unrest and zero when there is peace.

5.4.2.8 Landlocked dummy

One of the factors that explain the African growth dummy is geography (see section 5.2.2). A landlocked country is one that is entirely closed by land. Landlocked countries are generally disadvantaged when it comes to economic growth. This is because, the proximity of a country to the sea or ocean is an important determinant of economic growth. A country that is not landlocked is easily navigable, business can be easily maintained through the sea, the tourism industry is more profitable and has better chances of using renewable resources. Landlocked countries find it difficult to export and import goods and services since it has to seek permission for passage from other countries. There are usually costs incurred in the use of the ports of neighbouring countries for the export and import of goods and services. This hampers economic growth (Sachs & Warner, 1997: 336).

There are sixteen African countries which are landlocked, these are, Burkina Faso, Mali, Niger, Chad, Central African Republic, South Sudan, Ethiopia, Uganda, Rwanda, Burundi, Malawi, Zambia, Zimbabwe, Botswana, Swaziland and Lesotho (Maps of World, 2015). This research therefore created a dummy variable that takes a value of one if a country is landlocked and zero if it is not.

5.4.2.9 Ease of doing business dummy

The World Bank compiles the ease of doing business index and ranks countries of the world from 1 to 189, the first position being that of the best country to do business in. A high ranking, that is, a low numerical rank means that the country's regulatory environment is conducive for the operation of a business. A country whose regulatory environment is conducive for the operation of businesses attracts a high number of local and foreign investments (World Bank, 2015).

The ease of doing business index averages an economy's percentile rankings on 10 attributes or topics covered in the World Bank's Doing Business. The 10 topics used by the World Bank to calculate the index are, ease of starting a business, ease of dealing with licenses, ease of hiring and firing, ease of registering property, ease of getting credit, ease of protecting investors, ease of paying taxes, ease of trading, ease of enforcing contracts and ease of closing business (World Bank, 2005; World Bank, 2015). The easier it is to do business in a country, the more that investors are attracted, thus enhancing economic growth. Data for the ease of doing business index in Africa was available for two years only, that is, 2013 and 2014. The research took the index for 2013 since this falls within the timeframe used, namely 1995-2013.

5.4.2.10 North African countries dummy

North African countries are close to Europe. Europe, especially Western Europe, is in the developed world and is one of the wealthiest regions (see Table 5.1). Despite the fact that African countries performed dismally in terms of economic growth during the twentieth century, North African countries performed better than the rest of the continent. This brings across the fact that North African countries are richer compared to their counterparts in Sub-Saharan Africa (Artadi & Sala-i-Martin, 2004: 1-2). The proximity of North African countries to Europe fosters economic growth through various channels including that Europe is a market for the export of North African goods and services. In addition, North African countries have a better opportunity of importing quality goods and services from Europe, and if these goods are capital goods, they can be used for efficient production of goods and services. North Africans also have better chances of getting employment opportunities in Europe. Therefore, they can repatriate earned incomes, which can be used for the economic growth of their home countries. Europeans also work in North African countries and impart their skills. Moreover, European businesses find it easy to invest in North African countries because of the proximity. All these channels enhance economic growth in North African countries compared to the rest of Sub Saharan African countries.

The North African countries included in this research are Egypt, Libya, Algeria, Tunisia and Morocco (World Bank, 2009). The dummy took a value of one for an African country which is in North Africa and zero if it is not.

5.4.3 Data analysis

The World Bank Indicators international data set has missing values for certain combinations of countries and years. In order for the research to be consistent with empirical literature on cross country growth, the variables used in the model were averaged over 5–year periods between 1995 and 2009, and a 4-year period (2010-2013). The averaging methodology follows the research done by Figini and Vici (2010) in order to minimise the risk of missing observations in the regression for a lack of data. Averaging data also helped in smoothing out the effect of particular events and the measurement errors involved.

Four periods were constructed in which variables took the average value of 1995-1999, 2000-2004, 2005-2009 and 2010-2013, respectively. Data for ease of doing business from the World Bank was available for two years only, that is, 2013 and 2014. In order to accommodate the impact of this fixed effect, the 2013 data figures for the ease of doing business index were used as a dummy variable for the data set. “Cross section 1” shows the average values for 1995-1999; “cross section 2” shows the average values for 2000-2004; “cross section 3” is for the time period 2005-2009; and “cross section 4” shows the average values for 2010-2013. The various cross sections were subsequently analysed, as described below.

Besides the separate analysis of each cross-section, an “average panel data” set was constructed from the cross section data averages, that is, four time periods with 53 cross sections in each time period. Panel data was used in this research because it allows the simultaneous analysis of both cross section and time series data. Panel data estimators are also found to be more accurate even if identical sample sizes were used. According to Hsiao (2006: 3-7), panel data generates efficient estimators compared to independent cross section series. The average panel data set has a combination of time series and cross section data, hence, for a specific variable, a country will have four observations generated from the four average values calculated for the periods 1995-1999, 2000-2004, 2005-2009 and 2010-2013, respectively.

The descriptive summary of the statistics of the various cross section data can be found in Appendices A1 to A4, the average panel data descriptive summary statistics in Appendices A5-A and the cross section descriptive summary statistics for the full period are in Appendix A7. Scatter plots for variables used are also found in Appendices A7-A12. From the descriptive statistics for the variables and scatter plots in the appendices, outliers were found in the data set. Cross section 1 outlier was Equatorial Guinea with a very high per capita real GDP growth of 51.73%. Cross section 2 outlier comprise of Equatorial Guinea with a very high per capita GDP and real GDP growth, and Sierra Leone with a very low GDP per capita and RCA of 0.003. Cross section 3 outlier was Angola with a high per capita GDP growth of 11.71%. The outlier for cross section 4 was South Sudan with missing data for 8 variables, Central African

Republic and Libya with commodity metal exports of 31.57% and 0.005, respectively. Central African Republic also had real GDP growth of -8.22239.

The regression results with outliers included and regression results with removed outliers were not significantly different from each other. Some of the regression results were exactly the same, depicting the fact that outliers did not have much impact on the results. However, the regression results with included outliers were better estimates in terms of the significance of explanatory variables compared to the regression results with excluded outliers. Hence the regressions were performed with data including outliers. Appendix A13 provides a tabular summary of panel unit root tests, although the models are not estimated using the panel (due to missing observations) and these are therefore only additional information on the data properties.

Multicollinearity is a situation where the explanatory variables are highly correlated. Multicollinearity amongst variables in a model results in biased estimators (Greene, 2002: 379-382). In order to check for possible multicollinearity, correlation matrices between the variables for all the cross sections, average panel and the total cross section were constructed and can be found in Appendix A14. The correlation matrices show the presence of multicollinearity between tourism receipts per capita (LTOURR) and tourism percentage (LTOURP) with some values greater than 0.8. However, this has no effect on the estimated results of the regressions since LTOURR and LTOURP are both tourism proxies and are not used in the same regression. All the other variables have values far less below 0.8 meaning that no strong relationship exists between the variables and that there is no multicollinearity.

In most empirical growth literature, the issue of endogeneity issue is not discussed. The endogeneity problem occurs when the explanatory variable is correlated with the error term. Common causes of endogeneity are measurement errors, omitted variables and simultaneity. The effect of endogeneity is that it results in biased model estimates (Maddala, 1992: 506-512). Most of the variables which are averaged, for example, over the 5-year period in this research, although beginning of period GDP is included in growth regressions to partially address endogeneity concerns.

According to Greene (2002: 525), the Hausman test (also called the Hausman specification test) is used to detect the issue of endogeneity in models. The Hausman test is sometimes described as a test to determine model misspecification. The test can help to test for the validity between fixed effects or random effects model in panel data. The null hypothesis (Ho) is that the preferred model is random effects and the alternative hypothesis (H_1) is that the model is fixed effects. If fixed effects and random effects are statistically different, fixed effects are used. If fixed effects and random effects are not statistically different, random effects are used. For the test results, if the p-value is small, that is, less than 0.05, one rejects the null hypothesis. The panel models were therefore estimated using both country and year fixed effects as well as the robust estimator to control for heteroskedasticity.

The panel data set for this research failed to meet the asymptotic assumptions of the Hausman test. Hence the Suest test for the Generalised Methods of Moments (GMM) was used. However, since there are only 4 time periods, only 1 lag and first differences were used. The results should therefore be treated with caution, although they show tourism positively affecting production and growth in Africa. Zsohar (2012: 151), defines the GMM as a statistical method that combines observed economic data with the information in population moment conditions to produce estimates of the parameters which are unknown in the economic model. Once those parameters are there, inference can be performed about the basic question that is of interest.

The dynamic panel data estimation, one step system GMM was also performed for the panel data set. For the production function, the dependent variable LY was regressed against its first lag, physical capital (LK), human capital and tourism. The two proxies for human capital are LH, LHCI and the three tourism proxies are LTOURR, LTOURP and LRCA. The same process was repeated for the growth function. The GMM results are shown in Appendix A15.

The next section presents and discusses the cross section results.

5.5 Cross Section Results

The cross section results cover four periods constructed in which variables took the average value of 1995-1999, 2000-2004, 2005-2009 and 2010-2013 respectively. Cross section 1 gives the averages values for 1995-1999; cross section 2 gives the average values for 2000-2004; cross section 3, provides the average values for 2005-2009; and cross section 4 provides the average values for 2010-2013 (see section 5.4.3). The purpose of the estimations was to determine the significance of the variables in explaining economic growth.

The presence of heteroskedasticity in the cross sections was checked for using the Breusch-Pagan/Cook-Weisberg tests. The null hypothesis (Ho) of constant variance was tested against the alternative hypothesis (H_1) which assumed the presence of heteroskedasticity. The results showed non-existence of heteroskedasticity in most of the production functions of the cross sections. However, for the growth regressions, there was some evidence of heteroskedasticity. In order to try and correct the problem, new proxies for human capital and physical capital in the growth equations were incorporated. These were HG, which indicates human capital growth and it measures the average growth rate in secondary school enrolment for each time period, KGROWTH, which stands for investment or total capital growth and FKGROWTH, which measured fixed capital growth (or investment). The growth function regression results with the new proxies did not improve the results; hence the growth function regressions with the original physical capital and human capital proxies are shown.

The presence of heteroskedasticity is shown when the probability p-value of the test statistic is not significant as shown by the cross section regression results. Any p-value < 0.05 showed the existence of heteroskedasticity and the specifications where regressed again to incorporate white heteroskedasticity-consistent standard errors and covariance. The regression results were compared with those in which heteroskedasticity was present. Some of the specification results were not affected in terms of the significance of the regressors, the sign of the variables and significance of the whole model. Robust standard errors were used for all the cross section regressions. Hence, the standard errors of the regressions are homoscedastic.

5.5.1 Cross Section 1 Regression Results

Tables 5.5 to 5.7 below show the cross section 1 regression results of per capita GDP for the time period 1995-1999. The tables summarise the results of the physical capital proxy and various proxies for human capital and tourism. These were enhanced by adding various dummies that account for country-specific characteristics, namely landlocked, post conflict, ease of doing business and north African country (as explained above). Finally, trade openness and natural resource dependence (proxied by commodity metal exports) were added to the specifications. A total of 53 African countries were included in the estimations.

The tables are firstly presented – each table with a different tourism variable as an independent variable. Table 5.5 shows the estimates with tourism receipts as independent variables, using all eight specifications indicated in section 5.4.2.4. Table 5.6 shows the estimates with tourism as a percentage of GDP as independent variables, again using all eight specifications. Table 5.7 shows the results of the estimations with revealed comparative advantage as independent variables for tourism, also using all eight specifications.

Theoretically various criteria are used to determine if the model is correctly specified or significant as shown in the tables. These are, the Adjusted R^2, the Akaike's Information Criterion (AIC), the Schwarz Bayesian Information Criterion (SB) and the F- Statistic. The model with the smallest AIC and SB is the best model in terms of model specification. For variations between the AIC and the SB in terms of which one is small, the statistical significance of the vari

able of interest was tested.

Table 5.5: Dependent Variable LY, Explanatory Variable: Tourism Receipts

Equation	1	2	3	4	5	6	7	8
Constant	5.360*** (0.878)	6.315*** (1.277)	4.248** (1.598)	6.698*** (1.523)	5.700*** (0.587)	5.762*** (0.998)	5.852*** (1.135)	5.785*** (0.787)
LK	0.403 (0.303)	0.368 (0.321)	0.0885 (0.335)	0.367 (0.425)	0.207 (0.242)	0.338 (0.240)	0.374 (0.316)	0.541** (0.229)
LH	0.177 (0.149)	0.079 (0.151)	0.124 (0.145)	0.014 (0.179)				
LHCI					1.812** (0.738)	1.612** (0.759)	1.597* (0.784)	0.629 (0.537)
LTOURR	0.268*** (0.071)	0.225** (0.094)	0.179* (0.092)	0.160 (0.095)	0.200** (0.076)	0.185 (0.126)	0.207 (0.174)	0.211** (0.094)
LL		-0.495 (0.292)	-0.400 (0.280)	-0.641 (0.375)		-0.299 (0.258)	-0.278 (0.288)	-0.131 (0.212)
PC		0.404 (0.471)	0.181 (0.459)	0.723 (0.797)		0.563 (0.426)	0.597 (0.474)	1.001** (0.342)
EOD		-0.002 (0.004)	-0.003 (0.004)	-0.003 (0.005)		-0.002 (0.004)	-0.002 (0.005)	-0.005* (0.003)
NAC		0.430 (0.394)	0.676* (0.393)	0.600 (0.397)		0.198 (0.374)	0.171 (0.409)	0.125 (0.258)
LTRADE			0.672* (0.340)				-0.074 (0.398)	
LME				-0.006 (0.0439)				0.070** (0.0279)
R^2	0.519	0.624	0.678	0.699	0.704	0.795	0.795	0.920
Adj R^2	0.467	0.514	0.566	0.568	0.663	0.714	0.698	0.861
F stat	10.08 [0.0001]	5.69 [0.0006]	6.07 [0.0003]	4.36 [0.0069]	17.44 [<0.0001]	9.95 [<0.0001]	8.24 [<0.0001]	15.76 [0.0001]
AIC	72.103	72.234	69.229	53.929	47.318	45.811	47.758	17.880
SB	77.966	83.959	82.421	64.532	53.350	55.876	59.081	26.841
Het test	0.72 [0.4023]	0.02 [0.8859]	1.57 [0.2192]	0.06 [0.8077]	0.00 [0.9536]	0.28 [0.5987]	0.28 [0.6007]	0.26 [0.6181]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, p-values in [ ]

Source: EViews8, STATA13 Regression Results, 2017

Table 5.6: Dependent Variable LY, Explanatory Variable: Tourism Percentage

Equation	1	2	3	4	5	6	7	8
Constant	3.993*** (0.560)	4.781** (0.773)	4.181*** (0.851)	5.06*** (1.040)	5.49*** (0.625)	6.439*** (0.809)	5.219*** (0.921)	6.689*** (0.982)
LK	0.25 (0.173)	0.251 (0.169)	0.027 (0.221)	0.234 (0.288)	0.204 (0.247)	0.156 (0.231)	-0.151 (0.253)	0.109 (0.313)
LH	0.966* (0.133)	0.85*** (0.148)	0.741*** (0.161)	0.745*** (0.155)				

Table 5.6: Dependent Variable LY, Explanatory Variable: Tourism Percentage…continued

Equation	1	2	3	4	5	6	7	8
LHCI					3.019*** (0.611)	2.88*** (0.563)	2.521*** (0.543)	2.31*** (0.596)
LTOURP	-0.383 (0.082)	-0.444 (0.089)	-0.043 (0.087)	-0.0228 (0.086)	0.042 (0.103)	-0.114 (0.126)	-0.256 (0.132)	-0.076 (0.147)
LL		-0.466** (0.207)	-0.419** (0.204)	-0.502** (0.237)		-0.541 (0.213)	-0.604*** (0.198)	-0.544** (0.003)
PC		0.304 (0.382)	0.25 (0.375)	0.098 (0.518)		-0.117 (0.388)	-0.251 (0.363)	-0.002 (0.475)
EOD		-0.002 (0.003)	-0.003 (0.003)	-0.002 (0.003)		-0.004 (0.003)	-0.006** (0.003)	-0.003 (0.002)
NAC		0.028 (0.320)	0.234 (0.340)	0.24 (0.317)		0.47 (0.365)	0.658* (0.347)	0.655* (0.353)
LTRADE			0.406 (0.263)				0.644** (0.286)	
LME				-0.016 (0.042)				-0.0315 (0.054)
R^2	0.69	0.74	0.759	0.8	0.64	0.77	0.81	0.8
Adj R^2	0.66	0.68	0.69	0.722	0.59	0.7	0.74	0.7
F Stat	24.93 [0.000]	12.14 [0.000]	11.41 [0.000]	10.08 [0.000]	15.67 [0.000]	10.80 [0.000]	11.77 [0.000]	8.00 [0.000]
AIC	1.776	1.806	1.780	1.677	1.958	1.768	1.625	1.597
SB	1.949	2.151	2.168	2.102	2.143	2.138	2.041	2.036
Het. Test	0.080 [0.970]	0.476 [0.844]	0.673 [0.710]	0.398 [0.912]	1.875 [0.158]	0.735 [0.644]	0.575 [0.787]	2.251 [0.080]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]

Source: EViews8, STATA13 Regression Results, 2015

Table 5.7: Dependent Variable LY, Explanatory Variable: LRCA

Equation	1	2	3	4	5	6	7	8
Constant	4.042*** (0.550)	5.079*** (0.785)	4.603*** (0.949)	5.129*** (1.039)	5.291*** (0.701)	6.183*** (0.750)	5.6*** (1.038)	7.446*** (0.971)
LK	0.222 (0.174)	0.237 (0.168)	0.089 (0.235)	0.236 (0.284)	0.263 (0.272)	0.288 (0.231)	0.165 (0.277)	-0.0496 (0.294)
LH	0.967*** (0.126)	0.797*** (0.145)	0.739*** (0.159)	0.736*** (0.151)				
LHCI					3.114*** (0.592)	2.529*** (0.551)	2.378*** (0.585)	2.249*** (0.492)
LRCA	-0.084 (0.068)	-0.092 (0.075)	-0.073 (0.078)	-0.046 (0.077)	-0.0396 (0.081)	-0.124 (0.096)	-0.0993 (0.100)	-0.245* (0.124)
LL		-0.507** (0.212)	-0.458** (0.220)	-0.493** (0.220)		-0.537** (0.211)	-0.521** (0.214)	-0.564** (0.203)
PC		0.265 (0.376)	0.234 (0.378)	0.0397 (0.378)		-0.226 (0.400)	-0.110 (0.427)	-0.306 (0.367)
EOD		-0.003 (0.003)	-0.004 (0.003)	-0.003 (0.003)		-0.004 (0.003)	-0.004 (0.003)	-0.005* (0.003)
NAC		0.0495 (0.308)	0.183 (0.343)	0.226 (0.310)		0.474 (0.358)	0.514 (0.364)	0.742** (0.317)
LTRADE			0.267 (0.297)				0.248 (0.302)	
LME				-0.0173 (0.041)				-0.041 (0.047)
R^2	0.696	0.757	0.764	0.804	0.627	0.778	0.785	0.837
Adj R^2	0.669	0.698	0.696	0.726	0.584	0.707	0.703	0.755

Table 5.7: Dependent Variable LY, Explanatory Variable: LRCA…continued

Equation	1	2	3	4	5	6	7	8
F Stat	25.19 [0.000]	12.89 [0.000]	11.31 [0.000]	10.27 [0.000]	14.58 [0.000]	11.01 [0.000]	9.58 [0.000]	10.24 [0.000]
AIC	1.766	1.760	1.785	1.663	1.996	1.744	1.779	1.395
SB	1.940	2.108	2.177	2.087	2.183	2.118	2.200	1.833
Het. Test	0.063 [0.979]	0.449 [0.863]	0.674 [0.708]	0.412 [0.904]	1.984 [0.141]	0.692 [1.678]	0.658 [0.722]	1.006 [0.469]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]
Source: EViews8, STATA13 Regression Results, 2015

The aim of this research was to determine if tourism growth increases per capita GDP for African countries. The variable of interest is tourism, proxied by tourism receipts (LTOURR), tourism as a percentage of GDP (LTOURP) and a revealed comparative advantage of tourism exports (LRCA). The tourism variable was assessed for its significance and all the models were compared.

In terms of the usual determinants of production, it is evident that differences in GDP per capita across the African countries can be better explained by differences in labour (i.e. human capital) than by differences in physical capital investment. The human capital proxies are robustly significant in several of the above specifications. This lends strong support to the theories by neoclassical growth model, as augmented by Mankiw, Romer and Weil (1992), Romer (1986) (see Chapter 2, sections 2.5 and 2.6), Nelson and Phelps (1966), Lucas (1988) and Barro (1992). The coefficients of LH are smaller than those of LHCI. This is probably because human capital (LH) measured by secondary school enrolment is a more one-sided measurement than the human capital index (LHCI) which also includes skills and competencies (World Economic Forum, 2015: 3)

The constant is highly significant (1% level of significance) in almost all the specifications in Tables 5.5 to 5.7. If the constant is assumed to measure total factor productivity, then it is very important in explaining per capita GDP of African countries. According to the Solow (1957: 312) and Comin (2006: 1), total factor productivity measures the efficiency and intensity of factor inputs in the production process. Technological progress, innovations or improvements increases total factor productivity. This means that improving total factor productivity increases per capita GDP. Total factor productivity has for a long time been identified as a residual growth (exogenous source) of economic growth (Paitoon, 2009: 37). Generally, for cross section 1 (1995-1999 period), human capital is highly significant no matter the proxy used to measure it, except for LH in Table 5.5, which implies that training labour and innovation should be encouraged.

With respect to the dummies, landlockedness seems to be significant almost everywhere in Tables 5.6 and 5.7. This implies there is a strong support for geography as determinant of wealth/production in African countries. Landlockedness is insignificant in Table 5.5. The post conflict dummy is not significant at all in explaining Africa's economic growth for the period 1995-1999. This could have been due to peace in the region during the period. Ease of doing business is only significant in 1 specification (equation 7/8) in Table 5.6 and specification 8 in Tables 5.5 and 5.7, the same is seen for the North African dummy which is also significant in 5 specifications in Tables 5.5 to 5.7. Trade openness explains GDP per capita in Africa in two specifications in Table 5.5 and 5.6. Commodity metal exports explains per capita GDP in Africa in only one specification in Table 5.5.

Focusing on tourism as the variable of interest in this research, Table 5.5 revealed that tourism receipts per capita were only significant in four specifications, that is, equation 1, 2, 3 and 5. From Table 5.6 tourism percentage could not be seen to explain any variation in economic growth as the variable was insignificant in all specifications. Table 5.7 showed that the RCA for tourism was weakly significant at 10% in explaining per capita GDP of African countries, that is, equation 8. Generally, from Table 5.5, Table 5.6 and Table 5.7, tourism had very little, influence in explaining economic growth in Africa for the 1995-1999 period. According to the information criteria, model 8 in Table 5.5 is the best specified model with AIC and SB of 17.880 and 26.841 respectively and the variable of interest LTOURR is significant at 10%. Similarly, Model 8 is the best model with AIC and SB of 1.597 and 2.036, respectively, when tourism percentage is considered (Table 5.6). The variable of interest LTOURP is again insignificant for explaining the real GDP per capita of African countries. Finally, model 8 in Table 5.7 with an AIC of 1.395 and SB of 1.833 is the best specified. The tourism variable of interest, that is, LRCA is significant at 10% only.

In conclusion, during the time period 1995-1999, it is evident that differences in GDP per capita were not so much dependent on tourism or physical capital, but rather on differences in labour qualities across African countries. Geography, proxied by landlockedness, also played a role, with the North African and ease of doing business dummies significant in specifications 7/8 – where specifications included testing the significance of trade openness and natural resource dependence separately. Trade openness and commodity metal exports were also significant in two specifications in explaining differences in per capita GDP in the region.

5.5.2 Cross Section 2 Regression Results

Tables 5.8 to 5.10 below show the cross section results for the period 2000-2004. They summarise the regression results for proxies of physical capital, human capital and tourism. The dependent variable is again per capita GDP. The results were enhanced by incorporating various dummy variables, as explained above. Trade openness and commodity metal exports were finally added to the specifications. 53 African countries were included in the regression estimation process.

Similar to cross section 1, Table 5.8 shows the results with tourism receipts as the tourism proxy; Table 5.9 shows regression results with tourism exports as a percentage of GDP as the proxy and Table 5.10 reports regression results for RCA for tourism.

Table 5.8: Dependent Variable LY, Explanatory Variable: Tourism Receipts

Equation	1	2	3	4	5	6	7	8
Constant	7.478*** (0.929)	7.398*** (1.068)	5.412*** (1.300)	8.865*** (1.327)	4.946*** (0.803)	5.309*** (1.227)	5.264*** (1.344)	5.765*** (1.398)
LK	-0.189 (0.327)	-0.136 (0.301)	-0.249 (0.285)	-0.102 (0.331)	0.291 (0.294)	0.357 (0.311)	0.345 (0.342)	0.234 (0.357)
LH	0.000 (0.037)	-0.002 (0.034)	0.007 (0.032)	-0.016 (0.034)				
LHCI					2.452*** (0.506)	2.526*** (0.507)	2.504*** (0.567)	2.404*** (0.547)
LTOURR	0.357*** (0.074)	0.310*** (0.107)	0.208* (0.108)	0.161 (0.124)	0.195** (0.0730)	0.104 (0.109)	0.100 (0.120)	0.122 (0.115)
LL		-0.448 (0.295)	-0.400 (0.275)	-0.528 (0.304)		-0.334 (0.236)	-0.340 (0.252)	-0.301 (0.251)
PC		0.392 (0.419)	0.374 (0.391)	-0.143 (0.576)		0.165 (0.359)	0.166 (0.368)	0.152 (0.373)
EOD		0.0003 (0.004)	-0.002 (0.004)	-0.008 (0.004)		-0.002 (0.003)	-0.002 (0.004)	-0.003 (0.004)
NAC		0.970** (0.374)	1.137*** (0.355)	0.628 (0.419)		0.341 (0.348)	0.347 (0.363)	0.354 (0.359)
LTRADE			0.657** (0.276)				0.029 (0.300)	
LME				-0.092 (0.055)				-0.029 (0.057)
R^2	0.436	0.596	0.660	0.643	0.762	0.809	0.809	0.813
Adj R^2	0.387	0.505	0.57	0.529	0.732	0.741	0.728	0.73
F stat	9.01 [0.0001]	6.54 [0.0001]	7.30 [<0.0001]	5.64 [0.0004]	25.68 [<0.0001]	12.07 [<0.0001]	10.04 [<0.0001]	9.79 [<0.0001]
AIC	98.833	93.771	89.028	81.001	46.489	48.444	50.431	49.166
SB	105.488	107.079	104.000	94.746	51.818	59.102	62.421	60.829
Het test	0.02 [0.8908]	3.21 [0.0815]	2.16 [0.1505]	0.41 [0.5264]	0.36 [0.5538]	0.66 [0.4241]	0.63 [0.4347]	0.40 [0.5348]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]
Source: EViews8, STATA13 Regression Results, 2017

Table 5.9: Dependent Variable LY, Explanatory Variable: Tourism Percentage

Equation	1	2	3	4	5	6	7	8
Constant	2.233*** (0.652)	3.677*** (0.990)	2.905*** (0.986)	4.933*** (1.135)	3.953*** (0.742)	5.673*** (1.045)	5.36*** (1.148)	6.238*** (1.171)
LK	0.571*** (0.170)	0.528*** (0.177)	0.306 (0.191)	0.171 (0.233)	0.704** (0.265)	0.538* (0.291)	0.463 (0.313)	0.360 (0.322)
LH	1.189*** (0.148)	0.996*** (0.184)	0.799*** (0.192)	0.948*** (0.196)				
LHCI					3.034*** (0.528)	2.742*** (0.477)	2.594*** (0.527)	2.689*** (0.505)
LTOURP	-0.154** (0.078)	-0.211** (0.094)	-0.214** (0.089)	-0.0978 (0.094)	0.0189 (0.117)	-0.184 (0.123)	-0.209 (0.129)	-0.135 (0.140)
LL		-0.303 (0.223)	-0.260 (0.211)	-0.221 (0.215)		-0.449** (0.200)	-0.458** (0.202)	-0.488** (0.208)
PC		-0.154 (0.364)	-0.245 (0.346)	-0.0557 (0.461)		-0.622 (0.465)	-0.108 (0.475)	0.0712 (0.525)
EOD		-0.004 (0.003)	-0.005* (0.003)	-0.006* (0.003)		-0.006** (0.003)	-0.007** (0.003)	-0.006** (0.003)
NAC		0.175 (0.339)	0.433 (0.337)	0.136 (0.336)		0.431 (0.345)	0.472 (0.353)	0.427 (0.351)
LTRADE			0.518** (0.215)				0.168 (0.240)	
LME				-0.0120 (0.042)				-0.0462 (0.053)
R^2	0.674	0.707	0.746	0.744	0.684	0.802	0.806	0.805
Adj R^2	0.650	0.653	0.692	0.676	0.649	0.742	0.736	0.727
F Stat	28.89 [0.000]	13.07 [0.000]	13.61 [0.000]	10.92 [0.000]	19.49 [0.000]	13.30 [0.000]	11.44 [0.000]	10.33 [0.000]
AIC	1.970	2.026	1.960	1.855	1.896	1.750	1.803	1.814
SB	2.129	2.344	2.318	2.238	2.081	2.121	2.219	2.238
Het. Test	0.175 [0.913]	0.889 [0.524]	0.977 [0.469]	0.436 [0.890]	0.640 [0.596]	0.515 [0.814]	0.451 [0.814]	0.821 [0.594]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]
Source: EViews8, STATA13 Regression Results, 2015

Table 5.10: Dependent Variable LY, Explanatory Variable: LRCA

Equation	1	2	3	4	5	6	7	8
Constant	2.358*** (0.633)	3.344*** (1.038)	2.717** (1.040)	4.708*** (1.194)	3.797*** (0.710)	5.373*** (1.039)	5.186*** (1.176)	6.035*** (1.186)
LK	0.596*** (0.173)	0.561*** (0.187)	0.342 (0.208)	0.181 (0.253)	0.748*** (0.251)	0.540* (0.297)	0.502 (0.321)	0.360 (0.331)
LH	1.109*** (0.139)	0.938*** (0.185)	0.752*** (0.200)	0.917*** (0.200)				
LHCI					3.124*** (0.507)	2.678*** (0.484)	2.594*** (0.545)	2.577*** (0.510)
LRCA	-0.097* (0.056)	-0.098 (0.066)	-0.098 (0.063)	0.008 (0.069)	-0.047 (0.066)	-0.067 (0.063)	-0.069 (0.064)	-0.011 (0.075)
LL		-0.244 (0.238)	-0.197 (0.229)	-0.243 (0.231)		-0.352 (0.205)	-0.352 (0.209)	-0.448* (0.221)
PC		-0.117 (0.373)	-0.194 (0.360)	0.093 (0.494)		0.057 (0.461)	0.045 (0.471)	0.270 (0.515)
EOD		-0.002 (0.003)	-0.003 (0.003)	-0.004 (0.003)		-0.005* (0.003)	-0.005* (0.003)	-0.005* (0.003)
NAC		0.243 (0.343)	0.493 (0.351)	0.187 (0.341)		0.401 (0.351)	0.418 (0.361)	0.375 (0.356)
LTRADE			0.470** (0.228)				0.088 (0.239)	
LME				-0.021 (0.044)				-0.038 (0.054)

Table 5.10: Dependent Variable LY, Explanatory Variable: LRCA…continued

Equation	1	2	3	4	5	6	7	8
R^2	0.681	0.7	0.732	0.739	0.69	0.793	0.794	0.796
Adj R^2	0.658	0.643	0.672	0.667	0.655	0.730	0.719	0.715
F Stat	29.16 [0.000]	12.34 [0.000]	12.27 [0.000]	10.28 [0.000]	20.00 [0.000]	12.57 [0.000]	10.60 [0.000]	9.78 [0.000]
AIC	1.972	2.084	2.056	1.906	1.878	1.787	1.849	1.842
SB	2.133	2.406	2.417	2.294	2.063	2.157	2.266	2.266
Het. Test	0.660 [0.581]	0.943 [0.486]	0.603 [0.768]	1.222 [0.314]	0.947 [0.432]	0.619 [0.735]	0.576 [0.786]	0.896 [0.538]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]
Source: EViews8, STATA13 Regression Results, 2015

Comparing the regression results with those of the production function determinants of the period 1995-1999 above, it is evident that differences in GDP per capita across African countries can again be better explained by differences in labour (i.e. human capital) than by differences in physical capital investment. This is despite the proxy of gross secondary school enrolment (LH) or human capital index (LHCI) being used to measure human capital. The human capital proxies are highly significant in most the specifications above. This lends strong support to the theories which opine that human capital is a determinant of economic growth (see Chapter 2, sections 2.5 and 2.6). There is a similar trend in this time period where differences in wealth are explained by human capital differences in the period 1995-1999. However, capital becomes significant in some of the specifications and so does tourism (especially 5% level of significance). Similar to cross section 1, the constant measuring total factor productivity is highly significant (1% level of significance in almost all specifications) for the cross section 2 (2000-2004) period. Human capital is again the factor of production which is always significant, providing further support for African countries to channel resources towards training labour and innovation in order for the per capita GDP to increase.

Turning to the non-economic effects, landlockedness and ease of doing business were significant, though not highly significant, in explaining the per capita GDP growth in some of the specifications. The post conflict dummy was not significant at all in explaining the GDP per capita growth, showing that the African region was generally peaceful during the period 2000-2004 just as it was in in the period 1995-1999. The North African dummy is significant in 2 specifications only and the rest of the specifications are not significant for explaining the per capita GDP for African countries. Trade openness was significant in Model 3 in Tables 5.8-5.10. Commodity metal exports are insignificant in explaining per capita real growth in income for African countries during the period 2000-2004.

Turning to the tourism proxies, Table 5.8 indicates that, for explaining per capita GDP, the tourism receipts were significant in four specifications, that is, models 1, 2, 3 and 5 in Table 5.5. In Table 5.9, tourism as a percentage of GDP was significant at 10% in three specifications, that is, equations1, 2 and 3. The tourism percentage coefficients were negative, showing an indirect relationship between tourism percentage and per capita GDP. In Table 5.10, RCA is insignificant in almost all the specifications except equation 1 where the variable is of weak significance at 10%.

Model 5 in Table 5.8 has the smallest AIC of 46.489 while the LTOURR is significant, and model 5 has the smallest SB of 51.818, while LTOURR is significant at 5% and the adjusted R^2 is 73%. The smallest AIC of 1.750 was found in model 6 in Table 5.9, but the proxy for tourism, that is, TOURP is insignificant. Model 5 with an SB of 2.081 also showed that LTOURP is insignificant. Model 6 in Table 5.10 had the smallest AIC of 1.787 and the proxy used to measure tourism was insignificant, while model 5 with the smallest SB of 2.063 also had an insignificant LRCA for explaining economic growth of African countries.

In conclusion, during the time period 2000-2004, it is evident that the differences in GDP per capita among African countries can be explained mainly by differences in labour qualities across the countries. The results are similar to the 1995-1999 period. During the 2000-2004 period, physical capital was starting to be a determinant of real per capita GDP in African countries compared to the 1995-1999 period. Tourism showed signs of being a determinant of per capita GDP in some of the specifications, especially LTOURP (5% level of significance). This is in contrast to the 1995-1999 period where tourism was not very significant in explaining the differences in real per capita GDP among the African countries in almost all specifications, no matter the tourism proxy used. Landlockedness and ease of doing business also played a role. Trade openness was significant in explaining growth when the proxy for human capital was gross secondary school enrolment. This is contrary to the 1995-1999 period where trade openness was insignificant. However, commodity metal exports remained insignificant in explaining per capita income variations between African countries during that period.

5.5.3 Cross Section 3 Regression Results

Tables 5.11, 5.12 and 5.13 below show the results of cross section 3 for the 2005-2009 time frame. The tables summarise regression results for the per capita GDP as the dependent variable. The explanatory variables used the proxies of physical capital, human capital and tourism. The specifications were modified by accommodating non-economic effects variables, which are, land locked, post conflict, ease of doing business and North African countries. The regression estimation results are for 53 African countries. Trade openness and natural resource dependence (proxied by commodity metal exports) were added to the specifications.

Table 5.11 shows the results with tourism receipts as the relevant tourism proxy included as an explanatory variable. Table 5.12 shows regression results for tourism percentage and Table 5.13 summarises results for RCA for tourism for the 2005-2009 cross section.

Table 5.11: Dependent Variable LY, Explanatory Variable: Tourism Receipts

Equation	1	2	3	4	5	6	7	8
Constant	6.757*** (0.867)	7.864*** (0.941)	4.703*** (1.391)	9.617*** (1.078)	3.965*** (0.876)	5.868*** (1.314)	5.043** (1.530)	6.403*** (1.631)
LK	0.067 (0.288)	-0.078 (0.274)	-0.086 (0.223)	-0.241 (0.254)	0.528* (0.276)	0.202 (0.339)	0.203 (0.338)	0.173 (0.388)
LH	-0.001 (0.015)	-0.002 (0.010)	0.002 (0.007)	0.002 (0.013)				
LHCI					2.646*** (0.504)	2.659*** (0.515)	2.382*** (0.578)	2.430*** (0.565)
LTOURR	0.302*** (0.0656)	0.199** (0.085)	0.142* (0.079)	0.104 (0.0822)	0.198*** (0.0633)	0.0874 (0.090)	0.0486 (0.097)	0.0830 (0.093)
LL		-0.359 (0.241)	-0.282 (0.237)	-0.454* (0.251)		-0.379* (0.239)	-0.439 (0.246)	-0.396 (0.252)
PC		-0.148 (0.496)	-0.486 (0.418)	0.174 (0.797)		-0.600 (0.740)	-0.526 (0.742)	-0.390 (0.781)
EOD		-0.003 (0.004)	-0.003 (0.004)	-0.009** (0.004)		-0.003 (0.003)	-0.005 (0.004)	-0.005 (0.004)
NAC		1.180*** (0.452)	1.145*** (0.416)	0.986*** (0.314)		0.301 (0.349)	0.306 (0.348)	0.265 (0.354)
LTRADE			0.798*** (0.237)				0.300 (0.287)	
LME				-0.156*** (0.048)				-0.069 (0.057)
R^2	0.382	0.577	0.664	0.685	0.737	0.797	0.807	0.807
Adj R^2	0.335	0.495	0.586	0.606	0.706	0.733	0.734	0.729
F stat	8.23 [0.0002]	7.03 [<0.0001]	8.63 [0.000]	8.71 [<0.0001]	24.26 [<0.0001]	12.38 [<0.0001]	11.01 [<0.0001]	10.45 [<0.0001]
AIC	107.876	99.132	91.083	82.537	51.294	51.435	51.912	51.202
SB	115.013	113.406	107.141	97.959	56.899	62.645	64.522	63.508
Het test	0.60 [0.4439]	5.10 [0.029]	4.49 [0.040]	1.43 [0.2391]	0.06 [0.8006]	0.26 [0.6162]	0.16 [0.6921]	0.09 [0.7685]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]
Source: STATA13 Regression Results, 2017

Table 5.12: Dependent Variable LY, Explanatory Variable: Tourism Percentage

Equation	1	2	3	4	5	6	7	8
Constant	2.072** (0.872)	4.177*** (1.335)	2.99** (1.423)	5.385*** (1.396)	3.544*** (1.096)	7.129*** (1.204)	6.544*** (1.443)	7.375*** (1.407)
LK	0.237 (0.215)	0.092 (0.242)	0.046 (0.234)	0.042 (0.240)	0.705** (0.339)	0.264 (0.332)	0.249 (0.336)	0.241 (0.364)
LH	1.393*** (0.182)	1.068*** (0.246)	0.827*** (0.267)	0.956*** (0.242)				

Table 5.12: Dependent Variable LY, Explanatory Variable: Tourism Percentage…continued

Equation	1	2	3	4	5	6	7	8
LHCI					3.457*** (0.570)	2.372*** (0.516)	2.171*** (0.586)	2.221*** (0,539)
LTOURP	-0.049 (0.070)	-0.067 (0.083)	-0.048 (0.080)	-0.153** (0.073)	-0.053 (0.090)	-0.222* (0.080)	-0.231* (0.081)	-0.163* (0.083)
LL		-0.091 (0.245)	-0.118 (0.237)	-0.182 (0.208)		-0.518** (0.207)	-0.521** (0.209)	-0.565** (0.203)
PC		-0.155 (0.756)	-0.324 (0.733)	0.220 (0.649)		0.213 (0.738)	0.222 (0.745)	0.257 (0.749)
EOD		-0.004 (0.003)	-0.004 (0.003)	-0.007** (0.003)		-0.01*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)
NAC		0.68** (0.331)	0.771** (0.322)	0.582** (0.269)		0.521 (0.344)	0.524 (0.348)	0.413 (0.334)
LTRADE			0.525* (0.270)				0.188 (0.250)	
LME				-0.074 (0.047)				-0.069 (0.053)
R^2	0.623	0.679	0.701	0.796	0.599	0.811	0.816	0.832
Adj R^2	0.595	0.616	0.643	0.754	0.554	0.753	0.749	0.764
F Stat	22.08 [0.000]	10.85 [0.000]	10.70 [0.000]	15.64 [0.000]	13.42 [0.000]	14.10 [0.000]	12.17 [0.000]	12.36 [0.000]
AIC	1.956	2.004	1.981	1.694	2.172	1.755	1.788	1.682
SB	2.118	2.328	2.346	2.070	2.357	2.126	2.205	2.107
Het. Test	3.810 [0.137]	3.546 [0.259]	3.383 [0.316]	1.388 [0.239]	0.586 [0.630]	0.952 [0.488]	0.777 [0.627]	0.915 [0.525]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]
Source: EViews8, STATA13 Regression Results, 2015

Table 5.13: Dependent Variable LY, Explanatory Variable: LRCA

Equation	1	2	3	4	5	6	7	8
Constant	2.269*** (0.830)	4.182*** (1.350)	2.958** (1.429)	5.543*** (1.449)	3.294*** (1.113)	6.374*** (1.357)	5.933*** (1.662)	7.473*** (1.495)
LK	0.202 (0.210)	0.038 (0.234)	0.008 (0.225)	-0.107 (0.204)	0.766** (0.341)	0.273 (0.380)	0.265 (0.387)	0.108 (0.381)
LH	1.359*** (0.176)	1.063*** (0.248)	0.814*** (0.267)	0.959*** (0.249)				
LHCI					3.522*** (0.566)	2.691*** (0.561)	2.559*** (0.635)	2.33*** (0.556)
LRCA	-0.007 (0.048)	-0.015 (0.053)	-0.0137 (0.051)	-0.086 (0.056)	-0.072 (0.067)	-0.085 (0.060)	-0.089 (0.062)	-0.105 (0.076)
LL		-0.056 (0.249)	-0.092 (0.239)	-0.069 (0.213)		-0.357 (0.229)	-0.353 (0.234)	-0.476** (0.212)
PC		-0.337 (0.724)	-0.451 (0.697)	-0.202 (0.628)		-0.2350 (0.791)	-0.238 (0.804)	-0.157 (0.740)
EOD		-0.003 (0.003)	-0.003 (0.003)	-0.006** (0.003)		-0.007** (0.003)	-0.008** (0.003)	-0.009*** (0.003)
NAC		0.711** (0.331)	0.795** (0.320)	0.635** (0.274)		0.443 (0.381)	0.444 (0.387)	0.365 (0.347)
LTRADE			0.545* (0.269)				0.133 (0.279)	
LME				-0.061 (0.648)				-0.069 (0.060)
R^2	0.619	0.673	0.708	0.785	0.61	0.767	0.77	0.817
Adj R^2	0.591	0.610	0.641	0.731	0.567	0.697	0.686	0.744
F Stat	21.67 [0.000]	10.60 [0.000]	10.58 [0.000]	14.58 [0.000]	14.09 [0.000]	10.82 [0.000]	9.18 [0.000]	11.14 [0.000]
AIC	1.967	2.021	1.992	1.762	2.143	1.939	1.991	1.757

Table 5.13: Dependent Variable LY, Explanatory Variable: LRCA…continued

Equation	1	2	3	4	5	6	7	8
SB	2.129	2.345	2.357	2.137	2.328	2.309	2.407	2.181
Het. Test	2.162 [0.108]	3.210 [0.092]	2.746 [0.238]	1.545 [0.181]	0.579 [0.634]	0.568 [0.774]	0.710 [0.680]	0.768 [0.634]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]
Source: EViews8, STATA13 Regression Results, 2015

Comparing the 2005-2009 regression results with those of the production function determinants of the periods 1995-1999 and 2000-2004 above, it is evident that the differences in labour (i.e. human capital) remains significant for explaining the differences in the GDP per capita across African countries, whereas the differences in physical capital investment and other determinants of real per capita GDP are not. This is notwithstanding the proxy used to measure human capital, that is, human capital index (LHCI) or gross secondary school enrolment (LH). The human capital proxies are highly significant in almost all of the above specifications (that is, 1% level of significance) for the period 2005-2009. However, physical capital is significant at 5% level of significance in Model 5 of the specifications in Tables 5.12 and 5.13. In addition, similar to the 1995-1999 and 2000-2004 periods, the constant is significant in all the specifications, indicating its importance in of total factor productivity in explaining the per capita GDP. Just as in the previous periods, it is evident that innovation and improving total factor productivity should be encouraged; that human capital is significant in all specifications; and physical capital measured by gross fixed capital formation as a percentage of GDP, is significant in only a few of the specifications.

For the non-economic effects, landlockedness and ease of doing business were significant, though not highly, in explaining per capita GDP in some of the specifications. The post conflict dummy was insignificant in explaining GDP per capita. The North African dummy was significant for explaining the differences in per capita income for African countries in some of the specifications (Models 2, 3 and 4), indicating that during this time period countries in the North African region were experiencing economic growth probably due to the reasons suggested in section 5.4.2.10. This is contrary to the 1995-1999 and 2000-2004 periods where the NAC dummy was not influential at all for explaining the differences in the per capita GDP of the 53 countries.

Trade openness was significant in Model 3, where the specification is enhanced by adding trade openness and, where the human capital proxy is gross secondary school enrolment. The results are similar to the results for the period 2000-2004. In Table 5.11, commodity metal exports were significant in explaining per capita real income for African countries during the period 2005-2009 in model 3. These results are similar to those for the 1995-1999 and 2000-2004 periods.

Table 5.11 shows that for tourism, as the variable of interest, tourism receipts were significant in equations 1, 2, 3 and 5. In Table 5.12, tourism percentage was significant at 5% in equation 4.In equations 6, 7 and 8 the variable was significant at 10%. In Table 5.13, RCA did not play any role in explaining the per capita GDP. According to the information criterion, model 7 in Table 5.11 was found to have the smallest AIC of 51.202. However the tourism proxy LTOURR was insignificant. SB of 56.899 for model 5 was the smallest and LTOURR was significant at 5%. In Table 5.12, the smallest AIC was 1.682 and the tourism proxy LTOURP was significant at 10% for model 8. Model 4 had the smallest SB of 2.070 and the tourism proxy was significant at 5%. Table 5.13 shows that model 8 is the best with the smallest AIC of 1.757 and SB of 2.129. However, the tourism proxy LRCA was insignificant for explaining the per capita real GDP growth for African countries during the 2005-2009 period.

In conclusion, during the time period 2005-2009, it is evident that the differences in GDP per capita were explained by differences in labour qualities across African countries. The results are similar to the 1995-1999 and 2000-2004 periods. During the period 2005-2009, physical capital was a determinant of real per capita GDP in African countries in one of the specifications (i.e. Model 5). Tourism was also becoming more important as a determinant of differences in per capita GDP of African countries in some of the specifications, especially LTOURR in Table 5.11. Landlockedness, ease of doing business and the North African dummies also played a role, indicating that geography certainly influences real output in African countries, as well as institutional arrangements. Trade openness was significant for explaining real per capita GDP (Model 3), lending some support to the ELGH. This is similar to the period 2000-2004 where trade openness was significant. Commodity metal exports were again insignificant in explaining the differences in per capita income in African countries during the period 2005-2009.

5.5.4 Cross Section 4 Regression Results

Tables 5.14, 5.15 and 5.16 below show the cross section 4 results for the 2010-2013 time frame. The tables summarise regression results for the determinants of real per capita GDP. The proxies for the determinants are the economic effects measured by physical capital, human capital and tourism. The estimations were enhanced by adding non-economic effects measured by landlockedness, post conflict, ease of doing business and North African countries. Trade openness and natural resource dependence (measured by commodity metal exports) were also incorporated into the specifications. The regression estimation results are for the 53 African countries.

Similar to the other cross sections, Table 5.14 contains the results, with tourism receipts as the tourism proxy that was used, Table 5.15 shows tourism exports as a percentage of GDP, as the tourism proxy, and Table 5.16 with the revealed comparative advantage for tourism as the proxy.

Table 5.14: Dependent Variable LY, Explanatory Variable: Tourism Receipts

Equation	1	2	3	4	5	6	7	8
Constant	7.178*** (1.131)	8.861*** (1.101)	7.874*** (1.719)	9.678*** (0.998)	4.753*** (1.084)	8.166*** (1.343)	8.004*** (1.580)	7.655*** (1.456)
LK	-0.043 (0.361)	-0.163 (0.302)	-0.158 (0.305)	-0.178 (0.275)	0.243 (0.328)	-0.091 (0.296)	-0.094 (0.303)	0.137 (0.351)
LH	-0.005 (0.015)	-0.002 (0.013)	-0.005 (0.014)	-0.002 (0.010)				
LHCI					2.308*** (0.520)	1.854*** (0.478)	1.820*** (0.515)	1.656*** (0.490)
LTOURR	0.268*** (0.062)	0.126* (0.067)	0.118* (0.068)	0.0584 (0.066)	0.259*** (0.065)	0.036 (0.084)	0.030 (0.091)	0.045 (0.086)
LL		-0.471* (0.242)	-0.491* (0.246)	-0.460** (0.211)		-0.359 (0.215)	-0.373 (0.230)	-0.349 (0.243)
PC		0.334 (0.484)	0.430 (0.504)	0.400 (0.338)		0.329 (0.347)	0.348 (0.367)	0.327 (0.349)
EOD		-0.006* (0.003)	-0.006* (0.003)	-0.009*** (0.002)		-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)
NAC		0.594 (0.599)	0.502 (0.615)	0.447 (0.418)		0.0513 (0.454)	0.039 (0.468)	0.047 (0.453)
LTRADE			0.233 (0.309)				0.054 (0.260)	
LME				-0.199*** (0.050)				-0.076 (0.055)
R^2	0.379	0.632	0.640	0.836	0.716	0.832	0.832	0.852
Adj R^2	0.32	0.54	0.533	0.775	0.682	0.775	0.765	0.786
F Stat	6.51 [0.0015]	6.88 [0.0001]	5.99 [0.0002]	13.98 [<0.0001]	21.02 [<0.0001]	14.84 [<0.0001]	12.40 [<0.0001]	12.97 [<0.0001]
AIC	84.549	73.682	74.936	42.042	49.396	42.216	44.154	39.843
SB	90.883	86.350	89.188	54.948	54.866	53.155	56.460	51.505
Het test	0.57 [0.455]	1.09 [0.303]	1.36 [0.251]	1.14 [0.295]	0.10 [0.759]	0.01 [0.918]	0.01 [0.926]	0.17 [0.681]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]
Source: STATA13 Regression Results, 2017

Table 5.15: Dependent Variable LY, Explanatory Variable: Tourism Percentage

Equation	1	2	3	4	5	6	7	8
Constant	2.309* (1.353)	6.194*** (1.804)	6.032*** (1.991)	6.806*** (1.652)	4.968*** (1.333)	8.240*** (1.085)	8.06*** (1.298)	7.385*** (1.116)
LK	0.146 (0.294)	0.033 (0.275)	0.029 (0.280)	0.209 (0.236)	0.269 (0.393)	0.064 (0.264)	0.051 (0.274)	0.355 (0.291)
LH	1.323*** (0.256)	0.007** (0.325)	0.649* (0.341)	0.459 (0.304)				
LHCI					3.045*** (0.634)	1.88*** (0.483)	1.829*** (0.529)	1.727*** (0.482)
LTOURP	0.007* (0.078)	-0.041 (0.079)	-0.041 (0.080)	-0.092 (0.074)	0.098 (0.115)	-0.186** (0.089)	-0.187* (0.091)	-0.138 (0.089)
LL		-0.329 (0.260)	-0.334 (0.265)	-0.555** (0.204)		-0.534*** (0.184)	-0.535*** (0.188)	-0.601*** (0.188)
PC		0.535 (0.495)	0.541 (0.503)	0.619* (0.355)		0.539 (0.383)	0.549 (0.393)	0.492 (0.371)
EOD		-0.007** (0.003)	-0.007** (0.003)	-0.008*** (0.003)		-0.012*** (0.003)	-0.012*** (0.003)	-0.011*** (0.003)
NAC		0.292 (0.520)	0.300 (0.529)	0.156 (0.370)		0.114 (0.417)	0.113 (0.426)	0.089 (0.398)
LTRADE			0.058 (0.279)				0.061 (0.227)	
LME				-0.099* (0.057)				-0.054 (0.052)
R^2	0.488	0.618	0.619	0.825	0.518	0.821	0.822	0.853
Adj R^2	0.444	0.532	0.517	0.765	0.464	0.767	0.757	0.79
F Stat	11.11 [0.000]	7.16 [0.000]	6.08 [0.000]	13.63 [0.000]	9.65 [0.000]	15.08 [0.000]	12.67 [0.000]	13.73 [0.000]
AIC	2.118	1.898	1.945	1.366	2.212	1.455	1.510	1.390
SB	2.288	2.239	2.329	1.778	2.379	1.825	1.926	1.818
Het. Test	0.882 [0.460]	1.280 [0.292]	1.007 [0.452]	1.222 [0.330]	1.004 [0.406]	0.749 [0.634]	0.504 [0.840]	0.693 [0.693]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]
Source: EViews8, STATA13 Regression Results, 2015

Table 5.16: Dependent Variable LY, Explanatory Variable: LRCA

Equation	1	2	3	4	5	6	7	8
Constant	2.295* (1.212)	6.315*** (1.800)	6.149*** (1.991)	7.348*** (1.594)	4.784*** (1.365)	8.185*** (1.190)	8.090*** (1.432)	7.664*** (1.091)
LK	0.164 (0.284)	-0.002 (0.269)	-0.006 (0.274)	0.119 (0.228)	0.312 (0.411)	-0.023 (0.296)	-0.029 (0.306)	0.279 (0.282)
LH	1.31*** (0.238)	0.635* (0.322)	0.616* (0.339)	0.382 (0.290)				
LHCI					3.195*** (0.630)	1.880*** (0.523)	1.853*** (0.576)	1.585*** (0.465)
LRCA	0.025 (0.058)	0.002 (0.056)	0.003 (0.057)	-0.082 (0.070)	0.006 (0.081)	-0.043 (0.058)	-0.043 (0.059)	-0.178* (0.086)
LL		-0.330 (0.265)	-0.336 (0.270)	-0.553** (0.205)		-0.412** (0.187)	-0.412** (0.191)	-0.626*** (0.181)
PC		0.494 (0.493)	0.499 (0.501)	0.594 (0.354)		0.414 (0.407)	0.419 (0.418)	0.478 (0.353)
EOD		-0.007** (0.003)	-0.007** (0.003)	-0.008*** (0.003)		-0.011*** (0.003)	-0.011*** (0.003)	-0.011*** (0.003)
NAC		0.355 (0.512)	0.362 (0.521)	0.200 (0.364)		0.125 (0.450)	0.124 (0.460)	0.106 (0.382)
LTRADE			0.059 (0.279)				0.031 (0.245)	

Table 5.16: Dependent Variable LY, Explanatory Variable: LRCA…continued

Equation	1	2	3	4	5	6	7	8
LME				-0.101* (0.058)				-0.057 (0.050)
R^2	0.491	0.615	0.615	0.824	0.504	0.792	0.793	0.864
Adj R^2	0.447	0.528	0.513	0.763	0.450	0.729	0.717	0.807
F Stat	11.23 [0.000]	7.06 [0.000]	6.00 [0.000]	13.50 [0.000]	9.17 [0.000]	12.54 [0.000]	10.51 [0.000]	15.11 [0.000]
AIC	2.112	1.903	1.950	1.387	2.239	1.583	1.641	1.305
SB	2.283	2.244	2.334	1.799	2.424	1.953	2.057	1.734
Het. Test	1.039 [0.387]	1.092 [0.393]	0.819 [0.592]	1.735 [0.144]	0.824 [0.492]	0.453 [0.859]	0.554 [0.803]	0.686 [0.699]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]
Source: EViews8, STATA13 Regression Results, 2015

Comparing the 2010-2013 regression results with those of the production function determinants of the periods 1995-1999, 2000-2004 and 2005-2009 above, it is evident that the differences in human capital is again the main determinant of differences in GDP per capita across African countries. However, it is the differences in human capital index (LHCI) which strongly explain real per capita GDP at 1% level of significance, compared to gross secondary school enrolment (LH). The coefficients of LH are also smaller than those of LHCI, denoting that LHCI is more than just LH as a proxy of human capital.

However, physical capital is not significant at all as a determinant of the per capita real GDP growth. These results are similar to those of the 1995-1999 period, but contrary to the 2000-2004 and 2005-2009 periods where physical capital is significant in some of the specifications. Focusing on total factor productivity, African countries ought to channel resources towards innovation and labour training since the constant is significant in almost all specifications during the period 2010-2013. This is similar to previous periods 1995-1999, 2000-2004 and 2005-2009.

On the non-economic effects, landlockedness and ease of doing business were significant for explaining the differences in per capita GDP in some of the specifications. The post conflict dummy was not significant for explaining the GDP per capita in almost all the specifications except in Table 5.15 (Model 4) where it is weakly significant at 10%. The North African dummy was insignificant for explaining the per capita in income for African countries in all of the specifications.

This is similar to the 1995-1999 and 2000-2004 periods where the NAC dummy was not influential at all for explaining the differences in per capita GDP differences for the 53 countries. Trade openness was also insignificant for explaining the differences in the GDP per capita. Nevertheless, in during this time period commodity metal exports were significant for explaining the differences between the African countries.

In Table 5.14, the tourism proxy, tourism receipts, were significant in equations 1, 2, 3 and 5. In Table 5.15, tourism percentage is significant at 10% in equations 1 and 7, and 5% in equation 6. The RCA for tourism is significant at 10% in Table 5.16, in only one specification, that is, equation 8. In Table 5.14, Model 8 has the smallest AIC and SB of 39.843 and 51.505, respectively but LTOURR was insignificant. Model 4 is the best specified model in Table 5.15 with the smallest AIC and SB values of 1.366 and 1.778 respectively. However, the tourism proxy LTOURP is insignificant. In Table 5.16 Model 8 is the best specified model with the smallest AIC of 1.305 and SB of 1.734. The tourism proxy LRCA has a 10% level of significance.

Concluding for the time period 2010-2013, it is clear that the differences in GDP per capita were explained by the differences in human capital among the African countries with highly significant coefficients. The results are similar to the 1995-1999, 2000-2004 and 2005-2009 periods. During the period 2010-2013, physical capital was not a determinant of real per capita GDP in African countries at all. Tourism was also a determinant of per capita GDP in some of the specifications. Landlockedness and ease of doing business also played a role. Commodity metal exports were significant in explaining per capita income differences during the period 2010-2013. The time period saw a general decline in economic growth rates as well as in exports worldwide. Some of the negative results for tourism indicate that countries that were more dependent on tourism were hit by the harder global economic meltdown or recession. Also during the same period, countries that were more dependent on metal exports were the ones that were more affected by the decline in commodity demand as well as in prices.

5.5.5 Cross Section 1 Regression Results (Growth Function)

Tables 5.17, 5.18 and 5.19 below show the cross section 1 regression results for the growth function for the period 1995-1999 (see section 5.5.2.2 for specifications). The tables summarise various regression results for the determinants of average annual real GDP growth. The proxies for the determinants are, the initial GDP for the period under scrutiny, physical capital, human capital and tourism. The estimations were enhanced by the addition of effects of dummy variables measured by landlockedness, post conflict, ease of doing business and North African countries. Finally, trade openness and country's dependence on natural resources were also added as explanatory variables. The regression estimation results are for the 53 African countries.

Similar to the regressions in which GDP per capita was the dependent variable, eight specifications were tested for robustness (see equations, section 5.3.4.1.2), and the numbers in the tables correspond to the numbers of the equations. Table 5.17 shows the results of the cross section 1 growth estimations where tourism receipts is the tourism proxy. Table 5.18 uses tourism as a percentage of GDP as an explanatory variable, and Table 5.19 uses the revealed comparative advantage for tourism as the tourism proxy.

Table 5.17: Dependent Variable Growth, Explanatory Variable: Tourism Receipts

Equation	1	2	3	4	5	6	7	8
Constant	0.486 (3.845)	2.231 (4.250)	1.576 (4.710)	-1.353 (4.325)	2.915 (5.573)	5.713 (5.447)	6.149 (5.848)	-2.322 (10.44)
LY1995	-0.580 (0.517)	-0.536 (0.479)	-0.617 (0.575)	-0.343 (0.578)	-1.081 (0.988)	-0.607 (0.902)	-0.614 (0.930)	0.290 (1.802)
LK	1.647* (0.912)	1.317 (1.092)	1.186 (1.079)	1.476* (0.758)	2.080* (1.136)	1.243 (1.053)	1.406 (1.243)	1.769 (1.481)
LH	0.096 (0.402)	0.151 (0.459)	0.183 (0.455)	0.246 (0.407)				
LHCI					0.276 (2.249)	1.795 (2.416)	1.745 (2.539)	0.306 (2.873)
LTOURR	0.183 (0.198)	0.032 (0.206)	0.024 (0.218)	0.148 (0.201)	0.365 (0.403)	-0.543 (0.597)	-0.446 (0.598)	-0.739 (0.773)
LL		0.818 (0.930)	0.830 (0.938)	1.148 (1.176)		-0.354 (1.071)	-0.263 (1.121)	-0.925 (1.250)
PC		-0.172 (1.881)	-0.265 (1.900)	-3.360*** (0.887)		-3.551** (1.365)	-3.397** (1.503)	-5.237* (2.598)
EOD		-0.010 (0.009)	-0.010 (0.009)	0.000 (0.010)		-0.016 (0.016)	-0.014 (0.017)	-0.002 (0.016)
NAC		0.989 (0.903)	1.161 (0.965)	0.707 (0.887)		0.982 (1.254)	0.868 (1.412)	0.781 (1.428)
LTRADE			0.381 (1.229)				-0.324 (1.368)	
LME				-0.043 (0.079)				-0.246 (0.182)
R^2	0.161	0.251	0.255	0.439	0.280	0.458	0.459	0.539
Adj R^2	0.037	-0.009	-0.050	0.078	0.143	0.203	0.155	0.125
F stat	1.35 [0.278]	0.096 [0.491]	0.82 [0.604]	1.215 [0.359]	0.97 [0.443]	3.45 [0.015]	2.87 [0.032]	1.55 [0.253]
AIC	135.981	140.361	142.200	94.655	115.172	115.808	117.733	89.890
SB	143.309	153.553	156.857	105.258	121.462	127.131	130.314	99.847

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Robust Standard errors in parentheses, P-values in [ ]
Source: STATA13 Regression Results, 2017

Table 5.18: Dependent Variable Growth, Explanatory Variable: Tourism Percentage

Equation	1	2	3	4	5	6	7	8
Constant	-9.85 (3.328)	2.363 (13.025)	-1.732 (13.901)	10.196* (5.879)	3.717 (4.769)	16.221*** (5.654)	16.216** (5.822)	16.273** (7.559)
LY1995	-2.244* (1.305)	-3.440** (1.604)	-4.438** (1.881)	-0.993 (0.852)	-1.136 (0.739)	-1.914** (0.632)	-1.841** (0.710)	-2.457** (0.972)
LK	11.314* (5.632)	11.787** (5.606)	8.696* (3.987)	1.027 (1.124)	2.318** (0.962)	1.753 (1.189)	1.862 (1.092)	3.004 (1.748)
LH	-0.340 (0.293)	-0.60 (0.396)	-0.461 (0.310)	-0.080 (0.876)				
LHCI					0.521 (3.280)	1.686 (0.481)	1.618 (2.046)	1.570 (2.190)
LTOURP	-0.486 (0.709)	-0.956 (0.895)	-1.015 (0.786)	-0.157 (0.333)	0.170 (0.401)	-0.742 (0.481)	-0.680 (0.473)	-0.384 (0.597)
LL		-3.448 (2.925)	-2.980 (2.684)	0.924 (1.015)		-0.355 (0.882)	-0.295 (0.919)	-0.439 (0.859)
PC		-2.920 (3.423)	-2.984 (3.702)	-0.410 (2.001)		-2.327 (1.572)	-2.278 (1.615)	-1.358 (2.404)
EOD		-0,023 (0.025)	-0.035 (0.028)	-0.025** (0.010)		-0.035** (0.016)	-0.034** (0.016)	-0.032* (0.015)
NAC		-1.814 (2.434)	0.693 (2.461)	0.613 (1.238)		0.544 (1.570)	0.442 (1.581)	0.380 (1.892)
LTRADE			5.138 (3.128)				-0.249 (1.025)	
LME				-0.078 (0.161)				0.023 (0.140)
R^2	0.537	0.572	0.620	0.421	0.227	0.542	0.542	0.573
Adj R^2	0.481	0.454	0.498	0.146	0.108	0.375	0.346	0.316
F Stat	9.56 [0.000]	4.84 [0.000]	5.08 [0.000]	1.53 [0.207]	1.91 [0.138]	3.25 [0.013]	2.76 [0.026]	2.233 [0.081]
AIC	6.553	6.684	6.618	4.393	4.601	4.426	4.490	4.530
SB	6.769	7.072	7.049	4.864	4.922	4.842	4.953	5.018
Het. Test	10.509 [0.000]	5.557 [0.000]	6.269 [0.000]	1.736 [0.149]	0.920 [0.468]	3.283 [0.013]	3.023 [0.018]	4.132 [0.008]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]
Source: EViews8, STATA13 Regression Results, 2015

Table 5.19: Dependent Variable Growth, Explanatory Variable: LRCA

Equation	1	2	3	4	5	6	7	8
Constant	-8.576 (8.493)	7.774 (13.924)	1.294 (16.723)	4.465 (6.410)	4.584 (4.664)	12.007** (5.328)	13.969** (5.619)	17.320** (7.765)
LY1995	-2.606* (1.309)	-4.068** (1.834)	-4.617** (1.969)	-0.782 (0.685)	-0.991 (0.724)	-1.560* (0.842)	-1.425 (0.894)	-2.561** (0.899)
LK	11.143* (5.483)	11.566** (5.393)	8.908** (4.165)	0.461 (0.984)	1.722 (1.023)	1.857 (1.365)	2.381* (1.238)	2.868 (1.749)
LH	-0.314 (0.288)	-0.600 (0.395)	-0.456 (0.328)	0.128 (0.110)				
LHCI					0.322 (3.172)	0.074 (2.310)	0.358 (2.361)	1.305 (2.036)
LRCA	-0.564 (0.699)	-0.935 (0.777)	-0.697 (0.744)	0.029 (0.265)	0.476 (0.303)	0.150 (0.466)	0.062 (0.467)	-0.255 (0.596)
LL		-3.963 (3.229)	-3.058 (3.147)	1.298 (1.052)		0.041 (1.067)	0.063 (1.077)	-0.463 (0.880)
PC		-2.728 (3.539)	-2.662 (3.810)	1.210 (2.390)		-0.645 (2.287)	-1.104 (2.280)	-0.933 (2.133)
EOD		-0.028 (0.027)	-0.032 (0.029)	-0.020 (0.012)		-0.025* (0.013)	-0.025* (0.013)	-0.032* (0.016)
NAC		-1.275 (2.323)	0.792 (2.573)	0.825 (1.158)		0.132 (1.452)	-0.014 (1.514)	0.407 (1.872)

Table 5.19: Dependent Variable Growth, Explanatory Variable: LRCA…continued

Equation	1	2	3	4	5	6	7	8
LTRADE			4.330 (3.649)				-1.135 (1.136)	
LME				0.007 (0.093)				0.034 (0.134)
R^2	0.543	0.582	0.615	0.415	0.291	0.456	0.49	0.537
Adj R^2	0.486	0.463	0.486	0.138	0.177	0.248	0.261	0.260
F Stat	9.501 [0.000]	4.883 [0.000]	4.790 [0.000]	1.499 [0.000]	2.56 [0.063]	2.20 [0.071]	2.13 [0.076]	1.93 [0.124]
AIC	6.572	6.698	6.671	4.402	4.646	4.649	4.650	4.610
SB	6.790	7.089	7.106	4.874	4.880	5.069	5.117	5.097
Het. Test	10.386 [0.000]	5.050 [0.000]	5.845 [0.000]	1.996 [0.000]	0.548 [0.702]	3.557 [0.009]	3.037 [0.019]	4.650 [0.004]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]
Source: EViews8, STATA13 Regression Results, 2015

The regression results show that for the specifications where the tourism proxy is LTOURR (ie, Table 5.17), the F-Statistic which shows whether the model is correctly specified, is insignificant in specifications 1 to 5. This could be due to the fact that the tourism proxy LTOURR was not sufficient to capture the variations in the dependent variable (i.e., average annual real GDP growth). LTOURR is also insignificant in all the specifications. Specifications 1 to 5 are therefore disregarded in the subsequent discussion.

From Table 5.17, post conflict explains African economic growth in models 4, 6, 7 and 8. The coefficients are negative showing an indirect relationship between post conflict and economic growth. However, from Table 5.18 and 5.19, the initial GDP (LY1995) is significant in some of the specifications for explaining the average annual real GDP growth for African countries. This supports the Solow growth model which explains the hypothesis of convergence (see Chapter 2.5.1). It is also evident that the growth function determinants for the period 1995-1999 are explained by differences in physical capital, which is significant in most of the specifications. Human capital differences do not at all explain differences in average annual real GDP growth because all the coefficients for the proxies of human capital (LH and LHCI) are insignificant. This is contrary to the production function (cross sections 1-4) where human capital played a critical role in determining real per capita income. Human capital was highly significant in almost all specifications, notwithstanding the proxy used to measure human capital. In addition, unlike the cross sections (periods 1995-1999, 2000-2004, 2005-2009 and 2010-2013), innovation and efficiency of physical capital should be improved since physical capital coefficients are significant in some of the specifications.

Regarding the dummies, unlike the production function specifications, landlockedness is insignificant. The post conflict and ease of doing business dummies explained variations in real average annual GDP growth because the variables are significant in some of the specifications. The North African dummy was insignificant in all specifications as well as commodity metal exports and trade openness.

Summarising for the tourism proxies, tourism receipts per capita are insignificant in all the equations in Table 5.17. Table 5.18 shows that tourism exports as a percentage of GDP was significant at 5% in equation 6 only. The variable did not explain the real GDP growth of African countries in almost all the specifications. RCA for tourism in Table 5.19 was significant only in equation 1 and insignificant in all other specifications. Hence, tourism was very weak for explaining the variations in real GDP growth during the period 1995-1999. Model 8 had the smallest AIC and SB of 89.890 and 99.847 respectively in Table 5.17. In both models LTOURR is insignificant. However, the F-Statistic is insignificant in 5 of the 8 specifications for this period indicating that the models are mis-specified. This is further supported by a very small Adjusted R^2 for all the models. In Table 5.18, AIC of 4.393 and SB of values of 4.842 for models 4 and 6 respectively were the smallest. LTOURP was not significant for model 4, but was significant at 5% for model 6. The F-Statistic for model 4 is insignificant, but significant at 5% for model 6. The Adjusted R^2 was 15% for model 4, and 38% for model 6. In Table 5.19 the smallest AIC and SB were 4.402 and 4.874, respectively, for model 4. The proxy for tourism LRCA was insignificant.

Hence, for the period 1995-1999, variations in real GDP growth for African countries were explained by the initial GDP (LY1995), physical capital, post conflict and ease of doing business. Human capital, geography (captured by both landlockedness and North African location), and commodity metal exports played no role at all.

5.5.6 Cross Section 2 Regression Results (Growth Function)

Tables 5.20, 5.21 and 5.22 below show the Cross Section 2 regression results for the growth function for the period 2000-2004 for the 53 African countries. They summarise regression results for the determinants of the average annual real GDP growth. The proxies for the determinants are the initial GDP for the period under scrutiny (LY2000), physical capital, human capital and tourism. The specifications were enhanced by incorporating dummy variables, that is, landlockedness, post conflict, ease of doing business and North African country. Finally, to the specifications, trade openness and natural resource dependence (proxied by commodity metal exports) were added to the specifications.

Table 5.20 summarises the cross section 2 regression results for growth estimations where the tourism proxy is tourism receipts. Table 5.21 uses tourism exports as a percentage of GDP as the tourism proxy, and Table 5.22 uses the RCA for tourism as tourism proxy.

Table 5.20: Dependent Variable Growth, Explanatory Variable: Tourism Receipts

Equation	1	2	3	4	5	6	7	8
Constant	-3.963 (4.197)	0.0305 (5.071)	-0.943 (4.868)	11.16 (6.682)	-3.677 (6.458)	7.505 (5.154)	8.081 (5.452)	11.35** (5.043)
LY2000	0.112 (0.521)	-0.346 (0.624)	-0.531 (0.625)	-0.773 (0.602)	-0.073 (0.844)	-0.816 (0.665)	-0.804 (0.678)	-1.035 (0.612)
LK	1.950 (1.220)	1.847 (1.095)	1.679 (1.108)	1.124 (1.168)	2.532* (1.393)	2.979*** (0.763)	3.143*** (0.938)	2.323** (0.841)
LH	0.052 (0.061)	0.078 (0.074)	0.088 (0.075)	0.026 (0.112)				
LHCI					-5.263 (3.179)	-3.781 (2.540)	-3.506 (2.560)	-3.814 (2.363)
LTOURR	-0.312 (0.314)	-0.170 (0.494)	-0.232 (0.519)	-0.584 (0.579)	0.532* (0.260)	-0.153 (0.446)	-0.097 (0.483)	-0.040 (0.410)
LL		-0.679 (0.857)	-0.703 (0.884)	-1.558 (1.101)		-1.578 (0.931)	-1.480 (1.035)	-1.500 (0.890)
PC		2.490 (1.846)	2.532 (1.790)	-1.032 (2.067)		0.0143 (1.699)	-0.008 (1.755)	-0.050 (1.556)
EOD		-0.007 (0.010)	-0.009 (0.010)	-0.036* (0.016)		-0.040*** (0.013)	-0.038** (0.014)	-0.043*** (0.012)
NAC		1.382 (1.043)	1.756* (1.004)	0.967 (0.835)		-0.252 (0.927)	-0.349 (0.898)	-0.099 (0.985)
LTRADE			0.780 (0.778)				-0.407 (1.049)	
LME				-0.236 (0.239)				-0.189 (0.161)
R^2	0.108	0.252	0.266	0.276	0.446	0.716	0.719	0.752
Adj R^2	0.004	0.052	0.038	0.004	0.350	0.596	0.578	0.620
F stat	0.84 [0.508]	2.44 [0.036]	2.53 [0.028]	3.70 [0.005]	4.13 [0.012]	5.52 [0.001]	4.80 [0.002]	7.50 [0.000]
AIC	184.337	185.503	186.759	158.988	123.952	113.255	114.965	109.189
SB	192.655	200.475	203.394	174.251	130.613	125.245	128.287	122.148

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Robust Standard errors in parentheses, P-values in [ ]
Source: STATA13 Regression Results, 2017

Table 5.21: Dependent Variable Growth, Explanatory Variable: Tourism Percentage

Equation	1	2	3	4	5	6	7	8
Constant	-11.605 (9.183)	-8.953 (10.358)	-10.550 (10.253)	17.053** (7.608)	-0.899 (5.869)	11.987 (7.207)	11.864 (7.057)	12.449** (5.364)
LY2000	-0.010 (0.535)	-0.284 (0.709)	-1.024 (0.796)	-1.464*** (0.427)	-0.160 (0.669)	-1.566* (0.758)	-1.580 (0.830)	-1.156* (0.658)
LK	4.590* 2.473	5.288** (2.552)	4.571** (2.141)	1.188 (1.240)	1.908 (1.358)	2.599*** (0.794)	2.565** (0.946)	2.118** (0.979)
LH	0.083 (0.132)	0.058 (0.151)	0.069 (0.166)	-0.005 (0.120)				

Table 5.21: Dependent Variable Growth, Explanatory Variable: Tourism Percentage …continued

Equation	1	2	3	4	5	6	7	8
LHCI					-4.548 (3.356)	-1.819 (2.651)	-1.877 (2.581)	-3.278 (2.406)
LTOURP	-0.172 (0.738)	-1.212 (0.966)	-1.412 (0.953)	-1.008* (0.543)	1.080** (0.430)	0.337 (0.591)	0.320 (0.643)	-0.062 (0.427)
LL		-1.394 (1.087)	-1.258 (1.078)	-1.381 (0.822)		-1.932 (1.010)	-1.943 (1.084)	-1.387* (0.696)
PC		1.516 (2.150)	1.203 (1.945)	-2.413 (1.747)		0.732 (1.620)	0.721 (1.663)	-1.599 (1.562)
EOD		-0.009 (0.013)	-0.016 (0.013)	-0.047*** (0.014)		-0.035 (0.013)	-0.035** (0.014)	-0.043*** (0.009)
NAC		-0.191 (1.828)	1.061 (1.599)	0.986 (0.780)		-0.084 (0.842)	0.055 (0.902)	-0.037 (1.083)
LTRADE			2.465 (1.675)				0.103 (0.956)	
LME				-0.317 (0.250)				-0.158 (0.161)
R^2	0.370	0.431	0.472	0.552	0.374	0.633	0.634	0.765
Adj R^2	0.308	0.308	0.340	0.414	0.278	0.500	0.477	0.653
F Stat	6.01 [0.001]	3.50 [0.004]	3.58 [0.003]	3.978 [0.002]	3.89 [0.013]	4.75 [0.008]	4.04 [0.004]	6.86 [0.000]
AIC	5.612	5.675	5.656	4.454	4.556	4.280	4.343	3.944
SB	5.811	6.032	6.053	4.880	4.788	4.697	4.806	4.416
Het. Test	2.125 [0.095]	2.739 [0.018]	3.648 [0.003]	2.281 [0.045]	3.258 [0.027]	5.276 [0.000]	5.442 [0.000]	1.039 [0.447]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]

Source: EViews8, STATA13 Regression Results, 2015

Table 5.22: Dependent Variable Growth, Explanatory Variable: LRCA

Equation	1	2	3	4	5	6	7	8
Constant	-9.023* (4.611)	-5.544 (7.280)	13.025 (12.242)	16.202*** (5.457)	-3.096 (5.938)	13.265** (6.258)	12.817* (6.197)	12.049** (5.079)
LY2000	0.259 (0.980)	0.054 (1.023)	-0.867 (0.821)	-0.785 (0.671)	-0.038 (0.714)	-1.661** (0.724)	-1.677** (0.754)	-1.152* (0.632)
LK	4.818*** (1.167)	5.182*** (1.233)	4.725* (2.454)	0.919 (0.935)	2.489* (1.284)	2.611*** (0.750)	2.537*** (0.888)	2.195** (0.963)
LH	-1.321 (1.413)	-1.881 (1.527)	0.048 (0.166)	-1.414 (0.962)				
LHCI					-3.822 (3.321)	-1.492 (2.734)	-1.664 (2.690)	-3.077 (2.261)
LRCA	-0.641* (0.352)	-0.484 (0.413)	-0.500 (0.624)	-0.580** (0.255)	0.254 (0.418)	0.094 (0.350)	0.089 (0.344)	-0.193 (0.215)
LL		-2.283 (1.472)	-0.011 (0.966)	-1.426 (0.860)		-2.129** (0.909)	-2.133** (0.928)	-1.200* (0.689)
PC		1.743 (2.297)	2.305 (1.763)	-4.170** (1.789)		0.527 (1.295)	0.536 (1.343)	-1.976 (1.480)
EOD		-0.004 (0.017)	0.003 (0.014)	0.042*** (0.011)		-0.038*** (0.010)	-0.038*** (0.010)	-0.043*** (0.009)
NAC		0.527 (2.121)	0.985 (1.561)	0.531 (1.391)		0.002 (0.884)	0.052 (0.934)	0.074 (1.047)
LTRADE			1.845 (1.534)				0.223 (0.856)	
LME				-0.361 (0.157)				-0.149 (0.155)
R^2	0.376	0.419	0.448	0.545	0.253	0.631	0.632	0.774
Adj R^2	0.313	0.290	0.305	0.399	0.138	0.497	0.474	0.667

Table 5.22: Dependent Variable Growth, Explanatory Variable: LRCA…continued

Equation	1	2	3	4	5	6	7	8
F Stat	6.02 [0.001]	3.25 [0.007]	3.15 [0.007]	3.728 [0.006]	2.20 [0.097]	4.70 [0.002]	4.01 [0.004]	7.23 [0.000]
AIC	5.629	5.726	5.736	4.508	4.734	4.286	4.348	3.903
SB	5.830	6.087	6.137	4.939	4.965	4.703	4.810	4.374
Het. Test	1.230 [0.314]	1.805 [0.108]	2.618 [0.020]	2.084 [0.066]	4.827 [0.005]	3.755 [0.007]	4.329 [0.003]	1.127 [0.391]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]
Source: EViews8, STATA13 Regression Results, 2015

Comparing the regression results with those for the growth function determinants of the period 1995-1999 above, it is evident that the initial GDP and physical capital explain variations in real annual GDP growth for African countries. Human capital is insignificant in all the specifications. Unlike the period 1995-1999, where landlockedness did not play any role, geography was significant in some of the specifications for the period 2000-2004 (Table 5.21 and 5.22). The ease of doing business and post conflict dummies explained some of the variations in the real annual GDP growth since the coefficients of some of the specifications are significant. Post conflict zones were likely to have lower GDP growth rates due to the aftermath effects of conflicts in African countries.

Trade openness, again, did not play a role as well as commodity metal exports are significant. The constant is significant in some specifications during the 2000-2004 growth function, which implies that the total factor productivity increases the real annual GDP growth of African countries. Hence, resources must be channelled towards improving the efficiency and intensity of physical capital. These results are similar to those of the 1995-1999 period.

For the tourism proxies, tourism receipts were insignificant in explaining African economic growth. The tourism percentage in Table 5.21 was significant at 10% in equation 4, and at 5% in equation 5. The revealed comparative advantage for tourism was significant at 10% in equation 1 and 5% in equation 5. Model 8 in Table 5.20 is the best specified model with the smallest AIC of 109.189 and the smallest SB of 122.148. However, LTOURR is insignificant. The smallest AIC and SB values were 3.944 and 4.416 respectively for model 8 in Table 5.21. The tourism proxy LTOURP is insignificant. Model 8 in Table 5.22 is the best model in terms of specification with AIC of 3.903 and SB of 4.374. The tourism proxy LRCA is not very significant. Generally, tourism was not very significant in explaining differences in real annual GDP growth in the specifications. LTOURP seems to be the only tourism proxy that explains variations in real GDP growth for African countries during this period.

In conclusion, variations in the real annual GDP growth for the period 2000-2004 were explained by the initial GDP for the period (ie, LY2000), physical capital, commodity metal exports, landlockedness, post conflict and ease of doing business dummies. To some extent tourism played a role. The human capital and North African country dummies did not play a role implying that North African countries are not significantly different from the rest of Africa. Trade openness also played no role in explaining variations in average annual real GDP growth as the variable is insignificant during the 2000-2004 period.

5.5.7 Cross Section 3 Regression Results (Growth Function)

The tables below, Tables 5.23, 5.24 and 5.25, summarise cross section 3 regression results for the growth function for the 53 African countries in the period 2005-2009. They show the various regression results for the determinants of average annual real GDP growth. The explanatory variables are the initial GDP for the period under scrutiny (LY2005), physical capital, human capital and tourism. Dummy variables were again added to the control for geography, conflict areas and institutional arrangements. Finally, trade openness and commodity metal exports (capturing natural resource dependence) were also added as explanatory variables to the specifications.

Table 5.23 shows the results for the eight regressions where tourism receipts are included as explanatory variable. Table 5.24 summarises results for tourism exports as a percentage of GDP and as an explanatory variable. Table 5.25 shows the revealed comparative advantage for tourism as the tourism proxy.

Table 5.23: Dependent Variable Growth, Explanatory Variable: Tourism Receipts

Equation	1	2	3	4	5	6	7	8
Constant	-3.073 (3.886)	-0.875 (5.188)	-1.554 (6.629)	9.435** (3.905)	-3.010 (5.783)	8.960 (5.682)	9.824 (5.811)	10.74** (4.549)
LY2005	0.216 (0.529)	0.193 (0.681)	0.102 (0.558)	-0.873* (0.481)	-0.468 (0.759)	-1.016 (0.720)	-0.930 (0.769)	-1.285** (0.550)
LK	1.338 (1.056)	0.394 (0.877)	0.383 (0.913)	0.493 (0.763)	2.696* (1.341)	0.399 (1.018)	0.379 (1.022)	0.784 (1.030)
LH	-0.059 (0.048)	-0.019 (0.037)	-0.017 (0.037)	0.001 (0.038)				
LHCI					-1.877 (2.483)	0.041 (2.774)	0.263 (2.666)	0.022 (2.585)
LTOURR	0.106 (0.219)	0.244 (0.241)	0.237 (0.240)	0.313 (0.245)	0.546** (0.229)	0.450 (0.269)	0.507* (0.265)	0.503* (0.267)
LL		0.713 (0.766)	0.713 (0.789)	0.695 (0.629)		0.641 (0.688)	0.776 (0.698)	0.624 (0.718)
PC		-7.577*** (1.452)	-7.725*** (1.736)	-6.243*** (1.394)		-6.961*** (2.067)	-7.045*** (2.032)	-5.802** (2.148)

Table 5.23: Dependent Variable Growth, Explanatory Variable: Tourism Receipts…continued

Equation	1	2	3	4	5	6	7	8
EOD		0.0005 (0.012)	0.000 (0.011)	-0.019** (0.008)		-0.014 (0.009)	-0.013 (0.009)	-0.019* (0.010)
NAC		0.0975 (1.144)	0.190 (1.018)	1.064 (0.814)		1.427 (0.857)	1.395 (0.816)	1.351 (1.051)
LTRADE			0.351 (1.144)				-0.495 (0.891)	
LME				-0.406*** (0.114)				-0.313** (0.147)
R^2	0.158	0.285	0.287	0.594	0.385	0.661	0.666	0.723
Adj R^2	0.072	0.122	0.098	0.476	0.287	0.532	0.516	0.591
F Stat	2.63 [0.049]	2.21 [0.032]	2.18 [0.030]	5.00 [0.000]	4.68 [0.006]	5.18 [0.002]	4.46 [0.006]	5.21 [0.003]
AIC	210.347	209.179	211.065	163.258	127.449	115.560	117.109	109.380
SB	219.268	223.452	227.123	178.680	134.455	126.770	129.719	121.685

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Robust Standard errors in parentheses, P-values in [ ]
Source: STATA13 Regression Results, 2017

Table 5.24: Dependent Variable Growth, Explanatory Variable: Tourism Percentage

Equation	1	2	3	4	5	6	7	8
Constant	-4.901 (3.799)	0.082 (6.078)	-1.197 (6.373)	9.175 (5.866)	-4.587 (3.920)	9.860 (6.551)	8.228 (6.872)	9.910 (6.795)
LY2005	1.041 (0.658)	0.872 (0.689)	0.711 (0.729)	-0.161 (0.620)	-0.257 (0.578)	-1.161 (0.712)	-1.256* (0.726)	-0.758 (0.703)
LK	1.751* (0.877)	0.616 (0.977)	0.552 (0.987)	0.917 (0.713)	3.012*** (1.086)	0.702 (1.171)	0.668 (1.179)	0.553 (1.164)
LH	-1.626 (1.177)	-1.444 (1.235)	-1.666 (1.282)	-1.279 (1.040)				
LHCI					-1.293 (2.653)	1.441 (2.480)	0.877 (2.584)	-0.788 (2.335)
LTOURP	0.013 (0.287)	0.096 (0.336)	0.117 (0.339)	0.157 (0.274)	0.639** (0.275)	0.498 (0.325)	0.439 (0.335)	0.320 (0.291)
LL		0.233 (0.991)	0.173 (1.001)	0.304 (0.737)		-0.498 (0.817)	-0.113 (0.826)	0.312 (0.767)
PC		-6.749** (3.043)	-7.025** (3.089)	-4.735** (2.274)		-7.182** (2.582)	-7.111** (2.600)	-5.662** (2.388)
EOD		-0.007 (0.012)	-0.007 (0.013)	-0.027** (0.011)		-0.015 (0.012)	-0.017 (0.012)	-0.024* (0.012)
NAC		0.144 (1.412)	0.402 (1.466)	1.055 (1.004)		1.207 (1.251)	1.267 (1.261)	1.181 (1.095)
LTRADE			0.859 (1.194)				0.742 (0.878)	
LME				-0.427** (0.169)				-0.287 (0.176)
R^2	0.166	0.297	0.307	0.567	0.394	0.620	0.633	0.690
Adj R^2	0.081	0.136	0.124	0.441	0.30	0.482	0.476	0.543
F Stat	1.95 [0.122]	1.85 [0.074]	1.68 [0.100]	4.51 [0.001]	4.22 [0.009]	4.49 [0.003]	4.02 [0.006]	4.70 [0.003]
AIC	4.771	4.757	4.786	4.103	4.401	4.213	4.258	4.000
SB	4.974	5.122	5.191	4.521	4.632	4.630	4.720	4.471
Het. Test	0.979 [0.430]	2.112 [0.061]	1.653 [0.140]	0.514 [0.853]	2.066 [0.114]	1.591 [0.185]	1.086 [0.413]	0.820 [0.606]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]
Source: EViews8, STATA13 Regression Results, 2015

Table 5.25: Dependent Variable Growth, Explanatory Variable: LRCA

Equation	1	2	3	4	5	6	7	8
Constant	-5.229 (3.661)	0.575 (6.041)	-0.622 (6.324)	9.706 (5.927)	-4.251 (4.293)	14.372** (6.098)	11.631* (6.616)	12.205* (6.907)
LY2005	1.033 (0.651)	0.829 (0.678)	0.670 (0.721)	-0.258 (0.603)	-0.353 (0.627)	-1.660** (0.663)	-1.725** (0.665)	-1.027 (0.689)
LK	1.829** (0.849)	0.760 (0.928)	0.717 (0.937)	1.039 (0.700)	3.178** (1.218)	0.927 (1.259)	0.886 (1.257)	0.773 (1.191)
LH	-1.583 (1.133)	-1.418 (1.223)	-1.624 (1.267)	-1.189 (1.035)				
LHCI					-0.692 (2.948)	2.115 (2.591)	1.349 (2.686)	-0.475 (2.390)
LRCA	-0.105 (0.192)	-0.149 (0.212)	-0.149 (0.214)	0.037 (0.197)	0.163 (0.229)	0.080 (0.207)	0.047 (0.208)	0.069 (0.250)
LL		0.308 (0.990)	0.243 (1.001)	0.200 (0.727)		-0.551 (0.792)	-0.551 (0.790)	0.041 (0.746)
PC		-6.207** (2.877)	-6.412** (2.913)	-4.292* (2.143)		-6.044** (2.598)	-6.075** (2.591)	-4.795* (2.313)
EOD		-0.011 (0.011)	-0.013 (0.012)	-0.030*** (0.011)		-0.025** (0.011)	-0.026** (0.011)	-0.030** (0.011)
NAC		0.081 (1.400)	0.331 (1.452)	1.040 (1.009)		1.638 (1.281)	1.671 (1.278)	1.435 (1.110)
LTRADE			0.825 (1.183)				0.951 (0.903)	
LME				-0.443** (0.168)				-0.3.5 (0.180)
R^2	0.173	0.305	0.315	0.563	0.281	0.583	0.604	0.671
Adj R^2	0.088	0.146	0.133	0.436	0.171	0.431	0.434	0.516
F Stat	2.04 [0.108]	1.92 [0.069]	1.73 [0.094]	4.44 [0.001]	2.54 [0.064]	3.84 [0.011]	3.55 [0.015]	4.31 [0.007]
AIC	4.763	4.751	4.781	4.110	4.571	4.351	4.375	4.091
SB	4.966	5.116	5.186	4.528	4.802	4.768	4.837	4.562
Het. Test	0.923 [0.461]	1.956 [0.082]	1.540 [0.174]	0.718 [0.689]	0.918 [0.468]	1.338 [0.277]	0.855 [0.577]	0.550 [0.820]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]
Source: EViews8, STATA13 Regression Results, 2015

In comparison with the 1995-1999 and 2000-2004 periods, the initial GDP (LY2005) is weakly significant in explaining the differences in real annual GDP growth of African countries (only 4 specifications) in the tables. This shows some support for the convergence hypothesis. Physical capital is also significant in some of the specifications, while human capital is insignificant in all the specifications - similar to the 1995-1999 and 2000-2004 periods.

The post conflict and ease of doing business dummies significantly explain the variations in the region's real annual GDP growth for the period 2005-2009. The coefficients for the post conflict and ease of doing business dummies are all negative, showing an indirect relationship between the dummies and the real GDP growth rates. Commodity metal exports also play a role (that is in Tables 5.23, 5.24 and 5.25), although trade openness is insignificant in all the specifications, lending to no support to the ELGH. Geography was also not that important in this time period, with both landlockedness and the North African dummies insignificant in all the specifications.

For this period 2005-2009, the constant has weak significance in explaining annual real GDP growth for African countries since it is significant in a few a specifications (10% level of significance). Human capital is insignificant in all specifications, while physical capital is significant in very few models. As a result, the total factor productivity has very little or no role to play in explaining variations in the annual real GDP growth during this period. These results are contrary to the previous periods (1995-1999 and 2000-2004). This is due to the fact that Africa experienced high economic growth rates during the period 2005-2009, and commodity prices were high to the benefit of most countries.

Moving to tourism, Table 5.23 reflects that the tourism receipts were significant in equations 5, 7 and 8. Table 5.24 has the tourism proxy, tourism percentage, being significant at 5% in equation 5. In Table 5.25, RCA does not play any role in explaining the real GDP growth in Africa. Table 5.23 shows further that model 8 has the smallest AIC of 109.380 as well as the smallest SB of 121.685. However, the tourism proxy LTOURR coefficient for Model 8 is insignificant. From Table 5.24, the smallest AIC of 4.000 and SB of 4.471 are found in model 8, which is the best model in terms of specification. LTOURP which is the tourism proxy in the model is insignificant. Model 8 in Table 5.25 is the best specified model with AIC of 4.091 and SB of 4.562. The tourism proxy, LRCA is however insignificant in the model. Generally, the coefficients of tourism proxies during the 2005-2009 period are of low significance for explaining the variations in real annual GDP growth. Tourism is significant in very few specifications.

In conclusion, African countries that experienced higher real annual GDP growth for the 2005-2009 period were those that were not plagued by post conflict troubles, had good institutions which could lead to ease of doing business, and could benefit from high commodity demand and prices via commodity metal exports. The initial GDP, tourism and physical capital have weak significance. The human capital, landlockedness, North African country dummies and trade openness play a lesser role during this time period.

5.5.8 Cross Section 4 Regression Results (Growth Function)

Tables 5.26, 5.27 and 5.28 below are a summary of the cross section 4 regression results for the growth function for the 53 African countries for the period 2010-2013. They summarise regression results for the determinants of the average annual real GDP growth. The explanatory variables are the economic effects represented by initial GDP for the period under scrutiny (LY2010), physical capital, human capital and tourism (measured by LTOURR, LTOURP and NRCA). Further to the specifications, non-economic effects captured by dummy variables were added. Finally, the estimations were enhanced by the addition of trade openness and natural resource dependence (proxied by commodity metal exports).

Similar to the other cross sections 1, 2 and 3, the tables are first presented and Table 5.26 includes tourism receipts as an explanatory tourism variable, Table 5.27 summarises results for tourism exports as a percentage of GDP and Table 5.28 has results for the RCA tourism proxy.

Table 5.26: Dependent Variable Growth, Explanatory Variable: Tourism Receipts

Equation	1	2	3	4	5	6	7	8
Constant	-6.230 (8.024)	1.489 (7.960)	-4.814 (9.671)	10.76 (11.68)	-9.528 (9.640)	-2.404 (9.337)	-9.923 (10.75)	-4.374 (9.093)
LY2010	-0.0269 (0.568)	-0.357 (0.740)	-0.503 (0.763)	-1.475 (1.343)	-0.783 (1.077)	-1.121 (0.774)	-1.192 (0.851)	-1.307 (1.049)
LK	2.476* (1.453)	2.495* (1.450)	2.505* (1.369)	2.756 (2.010)	4.634** (2.203)	4.600* (2.226)	4.427** (1.736)	4.902 (2.969)
LH	0.086 (0.059)	0.061 (0.040)	0.038 (0.027)	0.074 (0.051)				
LHCI					3.447 (3.911)	3.429 (2.237)	1.885 (2.291)	3.870 (2.405)
LTOURR	0.0660 (0.259)	-0.229 (0.301)	-0.273 (0.300)	-0.122 (0.412)	0.430 (0.438)	0.111 (0.530)	-0.203 (0.554)	0.458 (0.447)
LL		-1.176 (1.145)	-1.398 (1.134)	-1.382 (1.471)		-1.397 (1.483)	-2.117 (1.586)	-0.524 (1.137)
PC		4.424*** (1.269)	5.196*** (1.124)	4.844** (1.731)		4.884*** (1.368)	5.844*** (1.320)	4.944*** (1.254)
EOD		-0.028** (0.013)	-0.027** (0.012)	-0.040** (0.019)		-0.023 (0.016)	-0.028 (0.019)	-0.018 (0.015)
NAC		-5.875*** (1.780)	-6.477*** (1.786)	-5.303** (2.042)		-6.739*** (1.995)	-7.352*** (2.430)	-6.413*** (1.828)
LTRADE			1.793 (1.273)				2.714 (1.584)	
LME				-0.322 (0.327)				-0.179 (0.325)
R^2	0.159	0.394	0.448	0.463	0.267	0.467	0.556	0.569
Adj R^2	0.051	0.215	0.257	0.233	0.145	0.254	0.346	0.341
F Stat	1.36 [0.270]	2.33 [0.048]	3.95 [0.003]	1.67 [0.160]	1.26 [0.314]	1.98 [0.104]	3.53 [0.010]	3.79 [0.009]
AIC	173.198	169.404	168.067	149.353	146.323	145.090	141.790	128.011
SB	181.115	183.655	183.902	163.693	153.161	157.395	155.463	140.969

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Robust Standard errors in parentheses, P-values in [ ]

Source: STATA13 Regression Results, 2015

Table 5.27: Dependent Variable Growth, Explanatory Variable: Tourism Percentage

Equation	1	2	3	4	5	6	7	8
Constant	-4.039 (6.035)	6.636 (9.064)	1.768 (9.363)	14.706 (11.849)	-7.169 (6.911)	8.640 (11.835)	3.392 (11.394)	2.413 (10.875)
LY2010	-1.030 (0.715)	-1.4928* (0.757)	-1.525** (0.739)	-1.765 (1.127)	-0.787 (0.797)	-2.140* (1.192)	-2.224* (1.155)	-1.399 (1.212)
LK	2.300* (1.261)	2.578** (1.184)	2.440** (1.158)	2.563* (1.317)	4.100** (1.656)	4.105** (1.556)	3.680** (1.530)	4.252** (1.611)
LH	1.897 (1.447)	1.030 (1.489)	0.481 (1.494)	0.002 (1.765)				
LHCI					4.384 (3.586)	5.165 (3.620)	3.628 (3.639)	3.602 (3.329)
LTOURP	0.015 (0.333)	-0.302 (0.339)	-0.302 (0.331)	-0.400 (0.422)	0.390 (0.487)	-0.193 (0.573)	-0.237 (0.556)	-0.114 (0.502)
LL		-1.830 (1.141)	-1.998* (1.118)	-1.773 (1.280)		-2.230* (1.248)	-2.303* (1.209)	-1.223 (1.243)
PC		5.489** (2.154)	5.675** (2.106)	6.602*** (2.044)		5.225** (2.326)	5.610** (2.265)	5.584** (2.058)
EOD		-0.030* (0.015)	0.031** (0.015)	-0.045** (0.016)		-0.037* (0.021)	-0.039* (0.020)	-0.033* (0.019)
NAC		-5.417** (2.256)	-5.205** (2.206)	-5.430** (2.065)		-5.244** (2.472)	-5.273** (2.394)	-5.382** (2.159)
LTRADE			1.830 (1.155)				1.999 (1.271)	
LME				-0.392 (0.335)				-0.228 (0.286)
R^2	0.145	0.359	0.410	0.443	0.240	0.445	0.503	0.513
Adj R^2	0.045	0.187	0.226	0.215	0.123	0.243	0.290	0.269
F Stat	1.45 [0.240]	2.10 [0.068]	2.24 [0.049]	1.94 [0.098]	2.06 [0.116]	2.20 [0.068]	2.36 [0.050]	2.10 [0.086]
AIC	5.048	5.142	5.109	5.053	5.103	5.226	5.179	5.083
SB	5.261	5.525	5.540	5.510	5.335	5.642	5.641	5.558
Het. Test	1.134 [0.357]	0.736 [0.651]	0.672 [0.727]	1.669 [0.157]	1.708 [0.178]	0.634 [0.741]	0.677 [0.721]	1.768 [0.145]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]
Source: EViews8, STATA13 Regression Results, 2015

Table 5.28: Dependent Variable Growth, Explanatory Variable: LRCA

Equation	1	2	3	4	5	6	7	8
Constant	-4.797 (5.355)	7.876 (8.668)	3.266 (8.978)	16.809 (11.991)	-6.853 (6.656)	11.598 (10.446)	6.247 (10.726)	6.183 (11.318)
LY2010	-0.953 (0.702)	-1.397* (0.723)	-1.430* (0.707)	-1.730 (1.127)	-0.654 (0.766)	-2.229** (1.029)	-2.259** (0.999)	-1.757 (1.236)
LK	2.181* (1.197)	2.071* (1.105)	1.952* (1.083)	2.165 (1.265)	3.553** (1.667)	3.256** (1.513)	2.912* (1.486)	4.151** (1.582)
LH	2.038 (1.356)	0.939 (1.401)	0.415 (1.410)	-0.350 (1.672)				
LHCI					5.439 (3.502)	5.914* (3.289)	4.383 (3.346)	3.899 (3.220)
LRCA	-0.292 (0.235)	-0.432* (0.229)	-0.414* (0.224)	-0.346 (0.399)	-0.476 (0.325)	-0.555* (0.296)	-0.524* (0.288)	-0.450 (0.522)
LL		-1.434 (1.110)	-1.608 (1.091)	-1.744 (1.281)		-2.150** (1.037)	-2.169** (1.007)	-1.608 (1.258)
PC		5.491** (2.043)	5.653*** (2.000)	6.471*** (2.031)		5.229** (2.105)	5.529** (2.052)	5.831*** (2.003)
EOD		-0.032** (0.014)	-0.033** (0.013)	-0.044** (0.016)		-0.038** (0.017)	-0.039** (0.017)	-0.038* (0.018)

Table 5.28: Dependent Variable Growth, Explanatory Variable: LRCA…continued

Equation	1	2	3	4	5	6	7	8
NAC		-5.435** (2.127)	-5.216** (2.083)	-5.241** (2.039)		-4.882** (2.309)	-4.942** (2.241)	-5.259** (2.123)
LTRADE			1.722 (1.110)				1.819 (1.188)	
LME				-0.395 (0.339)				-0.250 (0.282)
R^2	0.183	0.411	0.456	0.440	0.281	0.519	0.567	0.531
Adj R^2	0.086	0.254	0.289	0.210	0.170	0.344	0.381	0.296
F Stat	1.90 [0.134]	2.62 [0.027]	2.70 [0.073]	1.92 [0.103]	2.54 [0.064]	2.96 [0.021]	3.06 [0.017]	2.26 [0.073]
AIC	5.004	5.007	5.047	5.053	5.048	5.082	5.042	5.042
SB	5.217	5.461	50474	5.510	5.280	5.498	5.505	5.517
Het. Test	0.916 [0.466]	0.905 [0.526]	1.010 [0.455]	1.298 [0.293]	2.396 [0.076]	1.030 [0.444]	0.924 [0.524]	1.775 [0.144]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]
Source: EViews8, STATA13 Regression Results, 2015

Comparing the 2010-2013 period regression results with those of the 1995-1999, 2000-2004 and 2005-2009 periods, the initial GDP (LY2010) in Tables 5.27 and 5.28 is significant in explaining the real annual GDP growth of African countries in some of the specifications (the level of significance is mostly 10%), again showing support for the convergence hypothesis. Physical capital is significant in almost all the specifications, indicating higher growth for countries with more capital formation. This is in accordance with the neoclassical growth theory.

Human capital, however, does not play a role in explaining differences in real annual GDP growth except for one specification (Model 6 in Table 5.28) where the LHCI coefficient is significant at 10% only. These results are different to the 1995-1999, 2000-2004 and 2005-2009 periods.

In terms of country-specific effects, there is some support that geography plays a role, as the landlockedness and North African country dummies are significant in some specifications. While landlockedness remained a negative for growth, the Arab Spring clearly had a negative effect on growth rates in northern African countries during this time period. On the other hand, post conflict areas reaped benefits in terms of growth with the post conflict dummy almost always positive and significant. The ease of doing business dummy in Africa is significant in some of the specifications, albeit negatively (with a very small parameter).

Unlike the previous periods, trade openness and commodity metal exports did not play a role in explaining the real annual GDP growth for African countries during the period 2010-2013.

Prior to this period, trade openness and commodity metal exports were significant in some of the specifications. This might be explained by the slump in world growth and demand for metal.

As in the 2005-2009 (cross section 4 growth function), the total factor productivity has no role to play in explaining the differences in the real annual GDP growth of African countries during the period 2010-2013. This is because the constant is insignificant in most of the specifications.

Tourism did not play any role in explaining the real GDP growth for African countries during the period 2010-2013. This is evident in Table 5.26 and Table 5.27 where the tourism receipts and tourism exports as a percentage of GDP were insignificant. RCA for tourism was significant at 10% in equations 2, 3, 6 and 7. Generally, tourism was very weak in explaining the real GDP growth of African countries. Model 8 in Table 5.26 has the smallest AIC of 128.011 and SB of 140.969. However the tourism proxy, that is, tourism receipts, are insignificant for explaining the real per capita GDP of African countries in Model 8. In Table 5.27, AIC and SB values of 5.048 and 5.261, respectively, are the smallest in model 1. LTOURP is insignificant and so is the F-Statistic. The model has a low Adj R^2 of 14.5%. Model 1 has the smallest AIC with a value of 5.004 and SB of 5.217 in Table 5.28. LRCA is insignificant, implying that the model is mis-specified. The Adj R^2 of 8.6% is also very small. Generally for the 2010-2013 period, the coefficients of the tourism proxies, that is, LTOURR and LTOURP are insignificant (Tables 5.26 and 5.27). LRCA is significant at 10% in some of the specifications (Table 5.28). These results are similar to those of the previous periods where the tourism proxies are weak in explaining the variations in the real annual GDP growth of African countries.

To conclude for the 2010-2013 period, the real annual GDP growth is explained by variations in economic effects, which are, initial GDP and physical capital. Non-economic effects, that is, landlockedness, post conflict, ease of doing business and North African country also play a crucial role. This could have been due to the Arab Spring and the generally low economic growth across the globe. Human capital, trade openness and commodity metal exports are insignificant.

5.6 Average Panel Data Results

The average panel estimations were performed for the production function and then for the growth function (see section 5.3.4).

5.6.1 Average panel (production function) results

Tables 5.29, 5.30 and 5.31 below summarise the average panel regression results for the 53 African countries. They show the results of the eight regressions (refer to section 5.4.3 and section 5.5.3 for the exact specification of each regression) for the determinants of the per capita GDP. The independent variables are the economic effects represented by physical capital, human capital and tourism, similar to the cross sections. These were enhanced by adding non-economic effects captured by dummy variables, which are, landlockedness, post conflict, ease of doing business and North African country. Finally, trade openness and natural resource dependence (proxied by commodity metal exports) were added to the specifications.

Similar to the cross sections, the estimation results are firstly presented in tables before the discussion follow. Table 5.29 shows the results, with tourism receipts as the explanatory variable; Table 5.30 shows the results for international tourism exports as a percentage of GDP; and Table 5.31 summarises the results for the RCA for tourism, as the proxy. Equations 1 and 5 were estimated using fixed effects since the dummy variables were not included. Equations 2, 3, 4, 6, 7 and 8 were estimated using random effects due to the inclusion of dummy variables.

Table 5.29: Dependent Variable LY, Explanatory Variable: Tourism Receipts

Equation	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Constant	5.497*** (0.992)	6.041*** (1.158)	3.884** (1.239)	8.198*** (1.283)	4.253*** (1.061)	5.354*** (1.359)	5.278*** (1.440)	4.796*** (1.191)
LK	0.559* (0.329)	0.575* (0.309)	0.193 (0.302)	-0.0325 (0.356)	0.489 (0.367)	0.492 (0.365)	0.468 (0.393)	0.525 (0.319)
LH	0.000 (0.015)	0.002 (0.014)	0.001 (0.013)	-0.006 (0.013)				
LHCI					2.454*** (0.532)	2.512*** (0.530)	2.468*** (0.586)	2.383*** (0.462)
LTOURR	0.249*** (0.068)	0.163* (0.085)	0.0749 (0.081)	0.177* (0.087)	0.199*** (0.070)	0.046 (0.106)	0.036 (0.121)	0.133 (0.096)
LL		-0.502* (0.276)	-0.424* (0.250)	-0.510* (0.263)		-0.415 (0.249)	-0.428 (0.262)	-0.369 (0.216)
PC		-0.00909 (0.276)	-0.166 (0.253)	0.0557 (0.279)		0.0363 (0.250)	0.0229 (0.264)	0.283 (0.231)
EOD		-0.002 (0.004)	-0.004 (0.003)	-0.004 (0.004)		-0.004 (0.003)	-0.005 (0.004)	-0.002 (0.003)
NAC		1.004** (0.424)	1.228*** (0.388)	0.865** (0.397)		0.324 (0.428)	0.345 (0.449)	0.0477 (0.381)
LTRADE			0.903*** (0.280)				0.060 (0.308)	
LME				-0.083* (0.045)				-0.031 (0.037)
R^2	0.355	0.511	0.614	0.593	0.695	0.753	0.753	0.814
Adj R^2	0.31	0.425	0.534	0.496	0.663	0.683	0.671	0.748
F stat	8.06 [0.0002]	5.98 [0.0001]	7.75 [<0.0001]	6.18 [0.0001]	22.01 [<0.0001]	10.89 [<0.0001]	9.17 [<0.0001]	12.56 [<0.0001]

Table 5.29: Dependent Variable LY, Explanatory Variable: Tourism Receipts…continued

Equation	1	2	3	4	5	6	7	8
AIC	126.681	121.332	112.014	99.454	59.402	60.417	62.366	50.215
SB	134.166	136.301	128.855	115.305	65.388	72.389	75.834	63.407
Het test	0.29 [0.594]	3.69 [0.061]	2.25 [0.140]	1.03 [0.315]	0.08 [0.785]	0.19 [0.664]	0.16 [0.696]	0.27 [0.609]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]
Source: STATA13 Regression Results, 2017

Table 5.30: Dependent Variable LY, Explanatory Variable: Tourism Percentage

Equation	1	2	3	4	5	6	7	8
Constant	4.983*** (1.143)	6.893*** (1.160)	4.106** (1.228)	8.895*** (1.307)	3.603*** (1.175)	6.445*** (1.221)	6.035*** (1.291)	6.017*** (1.184)
LK	0.941** (0.364)	0.762** (0.312)	0.251 (0.299)	0.247 (0.368)	0.773* (0.400)	0.400 (0.332)	0.275 (0.356)	0.494 (0.319)
LH	0.004 (0.017)	0.008 (0.015)	0.006 (0.013)	0.000 (0.014)				
LHCI					3.096*** (0.562)	2.663*** (0.463)	2.428*** (0.521)	2.606*** (0.442)
LTOURP	0.055 (0.099)	-0.090 (0.103)	-0.118 (0.089)	-0.097 (0.111)	0.018 (0.112)	-0.268** (0.112)	-0.293* (0.115)	-0.180 (0.119)
LL		-0.680** (0.271)	-0.489** (0.238)	-0.729*** (0.256)		-0.590*** (0.191)	-0.595*** (0.192)	-0.595*** (0.182)
PC		-0.105 (0.288)	-0.259 (0.250)	-0.0348 (0.294)		-0.215 (0.226)	-0.251 (0.229)	-0.0413 (0.237)
EOD		-0.009** (0.004)	-0.009*** (0.003)	-0.011*** (0.004)		-0.008*** (0.003)	-0.009*** (0.003)	-0.007** (0.003)
NAC		0.970** (0.440)	1.213*** (0.384)	0.759* (0.420)		0.701* (0.397)	0.768* (0.403)	0.474 (0.397)
LTRADE			1.019*** (0.262)				0.246 (0.251)	
LME				-0.112** (0.0466)				-0.0374 (0.0366)
R^2	0.162	0.476	0.623	0.553	0.612	0.797	0.805	0.816
Adj R^2	0.105	0.384	0.545	0.448	0.571	0.74	0.74	0.752
F stat	2.84 [0.0488]	5.20 [0.0003]	8.04 [<0.0001]	5.26 [0.0002]	15.23 [<0.0001]	14.06 [<0.0001]	12.40 [<0.0001]	12.77 [<0.0001]
AIC	139.214	124.650	110.928	103.415	67.353	53.878	54.580	49.787
SB	146.699	139.62	127.769	119.265	73.339	65.850	68.048	62.978
Het test	0.06 [0.808]	0.76 [0.389]	1.86 [0.180]	0.01 [0.934]	1.48 [0.234]	0.56 [0.459]	0.40 [0.531]	0.23 [0.639]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]
Source: EViews8, STATA13 Regression Results, 2015

Table 5.31: Dependent Variable LY, Explanatory Variable: LRCA

Equation	1	2	3	4	5	6	7	8
Constant	4.811*** (1.113)	7.137*** (1.176)	4.373*** (1.242)	9.151*** (1.339)	3.464*** (1.174)	5.639*** (1.253)	5.367*** (1.379)	5.393*** (1.163)
LK	1.003*** (0.351)	0.687** (0.307)	0.174 (0.296)	0.145 (0.357)	0.807* (0.397)	0.494 (0.354)	0.430 (0.381)	0.565 (0.331)
LH	0.005 (0.017)	0.007 (0.014)	0.005 (0.012)	-0.001 (0.014)				
LHCI					3.189*** (0.544)	2.629*** (0.498)	2.496*** (0.568)	2.567*** (0.464)
LRCA	-0.041 (0.090)	-0.116 (0.090)	-0.122 (0.078)	-0.095 (0.093)	-0.044 (0.069)	-0.080 (0.065)	-0.084 (0.066)	-0.007 (0.067)
LL		-0.596** (0.274)	-0.403 (0.242)	-0.661** (0.259)		-0.447** (0.201)	-0.442** (0.204)	-0.533*** (0.190)
PC		-0.108 (0.283)	-0.250 (0.247)	-0.0393 (0.292)		-0.112 (0.240)	-0.125 (0.245)	0.127 (0.243)
EOD		-0.009** (0.003)	-0.009*** (0.003)	-0.011*** (0.003)		-0.006** (0.003)	-0.006** (0.003)	-0.005* (0.002)
NAC		0.947** (0.436)	1.192*** (0.381)	0.766* (0.416)		0.528 (0.420)	0.555 (0.430)	0.234 (0.407)
LTRADE			0.997*** (0.259)				0.137 (0.269)	
LME				-0.107* (0.046)				-0.031 (0.038)
R^2	0.160	0.488	0.629	0.557	0.617	0.765	0.768	0.798
Adj R^2	0.102	0.398	0.552	0.452	0.576	0.699	0.69	0.728
F stat	2.79 [0.0513]	5.44 [0.0002]	8.27 [<0.0001]	5.34 [0.0002]	15.54 [<0.0001]	11.65 [<0.0001]	9.93 [<0.0001]	11.38 [<0.0001]
AIC	139.334	123.586	110.110	103.068	66.933	58.726	60.368	52.768
SB	146.819	138.556	126.951	118.919	72.919	70.698	73.837	65.960
Het test	0.13 [0.721]	0.51 [0.478]	2.06 [0.158]	<0.01 [0.958]	2.01 [0.167]	0.43 [0.519]	0.29 [0.594]	0.05 [0.825]

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses, P-values in [ ]
Source: EViews8, STATA13 Regression Results, 2015

From Tables 5.29, 5.30 and 5.31, it is evident that the average panel coefficients of the explanatory variables are more significant in explaining the differences in per capita GDP for African countries, compared to the cross sections results. This shows strong support for using panel data in Africa to counteract data insufficiencies.

The per capita GDP variations are explained by variations in human capital, ease of doing business, and geography (proxied by the landlockedness and North African dummies). These explanatory variables are highly significant at 1% in almost all specifications. Physical capital is also significant in some of the specifications. LHCI is significant at 1% in all the specification, hence the human capital index is a better human capital proxy for explaining African economic growth compared to LH.

Trade openness and commodity metal exports also play a role in explaining differences in real per capita GDP, unlike the cross section results. Trade is always positive, lending support to the ELGH. However, metal exports are negative, showing support of the view that dependence on natural resources is hampering African countries in terms of growth and development.

The total factor productivity has a crucial role to play in explaining the differences in per capita GDP of African countries for the average panel, as the constant is highly significant (1% level of significance) in all the specifications. This means that the intensity, efficiency and innovation of both physical and human capital must be encouraged. In addition, the average panel results are better estimates as far as total factor productivity is concerned, compared to the cross section results, given that efficiency and intensity involve all factors of production utilised in the growth process.

Focusing on tourism as the variable of interest for this research, in Table 5.29, tourism receipts are significant in 4 of the 8 specifications and significant at a 1% level of significance in models 1 and 5. The coefficients of the variable are all positive showing a direct relationship between tourism receipts and real GDP growth. In Table 5.30, tourism exports as a percentage of GDP, are significant for explaining the real GDP growth in equations 6 and 7. In Table 5.31 RCA does not explain economic growth in Africa since the estimates are insignificant. Model 8 in Table 5.29 has the smallest AIC of 50.215 and SB of 63.407 but LTOURR is insignificant. Model 8 in Table 5.30 is the best model in terms of specification with the smallest AIC and SB values of 49.787 and 62.978 respectively. LTOURP is insignificant for this model. In Table 5.31 the AIC value of 52.768 and SB value of 65.960 are the smallest in model 8. However, LRCA is insignificant in this model. To summarise the average panel, the tourism proxy coefficients have improved in their level of significance, compared to the cross section results (1% level of significance) in some of the specifications. Hence, there is little support that tourism actually increases the real GDP growth. In fact the countries that specialise more in tourism actually have lower GDP per capita, despite that this does not show causality.

5.6.2 Average panel (growth function) results

Tables 5.32, 5.33 and 5.34 below summarise the average panel growth function regression results for the 53 African countries. They show the results of the eight regressions (see section 5.3.4.1.1 and section 5.3.4.1.2) estimated for the determinants of the annual real GDP growth in Africa. The independent variables are the economic effects represented by physical capital, human capital (proxied by gross secondary school enrolment LH and human capital index LHCI) and tourism (proxied by LTOURR, LTOURP and LRCA). These were enhanced by adding the non-economic effects captured by dummy variables, which are, landlockedness (LL), post conflict (PC), ease of doing business (EOD) and North African country (NAC). Finally, trade openness (LTRADE) and natural resource dependence (proxied by commodity metal exports LME) were added to the specifications.

Table 5.32 presents the results with tourism receipts as the explanatory variable used to capture the influence of tourism on growth. Table 5.33 summarises the results for tourism exports as a percentage of GDP. Table 5.34 presents results where tourism proxy is the RCA. For the average panel growth function, the initial GDP was included in the specifications as an explanatory variable and it captures the fixed effect.

Table 5.32: Dependent Variable Growth, Explanatory Variable: Tourism Receipts

Equation	1	2	3	4	5	6	7	8
Constant	-7.537 (8.625)	-6.074 (9.044)	-8.983 (9.210)	3.539 (4.912)	0.355 (6.256)	4.999 (4.095)	4.921 (4.030)	2.587 (3.544)
LY1995	-0.735 (0.633)	-1.002 (0.651)	-1.265 (0.668)	-0.520 (0.391)	-1.047 (0.937)	-1.340 (0.815)	-1.348 (0.855)	-0.557 (0.367)
LK	5.120* (2.621)	5.477** (2.675)	4.581** (2.035)	1.685* (0.965)	2.805* (1.047)	3.343** (1.217)	3.307*** (1.153)	2.757*** (0.682)
LH	-0.017 (0.045)	-0.038 (0.047)	-0.043 (0.047)	-0.022 (0.028)				
LHCI					-1.305 (3.087)	-1.055 (2.719)	-1.115 (2.908)	-2.359 (1.528)
LTOURR	0.112 (0.297)	0.0874 (0.336)	-0.0995 (0.377)	0.0168 (0.228)	0.688*** (0.242)	0.341 (0.453)	0.320 (0.520)	0.105 (0.333)
LL		-1.400 (1.022)	-1.421 (1.014)	-0.341 (0.631)		-1.131 (1.106)	-1.163 (1.335)	-0.472 (0.575)
PC		1.201 (0.949)	0.752 (0.995)	-0.0106 (0.720)		1.203 (1.022)	1.173 (1.066)	0.404 (0.565)
EOD		-0.002 (0.013)	-0.008 (0.014)	-0.017 (0.010)		-0.023** (0.012)	-0.024 (0.015)	-0.025** (0.010)
NAC		0.0279 (1.403)	0.863 (1.550)	0.757 (0.937)		-1.530 (1.375)	-1.487 (1.346)	-0.738 (1.154)
LTRADE			2.139 (1.478)				0.105 (1.078)	
LME				-0.191* (0.105)				-0.102 (0.0613)
R^2	0.399	0.455	0.502	0.398	0.353	0.506	0.506	0.599
Adj R^2	0.344	0.343	0.384	0.234	0.261	0.341	0.313	0.435
F Stat	3.50 [0.015]	1.65 [0.143]	1.65 [0.137]	2.56 [0.024]	5.58 [0.002]	6.71 [0.000]	5.98 [0.000]	5.15 [0.001]
AIC	241.570	244.912	242.574	169.541	145.475	144.599	146.587	114.367
SB	250.926	261.753	261.286	187.153	152.957	158.068	161.552	129.024

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Robust Standard errors in parentheses, P-values in [ ]
Source: STATA13 Regression Results, 2017

Table 5.33: Dependent Variable Growth, Explanatory Variable: Tourism Percentage

Equation	1	2	3	4	5	6	7	8
Constant	-8.844 (7.661)	-4.694 (8.251)	-7.575 (8.241)	4.630 (5.202)	-1.678 (5.290)	2.771 (4.327)	2.631 (4.333)	2.199 (4.494)
LY1995	-0.644 (0.551)	-1.062 (0.658)	-1.411* (0.709)	-0.616 (0.400)	-0.686 (0.825)	-1.050 (0.763)	-1.072 (0.824)	-0.493 (0.455)
LK	5.435** (2.445)	5.667** (2.485)	4.622** (1.895)	1.875** (0.924)	3.042*** (1.058)	3.485*** (1.156)	3.400*** (1.154)	2.794*** (0.692)
LH	-0.010 (0.041)	-0.030 (0.046)	-0.039 (0.048)	-0.019 (0.028)				
LHCI					-1.200 (3.077)	-1.282 (3.021)	-1.419 (3.024)	-2.360 (1.642)
LTOURP	-0.164 (0.383)	-0.249 (0.470)	-0.368 (0.464)	-0.210 (0.266)	0.872*** (0.316)	0.628 (0.513)	0.593 (0.487)	0.148 (0.515)
LL		-1.562 (1.059)	-1.457 (0.979)	-0.492 (0.625)		-1.113 (0.868)	-1.141 (0.939)	-0.504 (0.656)
PC		1.044 (1.024)	0.572 (1.028)	-0.104 (0.749)		1.509 (0.947)	1.459 (0.886)	0.451 (0.655)
EOD		-0.010 (0.013)	-0.014 (0.013)	-0.022** (0.010)		-0.021** (0.010)	-0.022** (0.010)	-0.026** (0.011)
NAC		0.00578 (1.503)	0.915 (1.612)	0.703 (0.997)		-2.057 (1.435)	-1.975 (1.344)	-0.830 (1.202)
LTRADE			2.207 (1.350)				0.190 (0.930)	
LME				-0.219* (0.111)				-0.0942 (0.0675)
R^2	0.401	0.46	0.514	0.411	0.325	0.513	0.514	0.598
Adj R^2	0.345	0.350	0.399	0.250	0.229	0.351	0.324	0.434
F Stat	2.92 [0.032]	1.66 [0.139]	1.55 [0.167]	2.63 [0.021]	4.27 [0.008]	6.41 [0.000]	5.59 [0.000]	5.22 [0.000]
AIC	241.433	244.438	241.363	168.638	146.892	144.102	146.052	114.410
SB	250.789	261.278	260.075	186.250	154.375	157.571	161.017	129.068

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Robust Standard errors in parentheses, P-values in [ ]
Source: STATA13 Regression Results, 2017

Table 5.34: Dependent Variable Growth, Explanatory Variable: LRCA

Equation	1	2	3	4	5	6	7	8
Constant	-8.304 (6.701)	-6.048 (8.383)	-8.747 (8.607)	3.962 (5.455)	-2.016 (5.689)	6.129 (5.186)	5.403 (4.876)	3.512 (3.191)
LY1995	-0.664 (0.531)	-0.974 (0.615)	-1.291 (0.668)	-0.540 (0.390)	-0.751 (0.842)	-1.328 (0.807)	-1.332 (0.817)	-0.625 (0.393)
LK	5.290** (2.316)	5.562** (2.465)	4.527** (1.954)	1.691* (0.995)	3.290*** (1.162)	3.489*** (1.124)	3.314*** (1.099)	2.830*** (0.722)
LH	-0.013 (0.039)	-0.035 (0.044)	-0.045 (0.048)	-0.022 (0.030)				
LHCI					-0.091 (3.076)	-0.753 (3.135)	-1.110 (3.096)	-2.056 (1.649)
LRCA	-0.057 (0.320)	0.0235 (0.361)	-0.043 (0.329)	-0.052 (0.200)	0.235 (0.326)	0.227 (0.318)	0.216 (0.303)	-0.074 (0.162)
LL		-1.483 (1.033)	-1.328 (0.943)	-0.352 (0.613)		-1.665* (0.969)	-1.655 (0.949)	-0.621 (0.570)
PC		1.188 (1.000)	0.777 (0.999)	-0.040 (0.747)		1.195 (0.967)	1.154 (0.942)	0.150 (0.683)
EOD		-0.004 (0.011)	-0.007 (0.012)	-0.019** (0.009)		-0.028*** (0.006)	-0.029*** (0.007)	-0.029*** (0.007)

Table 5.34: Dependent Variable Growth, Explanatory Variable: LRCA…continued

Equation	1	2	3	4	5	6	7	8
NAC		0.00584 (1.409)	0.849 (1.533)	0.740 (0.928)		-1.590 (1.504)	-1.512 (1.499)	-0.418 (1.246)
LTRADE			2.043 (1.343)				0.377 (0.854)	
LME				-0.196* (0.106)				-0.104 (0.0638)
R^2	0.397	0.454	0.501	0.399	0.218	0.507	0.511	0.599
Adj R^2	0.341	0.342	0.383	0.236	0.107	0.343	0.319	0.435
F Stat	2.69 [0.044]	1.49 [0.192]	1.39 [0.226]	2.59 [0.022]	2.25 [0.089]	6.37 [0.000]	5.40 [0.001]	5.02 [0.001]
AIC	241.748	245.005	242.679	169.467	151.741	144.498	146.285	114.336
SB	251.104	261.846	261.391	187.079	159.224	157.966	161.251	128.993

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Robust Standard errors in parentheses, P-values in [ ]
Source: STATA13 Regression Results, 2017

From the Tables 5.32, 5.33 and 5.34, it is clear that the differences in real annual GDP growth in the African countries can be explained by physical capital is also an important determinant of the real annual GDP growth since it is significant in all of the specifications. For growth to take place, it is therefore physical capital which explains how efficiently and intensely inputs are utilised in the growth process, since physical capital is significant in most of the specifications. Human capital does not play any role in explaining the differences in Africa's growth for the average growth panel, as it is insignificant in all the model specifications. This is different from the cross section results where human capital played a critical role in explaining African economic growth.

The ease of doing business also explains the GDP growth variations, since the estimates are significant in Tables 5.33 and 5.34. Other non-economic effects, that is, the North African country dummy and post conflict dummy do not play a significant role in determining economic growth in Africa. Landlockedness is significant in only one specification, that is, model 6 in Table 5.34, which may indicate that it indeed explain differences in African growth (or the African growth dummy).

Concerning the tourism proxies, Table 5.32 shows that tourism receipts explain real GDP growth at a 1% level of significance in model 5. Tourism exports as a percentage of GDP is significant in equation 5 at 1% level in Table 5.33. In Table 5.34 the RCA for tourism played no role in explaining real GDP growth. Model 8 is the best specified model in Table 5.32 with smallest AIC of 114.367 and SB of 129.024. However, the tourism proxy, LTOURR, is insignificant in the models. From Table 5.33, AIC of 114.410 and SB value of 129.068 are the smallest in model 8, although LTOURP is insignificant, the model is the best in terms of specification. The tourism proxy, LTOURP, is insignificant in the model. Model 8 in Table 5.34 is the best specified model, with the smallest AIC and SB values of 114.336 and 128.993, respectively. However, the tourism proxy LRCA is insignificant in the model.

5.7. Total Cross Section results

Most of the endogenous growth theoretical models are overlapping-generations models. Hence, the time horizon has to be considered, that is, more or less, 15-25 years. Running cross-sections (and building a panel) over 5-year periods might not be fully in line with the theory. In order to improve robustness, a cross-section for the whole period under investigation (1995-2013) was executed in this section.

5.7.1 Total Cross Section (production function) results

Tables 5.35, 5.36 and 5.37 below summarise the regression results for the whole period (1995-2013) cross section for the 53 African countries. They show the results of the eight regressions (see section 5.3.4.1.1 and section 5.3.4.1.2) estimated for the determinants of per capita GDP in Africa. The independent variables are physical capital, human capital (proxied by gross secondary school enrolment LH and human capital index LHCI) and tourism (proxied by LTOURR, LTOURP and LRCA). These were enhanced by adding the dummy variables capturing non-economic effects, that is, landlockedness (LL), post conflict (PC), ease of doing business (EOD) and North African country (NAC). Finally, trade openness (LTRADE) and natural resource dependence (proxied by commodity metal exports LME) were added to the specifications.

Table 5.35 presents the results with tourism receipts per capita as the explanatory variable used to capture the influence of tourism on growth. Table 5.36 summarises the results for tourism exports as a percentage of GDP. Table 5.37 presents results where tourism proxy is the RCA.

Table 5.35: Dependent Variable LY, Explanatory Variable: LTOURR

Equation	1	2	3	4	5	6	7	8
Constant	6.832*** (0.156)	6.407*** (0.164)	4.605*** (0.388)	4.881*** (0.227)	6.112*** (0.181)	6.138*** (0.371)	7.937*** (0.592)	7.867*** (0.318)
LK	0.0245 (0.043)	0.025 (0.043)	0.019 (0.053)	0.064 (0.042)	-0.020 (0.060)	-0.026 (0.055)	-0.023 (0.075)	-0.027 (0.069)
LH	-0.006 (0.006)	-0.006 (0.006)	-0.006 (0.006)	-0.007 (0.006)				
LHCI					1.454*** (0.327)	1.474*** (0.317)	1.479*** (0.304)	1.577** (0.463)
LTOURR	0.194*** (0.025)	0.194*** (0.026)	0.194*** (0.026)	0.168*** (0.0246)	0.070** (0.028)	0.069** (0.029)	0.071** (0.031)	0.059* (0.032)
LL		-0.081 (0.141)	1.866*** (0.172)	-0.285 (0.276)		0.0300 (0.292)	-1.565*** (0.158)	-1.536*** (0.167)
PC		0.008 (0.058)	0.008 (0.058)	0.058 (0.053)		-0.018 (0.061)	-0.019 (0.062)	-0.017 (0.072)
EOD		0.002*** (0.001)	0.012*** (0.001)	0.013*** (0.001)		-0.001 (0.002)	-0.003* (0.002)	-0.003 (0.002)
NAC		2.598*** (0.183)	2.563*** (0.181)	2.307*** (0.155)		1.574*** (0.242)	-0.092 (0.063)	0.209 (0.130)
LTRADE			0.028 (0.093)				-0.015 (0.146)	
LME				0.0247*** (0.009)				-0.006 (0.017)
R^2	0.99	0.99	0.99	0.992	0.99	0.99	0.99	0.991

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Robust Standard errors in parentheses
Source: STATA13 Regression Results, 2017

Table 5.36: Dependent Variable LY, Explanatory Variable: LTOURP

Equation	1	2	3	4	5	6	7	8
Constant	9.402*** (0.357)	7.508*** (0.722)	8.991*** (1.084)	9.061*** (0.183)	6.295*** (0.164)	7.907*** (0.269)	7.571*** (0.479)	7.908*** (0.268)
LK	0.280* (0.126)	0.099* (0.057)	0.072 (0.0637)	0.188*** (0.056)	-0.020 (0.060)	-0.032 (0.053)	-0.048 (0.070)	-0.036 (0.070)
LH	-0.004 (0.003)	-0.003 (0.003)	-0.003 (0.003)	-0.005 (0.003)				
LHCI					1.896*** (0.321)	1.920*** (0.306)	1.845*** (0.276)	1.944*** (0.342)
LTOURP	-0.166 (0.121)	-0.046 (0.050)	-0.048 (0.049)	0.011 (0.042)	0.039 (0.030)	0.037 (0.031)	0.032 (0.030)	0.035 (0.029)
LL		-2.102*** (0.560)	-1.909** (0.609)	-1.360*** (0.170)		-1.230*** (0.257)	-1.635*** (0.242)	-1.236*** (0.275)
PC		-0.077 (0.081)	-0.078 (0.080)	0.058 (0.068)		-0.034 (0.048)	-0.032 (0.050)	-0.041 (0.059)
EOD		0.007*** (0.002)	0.007*** (0.001)	-0.011*** (0.001)		-0.004*** (0.001)	-0.001 (0.002)	-0.004*** (0.001)
NAC		0.933 (0.580)	-0.961 (0.637)	2.993*** (0.215)		0.196*** (0.073)	-0.158 (0.121)	0.194** (0.0879)
LTRADE			0.111 (0.132)				0.080 (0.129)	
LME				0.039*** (0.011)				0.001 (0.011)
R^2	0.957	0.976	0.976	0.985	0.989	0.989	0.989	0.989

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Robust Standard errors in parentheses
Source: STATA13 Regression Results, 2017

Table 5.37: Dependent Variable LY, Explanatory Variable: LRCA

Equation	1	2	3	4	5	6	7	8
Constant	5.398*** (1.060)	5.902*** (0.275)	5.536*** (0.472)	9.070*** (0.170)	6.330*** (0.318)	6.454*** (0.359)	7.974*** (0.540)	8.028*** (0.235)
LK	0.263*** (0.100)	0.089 (0.060)	0.057 (0.071)	0.179*** (0.057)	-0.008 (0.057)	-0.023 (0.051)	-0.053 (0.072)	-0.036 (0.064)
LH	0.000 (0.003)	-0.003 (0.003)	-0.003 (0.004)	-0.005 (0.003)				
LHCI					1.830*** (0.321)	1.868*** (0.313)	1.761*** (0.289)	1.971*** (0.324)
LRCA	-0.173 (0.130)	0.035 (0.041)	0.043 (0.044)	0.054 (0.040)	0.002 (0.044)	0.001 (0.044)	-0.001 (0.043)	-0.015 (0.045)
LL		-2.285*** (0.607)	-2.096** (0.654)	0.107 (0.214)		-0.315 (0.343)	0.601*** (0.130)	-0.786*** (0.0842)
PC		-0.064 (0.078)	-0.0647 (0.078)	0.056 (0.066)		-0.042 (0.047)	-0.037 (0.049)	-0.054 (0.061)
EOD		0.009*** (0.002)	0.010*** (0.002	-0.011*** (0.001)		-0.001 (0.002)	-0.018*** (0.001)	-0.005*** (0.001)
NAC		2.332*** (0.251)	2.216*** (0.320)	3.018*** (0.214)		1.324*** (0.338)	1.437*** (0.133)	0.227** (0.105)
LTRADE			0.125 (0.150)				0.137 (0.132)	
LME				0.036*** (0.012)				0.000 (0.010)
R^2	0.959	0.976	0.976	0.986	0.988	0.989	0.989	0.989

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Robust Standard errors in parentheses
Source: STATA13 Regression Results, 2017

Referring to Tables 5.35 to 5.37 above, the whole period (1995-2013) cross section regression results are better estimates compared to the smaller cross section and average panel estimates in terms of the level of significance and model specification (that is, highly significant p-value of the F-Statistic). This could be due to more degrees of freedom caused by having more regressors since the time span is long.

It is evident from the tables that total factor productivity explains per capita GDP for the time span because the constant is highly significant at 1% in all the specifications. This is similar to the cross sections 1995-1999; 2000-2004; 2005-2009; 2010-2013 periods and average panel results. Hence, innovation and improving total factor productivity should be encouraged. Differences in physical capital play a minimal role in determining GDP per capita as few of the specifications are significant. Human capital differences that is, gross secondary school enrolment play no role but the HCI is highly significant in all specifications in Tables 5.35-5.37. This renders the HCI a key determinant of GDP per capita. This is different from the cross sections where human capital proxied by gross secondary school enrolment was found to be significant in almost all specifications.

Turning to the non-economic effects, landlockedness, the ease of doing business and the North African country dummy had a significant impact on African economic growth in several of the specifications. The post conflict dummy played no role at all. This is similar to the cross sections 1995-1999; 2000-2004; 2005-2009; 2010-2013 periods and average panel results. This is expected because the whole period (1995-2013) cross section encompasses the smaller cross sections.

Trade openness played no role in determining per capita GDP in Tables 5.35 - 5.37. The results are similar to some of the cross sections and average panel results where trade openness was not a determinant of economic growth in some of the specifications. Commodity metal exports were significant in explaining per capita real income for African countries during the whole period 1995-2013 in equation 4 in all the tables 5.35 – 5.37. These results are similar to those for the 1995-1999 and 2000-2004 periods.

In conclusion, when using average of the whole 1995-2013 time frame, it is evident that the differences in GDP per capita were explained by differences in total factor productivity, tourism receipts per capita, tourism exports as a percentage of GDP, non-economic effects and trade openness. The non-economic effects are landlockedness, ease of doing business and the North African country dummy. Human capital differences played a minimal role. Physical capital and commodity metal exports were also influential at all in affecting per capita GDP of the 53 African countries during the 1995-2013 period though the impact was minimal.

5.7.2 Total Cross Section (growth function) results

Tables 5.38, 5.39 and 5.40 below show the whole period cross section regression results for the growth function for 1995-2013 time frame for the 53 African countries. They summarise regression results for the determinants of the average annual real GDP growth. The proxies for the determinants are the initial GDP for the period under scrutiny (LY1995), physical capital, human capital and tourism. The specifications were enhanced by incorporating dummy variables, that is, landlockedness, post conflict, ease of doing business and North African country. Finally, to the specifications, trade openness and commodity metal exports (representing natural resource dependence were added to the specifications.

Table 5.38: Dependent Variable Growth, Explanatory Variable: LTOURR

Equation	1	2	3	4	5	6	7	8
Constant	12.22 (16.10)	13.09 (25.36)	14.91 (22.19)	15.55 (23.64)	15.07 (24.51)	10.71 (12.65)	9.436 (11.89)	13.52 (25.37)
LY1995	-2.341 (2.701)	-2.076 (2.791)	-2.362 (2.611)	-2.348 (2.765)	-2.103 (2.538)	-1.993 (2.638)	-2.278 (2.388)	-1.604 (2.970)
LK	1.901** (0.886)	1.812** (0.895)	1.666* (1.001)	1.451 (0.928)	2.390*** (0.884)	2.007** (1.007)	1.768 (1.232)	2.308* (1.191)
LH	0.065 (0.053)	0.077 (0.055)	0.075 (0.055)	0.071 (0.058)				
LHCI					-5.151 (4.239)	-3.803 (4.317)	-4.174 (4.230)	-5.173 (7.355)
LTOURR	0.134 (0.425)	0.040 (0.422)	0.021 (0.436)	0.350 (0.369)	0.261 (0.404)	0.196 (0.427)	0.116 (0.501)	0.248 (0.594)
LL		-0.448 (8.162)	-1.491 (7.037)	0.667 (7.829)		2.978 (5.668)	3.285 (5.394)	-2.095 (9.059)
PC		-1.326* (0.764)	-1.336* (0.769)	-1.094** (0.525)		-1.167 (0.836)	-1.142 (0.835)	-0.965 (1.048)
EOD		0.008 (0.029)	-0.012 (0.032)	-0.011 (0.034)		-0.002 (0.040)	-0.006 (0.041)	-0.003 (0.054)
NAC		0.180 (3.747)	1.563 (4.201)	2.009 (3.193)		6.275 (8.529)	5.943 (9.249)	0.269 (5.396)
LTRADE			0.694 (1.735)				1.124 (2.226)	
LME				-0.183 (0.194)				-0.190 (0.294)
R^2	0.516	0.529	0.53	0.555	0.544	0.556	0.558	0.583

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Robust Standard errors in parentheses
Source: STATA13 Regression Results, 2017

Table 5.39: Dependent Variable Growth, Explanatory Variable: LTOURP

Equation	1	2	3	4	5	6	7	8
Constant	18.37 (32.26)	41.74** (19.53)	39.48** (17.40)	13.02 (16.95)	8.588 (26.97)	15.18 (27.83)	16.38 (22.77)	12.21 (26.22)
LY1995	-2.919 (3.383)	-2.065 (2.564)	-2.876 (2.264)	-1.595 (2.959)	-1.310 (2.756)	-1.302 (2.815)	-2.039 (2.347)	-0.957 (3.009)
LK	4.458** (2.084)	2.236*** (0.856)	1.833** (0.910)	1.424* (0.832)	2.595*** (0.749)	2.228** (0.859)	1.827* (0.986)	2.342** (1.086)
LH	0.016 (0.044)	0.028 (0.040)	0.025 (0.041)	0.040 (0.044)				
LHCI					-6.758 (3.701)	-5.983 (3.791)	-7.855* (4.210)	-7.011* (4.119)
LTOURP	-1.382 (1.136)	0.101 (0.802)	0.0643 (0.781)	-0.217 (0.532)	-0.339 (0.318)	-0.389 (0.342)	-0.522 (0.379)	-0.395 (0.427)
LL		-28.31*** (10.54)	-25.448** (10.702)	1.035 (3.028)		-1.437 (8.824)	1.641 (7.632)	-1.951 (8.685)
PC		-0.935 (0.799)	-0.957 (0.804)	-0.969 (0.641)		-1.055 (0.728)	-1.009 (0.719)	-1.029 (0.907)
EOD		-0.005 (0.029)	-0.009 (0.028)	-0.021 (0.037)		-0.020 (0.083)	-0.047 (0.071)	-0.010 (0.044)
NAC		-29.18** (11.681)	-24.436** (11.889)	0.350 (6.324)		0.289 (6.161)	-0.353 (1.176)	-0.270 (4.769)
LTRADE			1.699 (1.831)				1.996 (1.691)	
LME				-0.111 (0.153)				-0.107 (0.171)
R^2	0.71	0.813	0.815	0.551	0.604	0.614	0.62	0.595

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Robust Standard errors in parentheses
Source: STATA13 Regression Results, 2017

Table 5.40: Dependent Variable Growth, Explanatory Variable: LRCA

Equations	1	2	3	4	5	6	7	8
Constant	10.64 (18.69)	41.41** (20.05)	39.55** (17.40)	12.57 (28.00)	10.42 (13.50)	13.54 (27.51)	14.00 (24.13)	11.71 (28.60)
LY1995	-2.100 (3.764)	-2.066 (2.667)	-2.904 (2.368)	-1.567 (2.852)	-1.274 (2.750)	-1.272 (2.791)	-1.727 (2.484)	-0.931 (2.932)
LK	4.186** (1.613)	2.264*** (0.854)	1.826** (0.905)	1.423* (0.830)	2.560*** (0.736)	2.196** (0.858)	1.927* (0.972)	2.295** (1.150)
LH	0.056 (0.053)	0.027 (0.040)	0.024 (0.041)	0.043 (0.040)				
LHCI					-6.038* (3.575)	-5.149 (3.705)	-6.092 (3.880)	-6.123 (4.871)
LRCA	-2.513* (1.470)	-0.078 (0.643)	0.033 (0.706)	-0.027 (0.626)	-0.349 (0.574)	-0.368 (0.593)	-0.389 (0.597)	-0.261 (0.776)
LL		-27.800** (10.757)	-25.404** (10.863)	0.100 (2.446)		-1.747 (5.687)	0.477 (4.652)	-0.0658 (6.544)
PC		-0.962 (0.767)	-0.968 (0.778)	-0.928 (0.639)		-0.988 (0.743)	-0.946 (0.740)	-0.988 (0.977)
EOD		-0.007 (0.030)	-0.009 (0.028)	-0.020 (0.041)		-0.0135 (0.083)	-0.029 (0.074)	-0.048 (0.081)
NAC		-28.542** (10.757)	-24.266** (12.078)	0.0734 (2.351)		0.171 (6.127)	2.258 (5.829)	3.427 (5.726)
LTRADE			1.728 (2.021)				1.217 (1.549)	
LME				-0.111 (0.149)				-0.118 (0.186)
R^2	0.742	0.813	0.814	0.55	0.603	0.612	0.614	0.591

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Robust Standard errors in parentheses
Source: STATA13 Regression Results, 2017

From the Tables 5.38 to 5.40 above, the whole period (1995-2013) cross section growth regression results, total factor productivity plays a role in explaining real GDP growth of African countries. This is because the constant is significant in some of the specifications though very few. The results are similar to the cross sections 1995-1999; 2000-2004; 2005-2009; 2010-2013 periods and average panel results. Innovation and improving total factor productivity should be encouraged. The initial 1995 GDP for African countries is not significant, although the negative sign supports the convergence hypothesis. Differences in physical capital is an important determinant of economic growth since LK is significant in several of the specifications in the tables. Human capital, measured by gross secondary school enrolment, played no role at all and the HCI was also insignificant in all the specifications.

Focusing on the non-economic effects, that is, the North African country dummy as well as landlockedness, it is evident that they had some effect in explaining differences in African economic growth, showing support for these variables as explanations of the African growth dummy. The post conflict and ease of doing business dummies did not explain real GDP growth at all. Trade openness and commodity metal export did not play any role in determining real

GDP growth of African countries. Turning to tourism, the variable of interest for this research, tourism exports as a percentage of GDP and tourism receipts per capita did not have any role to play in determining real GDP growth. The RCA for tourism was significant at 10% in model 1 in Table 5.40, hence minimal effect.

In conclusion, during the whole 1995-2013 time frame, it is evident that the differences in real GDP growth were explained by differences in total factor productivity and physical capital. Landlockedness and ease of doing business also played a role. Initial GDP, human capital, tourism receipts per capita, tourism as a percentage of GDP, the post conflict dummy, ease of doing business dummy, trade openness and commodity metal exports played no role at all in explaining differences in real GDP growth of the 53 African countries during the 1995-2013 period.

5.8 Discussion of the results

The cross section results (see sections 5.5.1 – 5.5.8) showed weak evidence of the TLGH for African countries. This is due to the fact that regardless of the proxy or measure of tourism used, tourism was found to be insignificant in explaining economic growth for African countries, using either the production function or the growth function. In some few cases, tourism was significant, implying that tourism can be an important determinant for African economic growth. The tourism proxy that played a more significant role in explaining differences in economic growth in Africa was tourism receipts per capita compared to tourism exports as a percentage of GDP and the RCA for tourism.

An analysis of the regression results show human capital as the most significant variable in explaining GDP per capita differences in Africa. However, other researches on African TLG conducted have shown various results. The research by Kareem (2013) who used panel cointegration analysis for 30 African countries for the 1990-2011 time frame, found that tourism exports were having a significant positive long run effect on economic growth in Africa. Fayissa *et al.* (2008) used panel data of 42 African countries for the 1995-2004 time span to explore the potential contribution of tourism to economic growth and development using the conventional neoclassical framework. The research found tourism receipts contributing significantly to both the current GDP level and Sub-Saharan African countries' economic growth. Caglayan *et al.* (2012) investigated the causality relationship between tourism revenue and GDP for 135 countries. Panel data was employed for the 1995-2008 time frame and Granger causality analysis was applied to 11 groups of countries including Middle East and North Africa (11 countries) and Sub-Saharan Africa (24 countries). No causal relationship was found for Sub-Saharan Africa as well as the Middle East and North African countries.

Looking at the production functions, for cross section 1 (1995-1999 period), cross section 2 (2000-2004 period), cross section 3 (2005-2009 period) and cross section 4 (2010-2013 period), tourism proxies were found to be significant in some of the specifications. This points to tourism being a determinant of economic welfare differences in Africa. Turning to the growth function for the cross sections, tourism exports as a percentage of GDP was the strongest tourism proxy. This is evident in equation 6 in Table 5.18 for cross section 1; equations 3, 4 and 5; in Table 5.21 for cross section 2; and equation 1 in Table 5.24 for cross section 3. The cross section 3 period has global high commodity prices, and African countries benefited a lot as growth rates were high for the countries. There was generally a decline in world economic growth rates during the period 2010-2013 due to low exports of commodities, including tourism. Therefore, the countries that were more dependent on commodity metal exports were negatively affected by declining prices as well as commodity demand.

For the average panel production function, Table 5.29 indicated that tourism receipts seemed strong in explaining the differences in real per capita GDP in equations 1 and 5. In Table 5.30 the tourism exports as a percentage of GDP was strong in explaining the real per capita GDP in specifications 6 and 7. In Table 5.31, the revealed comparative advantage for tourism was not influential in determining GDP per capita in Africa. For the average growth panel, tourism receipts were significant in one specification; that is, equation 5. In Table 5.33, tourism percentage was important in explaining the real GDP growth in specification 5 only. In Table 5.34, RCA for tourism was insignificant. Generally, the production function and the growth function for the average panel had better estimates, because there are more regressors that are significant compared to the cross sections. When using a dynamic model, tourism becomes a significant predictor of economic growth in Africa (see the GMM results in Appendix A15).

These findings are similar to the panel data research done by Asan (2013) for 9 Mediterranean countries where there was no clear evidence supporting the TLGH in Egypt and Malta. Eknayake and Long (2012) found no evidence to support the TLGH for a panel of 140 developing countries using panel cointegration and the Granger causality for the 1995-2007 period. Figini and Vici (2010) also found no causation evidence for a panel of more than 150 countries for the periods 1990-2005 and 1995-2005. The cross section empirical evidence from researches done by Kasimati and Vagionis (2012) for Greece, Jackman and Lorde (2010) for Barbados, Karticioglu (2009) for Turkey, Ozturk and Acaravci (2009) for Turkey, and Hachicha (2003) for Tunisia also found no evidence of tourism development positively affecting economic growth.

The whole period (1995-2013) cross section regressions were executed in order to assess the robustness of the findings. The findings of the total cross section production and growth function confirm the results of the 1995-1999, 2000-2004, 2005-2009 and 2010-2013 cross section regression results. Tourism was found to be playing minimal impact on explaining differences in economic growth as evidenced by the results in Tables 5.35 to 5.40. However, from the whole period regressions, tourism receipts per capita was found to be very influential in determining economic growth in Africa compared to other tourism proxies, including tourism as a percentage of GDP and the RCA for tourism. Economic effects and non-economic effects all played a role in determining economic growth in Africa during the 1995-2013 time span.

It is evident from the regression results that with the progression in time from cross section 1, cross section 2, cross section 3 and finally to cross section 4 during the time frame of this research, tourism becomes a more important explanatory variable of real per capita GDP and real annual GDP growth rates of African countries. This is because at the start of the growth and production functions, human capital development is of critical importance in explaining African economic growth. The results also revealed that regardless of the proxy used, human capital (that is, gross secondary school enrolment and human capital index) was a significant determinant of the level of GDP per capita (and therefore the level of development in Africa). As countries develop, tourism becomes an influential driver of growth. Conversely, tourism was so low in the early years of the study period, that is, it was insignificant. Nonetheless, the variable has grown so much that it started becoming an important aspect of economic growth.

The growth regressions also showed physical capital investment as a determinant of growth rates in Africa, implying that both physical and human capital need to be prioritised on the African continent. Other variables which were also important in explaining variations in African growth for the cross sections and average panels were geography (landlockedness), institutional factors (ease of doing business), stable economic and political environments (post conflict dummy) and physical capital. Ease of doing business as an explanatory variable was significant across some of the cross sections and average panel data. This means that African countries have to make efforts to improve the attributes covered in the World Bank's Doing Business. The post conflict dummy was also significant as a determinant of African economic growth. Armed conflicts, civil wars, wars and destabilisation in general retards economic growth. Africa should find ways of solving political problems and disagreements in a peaceful way.

The constant was also highly significant (1% level of significance) in most of the specifications for the cross sections as well as the average panel results. This denotes the importance of improving total factor productivity to improve economic growth, by focusing on human capital and to some extent physical capital efficiency and intensity.

Alternatively, from a different perspective, tourism was so low during the early years that it was insignificant or played no role (Tables 5.5 to 5.7 i.e. cross section 1 during 1995-1999 period). However, its importance has grown remarkably as the years progressed, to the extent that it has now become an important aspect of economic growth (Table 5.28 during 2010-2013 period, average panel results in tables 5.29, 5.30 and 5.31, average growth panel results in tables 5.33 and 5.34). It is against these two perspectives that the next chapter seeks to investigate more conclusive evidence of the prerequisites for the success of tourism-led growth.

5.9 Chapter Summary

This chapter has presented evidence of the tourism-led growth in Africa. The methodology used followed previous researches done by Figini and Vici (2010), Cortés-Jiménez and Pulina (2010) and Holzner (2011). The approaches of these researchers were reviewed and chosen due to their strong theoretical foundations. Economic growth in Africa in comparison with other regions of the world was assessed and African economic growth over the decades was found to be different and unique compared to that of the other continents.

The variables and proxies of the variables chosen for this study were based on those used by Figini and Vici (2010), Cortés-Jiménez and Pulina (2010) and Holzner (2011). The variables used in the methodology were real GDP per capita, initial GDP per capita, investment as a percentage of GDP, gross secondary school enrolment, human capital index, tourism receipts per capita, tourism exports as a percentage of GDP, revealed comparative advantage of tourism, trade openness, and metal exports. Dummies were also added to the model to capture non-economic effects and these were institutional factors captured by the ease of doing business index, geography, captured by landlockedness and a North African dummy variable, as well as some control for countries plagued by war and unrest (post conflict countries).

Estimations were performed for using a total of 53 African countries. Somalia was dropped from the data set of 54 countries because the country had data missing for 6 variables in the data set. The period of regressions was 1995-2013. Two econometric models, that is, the production function and the growth function, were estimated using eight different cross section regression specifications and panel regression specifications.

For the years 1995-2009 data for the variables was averaged over a 5-year period and 2010-2013 over a 4-year period to construct the cross sections. This is consistent with the research done by Figini and Vici (2010). Four periods were constructed in which the variables took the average value of 1995-1999, 2000-2004, 2005-2009 and 2010-2013 respectively. Four cross sections were therefore formed from the averaged data, that is, 1995-1999, 2000-2004, 2005-2009 and 2010-2013 and used in the cross-section regression estimations. World Bank 2013 data for ease of doing business index was used in order to accommodate fixed effects. The dummies for landlockedness, post conflict African countries and North African countries were added to the data set. The panel data set was constructed from the combination of the four averaged cross section data sets (i.e. T=4 and N=53) forming the average panel. For robustness, regressions were also done for a cross section covering the whole period; that is, 1995-2013. The regression results were presented in tables.

The results found that the determinants of African GDP per capita over the period under study were human capital, ease of doing business, total factor productivity, landlockedness, post conflict dummies and natural resource dependence. Physical capital, North African country dummy and trade openness played minimal roles. When growth in Africa is considered as a dependent variable, physical capital seems to be an important determinant. In this regard, evidence is found in favour of the convergence hypothesis. Some evidence is also found in favour of the ELGH, and the dependence on metal exports that hamper growth in Africa.

The variable of interest, tourism, proxied with three different variables, initially seems to have little explanatory power for differences in the African GDP per capita and growth rates. However, it becomes a more important explanatory variable in the cross sections during the period under study (1995-2013 time span) as time progressed. Hence, tourism becomes an influential growth driver as countries develop. Chapter 6 that follows aims to test the prerequisites for tourism-led growth for the countries where tourism development enhanced economic growth.

CHAPTER 6

CRITICAL SUCCESS FACTORS FOR TOURISM-LED GROWTH

6.1 Introduction

The previous chapter presented new evidence of tourism-led growth in Africa. The chapter found that if one is to pursue economic growth regressions, there is a dilemma in understanding why growth in Africa is different compared to that of other regions of the world. The economic growth model in chapter 5 took on a typical neoclassical specification with per capita GDP as the dependent variable and several independent variables, which included, capital, labour, trade openness, commodity exports and various tourism proxies. Additionally, dummy variables were included to capture Africa-specific and geographical features, such ease of doing business, landlockedness, a North African dummy and post conflict dummy.

The results showed that Africa's GDP per capita can be better explained by human capital, ease of doing business, landlockedness, and post conflict dummies. Total factor productivity was found to be important as the constant was highly significant in most of the specifications. Physical capital and trade openness were found to be less important for explaining variations in the real per capita GDP of African countries, although some support could be found for the ELGH when real economic growth is the dependent variable. In the growth specification, strong support was also found for the convergence hypothesis and the importance of capital accumulation.

The results also showed that as years progressed during the study period, tourism was becoming more significant as a determinant of the African growth process. Tourism was of weak significance at the beginning of the period but increasingly became significant over time. This means that tourism is an important economic growth driver as African countries develop. Hence, chapter 5 has found tourism growing in importance as a determinant of African economic growth as time progressed. It is of paramount importance to now identify the circumstances or conditions which must exist for tourism to effectively spearhead and catalyse economic growth in the African region. The critical success factors or prerequisites for tourism to stimulate economic growth must therefore be identified, based on international evidence of countries that showed success in tourism-led growth. This is the essence of this chapter. This chapter is therefore primarily interested in tourism and relies on growth regressions to ensure enough control variables for this primary variable of interest. The study is therefore not only a growth study.

Chapter 4 identified the critical success factors, which are the conditions necessary for the tourism development to influence economic growth. The CSFs outlined were investment, human capital, safety and security of tourists, a well-developed financial system, technological development, trade openness, conducive climatic conditions and protection of the environment. The chapter also reviewed evidence on the characteristics of countries where tourism has been identified as an important economic growth contributor. The CSFs were found to possess several characteristics which include: that they do not work independently; they are intertwined or interconnected; and they are integrated and overlap each other in fostering overall tourism development.

This chapter investigates which of the CSFs for tourism development are the prior conditions necessary for tourism growth to affect economic growth positively. These CSFs are the necessary attributes that create an enabling environment for tourism development to be translated into economic growth. It can be argued that in the absence of these prerequisites, tourism will not grow sufficiently, and therefore not result in economic growth. Chapter 6 therefore aims to empirically verify the prerequisites for tourism-led growth to succeed in African countries. The chapter therefore tests the CSFs or the prerequisites of the TLGH.

The remainder of the chapter is structured as follow: section 6.2 summarises the evidence of the TLGH; section 6.3 outlines the methodologies used to generate the data used in the modelling process; section 6.4 explains the data, data sources and justification of variables used in the estimation process; section 6.5 presents the regressions results; section 6.6 summarises the regression results; and section 6.7 summarises the chapter.

6.2 Summary of the tourism-led growth hypothesis evidence

This section summarises the evidence for the TLGH. The summarising process was based on the strategy described below, also adopted by Brida *et al.* (2014). Articles on tourism-led growth time series were downloaded by way of a thorough search using well known search engines in tourism journals, peer reviewed international economics journals and conference papers (that is, Science Direct, JSTOR, Scopus, Emerald, EbscoHost, Google Scholar, Web of Science and so on). Papers testing the TLGH were the only ones considered and the findings were arranged in country alphabetical order. Where several studies have been done for a specific country, the findings were arranged in chronological order, starting from the first publications to the most recent ones. Working papers and unpublished manuscripts were not included. Table 6.1 below shows the number of articles generated from several sources using the thorough search engines explained above.

Table 6.1: Number of articles/ papers testing the TLGH generated

Source	Number of articles generated
Science Direct	45
JSTOR	69
Scopus	22
Emerald	19
Google Scholar	83
EbscoHost	46
SaePublications	15
Web of Science	28

Source: Own collation (2015)

Some articles appeared in more than one source. The thorough search generated a total of 116 articles, summarised in Table 6.2 below, after the elimination of articles with double downloads or more. The articles are summarised according to author(s), year of publication, journal/ source, time span (frequency), tourist destination, methodology employed, variables used and direction of causality. The order of the table follows the country name (i.e. alphabetically). The articles were then classified into categories or groups, based on their empirical findings of the relationship between tourism and economic growth. The findings were compiled within the groups into a table, which is depicted in Table 6.2 below, where:

- T→Y indicates empirical evidence which supports the view that tourism development results in economic growth (i.e. in support of the TLGH);
- Y→T indicates evidence that economic growth results in tourism development, referred to as EDTGH;
- T↔Y is the existence of bidirectional causality between tourism and economic growth; and
- No causality means the non-existence of any significant relationship between tourism development and economic growth.

Table 6.2: Time series studies showing the relationship between tourism and economic growth

Author(s)	Year	Journal	Frequency (Time span)	Destination	Methodology	Variables	Causality
Kristo	2014	Mediterranean Journal of Social Sciences	Quarterly (1998-2009)	Albania	Cointegration and the error correction mechanism (ECM) approach	Real GDP, net earnings from travel and tourism, real effective exchange rate	T→Y
Schubert, Brida & Risso	2011	Tourism Management	Annual (1970-2008)	Antigua and Barbuda	A large population of intertemporally optimizing agents and an AK technology representing tourism production & cointegration analysis	Foreign demand, relative price of domestically produced tourism services, foreign income	T→Y
Sr & Croes	2003	International Journal of Tourism Research	Quarterly (1975-2000)	Aruba	Cointegration	Real GDP growth rate, tourism receipts as a % of GDP	T→Y
Ridderstaat *et al.*	2013	Tinbergen Institute Discussion Paper	Annual (1972-2011)	Aruba	Cointegration, vector error correction modeling (VECM), and Granger causality testing	Real GDP and real tourism receipts	T→Y
Corrie *et al.*	2013	Tourism Economics	Quarterly (2000:Q1 – 2010:Q2)	Australia	Granger causality, Autoregressive Distributed Lag Model (ARDL)	Tourism receipts, GDP	T↔Y
Kreishan	2015	International Journal of Economics and Finance	Annual (1990 to 2014)	Bahrain	(ARDL), Unrestricted Error Correction Model (UECM), Granger causality tests	Real GDP, total international tourist arrivals,	T→Y
Jackman & Lorde	2010	Economics Bulletin	Annual (1970-2007)	Barbados	Granger causality, VECM	Tourist arrivals, GDP (household expenditure)	No causality
Lorde *et al.*	2011	The International Trade Journal	Quarterly (1974-2004)	Barbados	Cointegration, causality testing, and innovation accounting	Real GDP, real per capita GDP, tourist arrivals, exchange rate	T↔Y
Jackman	2012	Tourismos: An International Multidisciplinary Journal of Tourism	Quarterly (1975:1 - 2010:2)	Barbados	Phillips-Perron unit root tests, impulse response function, generalised forecast error variance decomposition technique and Granger-causality test	Real GDP, total tourist arrivals, nominal exchange rate, consumer price index	Y→T

Table 6.2: Time series studies showing the relationship between tourism and economic growth…continued

Author(s)	Year	Journal	Frequency (Time span)	Destination	Methodology	Variables	Causality
Jackman & Lorde	2012	Tourismos: An International Multidisciplinary Journal of Tourism	Quarterly (1975:1 to 2010:2)	Barbados	Vector Autoregressive (VAR), Granger-causality test, Cointegration	Real GDP, tourist arrivals, tourism related goods, nominal exchange rates, consumer price index	Y→T
Brida *et al.*	2011	Tourism Economics	Annual (1965-2007)	Brazil	Cointegration test, VECM, Granger causality test	Real GDP per capita, international tourism expenditure, real exchange rate	T→Y
Brida & Risso	2009	European Journal of Tourism Research	Annual (1988-2008)	Chile	VECM, Granger causality (Yoda-Yamamoto)	Real GDP, tourism expenditure, real exchange rate	T→Y
Wang & Xia	2013	Modern Economy	Annual (2001-2011)	China (Jiangsu Gaochun District)	Granger causality, VECM	Real GDP, tourism expenditure	Y→T
He & Zheng	2011	Journal of Agricultural Science	Annual (1990-2009)	China (Sichuan District)	Granger causality, VECM	Tourism expenditure, GDP, exchange rate	Y→T
Brida *et al.*	2008	MPRA Paper	Quarterly (1994-2007)	Colombia	Cointegration , Granger Causality	Real per capita GDP, tourism expenditure, real exchange rates	T→Y
Brida *et al.*	2009	Tourismos: An International Multidisciplinary Journal Of Tourism	1988-2008	Colombia	Cointegration, Granger Causality	Real GDP per capita, tourism expenditures, real exchange rates	T→Y
Payne & Mervar	2010	Tourism Economics	Quarterly (2000:Q1 to 2008:Q3)	Croatia	Granger causality tests, ECM	Real GDP, tourism receipts, real effective exchange rates	Y→T
Hajdinjak	2014	Enlightening Tourism: A Pathmaking Journal	Annual (1980-2011)	Croatia	Granger causality analysis, VECM	Real GDP, real imports of capital goods, tourism expenditures	T→Y

Table 6.2: Time series studies showing the relationship between tourism and economic growth…continued

Author(s)	Year	Journal	Frequency (Time span)	Destination	Methodology	Variables	Causality
Karticioglu	2007	Applied Economics	Annual (1960-2005)	Cyprus	VAR, cointegration, Granger causality	Real GDP, real trade volume, tourist arrivals, real exports, real imports	Y→T
Grullón	2013	European Journal of Business and Management	Annual (1991-2012)	Dominican Republic	Bounds' testing approach to co-integration	Real GDP, total number of international tourist arrivals, economic contraction dummy	T→Y
Narayan	2004	Tourism Economics	Annual (1970–2000)	Fiji	ARDL, VECM	Tourist arrivals, disposable income, relative hotel substitute prices, transport costs	T→Y
Ahiawodzi	2013	British Journal of Economics, Finance and Management Sciences	Annual (1985-2010)	Ghana	unit root test, cointegration, Granger Causality	Real GDP, real tourism earnings	Y→T
Havi & Enu	2013	European Scientific Journal	Annual (1991-2012)	Ghana	Cointegration, VAR, Granger causality test	Nominal GDP per capita, domestic tourism per capita, per capita international tourism	Y→T
Dritsakis	2004	Tourism Economics	Quarterly (1960: QI – 2000:Q4)	Greece	VAR	real GDP, real effective exchange rate and international tourism earnings	T→Y
Eeckels *et al.*	2012	Tourism Economics	Annual (1976-2004)	Greece	VAR	GDP, tourism income	T→Y
Georgantopoulos	2012	International Research Journal of Finance and Economics	Annual (1988-2011)	Greece	Trivariate model	Tourism expenditure, Business Travel and Tourism Spending, Leisure Travel and Tourism Spending, Real Effective Exchange Rate, Real Gross Domestic Product	T→Y
Kasimati & Vagionis	2012	2nd Advances in Hospitality and Tourism Marketing and Management Conference	Annual (1988-2010)	Greece	Granger Causality, VECM	Real GDP, real effective exchange rate, tourism receipts	No causality

Table 6.2: Time series studies showing the relationship between tourism and economic growth…continued

Author(s)	Year	Journal	Frequency (Time span)	Destination	Methodology	Variables	Causality
Ghali	1976	Economic Development and Cultural Change	Annual (1953-1970)	Hawaii	Demand-oriented model (Keynesian-type)	Private investment, rate of growth of exports, local government and state expenditures, each weighted by its contribution to personal income	T→Y
Suresh *et al*.	2011	Journal of International Business and Economy	Quarterly (1996-2009)	India	Cointegration, VECM	Real GDP, tourist arrivals, trade variable	T→Y
Georgantopoulos	2013	Asian Economic and Financial Review	Annual (1988-2011)	India	VAR/VECM , cointegration, innovation accounting	Tourism expenditure (TE), Business Travel and Tourism Spending (BTS) and Leisure Travel and Tourism Spending (LTS), Real Effective Exchange Rate (REER)	T↔Y
Mishra *et al.*	2010	European Journal of Social Sciences	Annual (1978 – 2009)	India	VECM, Granger causality	GDP, tourism receipts, real exchange rate	T→Y
Assadzadeh & Nasab	2012	International Review of Business Research Papers	Annual (1968-2007)	Iran, Islamic Republic	Cointegration, Granger and Hsiao causality tests	GDP, real exchange rate, tourism income, dummy variable for years after revolution, dummy variable for years after the Iran-Iraq war	T↔Y
Yazdi & Mastorakis	2014	Advances in Economics, Law and Political Sciences	Annual (1975-2011)	Iran, Islamic Republic	ARDL, Bounds Test	real GDP, capital formation, international tourist arrivals, international trade, energy consumption and real effective exchange rate	T→Y
Massidda & Mattana	2012	Journal of Travel Research	Quarterly (1987Q1-2009Q4)	Italy	Structural VECM)	Real GDP, total international commercial transactions, international tourism arrivals per capita	T↔Y
Amaghionyeodiwe	2012	Tourism Economics	Annual (1970-2005)	Jamaica	Granger Causality, VECM	Real GDP, tourism receipts	T↔Y
Ghartey	2013	Tourism Economics	Annual (1963-2008)	Jamaica	Granger causality, VECM	Real GDP, tourist arrivals, hurricane-structural changes, real exchange rate	T↔Y

Table 6.2: Time series studies showing the relationship between tourism and economic growth…continued

Author(s)	Year	Journal	Frequency (Time span)	Destination	Methodology	Variables	Causality
Kreishan	2011	International Management Review	Annual (1970-2009)	Jordan	Unit root tests, cointegration, Granger causality test	GDP growth, tourism receipts	T→Y
Kibara *et al.*	2012	International Business & Economics Research Journal	Annual (1983-2010)	Kenya	ARDL bounds testing approach	Real GDP per capita, real trade volume, number of international tourist arrivals	T→Y
Kumar	2014	Qual Quant (2014) 48	Annual (1978–2010)	Kenya	ARDL bounds approach within the augmented (Solow in Q J Econ 70:65–94,1956) framework	Real output per worker, real capital per worker, tourism receipts as a percentage of GDP, workers' remittances as a percentage of GDP	T→Y
Tang & Abosedra	2014	Current Issues in Tourism	Annual (1995-2010)	Lebanon	Bounds testing approach, Granger causality tests	International tourist arrivals, real GDP	T→Y
Tang &Abosedra	2015	Springer-Verlag Berlin Heidelberg 2015	Monthly (January 1995 to December 2011)	Lebanon	A multivariate model (Granger causality using TYDL bootstrap causality approach)	International visitor arrivals, real exchange rates, real GDP growth rates	T→Y
Bassil *et al.*	2015	Tourism Review	Monthly (January 1995 and May 2013)	Lebanon	VAR, Granger causality	Coincident indicator (eight weighted economic indicators average, that is, (production of electricity, deliveries of cement, checks cleared, M3 money supply, flows of passengers, petroleum derivatives imports, total exports and total imports); international tourist arrivals per month; relative intensities of terrorist incidents dummy variables	T→Y
Lean & Tang	2009	International Journal Of Tourism Research	Monthly (1989-2009)	Malaysia	Rolling subsample causality test	Total international visitor arrivals, Industrial Production Index	T→Y

Table 6.2: Time series studies showing the relationship between tourism and economic growth…continued

Author(s)	**Year**	**Journal**	**Frequency (Time span)**	**Destination**	**Methodology**	**Variables**	**Causality**
Sarmidi & Salleh	2010	MRPA Paper No. 21056	Quarterly (1997:Q1 to 2007:Q4)	Malaysia	Cointegration, ARDL	Real GDP, real trade volume, real exports of goods and services, real imports of goods and services, total international tourist arrivals	T→Y
Li *et al.*	2013	Margin—The Journal of Applied Economic Research	Annual (1974-2010)	Malaysia	Granger causality, VECM	Real economic growth per capita, real tourism receipts, real government tourism expenditure, real physical capital per labour, real education per labour, real health per labour, real exports of goods	T→Y
Tang	2013	International Journal of Tourism Research	Annual (1974-2009)	Malaysia	Bounds testing approach ARDL, Granger causality tests	Real tourism receipts, real GDP, real exchange rates	T↔Y
Tang & Tan	2015	Asia Pacific Journal of Tourism Research	Quarterly (1991:Q1 to 2014:Q1)	Malaysia	Johansen–Juselius cointegration, Granger causality test	per capita real GDP, per capita real capital, per capita international tourist arrivals, capita real export of goods	T→Y
Tang & Tan	2015	Tourism Management	Annual (1975-2011)	Malaysia	Multivariate model derived from the Solow growth theory	Real per capita GNP, total labour, savings, per capita real tourism receipts, political stability, real per capita gross national savings, population growth rate, technical progress growth rate and capital stock depreciation rate.	T→Y
Matahir & Tang	2015	Prosiding Perkem	Quarterly (2002:Q1 to 2013:Q4)	Malaysia	Feder's growth model and advanced time series approaches (i.e. unit root, cointegration and Granger causality)	Per capita real GDP, per capita real capital, per capita exports of real of goods, inbound international students per capita	Education tourism→Y
Kumar *et al.*	2015	Qual Quant	Annual (1975–2012)	Malaysia	Augmented Solow (1956) model, ARDL bounds (Pesaran et al.2001) model, Toda and Yamamoto (1995) non Granger causality procedure	GDP at constant 2005 prices, gross fixed capital formation at constant 2005 prices, tourism receipts, dummy variable for cumulative structural break	T↔Y

Table 6.2: Time series studies showing the relationship between tourism and economic growth…continued

Author(s)	Year	Journal	Frequency (Time span)	Destination	Methodology	Variables	Causality
Lean *et al.*	2014	Int. Journal of Economics and Management	Annual (1980-2009)	Malaysia & Singapore	Johansen-Juselius (1990) cointegration test, Unrestricted VAR, Granger causality tests, VECM	Real GDP, international tourist arrivals, total tourism receipts, total international trade, real effective exchange rates	Y→T Malaysia T→Y Singapore
Katircioglu	2009	Acta Oeconomic	Annual (1960-2006)	Malta	Bounds test for co-integration, Granger causality test	Real GDP, total number of international tourist arrivals, real effective ex-change rate	T↔Y
Durbarry	2004	Tourism Economics	Annual (1952–1999)	Mauritius	ECM (cointegration and causality tests)	Real GDP, tourism receipts, human and physical capital, real exports	T↔Y
Nowjee *et al.*	2012	ICTI	Annual (1981 – 2010)	Mauritius	Pair wise Granger causality test	Real Gross Domestic Product, Tourist arrivals, Gross Domestic Fixed Capital Formation, trade openness, literacy rate, Real Effective Exchange Rate	T→Y
Brida *et al.*	2008	Economics Bulletin	Quarterly (1980-2007)	Mexico	Granger causality, VECM	GDP, Argentineans tourism expenditure, exchange rate	T→Y
de la Cruz Gallego *et al.*	2010	R. Bras. Eco. de Emp.	Time series procedures	Mexico	Toda and Yamamoto´s (1995), Gunduz and Hatemi-J (2005) proposal, Liu, Song and Romilly (1997) time series procedures	Real GDP, tourist arrivals, private consumption, real exchange rate, consumer price index	T→Y
Gallegos *et al.*	2010	R. Bras. Eco. de Emp.	Annual (1980-2006)	Mexico	VAR, Granger causality, VECM analysis	Real GDP, tourist arrivals, real exchange rates	T↔Y
Bouzahzah & Menyari	2013	The Journal of North African Studies	Annual (1980–2010)	Morocco & Tunisia	ECM framework (cointegration and Granger causality)	Real tourism receipts, real effective exchange rate, Real GDP	Y→T
Dhungel	2015	International Journal of Econometrics and Financial Management	Annual (1974-2012)	Nepal	VECM, Engle and Granger co-integration test	Real per capita GDP, per capita tourism income, real imports,	Y→T
Croes & Vanegas	2008	Journal of Travel Research	Annual (1980-2004)	Nicaragua	Johansen cointegration, VAR, Granger causality	Tourism receipts, GDP, number people below the poverty line	T→P T→Y

Table 6.2: Time series studies showing the relationship between tourism and economic growth…continued

Author(s)	Year	Journal	Frequency (Time span)	Destination	Methodology	Variables	Causality
Jaforullah	2015	University of Otago Economics Discussion Papers No. 1502	Annual (1972-2012)	New Zealand	Unit root tests, cointegration tests, VECM	Real GDP, real international tourism expenditure, exchange rate between NZ dollars and SDRs	T→Y
Khalil *et al.*	2007	The Pakistan Development Review	Annual (1960 - 2005)	Pakistan	Time series technique, Cointegration and Granger causality	Tourism Receipts and Gross Domestic Product in local currency	T↔Y
Malik *et al.*	2010	European Journal of Economics, Finance and Administrative Sciences	Annual (1972-2007)	Pakistan	VECM, Granger causality	Tourism receipts, exchange rate, GDP, current account deficit	T→Y
Hye & Khan	2013	Asia Pacific Journal of Tourism Research	Annual (1971–2008)	Pakistan	Cointegration (Johansen Juselius), ARDL model, rolling windows bounds testing approach	Real GDP, real tourism earnings	T→Y except for 2006, 2007, and 2008
Jalil *et al.*	2013	Economic Modelling	Annual (1972-2011)	Pakistan	ARDL models	Real per capita GDP, per capita international tourism receipts, per capita physical capital formation, trade to GDP ratio, consumer price index	T→Y
Bento & Santos	2012	Revista Turismo & Desenvolvimento	Quarterly (1997:Q1 to 2010: Q4)	Portugal	Augmented Granger Causality	GDP, aggregate expenditure by international tourist arrivals	T→Y
Milanović & Stamenković	2012	2nd Advances in Hospitality and Tourism Marketing and Management Conference	Quarterly (2002:Q1 to 2011:Q3)	Serbia	Johansen and Johansen & Juselius VAR -based cointegration test, Granger Causality test	Real GDP, foreign tourist arrivals	Y→T

Table 6.2: Time series studies showing the relationship between tourism and economic growth…continued

Author(s)	Year	Journal	Frequency (Time span)	Destination	Methodology	Variables	Causality
Lee	2012	Anatolia – An International Journal of Tourism and Hospitality Research	Annual (1980-2007)	Singapore	Bounds test and Granger causality	Total exports, total imports, GDP, total international visitor arrivals	Y→T
Akinboade & Braimoh	2010	International Journal of Tourism Research	Annual (1980–2005)	South Africa	Granger causality analysis, ECM	Real GDP, international tourism receipts, exports, real effective exchange rates	T→Y
Balcilar *et al.*	2014	Applied Economics	Annual (1960–2011)	South Africa	VECM, Granger causality	Real GDP, real tourism receipts	T↔Y
Oh	2005	Tourism Management	Quarterly (1975-2001)	South Korea	Engle and Granger two-stage approach and a bivariate VAR model	Real GDP, real aggregate tourism receipts	No causality Y→T
Lee & Kwag	2013	Journal of Distribution Science	Quarterly (1970:Q1 – 2010:Q3)	South Korea	Granger causality, VECM	GDP, tourism expenditure, CO_2 emissions, industrial production	T→Y
Balaguer & Cantavella-Jordá	2002	Applied Economics	Quarterly (1975Q1 to 1997Q1)	Spain	Unit root testing (ADF, PP), Cointegration, Granger causality test	Real GDP, international tourism earnings, real effective exchange rate	T→Y
Nowak *et al.*	2007	Tourism Economics	Annual (1960–2003)	Spain	Neoclassical model of economic growth(multivariate Granger test based on VECM	Real GDP, real tourism exports (international tourist receipts) and real imports of inputs and manufactured items (imports of industrial goods and machinery)	T→Y
Mérida* & Golpe	2014	International Journal of Tourism Research	Quarterly (1980 to 2013)	Spain	Comovement analysis, Granger causality tests, causality considering structural breaks	Number of nights spent in Spanish tourist accommodations, GDP, real exchange rates	*Y* →T (1980-1985) T↔Y (2000-2013)
Inchausti-Sintes	2015	Annals of Tourism Research	-	Spain	A recursive-dynamic CGE model	Input-Output Table, Tourism Satellite Account, National Accounts	T→Y

Table 6.2: Time series studies showing the relationship between tourism and economic growth…continued

Author(s)	Year	Journal	Frequency (Time span)	Destination	Methodology	Variables	Causality
Parrilla *et al.*	2007	Annals of Tourism Research	Annual (1965-2000)	Spanish Islands	Accounting model	Constant GDP, capital. Labour, total factor productivity	T→Y
Cortés-Jiménez & Pulina	2006	Social Science Research Network Electronic Paper Collection	Annual Spain (1964-2000) Italy (1954-2000)	Spain & Italy	Cointegration techniques and the multivariate Granger causality test	Real per capita GDP, exports, international tourism receipts, physical capital, human capital	T→Y
Cortés-Jiménez *et al.*	2009	Research Institute of Applied Economics	Annual Italy (1954-2000) Spain (1964-2000)	Spain & Italy	Standard cointegration and Granger causality techniques	Real GDP per capita, investments as a quota of GDP, quota of active population with secondary level of education for Spain, quota of population with secondary level of education for Italy, total traditional exports, per capita international tourism receipts	T→Y
Perez-Rodríguez *et al.*	2015	Tourism Management	Quarterly UK (1980:Q1-2012:Q2) Spain (1995:Q1-2013:Q1) Croatia (1997:Q1-2013:Q4)	Spain, United Kingdom & Croatia	A copula-based GARCH approach	Real GDP, real tourism receipts	T→Y
Srinivasan *et al.*	2012	Environment and Urbanization ASIA	Annual (1969 -2009)	Sri Lanka	ARDL bounds testing approach, Unrestricted ECM	GDP, tourism receipts	Y→T
Jayathilake	2013	International Journal of Business, Economics and Law	Annual (1967-2011)	Sri Lanka	Tri-variate Model, Johansen's Cointegration procedure, Granger causality test	Real GDP, international tourist arrivals, real effective exchange rate	T→Y

Table 6.2: Time series studies showing the relationship between tourism and economic growth…continued

Author(s)	Year	Journal	Frequency (Time span)	Destination	Methodology	Variables	Causality
Mustafa & Santhirasegaram	2014	Journal of Emerging Trends in Economics and Management Sciences	Annual (1978 -2011)	Sri Lanka	Time-series econometrics techniques (Augmented Dickey-Fuller (ADF) unit root tests, Engle–Granger co-integration and Granger causality test)	Gross Domestic Production, tourism receipts, Foreign Direct Investment, Economic Freedom Index, War period Dummy variable	T→Y
Suresh & Senthilnathan	2014	International Conference of Eastern University, Sri Lanka	Annual (1977-2012)	Sri Lanka	Granger Causality tests, ECM	Real GDP, gross tourism receipts	Y →T
Kim *et al.*	2006	Tourism Management	Annual (1956-2002)	Taiwan	Granger causality test	GDP growth rate, total tourist arrivals	T↔Y
Lee & Chien	2008	Mathematics and Computers in Simulation	Annual 1959–2003	Taiwan	Multivariate model	Real GDP, a tourism development variable, and real exchange rate	T↔Y
Chen & Chiou-Wei	2009	Tourism Management	Quarterly 1975:Q1–2007:Q1	Taiwan & South Korea	EGARCH-M model	real GDP, real exchange rates relative to the US dollar, and tourism receipts	T→Y (Taiwan) T↔Y (South Korea)
Adhiambo	2011	Economic Computation and Economic Cybernetics Studies and Research,	Annual (1980-2008)	Tanzania	ARDL-Bounds testing procedure	Real GDP, Tourism receipts, real exchange rate	Y→T
Chancharat	2011	Kasetsart J. (Soc. Sci)	-	Thailand	Multivariate model of co-movements and the causal relationships investigation	real GDP, real exchange rate, tourism development (international tourism receipts and total international tourist arrivals)	T→Y
Untong	2014	Applied Economics Journal	Annual (1960-2012)	Thailand	Johansen approach, ARDL bounds test, and Granger causality test	Real GDP, tourism receipts, real exchange rate	Y →T (1960-1979) T→Y (1980-2012)

Table 6.2: Time series studies showing the relationship between tourism and economic growth…continued

Author(s)	Year	Journal	Frequency (Time span)	Destination	Methodology	Variables	Causality
Hachicha	2003	International Economic Journal	Annual (1961-1995)	Tunisia	Simultaneous error correction Model	GDP, capital stock, labour stock, exports of manufactured products, exports of food products, international tourism receipts, total export price index, export price index of textiles weighted average, world price index of food products exports weighted average, production prices index, index of the production costs weighted average, consumer goods price index, developing countries export price, GDP index	No causality
Belloumi	2010	International Journal of Tourism Research	Annual (1970–2007)	Tunisia	Trivariate model	Real GDP, real international tourism receipts and real effective exchange rate	T→Y
Corte ´s Jime´nez *et al.*	2011	Tourism Economics	Annual (1975-2007)	Tunisia	VECM- Johansen, Granger causality	GDP growth, tourism exports, capital goods imports	T→M Y→T
Yıldırım & Öcal	2004	Ekonomik Yaklasim	Annual (1962-2002)	Turkey	VAR framework	GNP at constant 1987 prices, real tourism receipts, real savings, labour force	T→Y
Demiroz & Ongan	2005	*Journal of Economics* (Economicky *Casopis),*	Annual (1980-2004)	Turkey	VECM. Johansen technique, Granger Causality	Real GDP, tourism receipts, real exchange rate	T↔Y
Gunduz & Hatemi-J	2005	Applied Economics Letters	Annual (1963-2002)	Turkey	Leveraged bootstrap causality tests	Tourist arrivals, real GDP, real exchange rates	T→Y
Akan *et al.*	2007	Journal of Tourism	Annual (1985-2007)	Turkey	Phillips–Perron test, Cointegration approach, Granger Causality test, VAR model	Economic growth rates, tourism income	T→Y
Kaplan & Celik	2008	International Journal of Applied Economics and Finance	Annual (1963-2006)	Turkey	VAR	Real output, real tourism receipts and real effective exchange rate	T→Y

Table 6.2: Time series studies showing the relationship between tourism and economic growth…continued

Author(s)	Year	Journal	Frequency (Time span)	Destination	Methodology	Variables	Causality
Katircioglu	2009	Tourism Management	Annual (1960-2006)	Turkey	Bounds Test and Johansen approach for cointegration	Real GDP, tourist arrivals, real exchange rate	No causality
Ozturk & Acaravci	2009	Transylvanian Review of Administrative Sciences	Quarterly (1987:Q1-2007:Q3)	Turkey	VECM, ARDL, Johansen cointegration test, ARDL bound test	Real GDP, total number of international tourists, real tourism receipts, real exchange rates	No causality
Savaş *et al.*	2010	ZKU Journal of Social Sciences	Quarterly (1985:Q1-2008:Q3)	Turkey	ARDL cointegration approach, ECM	Real GDP, real tourism expenditures, international tourist arrivals	T→Y
Arslanturk *et al.*	2011	Economic Modelling	Annual (1963-2006)	Turkey	rolling window and time-varying coefficients estimation methods, Granger causality based on VECM	Real tourism receipts, real GDP series	T↔Y
Husein & Kara	2011	Tourism Economics	Annual (1964–2006)	Turkey	Johansen multivariate cointegration analysis, Granger causality tests, ECM	Real GDP, tourism receipts and real exchange rates	T→Y
Savaş & Şamđloğlu	2011	Gazi Üniversitesi Endüstriyel Sanatlar Eğitim Fakültesi Dergisi Sayı	Annual (1969-2007)	Turkey	ARDL approach, cointegration, ECM	Real GDP, international tourist arrivals, real exchange rates	T→Y
Arslantürk & Atan	2012	Journal of Business, Economics & Finance	Annual (1987-2009)	Turkey	Granger Causality, cointegration	GDP, tourism incomes, foreign exchange earnings	T→Y
Yurtseven	2012	Afro Eurasian Studies	Quarterly (1980 -2011)	Turkey	Multivariate VAR	Real GDP per capita, tourism receipts, real exchange rates, real export volume	Y→T
Ertugrul & Mangir	2013	Current Issues in Tourism	Quarterly (1998Q1 – 2011Q3)	Turkey	Bound test approach (Pesaran, Shin, and Smith, 2001), Granger causality analysis, ARDL approach, Kalman filter method	Real GDP, the volume of international tourist arrivals, real exchange rates	T→Y

Table 6.2: Time series studies showing the relationship between tourism and economic growth…continued

Author(s)	Year	Journal	Frequency (Time span)	Destination	Methodology	Variables	Causality
Coşkun & Özer	2014	European Journal of Business and Social Sciences	Quarterly (1992:Q1 - 2014Q1)	Turkey	Structural break unit root tests, cointegration analysis, VECM based Granger causality tests, ARCH/GARCH model	Real GDP, tourism receipts, real exchange rates	T↔Y
Ay *et al.*	2015	The Journal of International Social Research	Annual (1980-2014)	Turkey	Time series analyses (unit root, least squares, co-integration, VAR, VECM)	GDP, tourism income, dummy variable (1 when the economy shrinks, 0 when it expands)	T→Y
Aslan	2015	Qual Quant	Quarterly (2005:QI to 2012:Q1)	Turkey	ARDL approach and Hatemi causality test	Real GDP, university graduate tourists' expenditure	T↔Y
Panahi *et al.*	2015	Anatolia-An International Journal of Tourism and Hospitality Research	Annual (1970– 2011)	Turkey	Time-varying parameter and the Kalman filter approaches	Real per capita GDP, gross fixed capital formation as a percentage of GDP, secondary and tertiary school enrolment, per capita tourism receipts, government consumption expenditure, real effective exchange rates	T→Y
Hatemi-J	2015	Applied Economics Letters	Annual (1995–2014)	UAE	Bootstrapped causality tests with leverage adjustments (Granger causality testing, VAR model)	GDP at constant prices, tourist arrivals	T→Y
Charalambos	2013	Journal of Regional & Socio-Economic Issues	Annual (1980– 2012)	United Kingdom	Granger causality	Growth rate of GDP, tourist arrivals	T↔Y
Brida *et al.*	2010	Tourism Economics	Quarterly (1987.QI to 2006.Q4)	Uruguay	VECM (Johansen) , Granger causality	Tourism expenditure by Argentineans, real per capita GDP, real exchange rate	T→Y
Trang & Duc	2013	Middle East Journal Of Business	Annual (1997-2011)	Vietnam (Thua Thien Hue Province)	VECM (Johansen), Granger causality	Real GDP, tourism expenditure	T↔Y
Trang *et al.*	2014	Tourism Economics	Annual (1992–2011)	Vietnam	Two-step Procedures (cointegration and the Granger causality test, decomposition methodology)	Real GDP, tourism earnings, real effective exchange rate	T→Y

Source: Own collation (2015)

There is really no difference between the literature review on tourism spearheading economic growth presented in the previous chapter 5 and the one in this section 6.2. Though, of course the literature presented in this section focuses on time series analysis and global evidence of TLG.

Summarising Table 6.2, out of the 116 downloaded articles, 72 showed evidence in support of the TLGH, 20 articles had results in favour of the EDTGH, 24 supported the bidirectional causality between tourism and economic growth, and 6 articles showed evidence of no causality link (the non-existence of any significant relationship between tourism development and economic growth). Some of the researchers concluded a combination of TLGH, EDTGH, bidirectional and no causality evidence. For instance, the research by Hye and Khan (2013) for Pakistan, Oh (2005) for South Korea, Merida and Golpe (2014) for Spain, Untong (2014) for Thailand. Hence, it is evident from the Table 6.2 that majority of the researchers found evidence which supports the TLGH.

Table 6.2 also shows that some countries attracted more research than others. Turkey, for example, was frequently assessed as indicated by a total of 18 researches conducted to investigate the validity of the TLGH for the country. Out of these articles, 11 supported the TLGH, only 1 had evidence of EDTGH, 4 showed results of bidirectional causality and 2 had results of no evidence of causality between tourism development and economic growth. Turkey is followed by Malaysia with 9 research articles. Out of these, 6 provided evidence in support of the TLGH, 1 in support of the EDTGH and 2 indicated bidirectional evidence. Another country frequently assessed is Spain, with 8 research articles published on the TLGH in the country. Out of these, 7 showed results in favour of the TLGH, 1 by Merida and Golpe (2014) showing evidence in favour of both the EDTGH and bidirectional causality for the period under scrutiny. Other countries popular for testing the TLGH include Barbados, Greece, Pakistan and Sri Lanka with 4 researches each, with the majority of the results in favour of the TLGH.

The main types of methodologies employed by these studies include the Granger causality tests, cointegration, estimating a Vector Error Correction Model (VECM) or Vector Autoregressive Model (VAR), estimating error-correction models (ECM) and autoregressive distributed lag (ARDL) models. The key dependent variables used by the researchers were real per capita GDP, real GDP, real economic growth per capita, real GDP growth and economic growth rates. Various explanatory variables were used by the researchers, the most popular ones being: real effective exchange rate;, nominal exchange rate; real exchange rate; tourism receipts; international tourist arrivals; tourism expenditure; and real tourism earnings. Some of the researchers included independent variables such as, real exports, real imports, CO_2 emissions, quota of population with secondary education, economic freedom index, war period dummy variable, capital stock, labour stock, labour force, consumer price index (CPI), real savings and real export volume. It is evident from the above that the studies were not all based on theoretical economic growth models, as discussed in chapter 2 of this study.

While several researchers in Table 6.2 tested the validity of the TLGH, often for the same country, the results are surprisingly inconclusive. This is due to the different methodologies, proxies, and sampling periods used. For a specific country, for example, Turkey, Malaysia or Spain where multiple studies were conducted, there is also a lack of causal pattern that is consistent between tourism development and economic growth (see also Chapter 1, section 1.3).

6.3 Method

It should be noted from the onset that a good complementary analysis which would have made the study to focus on Africa only would have been to use chapter 5 to create a dependent variable for this chapter 6. However, this was not feasible because the TLG evidence in Africa is not sufficient to date (as is evident from the summary above). Hopefully, in the future, there will be more African studies to allow this.

Table 6.2 above, summarised tourism-led growth articles using time series data downloaded using the thorough search engines. The countries were put in alphabetical order, some having several empirical research carried out. Table 6.2 has two groups of countries, those that found evidence in favour of tourism leading to economic growth (the TLGH) and those that did not find evidence in favour of tourism-led growth. A large number of articles in Table 6.2 used the simple Granger causality tests with growth and tourism as the only two variables being regressed. Although these models were grossly under-specified, for completeness, these papers were not excluded from the methodology adopted in the remainder of this chapter. Papers with time spans falling outside the research period, for example, Hawaii by Ghali (1976), were not considered. Two TLGH dependent dichotomous variables were developed, taking the value of 1 if evidence is in favour of tourism-led growth, and zero if not, as shown by Table 6.3 (below the table are the definitions of the TLGH dummies created). The table summarises the TLGH variable for countries listed in Table 6.2.

Table 6.3: Summary of the TLGH variable

Country	T→Y	Y→T	T↔Y	No Causality
Albania	2014			
Antigua & Barbuda	2011			
Aruba	2003*, 2013*			
Australia			2013*	
Bahrain	2015*			
Barbados		2012, 2012	2011	2010*
Brazil	2011			
Chile	2009			
China		2013*, 2011		
Colombia	2008, 2009			
Croatia	2014	2010		
Cyprus		2006, 2007		
Dominican Republic	2013			
Fiji	2004			
Ghana		2013*, 2013		
Greece	2004, 2012, 2012			2012
India	2010, 2011		2013	
Iran, Islamic Republic	2014		2012	
Italy	2006, 2009		2012	
Jamaica			2012*, 2013	
Jordan	2011*			
Kenya	2012, 2014			
Korea, Rep	2013	2005*	2009	2005
Lebanon	2014*. 2015, 2015			
Malaysia	2009*, 2010, 2013, 2015, 2015, 2015	2013, 2015	2013	
Malta			2009	
Mauritius	2012*		2004	
Mexico	2008, 2012		2010	
Morocco		2013		
Nepal		2015		
Nicaragua	2008*			
New Zealand	2015			
Pakistan	2010, 2013*, 2013		2007*	
Portugal	2012*			
Serbia		2012*		
Singapore	2014	2012		
South Africa	2010		2014*	
Spain	2002, 2006, 2007, 2009, 2015, 2015*	2014	2014	
Sri Lanka	2013, 2014	2012, 2014*		
Tanzania		2011		
Thailand	2011, 2014	2014		
Tunisia	2010	2011, 2013		2003
Turkey	2004, 2005, 2007*, 2008, 2010, 2011, 2011, 2011, 2012, 2013, 2015	2012	2005, 2011*, 2014, 2015*	2009, 2009
United Arab Emirates	2015*			
United Kingdom			2015*	
Uruguay	2010			
Vietnam	2014		2013*	

Where;* indicates underspecified models = results cannot be trusted
TLGH1 = every country which has an entry in first column = 1; TLGH2 = only where the evidence is clear that T→Y and not anything else = 1 (most strict); also exclude the * results
Countries left out = Hawaii (falling outside the research period) and Taiwan (no data)

Source: Own collation (2016)

Chapter 4 identified that the CSFs for tourism led growth are investment, safety and security of tourists, human resources, a well-developed financial system, technological development, favourable climatic conditions, protection of the environment and trade openness (see Chapter 4 sections 4.3.1 to 4.3.8). Proxies for the CSFs were generated from various sources and are discussed in section 6.4.2 below. Logistic regression techniques were used for analysis, since the dependent variable is a binary variable. Similar to chapter 5, the regressions were executed in a stepwise manner for each of the proxies for the variables. This was done to test the robustness of the various CSFs.

A logistic regression model is a regression model where the dependent variable is categorical, and one or more independent variables are estimated using a cumulative logistic distribution function. It covers the case of binary dependent variables, where the outcome takes only two values, for example, win/lose, pass/fail, dead/alive or healthy/sick. David Cox is the statistician who developed the logistic regression methodology in 1958. In the STATA software, the command “logistic” reports the odd ratio while the command “logit” reports the coefficient of the logistic regression (Gujarati, 1988: 481-491; Maddala, 1992: 327-330), although the odds ratio are easier to interpret.

Logistic regressions were used to verify which of the theoretically identified CSFs appear in the countries shown in Table 6.2, which shows evidence of tourism-led growth. The dependent variable has two outcomes which are 1 (yes, tourism leads to growth in this country) and a 0 (no, tourism does not lead to growth in this country). The logistic regressions were used to determine the prerequisites/ key success factors that are significant predictors in countries where tourism led to economic growth.

From Tables 6.2 and 6.3, a dataset of 47 countries for the years 1995-2013 was generated. Logistic regressions were executed for each of the TLGH dependent variables separately (i.e. TLGH1, TLGH2) as explained by Table 6.3 above. The independent variables were constructed based on the CSFs identified in Chapter 4. The time frame was the original time span of 1995-2013 - similar to Chapter 5. Also similar to Chapter 5, smaller timeframes were considered from the full dataset as follows: the first cross section (1995-2000 period), the second cross section (2001-2005 period) and the third cross section (2006-2013 period). Cross section 1 presented the averages of the 1995-2000 data, cross section 2 for the averages of the 2001-2005 data and cross section 3 for the averages of the 2006-2013 data. The full period cross was also generated by averaging the variables for the whole panel (cross total). For robustness, logistic regressions were executed for the full cross section and then for the smaller cross sections.

There are several proxies for each of the CSFs identified in chapter 4. The logistic regressions were run in a stepwise manner to determine what happens to the regression results as changes were made in the proxies estimating the CSFs. These were presented in Tables 6.4 to 6.19 below and appendices B1 to B4.

6.4 Data

The aim of this chapter is to identify the prerequisites or CSFs for tourism development to enhance economic growth based on international evidence. This was done using logistic regression analysis, where the dependent variable, that is, the tourism-led growth, is a categorical or a dummy variable. This research covers the case of a binary or dichotomous dependent variable, that is, where it can take two values, namely, 1 for yes and zero for no. The binary model was used to estimate the probability of a binary response based on one or more predictor (or independent/explanatory) variables.

The econometric package used for the logistic regressions was STATA13. The analysis was done for the three cross sections representing the averaged data sets for each of the smaller panel time periods were estimated, namely, cross section 1 (1995-2000), cross section 2 (2001-2005) and cross section 3 (2006-2013). For robustness, the logistic regressions were finally executed for the full cross section which is a combination of the three smaller cross sections. The TLGH dependent variables took 2 variations, that is, TLGH1 and TLGH2 as explained above (see Table 6.3). Taiwan was initially included in the data set, but was removed from the list due to insufficient data.

The dependent variables (TLGH1, TLGH2) were regressed against the CSFs identified in chapter 4. For easy interpretation of results, the data figures were converted to logarithms and the coefficients of the explanatory variables were interpreted as elasticities. However, since the dependent variable is binary, it remains marginal and the coefficients were interpreted as odds ratios. The prerequisites for the tourism-led growth, were the following independent variables: investment; trade openness; safety and security of tourists; human resources; a well-developed financial system; technological development; favourable climatic conditions; and the protection of the environment (see Chapter 4, section 4.3). Dummies for the existence of world wonders and the Blue Flag accreditation were also included in the model (see also Chapter 3 section 3.2.1).

6.4.1 Data sources

Data for investment, trade openness, human resources, a well-developed financial system, technological development, favourable climatic conditions and the protection of the environment was downloaded from the World Bank 2015 website. Internet users (per 100 people), mobile cellular subscriptions (per 100 people) and cereal yield (kg per hectare) data was downloaded from the World Bank 2016 website. Data for safety and security of tourists was downloaded from the World Economic Forum 2015 report. Data for general measures of geography (percentage of land area in geographical tropics) were retrieved from the Centre for International Development at Harvard University (Research Datasets). Data on the human development index (HDI) was retrieved from the United Nations Development Programme (UNDP) 2016 website. The human capital index (HCI) data was retrieved from the Penn World Tables (2015). Data on secondary school enrolment was downloaded from the World Bank website. The dummy for World Wonders was constructed from information from Worldatlas (2015), Wonderslist (2015), World of New 7 Wonders (2007) and Skyscanner (2015). The dummy for the Blue Flag accreditation was constructed from information from the Blue Flag (2015) website. Several dummy variables could have been included in the model, for example, post conflict countries (such as armed struggles, civil wars, violence, and terrorism) and natural disasters (for example, earthquakes, hurricanes, and droughts) but their impact on tourism growth is already captured in the safety and security of tourists (discussed below) and might lead to over-specification.

6.4.2 Independent variables

To measure the key success factors, various proxies were used and these are explained and justified in sections 6.4.2.1 to 6.4.2.10 below.

6.4.2.1 Investment

Three proxies were used to measure investment in this research. These are gross capital formation (as a percentage of GDP), internet users per 100 people and mobile phone users per 100 people.

Gross Capital Formation (as a percentage of GDP) is the sum total of fixed assets additions of the economy and inventories level net changes. Fixed assets include improvements in land (for example, ditches, fences and drains); machinery, plant, and equipment purchases, and the construction of railways, roads, offices, schools, hospitals, commercial and industrial buildings, and private residential dwellings. Inventories consist of stock of goods held by firms in order to meet unexpected and temporary fluctuations in sales or production. Inventories also include work in progress. Capital formation also includes net acquisitions of valuables (World Bank, 2015). An increase in investment in the tourism sector enhances tourism development.

According to the World Bank (2016), internet users are people that have used the internet in the past twelve months in any location in the country. The use of internet can be via cellular mobile phone, computer, games machine, personal digital assistant, digital television and so on. Internet users per 100 people in a country have been used as a proxy for investment. An increase in the number internet users in a country denotes an increase in a country’s level of investment in communication infrastructure – an essential component in tourism. Internet is also an important tourism infrastructure since tourists make use of internet to communicate.

Subscriptions of mobile cellular telephone are subscriptions to the public mobile telephone service that provide Public Switched Telephone Network (PSTN) access for the use of cellular technology. This indicator includes the number of subscriptions that are postpaid, and the number of prepaid accounts that are active (that is, those that were in use over the past three months). This indicator applies to mobile cellular subscriptions that offer voice communications (World Bank, 2016). Mobile cellular users per 100 people, as a proxy for the level of investment in a country since an increase in the number of mobile cellular users, also indicate an increased improvement in communication infrastructure, which make tourist access easier.

6.4.2.2 Trade openness

Trade openness is the sum total of a country’s imports and exports of goods and services measured as a percentage of GDP. Trade restrictions reduce the amount of trade between a nation and other nations. Countries which open up their borders to international trade will have high volumes of international tourist arrivals. Trade openness enhances growth and development. Theoretically, Romer (1993), Grossman and Helpman (1991), Barro and Sala-i-Martin (1995) argue that economies that open up their borders to international trade have a greater ability of catching up to the rest of the world's leading technologies. Chang *et al.* (2009) opined that trade openness promotes comparative advantage, efficient allocation of resources, knowledge dissemination and technological progress, and encourages domestic and international market competition. Therefore trade openness enhances the development of the tourism sector.

6.4.2.3 Human resources

Similar to chapter 5, secondary school enrolment and the HCI were used as proxies for human capital. In addition, two more proxies for human capital were used in this chapter, that is, total labour force as a percentage of population and the human development index (HDI). Hence, four proxies for human capital were used in this chapter. Human capital is vital for the growth of the tourism sector. Human capital index (HCI) provides an index of human capital per person and is related to the average years of schooling and the returns to education (Feenstra *et al.,* 2015).

Total labour force as a percentage of the total population was used as the second proxy for human capital. This is because a country with a smaller proportion of its population in the labour force has a higher probability of its tourism growth enhancing economic growth. In addition, there will be a pool of unemployed people who can easily be absorbed by the tourism sector as it realises growth.

The HDI is a measure which summarises the average achievement in the human development key dimensions, which are, a healthy and long life, having a standard of living that is decent and being knowledgeable. The HDI is a geometric mean of the normalised indices for each of the three perspectives. Life expectancy at birth assesses the health dimension. The education dimension is measured by the mean number of years of schooling for adults who are at least 25 years, as well as the expected schooling years for children of school entering age. The standard of living dimension is measured by the gross national income (GNI) per capita (UNDP, 2016). The UNDP data for HDI was not sufficient for the time span of the research (1995-2013) as it was only available for the years 1990, 2000, 2010, 2011, 2012, 2013 and 2014. Hence, 2013 HDI figures were used in the data set to capture fixed effects and also due to the fact that 2013 lies within the time span of the research. The HDI was used as a proxy for human capital for its inclusion of the human capital dimension amongst other dimensions, to measure the overall level of economic development of the people in country.

Secondary school enrolment is the total enrolment in secondary education, regardless of age, expressed as a proportion or percentage of the population of official secondary education age. The ratio can exceed 100% due to the inclusion of the under- and over-aged students because of early or late school entrance and grade repetition (World Bank, 2016).

6.4.2.4 Safety and security of tourists

The World Economic Forum Safety and Security 2013 index is the proxy for safety and security of tourists. According to the World Economic Forum (2013: xv), the Travel and Tourism Competitiveness Index (TTCI) has three broad categories or sub-indices that facilitate or drive the Travel and Tourism (T&T) competitiveness of a country. These are: the T&T regulatory framework; the T&T business environment; and the T&T human cultural and natural resources. Each of the three categories has a composition of pillars of the T&T competitiveness and there are 14 such pillars. These are: policy rules and regulations; environmental sustainability; safety and security; health and hygiene; prioritisation of travel and tourism; airport transport infrastructure; tourism infrastructure; ICT infrastructure; price competitiveness in the T&T industry; human resources; affinity for travel and tourism; natural resources; and cultural resources. A number of individual variables make up each of these pillars.

Safety and security is the third pillar under the T&T regulatory framework index. The variables under this pillar are, business costs of crime and violence; police services reliability; business costs and terrorism; terrorism incidence index; and homicide rate. The competitiveness of a country's T&T industry is determined by the safety and security of tourists. Dangerous countries or regions deter tourists from visiting and make it less attractive to develop the travel and tourism sector in those volatile tourist places. Common crime, violence and terrorism are costly to tourists and therefore, police services have to be relied upon in order to protect tourists from crime (World Economic Forum, 2015: 6).

The research used the World Economic Forum Safety and Security 2013 index score for each country on the list order to allow for fixed effects for the whole period under study, that is, from 1995-2013.

6.4.2.5 A well-developed financial system

The World Bank domestic credit provided by the financial sector (as a percentage of GDP) and depth of credit information index (0=low to 8=high) were the two proxies for a well-developed financial system. The depth of credit information index is a measure of rules affecting the accessibility, scope, and quality of credit information that is made available through the public or private credit registries. The index varies from 0 to 8 with a higher index indicating more credit information availability from either a private bureau or public registry. The availability of information facilitates lending decisions (World Bank, 2015). A positive and direct relationship should exist between the depth of credit information index and tourism growth because if information on credit is readily available, the tourism industry and any industry to which tourism has indirect effects, can easily have access to credit and the finances can be used to enhance tourism growth.

The World Bank domestic credit provided by the financial sector (percentage of GDP) was used as the second proxy to measure the development of the financial system of a country. The domestic credit provided by the financial sector on a gross basis includes all credit to various sectors of the economy, except credit to the central government, which is net. The financial sector encompasses monetary authorities, banks where the general public deposit their monies and other financial corporations where there is data available. Other financial corporations include entities that incur liabilities such as savings and time deposits but do not accept transferable deposits, for example, finance and leasing companies, insurance corporations, money lenders, foreign exchange companies and pension funds (World Bank, 2015). Therefore, domestic credit provided by the financial sector (as a percentage of GDP) is a good proxy for level of financial development due to the fact that tourists should be in a position to access their money for spending purposes, but also because it allows tourism firms to access credit in order to grow and develop.

6.4.2.6 Technological development

The proxy for technological development of a country was measured by the World Bank high technology exports (as a percentage of manufactured exports). High technology exports are export products with a high component of R&D intensity, for example, computers, pharmaceuticals, aerospace, electrical machinery and scientific instruments (World Bank, 2015). A country with more high technology exports is likely to have a well-developed tourism sector.

6.4.2.7 Protection of the environment

Forest area (as a percentage of land area) and CO_2 emissions (metric tons per capita) were used to measure a country's protection of the environment. Dummies for world wonders and the Blue Flag accreditation can belong to this category as well (see sections 6.4.2.8 and 6.4.2.9 below).

The forest area (as a percentage of land area) was the proxy used to determine whether a country protects its environment. Natural or planted tree of at least 5 meters in-situ are referred to as forest area. This is despite the fact that the forest area is productive or not. The tree stands in agricultural production systems are excluded, for example, agroforestry systems and fruit plantations and trees in gardens and urban parks (World Bank, 2015).

The forest area constituting the percentage of land area in a country was used as a proxy for the protection of the environment because forests play a very important role in protecting the environment. Forests help to prevent soil erosion, avalanches and landslides. They play a major role of protecting the global carbon cycle through the sinking of atmospheric carbon dioxide. Converting forests to other land uses is one of the causes of an increase in the concentration of atmospheric carbon dioxide. Reforestation and afforestation help in the reduction of carbon dioxide concentrations and the use of biofuels could help in the reduction of the demand for fossil fuels (Innes, 2004). A high percentage of forest area in a country attracts tourists, especially those that specifically visit certain countries to see the jungle.

CO_2 emissions (metric tons per capita) measure carbon dioxide emissions stemming from the burning of fossil fuels and the manufacture of cement. They include carbon dioxide which is produced as a result of the consumption of liquid, solid, gas flaring and gas fuels (World Bank, 2015). High CO_2 emissions per capita pollute the air. This dissuades tourists from visiting a country.

6.4.2.8 Existence of world wonder(s) dummy

The Wonders of the World demonstrate mankind's most artistic and impressive creations in the form of monuments that have attracted tourists worldwide. The so-called "Wonders of the World" act as pull factors for tourists, thus promoting tourism development in the countries concerned (Yiamjanya & Wongleedee, 2014: 1348). The Wonders of the World are grouped into 7 new wonders of the world, 7 wonders of the natural world, 10 wonders of the world and 10 natural wonders of the world.

The 7 new wonders of the world are; Christ Redeemer in Rio de Janeiro, Brazil; Great Wall of China; Machu Picchu in Peru; Petra in Jordan; Pyramid at Chichen Itza, Yucatan Peninsula in Mexico; Roman Colosseum in Rome Italy; and Taj Mahal in Agra India (World of New 7 Wonders, 2007). According to Worldatlas (2015), the 7 natural wonders of the world are; the Grand Canyon in Arizona, USA; the Volcano Paricutin in Michoacan, Mexico; the Green Swirling in Aurora, Canada; the Victoria Falls along the border between Zambia and Zimbabwe; the Harbour of Rio de Janeiro in Brazil; the Great Barrier Reef in Australia; and Mount Everest in Nepal.

According to the Wonderslist (2015), the top 10 wonders of the world are: the Great Wall of China; Petra in Jordan; the Cristo Redentor Statue in Rio de Janeiro, Brazil; the Taj Mehal of Agra in India; the Hagia Sophia in Turkey; the Hanging Gardens of Babylon in Iraq; the Lighthouse of Alexandria in Egypt; the Temple of Artemis in Turkey, the Victoria Falls on the borders of Zimbabwe and Zambia; and the “Valley of Love” – Lost Wonders of the World in Ireland.

The 10 most amazing natural wonders of the world are: the Fly Geyser, Nevada in USA; the Great Blue Hole in Belize; the Plitvicer Seen in Croatia; the Zangye Danxia in China; the Striped Icebergs in Antarctica; the Door to Hell in Turkmenistan; Cote d`Albatre in France; the Bryce Canyon in USA; Salar de Uyuni in Bolivia; and Pamukkale in Turkey (Skyscanner, 2015).

The existence of a world wonder in a country, which must itself be protected and maintained, can also be taken as a proxy for the protection of the environment. The dummy for the Wonders of the World was constructed as follows: for a country where there is a wonder, the dummy was coded 1 and 0 for no wonder.

6.4.2.9 Blue Flag accreditation dummy

The Foundation for Environmental Education (FEE) is a body that certifies that a beach or marina meets its set stringent standards under a certification called the Blue Flag. The beaches and marinas awarded with the Blue Flag certification comply with 33 criteria covering: environmental education and information; water quality; environmental management; and safety and services. The Blue Flag certification is awarded for one season at a time. If the criteria are not fulfilled during a season or there is a change in conditions, the certification may be withdrawn (Blue Flag, 2015). In 2015, 48 countries with beaches and marinas were awarded with the Blue Flag certification.

A country with beaches and marinas stands to benefit from the Blue Flag certification since it is an indication of a country's high environmental and quality standards, which tends to attract more tourists. Therefore, non-certification or withdrawal means less or no visitations, negatively impacting on tourism development. A country with the Blue Flag certification was coded 1, while a country without Blue Flag certification was coded of zero. The Blue Flag accreditation dummy can be a proxy for favourable climatic conditions as well as protection of the environment. The accreditation by the Blue Flag organisation is a sign that the beaches and marinas are meeting certain quality criteria, which is an indicator of environmental protection. Blue Flag accreditation also means that the country has favourable climatic conditions normally situated at coasts and not in tropics where the climatic conditions are unfavourable.

6.4.2.10 Favourable climatic conditions

The decisions made by tourists on whether to visit a destination are affected by weather and climatic conditions prevailing at the tourist destination. In addition, weather and climatic conditions also affect the successful operation of tourism businesses. The proxies for climatic conditions used in this research are, the percentage of population in the geographical tropics, cereal yield (kilograms per hectare) and the Blue Flag Beaches accreditation dummy.

Geography is a determinant of economic growth. The rate of the economic growth of a country is affected negatively if a proportion of the country is located in the tropics. Tropical weather retards economic growth (Artadi & Sala-i-Martin, 2003: 13) (see also section 5.2.2). People from cold areas prefer to travel to tropical areas, especially during the winter seasons. Hence, being located in the tropics will attract a huge flow of tourists. The challenge though is that tropical areas are normally plagued by tropical illnesses and diseases that dissuade tourists from visiting.

Cereal yield (kilograms per hectare) as an indicator of climatic conditions, measures the kilograms per hectare of harvested land. The cereals include maize, rice, wheat, oats, barley, millet, rye, buckwheat, sorghum and mixed grains. Data on production of cereals relate only to crops harvested for dry grain. This excludes cereal crops harvested green for food, feed or silage, harvested for hay and those used for grazing. The Food and Agricultural Organisation (FAO) allocates the production data to the calendar year in which the bulk harvest occurred.

Most of the crop harvested near the year end will be used in the following year (World Bank, 2016). The higher the kilograms of cereal yield per hectare, the favourable the climatic conditions and the opposite is true since high cereal yield per hectare imply favourable climatic conditions. Tourists will be attracted to visit destinations where the climatic conditions are favourable.

6.5 Regressions results

This section summarises and interprets the regression results for the three cross sections and the total cross section data sets. The section summarises the regression results in tabular form in terms of the logistic odds ratios of the explanatory variables, standard errors as well as level of significance. Some summary statistics for the regressions (such as the pseudo R-squared) are also presented together with the total number of observations per regression. Section 6.5.1 summarises and explains TLGH1 dummy variable regression results for cross section 1, section 6.5.2 uses the same dependent variable (TLGH1) and shows the results for cross section 2, section 6.5.3 shows the results for the third cross section (cross section 3) and the full period cross section (cross total) for the dependent variable TLGH1 are summarised and explained in section 6.5.4. The cross sections regression results for the second binary dependent variable (TLGH2) are in the appendices (see Appendices B1-B4).

The TLGH1 dependent variable was chosen as the main specification in the text. This is due to the fact that the variable has the best results for the narrative to be presented in the chapter. In addition it is the dependent variable that captures all information of any evidence of tourism leading to economic growth in the data set. TLGH1 has clear undisputed evidence as far as tourism leading to growth, that is, there is no conflicting evidence. TLGH2 is stricter than TLGH1. The estimates of logistic regressions are in odds ratios for easy interpretation.

The logistic regressions were performed in a stepwise manner in order to assess the regression results. The dependent variable is firstly regressed against the gross capital formation (percentage of GDP), the tourism safety & security index, the trade openness index, the depth of credit information index, the high-tech exports [percentage of manufactured exports] and Blue Flag accreditation. Secondly, the dependent variable is regressed against each of the proxies for investment separately, that is, internet users per 100 people and mobile cellular users per 100 people. Thirdly, financial domestic credit (percentage of GDP) is added to the estimations as a proxy for the level of financial development of a country. Finally, the proxies for climatic conditions and protection of the environment, that is, the cereal yield (kilograms per hectare), the dummy for the existence of world wonders, forest area (percentage land area) and percentage land area in geographical tropics were separately added to the regressions. The regressions were executed using each of the four proxies of human capital. These are HDI, secondary school enrolment, labour force as a percentage of population and the HCI. The results for cross section 1, cross section 2, cross section 3 and cross total regressions are summarised in the following sections.

6.5.1 Summary of TLGH1 dummy variable for the cross section 1 (1995-2000 period)

Tables 6.4, 6.5, 6.6 and 6.7 below summarise the cross section 1 results for HDI, secondary school enrolment, labour force as a percentage of population and the HCI respectively. The dependent variables TLGH1 and TLGH2 are first regressed against the gross capital formation (percentage of GDP), the tourism safety & security index, the trade openness index, the depth of credit information index, the high-tech exports [percentage of manufactured exports] and Blue Flag accreditation. Second, the dependent variable is regressed against each of the investment proxies separately. The investment proxies are internet users per 100 people and mobile cellular users per 100 people. Third, financial domestic credit (percentage of GDP) is added to the estimations as a proxy for the level of financial development of a country. Finally, the proxies for climatic conditions and protection of the environment, that is, the cereal yield (kilograms per hectare), the dummy for the existence of world wonders, forest area (percentage land area) and percentage land area in geographical tropics were separately added to the regressions. The cross section 1 regression results for the second binary dependent variable (TLGH2) are in appendices B1.1, B1.2, B1.3 and B1.4.

Table 6.4: Cross section 1 TLGH1 regression results - [Human Capital Proxy- Human Development Index (HDI)]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.275 (0.699)			3.073 (5.749)	0.228 (0.650)	0.030 (0.096)	0.290 (0.762)	0.105 (0.353)
Tourism safety & security index	1.45e-06** (9.71e-06)	5.83e-07** (4.10e-06)	3.12e-08** (2.30e-07)	0.0001* (0.0006)	8.87e-09** (7.37e-08)	4.48e-08** (3.52e-07)	1.29e-06** (8.79e-06)	2.06e-08** (1.79e-07)
Human Development Index (HDI)	2055949 (2.13e+07)	861645.3 (1.19e+07)	2.49e+13* (4.10e+14)	4.38e+07** (3.87e+08)	1.52e+16* (2.97e+17)	1.40e+09* (1.56e+10)	3.95e+08* (4.23e+09)	3.02e+17** (5.44e+18)
Trade openness index	7.32695* (8.154745)	7.151* (8.181)	11.734* (15.111)	1.320 (1.148)	3.144 (5.305)	38.249* (71.850)	7.179* (7.896)	1.711 (2.491)
CO2 Emissions (metric tons per capita)	0.880 (0.105)	0.900 (0.097)	0.904 (0.100)	0.934 (0. 085)	0.451* (0.196)	0.788* (0.112)	0.771* (0.117)	0.439* (0.185)
Depth of Credit Information Index	2.121*** (0. 591)	2.170** (0.677)	2.526*** (0.891)		2.004** (0.598)	2.747** (1.132)	2.402*** (0.784)	1.922** (0.616)
High-tech exports [% of manufactured exports]	0.591 (0.045)	0.943 (0.045)	0.936 (0.048)	0.971 (0.031)	0.931 (0.059)	0.927 (0.051)	0.955 (0.041)	0.953 (0.062)
Blue Flag accreditation [1=Yes; 0=No]	1.983 (2.624)	2.358 (3.019)	3.569 (5.003)	1.389 (1.436)				
Internet users per 100 people		1.044 (0.676)						
Mobile cellular users per 100 people			0.380 (0.262)					
Financial Domestic Credit (% of GDP)				0.512 (0.486)				
Cereal Yield (kgs per hectare)					2.019 (3.397)			
Existence of world wonders [1=Yes; 0=No]						9.036 (16.902)		
Forest Area (% Land Area)							0.453 (0.292)	
% Land area in geographical tropics								1.381 (2.238)
Constant	70.206 (577.293)	8.498 (77.021)	0.0003 (0.003)	1.755 (11.578)	0.074 (1.200)	60.445 (520.068)	17.522 (151.215)	82.478 (811.719)
Pseudo R^2	0.388	0.383	0.429	0.148	0.510	0.418	0.419	0.441
Prob > chi2	0.016	0.018	0.008	0.522	0.002	0.010	0.010	0.021
Observations	42	42	42	42	40	42	42	37

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table 6.5: Cross section 1 TLGH1 regression results – [Human Capital Proxy- Secondary School Enrolment (% of gross)]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.232 (0.743)			4.082 (8.103)	0.219 (0.584)	0.013 (0.048)	0.492 (1.768)	0 (.)
Tourism safety & security index	6.76e-09* (6.52e-08)	1.48e-09 ** (1.52e-08)	8.81e-10** (8.63e-09)	0.005 (0.018)	5.45e-17 (1.35e-15)	1.56e-10** (1.64e-09)	3.32e-12* (4.54e-11)	0 (.)
Secondary School Enrolment (% of gross)	480.365* (1607.469)	491.355 (1922.178)	8157.798* (37701.57)	13.397 (22.647)	6.61e+10 (1.13e+12)	4493.891** (18063.9)	156376.3** (908419.2)	. (.)
Trade openness index	8.736 (11.531)	8.831 (11.700)	18.115* (30.398)	0.974 (0.856)	3.315 (7.606)	69.771* (157.960)	19.883* (32.816)	2.1e+161 (.)
CO2 Emissions (metric tons per capita)	0.814 (0.114)	0.838 (0.101)	0.834 (0.110)	0.961 (0.083)	0.115 (0.183)	0.694* (0.134)	0.556* (0.167)	1.6e-276 (.)
Depth of Credit Information Index	2.933** (1.303)	3.082** (1.490)	3.776** (2.052)		6.671 (7.655)	4.458** (2.863)	5.918** (4.709)	1.0e+175 (.)
High-tech exports [% of manufactured exports]	0.933 (0.055)	0.921 (0.065)	0.933 (0.057)	0.983 (0.033)	1.023 (0.091)	0.908 (0.061)	0.934 (0.070)	2.07e+10 (.)
Blue Flag accreditation [1=Yes; 0=No]	2.419 (3.573)	3.259 (4.709)	1.548 (1.441)	2.240 (2.264)				
Internet users per 100 people		0.990 (0.711)						
Mobile cellular users per 100 people			0.452 (0.304)					
Financial Domestic Credit (% of GDP)				0.451 (0.474)				
Cereal Yield (kgs per hectare)					3.351 (9.473)			
Existence of world wonders [1=Yes; 0=No]						11.076 (21.842)		
Forest Area (% Land Area)							0.161 (0.206)	
% Land area in geographical tropics								0 (.)
Constant	0.017 (0.197)	0.001 (0.016)	5.42e-10 (9.43e-09)	0.083 (0.745)	3.48e-25 (1.58e-23)	0.0002 (0.002)	8.60e-09 (1.43e-07)	0 (.)
Pseudo R^2	0.458	0.454	0.488	0.157	0.628	0.489	0.538	1.000
Prob > chi2	0.007	0.007	0.004	0.509	0.000	0.004	0.002	(.)
Observations	39	39	39	39	38	39	39	35

Robust Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 regression results, 2017

Table 6.6: Cross section 1 TLGH1 regression results – [Human Capital Proxy- Labour force as a % of population]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.424 (1.124)			4.348 (8.569)	0.601 (1.866)	0.197 (0.544)	0.225 (0.591)	0.363 (1.006)
Tourism safety & security index	0.004 (0.021)	0.0001 (0.0008)	0.003 (0.013)	3.709 (11.731)	0.013 (0.065)	0.020 (0.081)	0.023 (0.091)	4.624 (27.406)
Labour force as a % of population	0.005 (0.016)	0.004 (0.015)	0.004 (0.015)	0.001** (0.003)	0.000** (0.000)	0.003* (0.012)	0.001* (0.005)	0.0006* (0.002)
Trade openness index	4.046 (4.530)	5.185 (6.220)	3.791 (4.157)	0.649 (0.553)	4.008 (6.407)	4.686 (6.767)	3.718 (4.192)	0.844 (1.414)
CO2 Emissions (metric tons per capita)	0.977 (0.105)	0.930 (0.103)	0.987 (0.112)	1.053 (0.090)	0.777 (0.269)	0.955 (0.107)	0.988 (0.122)	0.834 (0.145)
Depth of Credit Information Index	2.155*** (0.617)	2.290** (0.814)	2.149** (0.654)		1.692 (0.517)	2.142*** (0.627)	2.018** (0.560)	1.661* (0.511)
High-tech exports [% of manufactured exports]	0.984 (0.040)	0.960 (0.049)	0.980 (0.041)	0.996 (0.031)	0.939 (0.054)	0.985 (0.041)	0.988 (0.041)	1.022 (0.071)
Blue Flag accreditation [1=Yes; 0=No]	2.176 (2.714)	1.406 (1.927)	2.363 (3.196)	1.400 (1.465)				
Internet users per 100 people		1.639 (0.846)						
Mobile cellular users per 100 people			1.018 (0.508)					
Financial Domestic Credit (% of GDP)				0.590 (0.537)				
Cereal Yield (kgs per hectare)					65.299** (132.672)			
Existence of world wonders [1=Yes; 0=No]						1.540 (2.202)		
Forest Area (% Land Area)							1.282 (0.900)	
% Land area in geographical tropics								2.035 (3.585)
Constant	0.166 (1.536)	1.175 (10.017)	0.029 (0.235)	0.0005 (0.004)	1.83e-17 (4.09e-16)	0.089 (0.811)	0.033 (0.297)	0.003 (0.029)
Pseudo R^2	0.404	0.423	0.402	0.152	0.555	0.398	0.399	0.347
Prob > chi2	0.012	0.009	0.013	0.503	0.001	0.014	0.014	0.076
Observations	42	42	42	42	40	42	42	37

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table 6.7: Cross section 1 TLGH1 regression results – [Human Capital Proxy- Human Capital Index]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.401 (0.938)			3.406 (6.054)	0.202 (0.552)	0.096 (0.230)	0.217 (0.504)	0.290 (0.777)
Tourism safety & security index	0.0004 (0.002)	0.000* (0.000)	0.0003 (0.001)	0.200 (0.643)	0.002 (0.010)	0.002 (0.008)	0.009 (0.039)	0.003 (0.015)
Human capital index	1.112 (1.328)	0.702 (0.886)	1.267 (1.653)	1.085 (1.128)	0.593 (1.260)	1.284 (1.558)	1.240 (1.567)	4.588 (7.851)
Trade openness index	6.127 (6.770)	6.916* (8.028)	6.018 (6.724)	0.922 (0.729)	9.479 (14.964)	12.740* (19.402)	5.213 (5.677)	3.504 (4.531)
CO2 Emissions (metric tons per capita)	0.964 (0.105)	0.926 (0.102)	0.980 (0.107)	1.040 (0.086)	0.916 (0.256)	0.921 (0.119)	0.896 (0.130)	0.753 (0.181)
Depth of Credit Information Index	2.125*** (0.559)	2.209** (0.676)	2.154*** (0. 618)		1.921* (0.533)	2.311*** (0.730)	2.209*** (0.593)	1.872** (0.517)
High-tech exports [% of manufactured exports]	0.968 (0.042)	0.945 (0.047)	0.963 (0.041)	0.984 (0.030)	0.918 (0.054)	0.956 (0.046)	0.970 (0.038)	0.968 (0.056)
Blue Flag accreditation [1=Yes; 0=No]	4.118 (4.757)	2.695 (3.425)	4.951 (6.291)	2.488 (2.281)				
Internet users per 100 people		1.654 (0.864)						
Mobile cellular users per 100 people			0.941 (0.437)					
Financial Domestic Credit (% of GDP)				0.730 (0.644)				
Cereal Yield (kgs per hectare)					10.836 (18.395)			
Existence of world wonders [1=Yes; 0=No]						2.954 (3.880)		
Forest Area (% Land Area)							0.575 (0.304)	
% Land area in geographical tropics								0.348 (0.476)
Constant	83.793 (648.192)	879.691 (6485.223)	7.462 (51.348)	2.233 (13.837)	1.96e-06 (0.000)	42.468 (321.121)	75.390 (600.423)	58.354 (497.600)
Pseudo R^2	0.338	0.355	0.335	0.042	0.373	0.319	0.328	0.248
Prob > chi2	0.041	0.031	0.043	0.981	0.027	0.055	0.048	0.262
Observations	41	41	41	41	39	41	41	36

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

From Table 6.4, it is evident that the tourism safety and security index is significant in explaining tourism growth in all the columns (1-8). The odds ratio of safety and security of tourists are all less than 1. This indicates that countries with better safety are less likely to benefit economically from tourism growth, while countries with low safety are more likely to experience tourism-led growth. This is counter-intuitive since it has been shown that there is an indirect relationship between tourism growth and the safety and security of tourists. Tourists tend to avoid countries that may compromise their safety and security for fear of death, injuries and terror. Tourists prefer to visit peaceful destinations where they are assured of safe return to their home countries.

A study done by Neumayer (2004: 259) on several countries, revealed strong evidence that human rights violations, politically motivated events and conflicts negatively affect tourist arrivals. The research also found that autocratic regimes may not resort to violence, but have lower tourist arrivals compared to democratic regimes. Saha and Yap (2013: 1) whose study analysed the effects of the impact of terrorism and political instability on the development of tourism using a panel of 139 countries for the 1999-2009 time span found that terrorism and political volatility can cause serious damage to the tourism industry. Olorunfemi & Raheem (2008: 201) identified the physical security of tourists and the host communities' psychological security that is critical for Africa's sustainable tourism development. The research concluded that mechanisms must be in place to guarantee the security of tourists. Eja *et al*. (2012: 426, 431) carried out a research to critically analyse the success factors for Nigeria's tourist arrivals. They found that the high level of crime, political instability and terrorism in Nigeria discourage numerous tourist arrivals. However, the research results show that tourism-led growth is more likely to succeed in countries where safety and security is still a consideration. This might indicate that the benefits of tourism may be more pronounced for countries with low starting levels of tourism, typically those who were not previously accessible due to safety and security concerns.

The HDI odds ratios show that the more developed the human capital, the more likely the country can benefit from tourism growth, as seen from columns 3-8. Human capital is one of the dimensions of HDI. Biagi *et al*. (2015: 21-22) using a selection of 63 countries for the 1996-2008 time span analysed the extent to which the relationship between human development and tourism specialisation remained positive. The proxy used for human development was the HDI. The study found a positive relationship between tourism and human development, with particular emphasis on education (that is, literacy rate). Musai *et al*. (2011: 14) sought to find the relationship that existed between Iran's tourism demand and the HDI of selected countries using linear regression coefficients. The results found that changes in HDI explained more than 80% of tourism demand. GDP per capita, education and life expectancy of the countries where tourists originate were the basic dimensions of HDI with the greatest effect respectively. The research concluded that an increase in travel demand to Iran could be made possible by increasing the GDP, improvement of public education and economic prosperity.

Trade openness also has a positive and statistically significant effect (columns 1-3 and 6-7). This implies that the more open a country is, the more likely that its economy would benefit from tourism growth. Several studies have also found evidence in support of trade openness enhancing tourism growth. Fourie and Santana-Gallego (2011: 8) used a standard panel gravity equation to identify factors that fuel Africa's inbound tourism. The sample consisted of 137 origin/destination countries of which 37 were African countries. The study found that regional trade agreement partnering increases tourist arrivals to the African continent. Ibrahim (2011: 57) used annual panel data for the period 1990-2008 to investigate the main determinants of Egypt's international tourism flows. The study found that trade openness has a positive and significant impact of 0.10 on the demand for tourism in Egypt amongst the number of explanatory variables used in the model.

CO_2 emissions (metric tons per capita) decrease the odds ratio and is statistically significant in columns 5-8. The odds ratios of the estimates are negative. The higher the CO_2 per capita, the lower the propensity for tourism-led growth. CO_2 emissions might be an indication of bad climatic conditions in a country, but may also indicate a highly industrialised type of economy where growth is from industry and goods trade rather than services. So, CO_2 emissions may be a disincentive for tourism development but an indication of industrialisation.

The results are similar to those found by Lee & Kwag (2013: 20) in their study of South Korea. Their findings suggested that Korea's effectively managed tourism and hospitality sector has resulted in a reduction in CO_2 emissions and economic growth. The research recommended the continued greening of Korea's tourism and hospitality sector to be prioritised. In view of this, the research also recommended the provision of vital suitable infrastructure, called green infrastructure, for greening the tourism and hospitality industry.

Financial sector development is again positively associated with the TLGH since the odds ratios are all greater than 1. The Depth of Credit Information Index is highly statistically significant such that improved credit information increases TLG. Financial sector development is very influential in determining TLG in all the columns. The variable is significant at a 1% level of significance in columns 1, 3 and 7 and also significant at a 5% level of significance in columns 2, 5, 6 and 8. This implies that the more financially developed a country is, the more tourists will be attracted to the country because they will be in a position to do transactions easily. Furthermore, tourism business may have easier access to credit to facilitate growth and development.

From Table 6.5, where the human capital proxy is secondary school enrolment, safety and security of tourist is again significant in 5 out of the 8 columns, that is, columns 1, 2, 3, 6 and 7. Secondary school enrolment explains tourism growth in columns 1, 3 and 6 but this human capital proxy is not as strong as HDI in Table 6.4. Trade openness is significant in columns 3, 6 and 7. Protection of the environment proxied by CO_2 emissions per capita explain tourism growth in columns 6 and 7. Depth of credit information index is significant in columns 1, 2, 3, 6 and 7.

Labour as a percentage of population in Table 6.6 explains TLG in 5 out of 8 columns, that is, specifications 4, 5, 6, 7 and 8. The odds ratios of labour as a percentage of population are less than 1 indicating that countries with a smaller percentage of its population working have better chances of kick-starting TLG since tourism is a highly labour intensive industry. Again the depth of credit information index is an important driver of TLG in all columns except 5. Cereal yield per hectare signifying the importance of climatic conditions to tourists is significant at 10% level of significance in column 5.

In Table 6.7, the human capital proxy, that is, human capital index does not explain TLG at all. Like Tables 6.4, 6.5 and 6.6, the depth of credit information index is very significant in all columns 1-8 in determining tourism growth.

In conclusion, during the 1995-2000 period (cross section 1), the CSFs for tourism-led growth were safety and security of tourists, human capital (HDI, secondary school enrolment percentage of gross and labour as a percentage of population), trade openness, protection of the environment, financial sector development and climatic conditions. These CSFs are significant in several of the columns in Tables 6.4 to 6.7. The other CSFs identified in Chapter 4, for example, investment, technological development and the dummies did not have any influence on the success of the TLGH during this time period. Further robustness analyses using the TLGH2 dummy variable as a dependent variable, can be found in Appendices B1.1 to B1.4.

6.5.2. Summary of TLGH1 for cross section 2 (2001-2005 period)

Tables 6.8, 6.9, 6.10 and 6.11 below summarise the cross section 2 results for HDI, secondary school enrolment, labour force as a percentage of population and the HCI respectively. Firstly, the TLGH1 and TLGH2 dependent variables are regressed against the gross capital formation (percentage of GDP), the tourism safety & security index, the trade openness index, the depth of credit information index, the high-tech exports [percentage of manufactured exports] and Blue Flag accreditation. Secondly, the TLGH1 and TLGH2 dependent variables are regressed against each of the proxies for investment separately, that is, internet users per 100 people and mobile cellular users per 100 people. Thirdly, the level of financial development of a country proxied by financial domestic credit (percentage of GDP) is added to the estimations. Finally, the other proxies for CSFs for climatic conditions and protection of the environment, that is, the cereal yield (kilograms per hectare), the dummy for the existence of world wonders, forest area (percentage land area) and percentage land area in geographical tropics were separately added to the regressions. The cross section 2 regression results for the second binary dependent variable (TLGH2) are in appendices B2.1, B2.2, B2.3 and B2.4.

Table 6.8: Cross section 2 TLGH1 regression results - [Human capital proxy – Human development index]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.286 (0.823)			2.201 (4.495)	0.192 (0.527)	0.036 (0.110)	0.191 (0.531)	0.195 (0.556)
Tourism safety & security index	1.54e-07* (1.28e-06)	1.70e-08 ** (1.45e-07)	5.23e-09** (4.36e-08)	0.000* (0.000)	9.93e-07* (7.61e-06)	6.68e-09 * (6.52e-08)	3.87e-07* (3.15e-06)	3.25e-07* (2.75e-06)
Human development index	2.43e+07 (2.90e+08)	1.35e+09 (2.20e+10)	2.86e+11* (4.27e+12)	2.88e+08 ** (2.71e+09)	1678401 (1.97e+07)	1.13e+10* (1.51e+11)	5.37e+08* (6.50e+09)	2.04e+08 (2.40e+09)
Trade openness index	11.324* (14.186)	12.484** (15.706)	17.048** (22.916)	2.835 (2.624)	11.244* (16.122)	39.389** (69.476)	9.678* (12.037)	7.426 (9.767)
CO2 Emissions (metric tons per capita)	0.875 (0.100)	0.877 (0.103)	0.873 (0.101)	0.894 (0.084)	0.885 (0.112)	0.830 (0.104)	0.826 (0.104)	0.863 (0.095)
Depth of Credit Information Index	2.321*** (0.753)	2.401** (0.820)	2.482*** (0.849)		1.963** (0.580)	2.923** (1.306)	2.489** (0.893)	2.197** (0.723)
High-tech exports [% of manufactured exports]	0.921 (0.046)	0.920 (0.047)	0.913* (0. 047)	0.957 (0.032)	0.887** (0.050)	0.883** (0.057)	0.919* (0.046)	0.907* (0.050)
Blue Flag accreditation [1=Yes; 0=No]	2.621 (3.463)	3.412 (4.483)	4.118 (5.435)	1.897 (2.000)				
Internet users per 100 people		0.787 (0.814)						
Mobile cellular users per 100 people			0.456 (0.373)					
Financial Domestic Credit (% of GDP)				0.628 (0.574)				
Cereal Yield (kgs per hectare)					7.102 (10.884)			
Existence of world wonders [1=Yes; 0=No]						7.757 (13.102)		
Forest Area (% Land Area)							0.548 (0.363)	
% Land area in geographical tropics								1.001 (1.352)
Constant	44.368 (430.237)	1.196 (7.988)	0.253 (1.813)	0.112 (0.807)	0.000 (0.001)	140.409 (1419.66)	56.168 (555.635)	124.760 (1270.623)
Pseudo R^2	0.443	0.440	0.456	0.165	0.475	0.469	0.451	0.353
Prob > chi2	0.006	0.006	0.004	0.434	0.004	0.004	0.005	0.066
Observations	43	43	43	42	41	43	43	38

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table 6.9: Cross section 2 TLGH1 regression results – [Human capital proxy – Secondary school enrolment (% of gross)]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.217 (0.739)			1.437 (3.039)	0.065 (0.209)	0.017 (0.060)	0.103 (0.344)	0.009 (0.036)
Tourism safety & security index	1.01e-09* (1.08e-08)	8.36e-11** (9.26e-10)	1.60e-10** (1.70e-09)	0.0009 (0.004)	7.14e-09** (6.44e-08)	1.48e-08** (1.33e-07)	1.45e-09** (1.50e-08)	1.68e-13* (2.58e-12)
Secondary school enrolment (% of gross)	466.580* (1689.956)	307.853 (1154.887)	887.061* (3649.979)	19.133 (43.210)	5009.993* (24187.71)	674.187* (2362.253)	15088.6** (73766.76)	1881346** (1.32e+07)
Trade openness index	4.955 (6.815)	6.499 (9.146)	6.575 (9.933)	1.063 (1.047)	2.911 (6.340)	8.827 (13.917)	3.940 (5.410)	1.898 (3.901)
CO2 Emissions (metric tons per capita)	0.868 (0.127)	0.827 (0.133)	0.882 (0.124)	0.960 (0.104)	0.601 (0.245)	0.804 (0.126)	0.649* (0.167)	0.415 (0.238)
Depth of Credit Information Index	2.791** (1.275)	2.978** (1.459)	2.999** (1.454)		2.319** (0.838)	2.928** (1.332)	3.546** (1.889)	3.403** (2.035)
High-tech exports [% of manufactured exports]	0.940 (0.049)	0.910 (0.057)	0.935 (0.047)	0.989 (0.037)	0.948 (0.072)	0.930 (0.050)	0.966 (0.050)	1.013 (0.071)
Blue Flag accreditation [1=Yes; 0=No]	5.077 (8.129)	4.510 (7.295)	7.434 (11.313)	2.480 (2.650)				
Internet users per 100 people		2.135 (1.948)						
Mobile cellular users per 100 people			0.761 (0.654)					
Financial Domestic Credit (% of GDP)				0.586 (0.778)				
Cereal Yield (kgs per hectare)					6.597 (11.799)			
Existence of world wonders [1=Yes; 0=No]						3.052 (4.395)		
Forest Area (% Land Area)							0.302 (0.265)	
% Land area in geographical tropics								0.039 (0.088)
Constant	2.472 (28.531)	0.397 (3.648)	.010 (0.103)	1.158 (11.241)	1.56e-08 (3.12e-07)	1.263 (10.81)	0.000 (0.001)	0.028 (0.365)
Pseudo R^2	0.452	0.464	0.449	0.131	0.513	0.441	0.486	0.4880
Prob > chi2	0.012	0.010	0.013	0.696	0.005	0.015	0.007	0.023
Observations	37	37	37	36	36	37	37	33

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table 6.10: Cross section 2 TLGH1 regression results – [Human capital proxy – Labour force as a % of population]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.168 (0.456)			1.487 (2.883)	0.135 (0.396)	0.052 (0.145)	0.055 (0.159)	0.098 (0.274)
Tourism safety & security index	0.0017 (0.008)	0.0002* (0.001)	0.0007 (0.003)	0.735 (2.396)	0.001 (0.005)	0.009 (0.036)	0.011 (0.044)	0.041 (0.206)
Labour force as a % of population	0.016 (0.053)	0.015 (0.051)	0.013 (0.044)	0.010 (0.033)	0.0003** (0.001)	0.018 (0.058)	0.003 (0.013)	0.009 (0.029)
Trade openness index	7.311* (8.693)	8.173* (9.927)	7.024* (8.275)	1.682 (1.473)	8.238 (12.275)	9.178 (12.945)	7.707 (9.754)	4.264 (5.696)
CO2 Emissions (metric tons per capita)	1.011 (0.111)	0.961 (0.113)	1.007 (0.119)	1.049 (0.088)	1.064 (0.160)	1.009 (0.109)	1.054 (0.140)	1.015 (0.106)
Depth of Credit Information Index	2.271*** (0.664)	2.268** (0.726)	2.236*** (0.676)		1.814** (0.530)	2.277*** (0.680)	2.129*** (0.606)	2.048*** (0.623)
High-tech exports [% of manufactured exports]	0.956 (0.041)	0.937 (0.050)	0.955 (0.042)	0.979 (0.031)	0.896* (0.052)	0.946 (0.044)	0.950 (0.045)	0.953 (0.052)
Blue Flag accreditation [1=Yes; 0=No]	2.881 (3.640)	2.500 (3.220)	3.401 (4.356)	1.803 (1.766)				
Internet users per 100 people		1.820 (1.363)						
Mobile cellular users per 100 people			1.134 (0.865)					
Financial Domestic Credit (% of GDP)				0.983 (0.819)				
Cereal Yield (kgs per hectare)					76.656** (157.653)			
Existence of world wonders [1=Yes; 0=No]						1.848 (2.490)		
Forest Area (% Land Area)							1.465 (1.257)	
% Land area in geographical tropics								1.473 (2.270)
Constant	2.476 (24.973)	0.075 (0.560)	0.027 (.199)	0.003 (0.029)	3.93e-15 (8.10e-14)	4.488 (44.581)	0.552 (5.520)	1.094 (12.340)
Pseudo R^2	0.430	0.434	0.421	0.108	0.561	0.420	0.419	0.329
Prob > chi2	0.007	0.007	0.008	0.751	0.001	0.009	0.009	0.090
Observations	43	43	43	42	41	43	43	38

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table 6.11: Cross section 2 TLGH1 regression results – [Human capital proxy – Human capital index]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.180 (0.455)			1.001 (1.883)	0.065 (0.172)	0.035 (0.092)	0.078 (0.192)	0.068 (0.174)
Tourism safety & security index	0.0002 (0.001)	0.00004* (0.0002)	0.0000* (0003)	0.089 (0.303)	0.0007 (0.004)	0.0008 (0.004)	0.004 (0.017)	0.001 (0.007)
Human capital index	1.633 (2.083)	1.264 (1.676)	1.796 (2.493)	1.725 (1.841)	0.383 (0.757)	1.737 (2.236)	1.688 (2.230)	2.003 (2.645)
Trade openness index	10.101* (12.316)	11.182* (13.927)	10.793* (13.741)	2.155 (1.876)	21.762* (37.354)	18.370** (26.819)	7.797* (9.417)	7.066 (8.838)
CO2 Emissions (metric tons per capita)	0.965 (0.118)	0.916 (0.112)	0.961 (0.117)	1.000 (0.087)	1.061 (0.284)	0.958 (0.123)	0.933 (0.124)	0.947 (0.108)
Depth of Credit Information Index	2.223*** (0.613)	2.210*** (0.662)	2.229*** (0.657)		1.907** (0.511)	2.393*** (0.741)	2.277*** (0.630)	2.062** (0.582)
High-tech exports [% of manufactured exports]	0.943 (0.042)	0.924 (0.046)	0.939 (0.041)	0.971 (0.031)	0.887** (0.054)	0.922 (0.047)	0.940 (0.041)	0.934 (0.048)
Blue Flag accreditation [1=Yes; 0=No]	4.003 (4.878)	3.241 (4.116)	4.856 (6.126)	2.446 (2.276)				
Internet users per 100 people		1.825 (1.331)						
Mobile cellular users per 100 people			1.056 (0.786)					
Financial Domestic Credit (% of GDP)				1.021 (0.904)				
Cereal Yield (kgs per hectare)					22.711* (42.798)			
Existence of world wonders [1=Yes; 0=No]						3.221 (4.039)		
Forest Area (% Land Area)							0.640 (0.364)	
% Land area in geographical tropics								0.571 (0.719)
Constant	199.258 (1794.421)	6.400 (39.180)	2.520 (15.372)	1.212 (8.173)	8.24e-08 (1.36e-06)	309.535 (2778.225)	442.084 (3957.697)	1838.907 (17450.7)
Pseudo R^2	0.390	0.394	0.380	0.054	0.439	0.381	0.375	0.272
Prob > chi2	0.016	0.015	0.019	0.958	0.008	0.018	0.021	0.192
Observations	42	42	42	41	40	42	42	37

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

With reference to Table 6.8 above, the safety and security of tourists is a CSF in explaining tourism growth during the 2001-2005 period. The CSF is significant in almost all the columns 1-8. Similar to cross section 1, the odds ratios again less than one indicating a negative relationship between safety and security of tourists and TLG, which imply that countries with low safety and security of tourists are more likely to succeed stimulating economic growth by using tourism growth. The HDI is again significant in explaining tourism growth in a number of specifications, that is, columns 3, 4, 6 and 7. Trade openness explains tourism growth in almost all the specifications, except columns 4 and 8. Financial development, proxied by the depth of credit information index, is significant in all specifications and again shows that an improvement in the financial sector increases the success of the TLGH. High technology exports (percentage of manufactured exports) are significant in columns 3, 5, 6, 7 and 8. High-tech exports (as a percentage of manufactured exports) is an important determinant in explaining the success of tourism-led growth. Unlike the cross section 1 (1995-2000) period where technological development played no role in explaining success from tourism growth, in cross section 2 the level of advancement of technology in a country decreases the success of the tourism-led growth since the odds ratios are less than 1.

In Table 6.9, the safety and security variable is significant in all columns except 4. The human capital proxy, that is, secondary school enrolment explains tourism growth in all columns except 2 and 4. Financial sector development proxied by depth of credit information index is very influential in determining tourism growth because the variable is significant in all the columns.

From Table 6.10, safety and security of tourists explains tourism growth in only one specification, that is, column 2 at a 10% level of significance. Labour as a percentage of population is also significant in only one specification, that is, column 5 at a 5% level of significance. Trade openness is significant in columns 1, 2 and 3 at a 10% level of significance. Depth of credit information index again explain TLG in all columns. High technology exports (% of manufactured exports) are significant at 10% in column 5 only. The importance of climatic conditions to TLG proxied by cereal yield per hectare is significant at 5% in column 5.

Table 6.11 show the safety and security of tourists being important in explaining TLG in columns 2 and 3 at a 10% level of significance. Similar to cross section 1, the HCI does not play any role in explaining tourism growth since all the coefficients are insignificant in columns 1-8. Trade openness is significant in all columns except 4 and 8. Depth of credit information index has high explanatory power at a 1% level of significance in almost all the columns. High technology exports (percentage of manufactured exports) are significant in column 5 at a 5% level of significance. Cereal yield per hectare explain TLG at a 10% level of significance in column 5. In cross section 2, unlike cross section 1 (1995-2000 period), the proxy for protection of the environment, that is, CO_2 emissions (metric tons per capita), plays no significant role in explaining tourism-led growth. High technology export (percentage of manufactured exports) are important in explaining TLG.

To conclude, the CSFs for tourism growth during the cross section 2 (2001-2005) period were tourism safety and security, human development, trade openness, financial development and technological development. The CSFs which do not have a role to play in determining tourism-led growth are; investment, and tourism attraction type dummy variables, that is, the Blue Flag accreditation and the world wonder dummy. Further analyses for cross section 2 using TLGH2 as a dependent variable in logistic regressions are in Appendices B2.1 to B2.4.

6.5.3 Summary of TLGH1 for cross section 3 (2006-2013 period)

Tables 6.12, 6.13, 6.14 and 6.15 below summarise the cross section 3 results for each of the four proxies of human capital, that is, HDI, secondary school enrolment, labour force as a percentage of population and the HCI respectively. The regressions are performed in a stepwise manner. Initially, the dependent variable is regressed against gross capital formation (percentage of GDP), the tourism safety & security index, the trade openness index, the depth of credit information index, the high-tech exports [percentage of manufactured exports] and Blue Flag accreditation. Secondly, the dependent variable is regressed against each of the proxies for investment separately, that is, internet users per 100 people and mobile cellular users per 100 people. Thirdly, financial domestic credit (percentage of GDP) is added to the estimations as a proxy for the level of financial development of a country. Finally, the proxies for climatic conditions and protection of the environment, that is, the cereal yield (kilograms per hectare), the dummy for the existence of world wonders, forest area (percentage land area) and percentage land area in geographical tropics were added to the regressions in a stepwise manner. The cross section 3 regression results for the second binary dependent variable (TLGH2) which match TLGH1 are in appendices B3.1, B3.2, B3.3 and B3.4.

Tables 6.12 – 6.15 summarise results of cross section 3 spanning the period 2006-2013. It is evident from Table 6.12 that tourism safety and security, the human development index, CO_2 emissions (metric tonnes per capita), and depth of credit information index are all important determinants of the success of tourism-led growth. This is so because the odds ratios of the estimates are significant in all the specifications 1-8. Trade openness is also significant in all columns, except 5. High technology exports explain tourism growth in all the specifications except column 7. This is similar to cross sections 1 and 2 where the safety and security of tourists, human capital and protection of the environment had a role to play in determining whether tourism growth would succeed in promoting economic growth in the countries under consideration. However, in comparison to the cross section 2 regression results, CO_2 emissions (metric tonnes per capita) are an addition to the CSFs.

Furthermore, trade openness is confirmed as a CSF for the success of tourism-led growth. Similar to cross section 1 and cross section 2 results, there is clear evidence from the table that the depth of credit information index affected the probability of the success of the TLGH during the period 2006-2013. High-tech exports (as a percentage of manufactured exports) played an important role in explaining the success of tourism-led growth during this time period, and this is in agreement with cross section 2 results. The odds ratios indicate that an increase in high-technology exports (as a percentage of manufactured exports) decreases the odds of success of the TLGH.

From Table 6.13, safety and security of tourists is significant in all columns except 4. Similar to cross sections 1 and 2, the odds ratios decrease the chances of successful TLG. Secondary school enrolment explains TLG in specifications 7 and 8 at a 10% level of significance. The odds ratios increase the chances of tourism success implying that countries with educated citizens have better chances of experiencing tourism-led growth. Trade openness is significant at 10% in column 6. The depth of credit information index has high explanatory power in all specifications confirming the importance of financial development to tourism growth and this is similar to cross sections 1 and 2.

Table 6.12: Cross section 3 TLGH1 regression results – [Human capital proxy – Human development index]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	1.980 (5.157)			6.021 (11.927)	2.631 (6.186)	0.161 (0.465)	1.662 (4.001)	1.391 (3.483)
Tourism safety & security index	7.48e-08** (5.93e-07)	7.03e-08 ** (5.12e-07)	2.68e-09** (2.27e-08)	2.21e-06** (0.0000)	6.03e-09 ** (4.92e-08)	4.53e-09** (4.04e-08)	1.86e-07** (1.36e-06)	2.50e-07* (1.97e-06)
Human development index	2.38e+10* (3.11e+11)	2.73e+11* (3.86e+12)	2.89e+15** (5.11e+16)	1.54e+11** (1.65e+12)	3.71e+13** (5.34e+14)	7.89e+11* (1.15e+13)	1.05e+11** (1.34e+12)	5.02e+10* (6.69e+11)
Trade openness index	11.110** (12.476)	12.696** (14.988)	45.603** (81.035)	5.914* (5.869)	24.274 (48.027)	59.689** (117.879)	8.948* (10.394)	7.766* (9.380)
CO2 Emissions (metric tons per capita)	0.799* (0.103)	0.809* (0.102)	0.770* (0.109)	0.810* (0.092)	0.498* (0.204)	0.749* (0.117)	0.735** (0.115)	0.777* (0.108)
Depth of Credit Information Index	1.880** (0.487)	1.910** (0.498)	2.241** (0.725)		1.547* (0.366)	2.232** (0.736)	2.050*** (0.574)	1.792** (0.474)
High-tech exports [% of manufactured exports]	0.909* (0.047)	0.913* (0.047)	0.880** (0.055)	0.918* (0.042)	0.904* (0.052)	0.879* (0.058)	0.925 (0.044)	0.911* (0.051)
Blue Flag accreditation [1=Yes; 0=No]	1.326 (1.639)	1.295 (1.514)	1.703 (2.085)	1.240 (1.376)				
Internet users per 100 people		0.556 (0.664)						
Mobile cellular users per 100 people			0.019 (0.066)					
Financial Domestic Credit (% of GDP)				1.211 (1.077)				
Cereal Yield (kgs per hectare)					16.285 (29.553)			
Existence of world wonders [1=Yes; 0=No]						15.071 (32.793)		
Forest Area (% Land Area)							0.502 (0.310)	
% Land area in geographical tropics								1.754 (2.125)
Constant	0.008 (0.076)	0.047 (0.289)	193.198 (1814.267)	0.000 (0.000)	1.36e-13 (2.93e-12)	0.058 (0.572)	0.020 (0.200)	0.012 0.120)
Pseudo R^2	0.405	0.408	0.430	0.224	0.491	0.448	0.431	0.336
Prob > chi2	0.008	0.007	0.005	0.178	0.002	0.003	0.005	0.061
Observations	44	44	44	43	42	44	44	39

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table 6.13: Cross section 3 TLGH1 regression results – [Human capital proxy – Secondary school enrolment (% of gross)]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.226 (0.471)			0.801 (1.439)	0.306 (0.605)	0.043 (0.110)	0.209 (0.422)	0.052 (0.120)
Tourism safety & security index	9.45e-06* (0.000)	9.60e-06* (0.000)	8.59e-06* (0.000)	0.001 (0.005)	4.43e-07** (3.27e-06)	2.14e-06* (0.000)	6.06e-07* (4.67e-06)	3.15e-07* (2.71e-06)
Secondary school enrolment (% of gross)	128.334 (449.029)	75.626 (279.954)	110.443 (384.335)	56.064 (145.433)	736.336 (3365.037)	176.994 (628.876)	2839.603* (13204.33)	11758.03* (65232.37)
Trade openness index	7.196 (9.618)	6.536 (8.590)	7.557 (11.931)	2.487 (2.788)	13.111 (30.310)	15.600* (24.370)	5.879 (8.474)	3.037 (5.322)
CO2 Emissions (metric tons per capita)	0.894 (0.113)	0.894 (0.123)	0.907 (0.119)	0.934 (0.102)	0.688 (0.254)	0.872 (0.106)	0.762 (0.140)	0.550 (0.257)
Depth of Credit Information Index	1.877*** (0.449)	1.829** (0.442)	1.856** (0.475)		1.659** (0.407)	2.150** (0.648)	2.416** (0.860)	1.822** (0.519)
High-tech exports [% of manufactured exports]	0.951 (0.045)	0.947 (0.048)	0.949 (0.045)	0.957 (0.042)	0.955 (0.081)	0.943 (0.046)	0.987 (0.049)	1.059 (0.094)
Blue Flag accreditation [1=Yes; 0=No]	1.073 (1.307)	1.472 (1.699)	1.641 (1.959)	0.953 (1.015)				
Internet users per 100 people		1.236 (1.392)						
Mobile cellular users per 100 people			0.756 (1.834)					
Financial Domestic Credit (% of GDP)				1.420 (1.305)				
Cereal Yield (kgs per hectare)					9.229 (17.260)			
Existence of world wonders [1=Yes; 0=No]						5.029 (8.042)		
Forest Area (% Land Area)							0.395 (0.248)	
% Land area in geographical tropics								0.201 (0.353)
Constant	0.000 (0.003)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	4.54e-14 (1.01e-12)	0.002 (0.025)	4.27e-07 (5.49e-06)	3.30e-06 (0.000)
Pseudo R^2	0.365	0.355	0.355	0.141	0.432	0.390	0.416	0.355
Prob > chi2	0.022	0.027	0.027	0.558	0.008	0.015	0.009	0.057
Observations	40	40	40	39	39	40	40	36

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 regression results, 2017

Table 6.14: Cross section 3 TLGH1 regression results – [Human capital proxy – Labour force as a % of population]

VARIABLES	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Gross capital formation [% of GDP]	0.194 (0.449)			1.111 (1.998)	0.293 (0.607)	0.037 (0.090)	0.157 (0.323)	0.093 (0.207)
Tourism safety & security index	0.010 (0.037)	0.002 (0.009)	0.004 (0.016)	0.311 (0.913)	0.007 (0.028)	0.005 (0.016)	0.018 (0.061)	0.085 (0.331)
Labour force as a % of population	0.115 (0.326)	0.113 (0.335)	0.121 (0.355)	0.097 (0.270)	0.003* (0.009)	0.283 (0.845)	0.240 (0.788)	0.042 (0.134)
Trade openness index	6.610* (7.026)	5.975* (6.195)	4.636 (5.542)	2.753 (2.407)	4.450 (6.445)	15.017* (20.722)	5.505** (5.893)	4.010 (4.525)
CO2 Emissions (metric tons per capita)	0.971 (0.103)	0.918 (0.110)	0.957 (0.104)	1.004 (0.093)	0.853 (0.216)	0.945 (0.102)	0.935 (0.124)	0.975 (0.109)
Depth of Credit Information Index	1.858*** (0.383)	1.793*** (0.386)	1.760*** (0.384)		1.451* (0.310)	2.025** (0.477)	1.946*** (0.446)	1.718** (0.389)
High-tech exports [% of manufactured exports]	0.951 (0.042)	0.939 (0.045)	0.956 (0.043)	0.957 (0.036)	0.937 (0.054)	0.935 (0.046)	0.953 (0.041)	0.960 (0.054)
Blue Flag accreditation [1=Yes; 0=No]	1.445 (1.681)	1.470 (1.641)	1.688 (1.914)	1.420 (1.384)				
Internet users per 100 people		2.572 (2.581)						
Mobile cellular users per 100 people			3.143 (7.196)					
Financial Domestic Credit (% of GDP)				1.532 (1.215)				
Cereal Yield (kgs per hectare)					26.910* (50.762)			
Existence of world wonders [1=Yes; 0=No]						4.873 (7.270)		
Forest Area (% Land Area)							0.721 (0.453)	
% Land area in geographical tropics								1.830 (2.468)
Constant	2.983 (26.463)	0.017 (0.116)	0.002 (0.018)	0.005 (0.045)	9.57e-12 (1.83e-10)	81.480 (764.862)	24.885 (240.671)	4.744 (46.827)
Pseudo R^2	0.333	0.341	0.327	0.077	0.442	0.355	0.336	0.261
Prob > chi2	0.029	0.025	0.032	0.867	0.005	0.019	0.027	0.171
Observations	44	44	44	43	42	44	44	39

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 regression results, 2017

Table 6.15: Cross section 3 TLGH1 regression results – [Human capital proxy – Human capital index]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.241 (0.541)			1.519 (2.777)	0.159 (0.333)	0.032 (0.077)	0.178 (0.368)	0.100 (0.217)
Tourism safety & security index	0.004 (0.016)	0.001 (0.005)	0.002 (0.007)	0.036 (0.121)	0.003 (0.011)	0.003 (0.012)	0.011 (0.042)	0.018 (0.075)
Human capital index	1.085 (1.400)	0.799 (1.132)	1.063 (1.440)	2.809 (3.135)	0.571 (1.016)	0.970 (1.259)	1.341 (1.819)	1.251 (1.688)
Trade openness index	7.973* (8.678)	7.022* (7.574)	5.453 (7.090)	3.387 (3.085)	10.426 (16.711)	17.768** (23.615)	5.444 (5.940)	4.889 (5.548)
CO2 Emissions (metric tons per capita)	0.946 (0.105)	0.897 (0.111)	0.932 (0.104)	0.953 (0.087)	0.941 (0.229)	0.933 (0.103)	0.899 (0.113)	0.928 (0.111)
Depth of Credit Information Index	1.841*** (0.372)	1.787*** (0.371)	1.751** (0.380)		1.534** (0.311)	2.048*** (0.480)	1.976*** (0.447)	1.682** (0.359)
High-tech exports [% of manufactured exports]	0.942 (0.042)	0.932 (0.043)	0.947 (0.044)	0.944 (0.037)	0.915 (0.054)	0.930 (0.045)	0.949 (0.040)	0.947 (0.049)
Blue Flag accreditation [1=Yes; 0=No]	1.876 (2.080)	1.834 (1.987)	2.026 (2.257)	1.695 (1.659)				
Internet users per 100 people		2.568 (2.742)						
Mobile cellular users per 100 people			3.220 (7.905)					
Financial Domestic Credit (% of GDP)				1.491 (1.239)				
Cereal Yield (kgs per hectare)					9.983 (16.939)			
Existence of world wonders [1=Yes; 0=No]						5.802 (8.138)		
Forest Area (% Land Area)							0.606 (0.320)	
% Land area in geographical tropics								1.002 (1.105)
Constant	15.898 (134.383)	0.245 (1.313)	0.021 (0.158)	0.015 (0.115)	6.91e-06 (0.000)	406.423 (3597.112)	102.483 (911.691)	259.563 (2306.703)
Pseudo R^2	0.314	0.323	0.311	0.071	0.365	0.345	0.327	0.229
Prob > chi2	0.042	0.037	0.045	0.893	0.021	0.025	0.034	0.262
Observations	43	43	43	42	41	43	43	38

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 regression results, 2017

Table 6.14 show labour as a percentage of population being significant in specification 5 at a 10% level of significance. Trade openness explains tourism growth in columns 1, 2, 6 and 7. Depth of credit information index is again significant in all columns depicting the importance of financial development of a country in spearheading tourism-led growth. Unlike Tables 6.12 and 6.13, safety and security of tourists does not have any role to play in determining TLG.

In Table 6.15, the depth of credit information index is again significant in all columns. Trade openness is significant in specifications 1, 2 and 6. Similar to Table 6.14, safety and security of tourists is insignificant. The human capital index does not play any role in explaining tourism growth. The variable is insignificant in all the specifications and this is similar to cross sections 1 and 2, that is, the 1995-2000 and 2001-2005 periods.

In conclusion the factors that determined successful tourism-led growth during the cross section 3 (2006-2013) period were the safety and security of tourists, human capital, favourable climatic conditions, trade openness, financial sector development and technological development. The Blue Flag Accreditation and world wonder dummy were found to be insignificant and therefore did not play a role in explaining tourism growth during the 2006-2013 period. Unlike cross sections 1 and 2, cereal yield (kgs per hectare) and therefore climate, played no role in explaining TLG. Cross 3 TLGH2 regression results are in Appendices B3.1 to B3.4.

6.5.4 Summary of TLGH1 for Cross Total regression results

Tables 6.16, 6.17, 6.18 and 6.19 below summarise the full period cross section results for each of the proxies of human capital, that is, HDI, secondary school enrolment, labour force as a percentage of population and the HCI respectively. The regressions are againexecuted in an iterative manner. Each of the TLGH1 and TLGH2 dependent variable is firstly regressed against the gross capital formation (percentage of GDP), the tourism safety & security index, the trade openness index, the depth of credit information index, the high-tech exports [percentage of manufactured exports] and Blue Flag accreditation. Secondly, the dependent variable is regressed against each of the proxies for investment separately, that is, internet users per 100 people and mobile cellular users per 100 people. Thirdly, financial domestic credit (percentage of GDP) is added to the estimations as a proxy for the level of financial development of a country. Finally, the proxies for climatic conditions and protection of the environment, that is, the cereal yield (kilograms per hectare), the dummy for the existence of world wonders, forest area (percentage land area) and percentage land area in geographical tropics were separately iteratively added to the regressions. The cross total appendices B4.1, B4.2, B4.3 and B4.4 show the regression results for the second binary dependent variable (TLGH2) which mirror TLGH1.

Tables 6.16 to 6.19 summarise logistic regression results for the cross total. The cross total are averages for the variables representing the TLG critical success factors for 1995-2013 period. It is evident in Table 6.16 that successful tourism-led growth is explained by safety and security of tourists, since the odds ratios of the variable are significant in all the specifications 1-8. Human capital, proxied by the HDI, again explain tourism growth since the variable is significant in all the columns. Trade openness determines TLG in specifications 1, 2, 3, 6 and 7. CO_2 emissions (metric tonnes per capita) have significant odds ratios in columns 5, 6, 7 and 8 at a 10% level of significance. Depth of credit information index is again strong in explaining the growth of tourism in all columns. High technology exports (percentage of manufactured exports) are significant in columns 1, 3, 5, 6 and 7. Investment proxied by mobile cellular users per 100 people is significant at 5% in column 3. These results are similar to cross sections 1, 2 and 3 periods.

From Table 6.17, safety and security of tourists determines tourism growth in all columns except 8. The depth of credit information index is significant in all the columns showing high explanatory power. Trade openness is significant in all columns except 4. Secondary school enrolment explains tourism growth in specifications 3 and 5 at a 10% level of significance.

In Table 6.18, it is evident that the critical success factors for TLGH are labour as a percentage of population which is significant in column 5 at a 5% level of significance. Trade openness is significant at a 10% level of significance in specifications 1, 2 and 6. Depth of credit information index is again significant in all columns. Cereal yield per hectare is significant at 10% in column 5. Unlike Tables 6.16 and 6.17, the safety and security of tourists do not explain TLG.

Table 6.16: Cross Total regression results – [Human capital proxy – Human development index]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	1.505 (4.318)			4.793 (10.086)	1.717 (4.538)	0.121 (0.376)	1.599 (4.370)	1.705 (4.795)
Tourism safety & security index	1.32e-07** (1.07e-06)	1.46e-08** (1.18e-07)	1.01e-10** (9.48e-10)	0.000** (0.000)	1.42e-07** (1.01e-06)	1.57e-09** (1.51e-08)	1.70e-07** (1.34e-06)	1.51e-07* (1.24e-06)
Human development index	8.55e+08* (1.06e+10)	1.22e+13* (1.97e+14)	1.97e+19** (3.76e+20)	1.43e+09** (1.35e+10)	1.33e+10** (1.54e+11)	4.33e+11* (6.25e+12)	1.75e+10* (2.20e+11)	1.94e+10* (2.50e+11)
Trade openness index	11.919* (13.659)	15.406** (18.940)	92.625* (163.486)	3.596 (3.404)	14.803 (24.490)	83.639** (168.163)	10.000** (11.493)	7.223 (8.842)
CO2 Emissions (metric tons per capita)	0.846 (0.094)	0.849 (0.096)	0.811 (0.109)	0.882 (0.082)	0.649* (0.167)	0.778* (0.109)	0.773* (0.107)	0.812* (0.097)
Depth of Credit Information Index	2.023** (0.573)	2.176** (0.675)	2.950*** (1.202)		1.657** (0.423)	2.653** (1.035)	2.244*** (0.699)	1.946** (0.569)
High-tech exports [% of manufactured exports]	0.915* (0.048)	0.918 (0.048)	0.865** (0.059)	0.940 (0.037)	0.890** (0.053)	0.876* (0.061)	0.922 (0.047)	0.901* (0.054)
Blue Flag accreditation [1=Yes; 0=No]	1.358 (1.612)	1.564 (1.801)	3.508 (4.876)	1.223 (1.242)				
Internet users per 100 people		0.276 (0.366)						
Mobile cellular users per 100 people			0.004** (0.012)					
Financial Domestic Credit (% of GDP)				0.950 (0.867)				
Cereal Yield (kgs per hectare)					10.421 (16.985)			
Existence of world wonders [1=Yes; 0=No]						15.973 (32.820)		
Forest Area (% Land Area)							0.466 (0.297)	
% Land area in geographical tropics								1.861 (2.306)
Constant	0.039 (0.358)	0.031 (0.194)	17.444 (122.621)	0.001 (0.012)	1.31e-10 (2.38e-09)	0.114 (1.093)	0.041 (0.407)	0.025 (0.240)
Pseudo R^2	0.378	0.398	0.465	0.177	0.457	0.428	0.410	0.305
Prob > chi2	0.012	0.009	0.002	0.333	0.003	0.005	0.007	0.100
Observations	44	44	44	44	42	44	44	38

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table 6.17: Cross Total regression results – [Human capital proxy – Secondary school enrolment (% of gross)]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.775 (1.999)			3.144 (6.341)	0.963 (2.227)	0.121 (0.348)	1.048 (2.691)	0.450 (1.115)
Tourism safety & security index	2.57e-06* (0.000)	2.03e-06* (0.000)	1.26e-07** (1.02e-06)	0.001* (0.005)	9.26e-07** (6.16e-06)	1.74e-06* (0.000)	1.14e-06* (8.30e-06)	4.37e-06 (0.000)
Secondary school enrolment (% of gross)	53.597 (156.200)	69.762 (221.221)	797.590* (3191.045)	18.055 (34.754)	181.524* (561.319)	69.398 (201.443)	356.880 (1296.821)	62.367 (186.911)
Trade openness index	10.918* (13.939)	11.113* (14.290)	30.095** (49.349)	2.520 (2.522)	19.670* (35.482)	24.289** (38.542)	16.521* (24.232)	12.249* (18.267)
CO2 Emissions (metric tons per capita)	0.915 (0.916)	0.922 (0.099)	0.936 (0.105)	0.975 (0.079)	0.726 (0.178)	0.894 (0.094)	0.824 (0.115)	0.901 (0.091)
Depth of Credit Information Index	2.105** (0.621)	2.126** (0.644)	2.667** (1.073)		1.788** (0.487)	2.362** (0.802)	2.605** (0.995)	2.016** (0.646)
High-tech exports [% of manufactured exports]	0.935 (0.044)	0.938 (0.048)	0.929 (0.047)	0.957 (0.038)	0.920 (0.052)	0.927 (0.046)	0.945 (0.043)	0.941 (0.047)
Blue Flag accreditation [1=Yes; 0=No]	1.720 (2.046)	1.909 (2.153)	3.727 (4.743)	1.483 (1.422)				
Internet users per 100 people		0.825 (0.888)						
Mobile cellular users per 100 people			0.064 (0.141)					
Financial Domestic Credit (% of GDP)				1.251 (1.305)				
Cereal Yield (kgs per hectare)					12.297 (19.498)			
Existence of world wonders [1=Yes; 0=No]						3.567 (5.256)		
Forest Area (% Land Area)							0.363 (0.297)	
% Land area in geographical tropics								0.544 (0.726)
Constant	0.000 (0.003)	0.000 (0.001)	0.000 (0.000)	0.000 (0.000)	4.91e-15 (9.83e-14)	0.001 (0.012)	1.74e-07 (2.47e-06)	0.000 (0.004)
Pseudo R^2	0.366	0.366	0.399	0.134	0.446	0.378	0.405	0.273
Prob > chi2	0.019	0.019	0.010	0.568	0.005	0.015	0.009	0.160
Observations	42	42	42	42	41	42	42	37

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table 6.18: Cross Total regression results – [Human capital proxy – Labour force as a % of population]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.347 (0.910)			2.101 (4.243)	0.588 (1.427)	0.086 (0.227)	0.241 (0.582)	0.202 (0.530)
Tourism safety & security index	0.009 (0.036)	0.003 (0.012)	0.011 (0.047)	0.480 (1.461)	0.020 (0.077)	0.009 (0.032)	0.019 (0.066)	0.182 (0.759)
Labour force as a % of population	0.030 (0.088)	0.030 (0.091)	0.024 (0.075)	0.015 (0.042)	0.001** (0.003)	0.047 (0.141)	0.035 (0.124)	0.009 (0.031)
Trade openness index	6.011* (6.499)	5.924* (6.322)	6.527 (7.469)	1.714 (1.504)	4.862 (7.297)	11.287* (15.860)	5.548 (5.989)	3.351 (4.038)
CO2 Emissions (metric tons per capita)	0.991 (0.096)	0.967 (0.104)	1.012 (0.110)	1.048 (0.086)	0.804 (0.206)	0.975 (0.097)	0.981 (0.120)	0.996 (0.099)
Depth of Credit Information Index	1.924*** (0.441)	1.889*** (0.450)	1.985*** (0.525)		1.504* (0.303)	2.051*** (0.525)	1.939*** (0.471)	1.759** (0.450)
High-tech exports [% of manufactured exports]	0.964 (0.040)	0.955 (0.044)	0.964 (0.041)	0.972 (0.033)	0.940 (0.047)	0.954 (0.044)	0.964 (0.040)	0.968 (0.055)
Blue Flag accreditation [1=Yes; 0=No]	1.543 (1.750)	1.545 (1.688)	2.299 (2.746)	1.267 (1.211)				
Internet users per 100 people		1.624 (1.504)						
Mobile cellular users per 100 people			0.492 (0.968)					
Financial Domestic Credit (% of GDP)				1.402 (1.186)				
Cereal Yield (kgs per hectare)					37.070* (70.139)			
Existence of world wonders [1=Yes; 0=No]						3.016 (4.191)		
Forest Area (% Land Area)							0.889 (0.599)	
% Land area in geographical tropics								2.458 (3.452)
Constant	0.169 (1.571)	0.012 (0.084)	0.027 (0.181)	0.001 (0.006)	4.49e-15 (9.17e-14)	1.172 (11.073)	0.436 (4.214)	0.046 (0.484)
Pseudo R^2	0.336	0.338	0.336	0.095	0.461	0.347	0.334	0.252
Prob > chi2	0.027	0.026	0.027	0.771	0.003	0.022	0.028	0.200
Observations	44	44	44	44	42	44	44	38

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table 6.19: Cross Total regression results – [Human capital proxy – Human capital index]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.376 (0.925)			1.781 (3.529)	0.193 (0.471)	0.058 (0.146)	0.235 (0.538)	0.155 (0.379)
Tourism safety & security index	0.003 (0.012)	0.001 (0.001)	0.002 (0.006)	0.110 (0.379)	0.006 (0.023)	0.002 (0.010)	0.014 (0.057)	0.017 (0.078)
Human capital index	0.997 (1.215)	0.775 (1.052)	1.396 (1.874)	1.299 (1.402)	0.403 (0.791)	1.060 (1.317)	1.105 (1.419)	1.159 (1.508)
Trade openness index	8.092* (8.991)	7.709* (8.531)	9.623* (12.136)	2.108 (1.835)	13.834 (23.760)	17.842** (24.909)	6.043* (6.589)	4.984 (5.774)
CO2 Emissions (metric tons per capita)	0.958 (0.102)	0.934 (0.106)	0.970 (0.108)	1.006 (0.084)	0.937 (0.240)	0.945 (0.106)	0.916 (0.111)	0.941 (0.103)
Depth of Credit Information Index	1.908*** (0.425)	1.864*** (0.431)	1.969*** (0.509)		1.622** (0.355)	2.127*** (0.554)	2.026*** (0.481)	1.751** (0.414)
High-tech exports [% of manufactured exports]	0.952 (0.041)	0.942 (0.043)	0.947 (0.042)	0.961 (0.034)	0.915 (0.052)	0.938 (0.046)	0.956 (0.038)	0.951 (0.050)
Blue Flag accreditation [1=Yes; 0=No]	2.153 (2.343)	2.015 (2.178)	3.127 (3.726)	1.434 (1.364)				
Internet users per 100 people		1.751 (1.709)						
Mobile cellular users per 100 people			0.541 (1.068)					
Financial Domestic Credit (% of GDP)				1.613 (1.427)				
Cereal Yield (kgs per hectare)					13.101 (23.487)			
Existence of world wonders [1=Yes; 0=No]						4.239 (5.466)		
Forest Area (% Land Area)							0.593 (0.310)	
% Land area in geographical tropics								0.995 (1.099)
Constant	5.627 (47.217)	0.605 (3.282)	0.960 (5.633)	0.049 (0.361)	9.01e-08 (1.43e-06)	46.985 (404.206)	24.404 (211.912)	54.414 (485.074)
Pseudo R^2	0.292	0.295	0.290	0.040	0.346	0.310	0.303	0.191
Prob > chi2	0.066	0.063	0.068	0.980	0.031	0.049	0.055	0.409
Observations	42	42	42	42	40	42	42	37

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table 6.19 show that trade openness determines successful tourism-led growth in columns 1, 2, 3, 6 and 7. The depth of credit information index is again significant in all columns. Similar to Table 6.18, the safety and security of tourists do not explain TLG. This is different from Tables 6.16 and 6.17. The HCI does not play any role in explaining tourism growth and this is similar to all the cross sections 1, 2 and 3.

In conclusion, the CSFs for tourism growth in the cross total are the safety and security of tourists, trade openness, human capital [proxied by HDI, secondary school enrolment and labour force as a percentage of population], climatic conditions, level of financial development, protection of the environment and technological development.

6.6 Summary of results

It is clear from the cross section results that the CSFs for tourism-led growth are the safety and security of tourists, human capital, trade openness, protection of the environment, financial sector development and technological development. In the first time span for this research, that is, the period 1995-2000, there were 5 critical success factors affecting the odds of succeeding in tourism-led growth. With the progression into the period 2001-2005 period, high-tech exports (as a percentage of manufactured exports) began to play a role in explaining the success of the TLGH in countries. Over time and into the period 2006-2013, CO_2 emissions (metric tonnes per capita) moderately became influential as a determinant of tourism-led growth especially in cross section 3. The cross sections and the cross total results found the level of financial development being the most influential CSF as the variable was significant in almost all the specifications. The human capital proxy which had high explanatory power was the HDI compared to secondary school enrolment and labour as a percentage of population. The HCI was not important at all in explaining tourism growth.

Therefore, time might have influenced the economic growth paths chosen by the countries. Those that went for industrial development (high-technology exports) ended up having more CO_2 emissions which of course are an indicator of bad climatic conditions. This clearly decreased the countries' odds of succeeding in tourism-led growth. The countries which are more developed in terms of human capital [HDI, secondary school enrolment and labour as a percentage of population] and which have improved financial systems have clearly chosen another route for development so that the odds of having success with TLG are high. Trade openness is again a policy option, and here it is positive as evidenced by the regression results. Another policy option is via the safety route where countries should maintain peace in order for economic growth to take place. This also suggests that countries where the rule of the law may be a concern might succeed in kick-starting economic growth using tourism development. They have to maintain the rule of law first and this will attract tourist to visit the country. This might be a more lucrative economic growth option than other forms of development, such as, the export-led growth or attracting foreign direct investment.

6.7 Chapter summary

This chapter tested the CSFs that lead to the success of tourism-led growth. This was a follow up on Chapter 4 whose aim was to examine and identify the CSFs that are crucial for growth in the tourism sector to translate into economic growth. The aim of Chapter 6 therefore, was to test and derive robust evidence of the prerequisites for the success of tourism-led growth for African countries. In order to test the CSFS, a thorough search using internet search engines was done (that is, GoogleScholar, JSTOR, Science Direct, EbscoHost, Scopus, Emerald and so on) to download all articles on tourism-led growth. A total of 116 articles on country time series tourism-led growth were downloaded (after the elimination of double downloads).

The articles were classified into two groups, that is, those that found evidence supporting tourism-led growth and those that did not. A table was compiled with the two groups - the first group comprised of countries with empirical evidence of tourism leading to growth and the second composed of countries without empirical evidence of tourism-led growth. Using the findings in Chapter 4, the key success factors for tourism-led growth were identified and for every country in the list, proxies were established. The study made use of the original time frame used in Chapter 5; that is 1995-2013. The existence of a world wonder(s) in a country and the Blue Flag Accreditation were the two dummies that were added to the model as tourism-specific draw cards.

The dependent variable was then coded as a dichotomous dummy variable for each country on the list, where 1 (yes) indicated evidence that tourism leads to economic growth in a country; and 0 (no) indicated evidence that tourism did not lead to economic growth in a country. From these two, the dummy dependent variable were constructed, that is, TLGH 1 and TLGH2. TLGH1 was the dummy coded 1 if there was any evidence from the listed countries that tourism-led economic growth, and 0 if not. TLGH2 was the strictest dummy and coded 1 for tourism leading to growth only in the presence of undisputed evidence for the country. This dummy also excluded under-specified models. Several proxies were identified to represent the CSFs identified in chapter 4. The TLGH1 and TLGH2 dependent variables were regressed against the CSFs first for three average cross sections (cross sections 1, 2 and 3). For robustness, logistic regressions were also executed for the cross total, that is, averages for the whole period.

The cross sections regression results found that safety and security of tourists, human resources, trade openness, protection of the environment, financial sector development and technological development are the key success factors for the success of the TLGH. The full period cross section results found safety and security of tourists, trade openness, human capital [proxied by HDI, secondary school enrolment and labour force as a percentage of population], climatic conditions, level of financial development, protection of the environment and technological development as the CSFs affecting tourism growth.

There are several economic growth strategies that a country can embark on. A country can follow the industrial development (high-technology exports) path, but with the danger of having high CO_2 emissions as an indicator of bad climatic conditions. This clearly decreases the country's odds of having successful tourism-led growth. Countries that are more developed in terms of the human capital [proxied by HDI, secondary school enrolment and labour force as a percentage of population] and are experiencing development in financial systems have better chances of having tourism development. Countries can open up their borders to international trade, that is, trade openness and enhance tourism development. Finally, a country, via the safety route could pay particular attention on maintaining peace and the rule of law, in order for economic growth to take place. This guarantees the safety and security of tourists and thus fostering tourism growth. The next chapter summarises, concludes and gives recommendations for the research.

CHAPTER 7

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

7.1 Introduction

This chapter summarises the findings of the study and seeks to establish whether the objectives outlined in Chapter 1 section 1.5 have been achieved. The chapter starts by providing the background, main objective and the specific objectives of the study. The background to the study focussed on the relationship between tourism expansion and economic growth. This has been a contemporary issue in the field of tourism economics and evidence for and against TLG has been growing over the years.

It is widely recognised that international tourism affects the broader economy through various channels. First, tourism earns foreign currency significantly and hence contributes towards the purchase of capital goods, which are used in the process of production. Second, tourism stimulates investments in human capital, new infrastructure and competition. Third, other economic industries are stimulated by tourism through direct, indirect and induced effects. Fourth, tourism contributes towards the generation of employment and therefore an increase in incomes. Fifth, tourism results in economies of scale and their scope in the broader economy. Sixth, tourism causes the diffusion of technical knowledge, the stimulation of research and development and cultural change. Finally, tourism increases government revenue, leads to a realisation of multiplier effects, promotes infrastructure development, and the development of entrepreneurial and other skills.

While tourism products are experienced directly and consumed by tourists, there is need for the industry to be supported by indirect services and systems that are important to facilitate an experience which is enjoyable and hassle-free for tourists. These are the critical factors for the success of any tourism development. The critical success factors include, among others: the safety and security of tourists; a well-developed financial system; human resources; technological development; investment; trade openness; favourable climatic conditions; and protection of the environment. These CSFs include those over which some policy control is possible and others that are natural endowments. Nevertheless, the CSFs matter for tourism policy despite this distinction.

It is against this backdrop of enormous benefits of tourism development to the broader economy that policy makers and governments in developing countries target specialisation in tourism. Enamoured by the promise of positive externalities, the countries of the African continent are no exception. The majority of governments in Africa are now following policies of tourism expansion in order to achieve economic growth. The belief that tourism expansion causes long run economic growth is known in literature as the tourism-led growth hypothesis (TLGH).

However, the evidence that tourism development will lead to economic growth in the TLGH studies is, at this point, inconclusive. The ongoing debate for more than a decade on the effect of tourism development on economic growth in a country clearly needs further academic investigation. The research question in this study focussed on the evidence of the TLGH in African countries. Therefore, the study sought to investigate the evidence of and prerequisites for Africa's tourism-led growth.

The main objective of this research was to investigate the applicability and validity of the TLGH for Africa as well as to determine country characteristics in which the TLGH would be a success. The specific objectives were outlined and these included:

a. Reviewing empirical literature on economic growth theory and the TLGH with the aim of identifying the theoretical basis for the TLGH and establishing the evidence for and against this hypothesis.
b. Identifying the determinants of economic growth in general, and in Africa specifically.
c. Establishing the extent to which the tourism sector is given a role in the economic growth of African countries.
d. Investigating the kind of relationship that exists between tourism development and economic growth on the African continent by means of the panel data analysis and the cross section data analyses.
e. Determining the circumstances under which the TLGH can be successfully used as a policy tool to stimulate economic growth in African countries.
f. Establishing the nature of the relationship that exists between tourism growth and various CSFs.
g. Drawing conclusions and making policy recommendations.

Based on the above, the rest of the chapter is structured as follows: section 7.2 summarises the previous chapters, that is, chapter by chapter; section 7.3 gives conclusions of the research; in section 7.4 policy recommendations as well as further research recommendations are provided; section 7.5 discusses the contributions of the research in terms of theory, practice and policy making; section 7.6 highlights the limitations of the study; section 7.7 proffers suggestions for future research; and finally section 7.8 makes the final remarks of the research.

7.2 Chapter Summaries

This section is structured as follows: section 7.2.1 summarises the economic growth theories; section 7.2.2 gives an overview of the literature on TLGH; section 7.2.3 explains the prerequisites that are crucial for TLG; section 7.2.4 discusses the evidence of the TLG in Africa and section 7.2.5 highlights the prerequisites for TLG in Africa.

7.2.1 Summary of economic growth theories

Chapter 2 contained a comprehensive analysis of literature review and analysed the major theories on economic growth that were relevant to the research topic. The aim of the chapter was to meet the first objective of the study. The theories were presented according to timeline or chronological order, starting with the classical growth theories, the Harrod-Domar growth model, the neoclassical Solow-Swan model and the endogenous growth models. A brief description of each theory, its criticisms and shortcomings, its empirical evidence was provided.

Section 2.2 reviewed the classical economic growth theories. The proponents of the classical economic growth theories during the eighteenth century were Adam Smith, David Ricardo and Thomas Malthus. The theory postulated that economic growth is only a temporary phenomenon due to limited resources and population explosion within a country. The theory focused on the way capitalist economies function and visualised the economy entering a stationary or steady state. The proponents of the classical economic growth theories were of the belief that temporary increases in GDP per capita cause population explosion that will finally cause the realised GDP to decrease. It was also believed that if real GDP were to rise above the subsistence income level, it would have the potential of causing population explosion, which in turn will bring back the real GDP to its subsistence level. Part of the population would die if real GDP were to fall below the subsistence level. The classical economic growth theories explain growth in terms of the rate of technological progress and population growth. The classical economists believed that technological progress (dependent on capital accumulation) leads for some time but eventually falls when capital accumulation is prevented by a decline in the rate of profits. The economy then declines into a stagnation state. Hence, the main components of the classical economic growth theory are the production function, investment, technological progress, the size of the labour force, the determinants of profits and the system of wages.

Section 2.3 analysed the Harrod-Domar growth model. The economic growth model was an extension of Adam Smith's approach to economic growth. The model was formed from two independent works of Roy F. Harrod (1939) and Evsey Domar (1946). It states that an economy's rate of economic growth depends on the savings level and the capital output ratio. A country with a high level of savings has sufficient funds which firms can borrow from and use for investment purposes. The capital stock level of the economy increases as the level of investment and ultimately generate economic growth through an increase in the production of goods and services. The Harrod-Domar growth model further stated that the capital output ratio measures the productivity of investment that takes place. The economy becomes more productive as a result of a decrease in the capital output ratio. This is because of higher quantities of output being generated from fewer inputs, again leading to more economic growth. The Harrod-Domar growth model suggests that developing countries can realise economic growth through mobilising savings, hence supporting technological advancements which reduce the capital output ratio of the economy.

Section 2.5 examined the neoclassical economic growth theory also known as the Solow-Swan model of 1956. The economic growth model came from the works of R. Solow and T.W. Swan. It outlined how a steady economic growth rate is achieved with proper amounts of labour, capital, and technology. This economic growth theory was seen as an extension of the Harrod-Domar growth model. The Solow-Swan economic growth theory states that the equilibrium state will be realised if amounts of capital and labour are varied in the production function. The availability of new technology means that the quantities of labour and capital need some adjustment in order to maintain the economic growth equilibrium. The neoclassical growth theory therefore emphasises that the major economic growth factor is technological change and that technological change advances happen by chance. The theory argues that the critical determinant of economic growth is continuous technological advances.

Section 2.6 discussed the endogenous economic growth theories. The theories state that the economic growth process is internal and hence, is generated from within the system as a result of direct processes. Endogenous growth models can also be referred to as the modern day economic growth theories. They arose as a critique of the neoclassical growth theory. The neoclassical growth theory being seen to be grossly inadequate in explaining the actual economic growth experiences of several countries. Proponents of the endogenous growth models included Aghion, Howitt, Romer, Helpman, Grossman, Nelson and Phelps. The theories specifically note that a country's human capital enhancement is the critical determinant for economic growth through new forms of technology which are developed, as well as efficient and effective means of production. The neoclassical growth model view technological progress and external factors as the main determinants of economic growth and the endogenous growth theories digresses from this view. The endogenous growth theories say it is the endogenous or internal factors which affect economic growth. The proponents of the endogenous growth theory argue that if the present day industrialised economies and their state during the pre-industrialisation eras were to be compared, there is evidence pointing to the fact that economic growth is created and sustained from within the system of the economy. External factors or international trade has no role to play. The development of the economic growth theories over time occurred in such a way that a new theory was either formulated from the weaknesses or shortfalls of previous theories, or as an addition to them. Endogenous growth implies that growth is determined within the system (endogenously). The TLGH can be located within this broad group of theories since tourism is endogenous by nature.

Section 2.7 identified the economic growth drivers. These can also be viewed as the factors affecting economic growth in a country, as identified by the economic growth theories. They are; investment, human capital, trade openness, innovation and research and development, economic policies and macroeconomic conditions, foreign direct investment, trade openness, political factors, socio-cultural factors, institutional framework, geography and demographic factors. Since tourism can be classified as trade in services, openness to trade is of particular importance as an economic growth driver, in accordance with the ELGH.

7.2.2 Summary of literature on the tourism-led growth hypothesis (TLGH)

Chapter 3 sought to provide an overview of the literature on the TLGH. The chapter reviewed and critically analysed the TLGH literature with the aim of identifying the theoretical basis for the hypothesis, and coming up with the evidence for and against it. Section 3.2 sought to establish the link between tourism and the broader economy. International trade was identified as the first link, since tourism forms part of international trade in services. The second link was that of empirical literature on tourism economics, which was the focus of this study.

In terms of the first link, various theories which explain the pattern of international trade were reviewed briefly. The first was the absolute advantage theory by Adam Smith (1776). In 1817 the comparative advantage theory by David Ricardo made some additions to the absolute advantage theory. This was followed by the HOS model which identified the source of comparative advantage of countries as different relative factor endowments. In 1961, Linder focused on the demand side and postulated that the trade pattern between countries is as a result of overlapping demand, and that it is the surplus that is then exported. Jan Tinbergen in 1962 developed a gravity model which predicted that bilateral trade flows were based on countries' economic sizes (proxied by GDP figures) and the distance between the two countries. During the late 1970s and early 1980s, the new trade theory was developed to account for issues such as the increase in the trade to GDP ratio, with trade becoming more intense and largely intra-industry among developed countries.

Tourism economics, the second strand of literature was identified on grounds that international tourism is widely believed to directly affect long run economic growth through various channels. Empirical evidence found that tourism development affects the broader economy through an increase in foreign exchange earnings, development of infrastructure, stimulation of other sectors of the economy and employment creation. In addition budget deficits are reduced because of increases in government revenue, positive economies of scale are realised and there will be rapid expansion of GDP which will, in turn, further boost tourism expansion.

Section 3.3 explained the origins and background of the TLGH. The definition of the TLGH was clearly spelt out in the section. It was highlighted in the section that the TLGH originated in 1978 after Balassa's new growth theory where exports were regarded as a catalyst to economic growth. The study for Spain by Balaguer and Cantavella-Jordá in 2002 was the first to coin the term TLGH for researchers trying to analyse the causal link between tourism and economic growth. Ever-since then, a large number of studies have been carried out.

Section 3.4 reviewed the interaction between tourism and economic growth. Four hypotheses have been concluded on the type of relationship that exists between tourism development and economic growth. These are: the TLGH; the bidirectional causality; EDTGH; and no causality evidence. This led to the conclusion that the causal pattern between tourism development and economic growth is not conclusive.

Section 3.5 reviewed the theoretical framework of the TLGH where various TLGH models were selected based on different types of data, namely, time series, cross section and panel data, and their strong theoretical basis. The studies reviewed in the section were: a reassessment of the tourism-exports led growth hypothesis in Africa by Kareem in 2013; tourism and growth in a cross section of countries by Figini and Vici in 2010; tourism and growth in selected countries by Cortés-Jiménez *et al*. in 2009; and reviews of tourism and growth using alternative specifications by Srinivasan *et al*. in 2012. The models were found to represent broader literature and exhibited a link with the economic growth theories in chapter 2.

Section 3.6 reviewed and analysed empirical evidence for the TLGH. The case studies were grouped into empirical evidence for developed countries, developing countries and a combination of developed and developing countries. The section found that most of the empirical research done so far has managed to conclude evidence supporting the TLGH compared to the other three hypotheses of no causality evidence, bidirectional causality and EDTGH. The majority of empirical researches show a strong causal link between tourism development and long run economic growth.

7.2.3 Summary of critical success factors for the tourism-led growth hypothesis

Chapter 4 examined and identified the CSFs or prerequisites crucial for tourism sector growth to translate into economic growth for countries in the African continent. The aim of the chapter was to identify the theoretical basis for the TLGH and come up with evidence for and against the belief that tourism development causes economic growth. Section 4.2 gave an overview of the concept of a CSF and how it can be identified. The CSFs for the TLGH were found to be the characteristics, sub-goals, end statements, conditions or variables crucial for tourism development to be attained. They are important factors which have to exist, without which tourism development cannot take place in a country. The CSFs are the drivers of tourism growth and are crucial for overall tourism destination competitiveness locally and internationally.

The prerequisites for the TLGH were identified in section 4.3 and these were found to be investment, trade openness, safety and security of tourists, human resources, a well-developed financial system, technological development, protection of the environment and favourable climatic conditions. Section 4.3.1 found investment to be an important driver for the development of the tourism industry in a country. The provision of infrastructure was found to be a major form of tourism investment. Different infrastructure categories were analysed and these are transport infrastructure, energy and power, water supply systems, post and telecommunication services, water supply systems, mechanisms of pollution control, shopping, accommodation and restaurants, recreation and entertainment, emergency and safety systems and healthcare.

Section 4.3.2 analysed tourism safety and security as a CSF for the development of tourism. The section looked at the innate characteristics of tourism related safety and security occurrences. It provided an explanation of tourists' behaviour whenever safety and security threats exist, analysed the impact of safety and security issues on the overall tourism industry, explained the impact on the ruling government and discussed the influence of media behaviour.

Human resources were also identified as a tourism growth CSF in section 4.3.3. This is due to the fact that no tourism growth can take place without human resources. The quality of human resources determines the competitiveness of any tourist destination. Tourism is a highly labour intensive industry which employs a large number of people and therefore helps to reduce or ease unemployment rates in developing countries. Human resources help to bridge the gap with tourist service users. It was found that the quality of human resources directly affects the quality of tourism service and the competitiveness of the tourism sector.

In section 4.3.4 a well-developed financial system was identified as a key success factor for tourism development based on the need for tourists to perform transactions when they arrive in a country, and have access to financial institutions and banks. A well-developed financial system was also found to be important for tourism businesses to expand and operate. Various financial instruments need to be accessed easily in order to facilitate, for example, the movement of tourists from one place to another, the payment of certain fees and shopping. Thus the tourism industry needs the financial sector support for its growth to be enhanced.

Technological development was identified as a CSF for tourism development and explained in section 4.3.5. This is because the tourism industry is dynamic and hence tourism services and products need continuous development. This is necessary given that consumer behaviour changes from time to time, the tourism market is characterised by fierce competition and there is growth in tourism competitiveness. Section 4.3.6 explained the importance of trade openness to tourism growth. Openness to trade was seen to enhance the market access of goods and services in a country as well as free movement of tourists in and out of a country. This fosters tourism growth.

Section 4.3.7 focused on favourable climatic conditions as a catalyst to tourism development. Climatic conditions affect the choice of a destination, activity participation and satisfaction, and the safety of tourists. The final CSF identified by the chapter in section 4.3.8 was the protection of the environment. The pressure on natural resources and the ecosystem damage negatively affect tourism growth. Therefore there must be sustainable tourism or green tourism which emphasises on the use of the current tourism resources in such a way that future generations are not going to be jeopardised from enjoying the same.

Section 4.4 reviewed studies on the characteristics of countries where empirical evidence supported that tourism positively affects economic growth. This was done for both developed and developing countries. The characteristics found were supportive government, investment, development of human capital and political stability.

Several conclusions were drawn from Chapter 4. It was concluded that CSFs are very important to the tourism service delivery planning process and that CSFs are important for the tourism quality service delivery. The characteristics of CSFs are that: no single CSF can work independently; but that they are not divorced from each other and are mutually reinforcing. For example, the safety and security of tourists is enhanced by favourable climatic conditions. In addition the CSFs are interconnected or intertwined. For instance, better quality human resources can be caused by investment. This implies that the achievement of a CSF can result in the realisation of other CSFs. Finally, CSFs do overlap in fostering the development of tourism and they are integrated for tourism development success. As an example, technological development overlaps into a well-developed financial system.

7.2.4 Summary of evidence of tourism-led growth in Africa

Chapter 5 presented the evidence of the TLG in Africa. The aim of the chapter was to identify the determinants of economic growth in general, and in Africa specifically. In addition, the chapter aimed to investigate the relationship that exists between tourism growth and economic growth on the African continent by means of both cross section and panel data analyses. It sought to investigate whether there is empirical evidence of the TLG for the African continent. An overview of the economic growth process in Africa was given in section 5.2 and the African growth experience was compared with that of other regions of the world. Africa's growth experience was found to be unique and dismal as well as being the worst twentieth century economic tragedy compared to other continents. The economic tragedy was as a result of factors such as, poor human capital and low education levels, lack of investment, unfavourable climatic conditions and geography, excessive government public expenditure, closed economies and too much civil unrest and military conflicts. There is therefore need for a turnaround of Africa's economic growth experience and one possible option for the continent is tourism development.

Section 5.3 explained the approach used by the study to test Africa's evidence of the TLGH. Methodologies employed by the study borrowed from three recent and encompassing empirical researches on the relationship that exists between tourism and economic growth. These methodologies were discussed and evaluated. The empirical researches were by Figini and Vici (2010), Cortés-Jiménez and Paulina (2010) and Holzner (2011). The studies were chosen because of their strong theoretical backing of the economic growth theories.

The methodology employed by the chapter, whose aim was to find evidence of TLGH in Africa. Each cross section and average panel had 8 equations for each of the tourism proxy used. Firstly, for the production function, the most basic specification of real per capita GDP was regressed against physical capital, tourism and human capital. Secondly, the estimate was enhanced by adding the dummies. Further specifications included testing separately for the significance of metal commodity exports and trade openness. The process was repeated for all tourism proxies, which were, tourism receipts per capita, tourism export earnings as a percentage of GDP and the revealed comparative advantage of tourism. A repetition of the same process was done for the two proxies of human capital.

Coming to the growth function, an additional explanatory variable, that is, initial GDP was added to the estimations and the regressions were performed in exactly the same way as in the production function.

Section 5.4 gave an outline of the data used in this research. Cross section and panel data analyses was conducted to establish the presence of evidence of the TLGH in 53 African countries. There are 54 countries in Africa, but Somalia was excluded from the data set due to missing data for 6 of the variables in the model. The time span was 1995-2013. A country's determinants of output growth for the research were based on the economic growth theories in Chapter 2, as well as empirical researches by Figini and Vici (2010), Cortés-Jiménez and Paulina (2010) and Holzner (2011). Hence, the explanatory variables were: the initial GDP of a country; physical capital; tourism exports; trade openness; human capital; commodity exports; and non-economic effects. The non-economic effects (which are Africa-specific) were captured by a series of dummy variables. The dummy variables were, ease of doing business, landlockedness, North African country and the post conflict dummy. Proxies which were used to measure the variables were also justified.

Section 5.4.3 explained the data analysis process adopted by the study and made use of the production function and the neoclassical growth function as the underlying methodology. Econometric models were estimated for both cross section and panel data. Regressions were then performed using a specific to general approach. The data for the following time periods: 1995-1999, 2000-2004, 2005-2009 were averaged to reflect a 5-year average and for 2010-2013, a 4-year average. From this, 4 periods or cross sections were constructed whereby variables took the average value of the 1995-1999, 2000-2004, 2005-2009 and 2010-2013 periods, respectively. The panel was also generated from the combination of the four averages of the cross section data sets.

The chapter found that Africa's economic growth determinants were: total factor productivity; human capital; initial per capita GDP; ease of doing business; the post conflict and landlockedness dummies; and commodity metal exports. Physical capital, trade openness and the North Africa country dummy played minimal role in determining economic growth in Africa over the period under scrutiny. Tourism, which is the variable of interest, was initially less important in determining Africa's economic growth but increasingly became important over time during the study period. This is in line with empirical studies done so far. It was only after the 2002 research by Balaguer and Cantavella-Jordá for Spain on the coining of the term TLGH that a lot of interest and empirical researches on the topic started. This could have been due to the changes in the lifestyles of individuals over the years with the increase in incomes earned. Individuals started to allocate a certain proportion of their incomes to leisure resulting in the increased importance of tourism to people over time. Hence, tourism has become an important driver of growth as a country develops.

7.2.5 Summary of prerequisites for the tourism-led growth hypothesis

Chapter 6 aimed to determine the prerequisites or CSFs for TLG. The chapter sought to achieve objectives 5 and 6, namely, to determine the circumstances under which the TLGH can be used successfully in stimulating economic growth in African countries, and to establish the relationship that exists between tourism development and various CSFs. The CSFs are all important despite the fact that some can be controlled by policy and some are natural endowments (see section 7.1 above). Chapter 6 followed from the literature discussion in Chapter 4, which identified the CSFs that are necessary for tourism development to translate into economic growth. The chapter provided answers to the question about the right conditions that must exist for tourism to positively affect economic growth.

Section 6.2 summarised empirical evidence on the TLGH. This was done through a thorough search using search engines, for example, Science Direct, Google Scholar, Scopus, EbscoHost, JSTOR and Emerald. 116 articles on tourism-led growth were downloaded. The articles were classified into categories, that is, those with evidence in support of TLG and those without. It became evident that the studies that found evidence of tourism-led growth were more than those that did not. Nevertheless there was contradicting evidence that existed for certain countries. A total of 47 countries were in the list.

Section 6.3 explained the methodology employed by the chapter. The dependent variable was coded as a dichotomous variable for each of the listed countries, where 1 implied that tourism development leads to economic growth for the country under consideration, and 0 implied that tourism does not lead to economic growth for the country under consideration. Two types of dummy dependent variables were generated and these were TLGH1 and TLGH2. TLGH1 was coded 1 as long as there was evidence of TLG for a country and 0 where there was none. TLGH2 was coded 1 for undisputed evidence of TLG for a country and 0 where there was none. This was the strictest dummy.

Proxies were identified for the CSFs for TLG discussed in Chapter 4 and a data set was constructed for all the countries in the table. The CSFs for TLG were: investment; the safety and security of tourists; human resources; the level of financial development; technological development; trade openness; favourable climatic conditions; and protection of the environment. The time frame was the same as the one for investigating the evidence of TLG in Chapter 5, that is, 1995-2013. Since the dependent variable outcome was dichotomous, that is, yes or no, logistic regressions were performed first for the smaller cross sections and then for robustness, the full period cross section logistic regressions were executed.

From the full datasets, smaller datasets were generated and these were the 1995-2000 time frame, the 2001-2005 period and the 2006-2013 time span. Averages were derived from the smaller datasets and cross sections were generated, with cross section 1 taking averages for 1995-2000 data, cross section 2 for 2001-2005 and cross section 3 with averages for 2006-2013 data. The logistic regressions were performed using a specific to general approach and accounting for different proxies of the CSFs. The cross total comprised averages for the variables for the whole period cross section, that is, 1995-2013.

Section 6.4 explained the data used in the chapter. TLGH1 and TLGH2 were separately regressed against the proxies for the CSFs. Investment was measured by 3 proxies, namely, gross capital formation (as a percentage of GDP), mobile cellphone users per 100 people and internet users per 100 people. Trade openness was measured as the aggregate of a country's import and export of goods and services expressed as a percentage of GDP. Four proxies were used for human capital and these were HDI, secondary school enrolment, total labour force as a percentage of population and HCI. The World Economic Forum Safety and Security 2013 index was the proxy for tourist safety and security. A well-developed financial system was measured by the World Bank domestic credit provided by the financial sector (as a percentage of GDP) and depth of credit information index (0=low to 8=high). The World Bank's high technology exports (as a percentage of manufactured exports) was the proxy used to measure technological development of a country. CO_2 emissions (metric tons per capita) and forest area (as a percentage of land area) were the proxies for a country's protection of the environment. The Blue Flag accreditation and world wonder dummies could also belong to this category. Favourable climatic conditions were measured by cereal yield (kilograms per hectare), the percentage of population in the geographical tropics and the Blue Flag Beaches accreditation dummy.

Section 6.5 summarised and interpreted the logistic regression results. The cross section and the full period cross section logistic regression results showed that the CSFs for tourism development were; the safety and security of tourists, human capital, trade openness, protection of the environment, financial sector development and technological development. The economic growth paths chosen by countries were also influenced by the progression of time. The countries that chose the industrial development growth path (high-technology exports) ended up suffering from high CO_2 emissions which of course, repel tourism development due to bad climatic conditions. Countries that were more developed in terms of the HDI and that also possess a well-developed financial sector chose another development route, thereby increasing the probability of success with tourism development. Trade openness is another development policy option as evidenced by the cross section regression results. Another policy option which could be followed is the safety and security route where countries ought to maintain peace and the rule of law for tourism growth to take place. The odds ratio of the CSFs also increased in value over the passage of time. The logistic regression results found that the CSFs for TLG were human resources, tourism safety and security, financial sector development, trade openness, protection of the environment, and technological development. This implies that Africa ought to channel resources towards these CSFs in order to enhance tourism development and therefore boost economic growth.

The results were also interesting in that the proxy for human resources, that is, labour force as a percentage of total population had odds ratios which were less than 1 implying that if a country has a smaller proportion of its population in the labour force, the probability is very high that tourism growth will result in economic growth. This may suggest that developing countries in Africa have better chances to benefit from tourism growth. This means in African countries where there is high unemployment, any expansion of the tourism sector will absorb the unemployed people given that tourism is a highly labour intensive industry. The industry can grow faster if there is a pool of unemployed people waiting for job opportunities to arise. The other point to note is that tourism can employ skilled, semi-skilled as well as unskilled labour force and these are the characteristics of Africa’s human resources.

The odds ratios for safety and security of tourists were less than 1, meaning countries with security and safety of tourist issues are likely to benefit more from tourism development if they address the security issues. The level of financial development had odds ratios greater than 1 showing that the development of the financial sector in a country aids in transmitting the income generated from tourism and hence enhance economic growth.

7.3 Conclusions

The conclusions of this research have been formulated taking into account the research question in Chapter 1 section 1.4 and the objectives of the study outlined in section 1.5 of Chapter 1. Other findings of the study will also be included in the conclusions of the research.

7.3.1 Research Question

The main research question of the study was to find the evidence in support of the TLGH in African countries. In addition, the research intended to establish whether the TLGH can be used as an engine to stimulate economic growth in African countries and therefore identify critical success factors that are necessary for tourism-led growth in African countries.

The conclusion that can be drawn from the results is that there is evidence that the TLGH is indeed valid for African countries, although the evidence is not robust. Though at beginning of the study period (1995-1999) the TLGH was less significant as a tool which could be used to stimulate economic growth; over the passage of time (from 2000-2004, 2005-2009 and 2010-2013), the TLGH became an important catalyst for economic growth. Governments also started putting emphasis on TLGH as an engine for economic growth. The research found that tourism can be used as an engine for stimulating economic growth in Africa.

The critical success factors necessary for TLG for African countries identified by the study were human resources, financial sector development, tourism safety and security, protection of the environment, trade openness, and technological development. These factors were found to be significant in affecting the growth of the tourism sector.

7.3.2 Research Objectives

The main objective as well as the sub-objectives of the research are found in Chapter 1 section 1.5. All the objectives set by the study were attained through chapters 2, 3, 4, 5 and 6. In particular, they were achieved as follows:

7.3.2.1 Objective 1

The first objective of this study was to review empirical literature on economic growth theory and the TLGH with the aim of identifying the theoretical basis for the TLGH and come up with evidence for and against it. The belief that tourism expansion can be used to stimulate economic growth has been tested both theoretically and empirically. Although a number of studies were based on poor theoretical foundations, theoretical contributions on how tourism can influence growth have also been made. Theoretically, the origins of the TLGH can be traced back to the international trade theory and the empirical tourism economics literature, where the emphasis fell on the economic impact of tourism.

In terms of the empirical evidence, a production function approach as well as a neoclassical growth theory approach has been followed with success by a number of researchers. From these approaches, it has been found that tourism influences the growth rates of GDPs in a variety of countries. This implies that tourism expansion can possibly be pursued to assist African countries and turn around the worst economic growth strategy of the end of the twentieth century and the beginning of the twenty first century.

7.3.2.2 Objective 2

The second objective of this study was to identify the determinants of economic growth in Africa. The conclusion drawn from this research is that the determinants of economic growth in Africa are: human capital; initial per capita GDP; total factor productivity; dummies for ease of doing business; post conflict; and landlockedness. Natural resource dependence proxied by metal commodity exports also played a role. Physical capital, trade openness and the North African country dummy played minimal role. Tourism, as the variable of interest, was initially less important in explaining African economic growth but progressively became important in the cross sections, for the period under study. Hence, as countries develop tourism is also an influential economic growth driver.

7.3.2.3 Objective 3

The third objective of this research was to establish the extent to which the tourism sector is given a role in the economic growth of African countries. The conclusion from this study is that during the first time frame of the study, the tourism sector did not have a role in the economic growth of African countries. This may have been a result of little or no emphasis by African governments on the potential of tourism to spearhead economic growth. As time progressed African governments started placing much emphasis on tourism development. This has yielded results since tourism is now becoming an important driver of economic growth.

7.3.2.4 Objective 4

The forth objective of the study was to investigate the relationship between tourism development and economic growth on the African continent by means of cross section and panel data analyses. Three proxies of tourism exports were used by the research, that is, tourism receipts per capita, tourism exports as a percentage of GDP and the RCA for tourism. The research concluded that there is a positive relationship between tourism receipts per capita and economic growth. This implies that an increase in tourism receipts per capita or per tourist coming to a country enhances economic growth. There is an inverse relationship between tourism exports as a percentage of GDP and economic growth. Finally a negative relationship also exists between the RCA for tourism and economic growth.

7.3.2.5 Objective 5

The fifth objective was to determine the circumstances under which the TLGH can be used successfully as an alternative policy tool in stimulating economic growth in African countries. The research concluded that the theoretical prerequisites or circumstances under which the TLGH can be successfully used as a policy option for stimulating the economic growth of African countries are; human resources, the safety and security of tourists, financial sector development, opening up borders of African countries to trade freely (trade openness), protecting the environment, and technological development. If these right conditions are present in the African economies, then the foundation would have been laid for tourism expansion to take off and spearhead economic growth.

The research concluded that CSFs are very important for the quality and service delivery of the tourism sector; hence, they are vital to the planning process of the delivery of tourism as a product. CSFs possess several characteristics which ought to be taken note of in the tourism plans of African countries. CSFs do not work independent from each other. They are conjoined and reinforce each other. Hence, the setting up of one CSF as a precondition for tourism growth results in the achievement of another CSF. CSFs overlap each other and are integrated in the overall success of tourism expansion. This means that if countries were to choose a development path where tourism development enhances economic growth, they must direct their attention on these preconditions that will kick-start the tourism growth.

7.3.2.6 Objective 6

The sixth objective of this study was to establish the kind of relationship that exists between tourism development and various CSFs. Tourism safety and security was found to have an inverse relationship with tourism growth. Thus, if the safety and security of tourists is compromised in a country, tourist arrivals will drastically decrease. Countries that have security issues have more chances of reaping the rewards of tourism development if they pay attention to security issues.

There was a positive relationship between human capital (proxied by HDI) and tourism development. This means the higher the HDI of a country, the higher the level of tourism development. Issues of human development are critical for tourism development to take place and the HDI summarises average achievements in key human development dimensions. These include, a long and healthy life, being knowledgeable and having a decent standard of living. The HDI is the geometric mean of normalised indices of each of the three dimensions. African countries are therefore, challenged with improving their HDI in all the three dimensions. As for other human capital proxies, there was a positive relationship between secondary school enrolment and tourism growth; and also a negative relationship between labour as a % of population and tourism growth. This means that a country with high labour as a % of population has less chances of kickstarting tourism development since it unemployment rate will be low. Tourism is a labour intensive industry and for it to grow fast, there must be labour lying idle or high unemployment.

Trade openness has a positive and direct relationship with tourism growth showing that the more open that the borders of a country are to international trade; the easier it will be for the movement of tourists as well as goods and services in and out of a country. This enhances tourism growth. Favourable climatic conditions (proxied by CO_2 emissions per capita) had a negative relationship with tourism growth. CO_2 emissions signify bad climatic conditions and these repel tourists from visiting an area. There was a positive relationship between the level of financial development (proxied by the Depth of Credit Information Index) showing that the more developed the financial sector of a country is, the higher the tourism growth of the country. Higher levels of financial development ease tourist transactions as well as the development of the tourism sector itself. Technological development of a country (proxied by high-technology exports as a percentage of manufactured exports) had an inverse relationship with tourism development. This could probably be due to the fact that the manufacture of high technology exports ends up polluting the environment and this in turn negatively affects tourism growth.

7.3.2.7 Objective 7

Objective 7 was to draw conclusions and make policy recommendations for this research. The conclusions for each of the objectives of the research are provided in sections 7.3.2.1 to 7.3.2.6 above. The policy recommendations of the research are in section 7.4 below.

7.4 Policy Recommendations

In light of the conclusions and findings of this study mentioned in section 7.3 above, a number of recommendations can be formulated based on this research. The recommendations are mainly directed to policy makers in the African governments and other tourism industry stakeholders. These include policy recommendations and further research recommendations.

- Governments in Africa should consider placing emphasis on tourism and use it as a policy option to achieve economic growth. This is due to the findings of this study which have seen tourism becoming an important economic growth determinant and traditional sources of growth (i.e. natural resource exports) are not succeeding in increasing growth rates.
- African governments must also consider other determinants of economic growth and use these to complement tourism expansion. These other determinants of economic growth are human capital (positive relationship), commodity metal exports (negative relationship), ease of doing business, post conflict and geography (landlocked countries are slower growers).
- Policies should also be crafted in such a way that the CSFs for tourism-led growth, identified by the research, are enhanced. This will create an enabling environment for tourism to grow. African governments could also channel resources and emphasise on the CSFs, such as, peace, training human capital, developing the financial sector and so on (see below).
- African countries are recommended to maintain peace and political stability. Issues of conflict and disagreement must be resolved amicably through peaceful negotiations and

quiet diplomacy to avoid destabilisation in the continent. This is prompted by a finding of the research that military conflicts, ethno-linguistic fights, human rights violations, ethno-linguistic fractionalisation, civil wars, ethnic and tribal wars retard economic growth. Political instability was found to negatively affect tourist arrivals in a country as it threatens the safety and security of tourists. However, the research shows that these countries can indeed consider TLG to improve their situation.

- Resources must be channelled towards the financial development of African countries. This involves having more financial intermediaries, diversified financial products as well as abundant liquid cash for tourists to experience hassle-free transactions. If a country is developed financially, there will be easy exchange of goods and transfer of funds. Tourism business expansion will also be much faster. This recommendation emanates from the finding that financial development of a country stimulates tourism growth, implying that high financial development is a critical success factor for tourism development.

- Africa must implement programmes that will improve the quality of human capital resources, for example, education and further training. The research found that human resources are a significant determinant of economic growth as well as a critical success factor for tourism growth. Particular attention must be paid to the HDI as it was found to be a highly significant human capital proxy compared to the other proxies used by the research. The HDI is a composition of the average achievements in key human development dimensions, which are, a long and healthy life, being knowledgeable and having a decent standard of living. Hence, attention must be paid to these HDI dimensions.

- Sustainable tourism and green tourism must be promoted. This implies enjoying nature in such a way that the present resources are preserved for future generations. The research found that protection of the environment is a critical success factor for tourism growth. It was further found that there is conflict between tourism growth and industrial development policies. A country must decide and the environment must be considered since industrial development causes higher CO_2 emissions (metric tonnes per capita) causing unfavourable climatic conditions. The stage of development of a country must also be taken into consideration.

- Countries with vast human resources could also benefit immensely from tourism promotion. This is due to the fact that tourism is labour intensive. The sector employs skilled, semi-skilled and even unskilled labour force. Many underutilised workforce in the country could be made use of in tourism development. In the long run, this will help solve the problem of high or massive unemployment which has bedevilled the African continent for centuries.

In order to promote tourism in Africa, the following may be considered:

- Visa restrictions must be relaxed in order for tourists to easily visit destinations. Regional visas could also be offered to tourists for them to visit several countries in a single trip. Tourist packages could also be offered, for example, a tourist interested in viewing wildlife can be offered a package that enables them them to visit Kruger National Park in South Africa, Hwange National Park in Zimbabwe and Mokgolodi Game Reserve in Botswana. These arrangements can be done at a regional level and attract more tourists into Africa. This is based on the finding that trade openness is a significant determinant of both economic growth and tourism development.

- Embassies can have a tourism attaché just as there have a trade attaché in key tourist source countries. This requires investigations by a country finding out the countries of origin of its tourists; setting up or opening embassies in those key tourist sources; and posting tourism attachés to those countries. The purpose of the tourism attachés is to provide information and market the countries they represent. This recommendation arises from a realisation that tourism services and products are not being promoted in tourist source countries.

- Advertising tourist attractions on media where there is going to be wide coverage of viewership or listenership, for example CNN, BBC or Sky News channels or the National Geographic channel on Digital Satellite Television (DSTV). For instance Macedonia, Malaysia, Kenya, Uganda and India advertise on CNN. This may change negative perceptions of Africa as a tourist destination.

7.5 Contributions of the study

This research is important to the body of tourism economics in theory, practice and policy.

7.5.1 Contribution of the research to theory

The methodology employed by the research in Chapters 5 and 6 is robust and hence the results of the research can be relied on. The research used a specific to general modelling approach. Regression analysis was used and various proxies of the dependent and explanatory variables were employed to test the robustness of the regression results.

In Chapter 5, two proxies of economic growth were used as the dependent variable, namely, real annual GDP growth and per capita GDP. These were based on a production function specification and the neoclassical growth model, which provided a strong theoretical foundation for the empirical research. Three proxies of tourism were used and these were tourism receipts per capita, tourism export earnings as a percentage of GDP and the revealed comparative advantage of tourism. Two proxies for human capital were the gross secondary school enrolment and the human capital index. This contributed towards a thorough evaluation of the validity of the TLGH for African countries.

Several of the proxies used to estimate the variables have been used for the first time and no other research has ever used them in this context of tourism-led growth. The proxies are the human capital index (HCI), the revealed comparative advantage for tourism and value of commodity metal exports as a percentage of total export earnings. The dummies which captured the non-economic effects, that is, post conflict, North African country, ease of doing business and landlockedness are also unique for tourism, although not for the economic growth theory.

Chapter 6 also used two definitions of the TLGH, that is, TLGH1 and TLGH2, which were regressed against the critical success factors. Various proxies of the CSFs were used to test the robustness of the regression results. Investment was measured by 3 proxies, which are, gross capital formation (as a percentage of GDP), internet users per 100 people and mobile cellular phone users per 100 people. Four proxies were used for human capital and these were the HDI, secondary school enrolment (% of gross), total labour force as a percentage of population, and the HCI of a country. The World Economic Forum Safety and Security 2013 index was the proxy for tourist safety and security. The level of financial system development was measured by the depth of credit information index and the World Bank domestic credit provided by the financial sector (as a percentage of GDP). Forest area (as a percentage of land area) and CO_2 emissions (metric tons per capita) were the proxies for a country's protection of the environment. The world wonder and the Blue Flag accreditation dummies could also belong to this category. Favourable climatic conditions were measured by the percentage of population in the geographical tropics, cereal yield (kilograms per hectare) and the Blue Flag Beaches accreditation dummy. This made it a very comprehensive study, which covered various aspects of both tourism and country-specific characteristics in obtaining robust results for the prerequisites for tourism-led growth.

The methodology employed by the research in chapter 6, that is, a specific to general approach using various regression models is also unique, since it is the first of its kind to be used to empirically verify the prerequisites for TLG. This implies that African governments ought to set up the right conditions in order for tourism to lead to economic growth. The study also compiled a comprehensive list of all published researches on the TLGH and classified the research evidence.

The proxies that were used to measure the variables are unique to this study, since the prerequisites have not been tested before. Firstly, the definitions of TLGH1 and TLGH2 were determined and could guide future research in this field. Secondly, the proxies for the CSF, that is, internet users per 100 people, mobile cellular phone users per 100 people, secondary school enrolment (% of gross), total labour force as a percentage of population, the HDI, the HCI of a country have not yet been used in previous empirical research. The World Economic Forum Safety and Security 2013 index, the depth of credit information index, the World Bank domestic credit provided by the financial sector (as a percentage of GDP), forest area (as a percentage of land area), CO_2 emissions (metric tons per capita), the world wonder dummy, the Blue Flag accreditation dummy, the percentage of population in the geographical tropics and cereal yield (kilograms per hectare) are unique proxies. This is an addition to the theory on tourism economics and is a digression from the proxies which previous researches have been using.

7.5.2 Contribution of the research to practice

The major contribution of the research is that it will be an addition to the empirical literature on the TLG of countries in Africa. The study is the first one to empirically test the evidence of the tourism-led growth for almost all countries in Africa. Somalia was the only country excluded due to missing data. There is no previous research which has ever had such a large sample of African countries. This makes the research as well as the study results unique.

The research also derived a unique finding, which has not previously been found for the TLG in Africa. The finding is that the importance of tourism as a determinant of economic growth improved over the passage of time. This implies that initially there was less emphasis on the TLGH by governments in Africa. This shows that Africa can pursue tourism expansion and use it as a strategy to realise long run economic growth. The TLGH can be used as an armoury to turn around Africa's economic growth tragedies.

The study also tested the prerequisites that must exist in the countries of Africa for tourism expansion to spearhead economic growth. These CSFs are tourism safety and security, human resources, trade openness, financial sector development, protection of the environment, and technological development. This means that African governments must target these prerequisites for tourism specialisation to result in economic growth.

From Chapter 5 which investigated the evidence of the TLG in Africa, though the research pointed to the fact that the importance of tourism as a determinant of economic growth has been improving with time, several other determinants of economic growth were identified. These determinants which were economic factors, in particular human capital, commodity metal exports, trade openness and the initial real GDP per capita. Non-economic effects were captured by post conflict, ease of doing business and landlockedness dummies that explained the variations in economic growth. This implies that policy makers should not just focus on tourism expansion to influence economic growth and overlook these other important determinants of economic growth. Other factors affecting economic growth in Africa must be emphasised on to complement tourism expansion. These determinants of economic growth in addition to tourism, point to an important fact that Africa must not put its eggs in one basket but must diversify and use all the determinants of economic growth to complement each other and finally realise economic growth. The research did not suggest industrial development together with tourism growth but suggested improving human capital and productivity.

7.5.3 Contribution of the research to policy makers

The formulation of the tourism growth strategy is also a major addition to literature. The research managed to derive recommendations which can be used by governments in Africa for policy making.

The time frame for the study, that is, 1995-2013 is another major contribution since several global and African events took place during the period. These events have an impact on the tourism growth in Africa. Examples of such events are the 2007-2008 global financial meltdown, the Arab Spring from 2010 onwards and various political disturbances in Africa. Since the research still found robust results which make economic sense, the research can be used to guide policy-makers in formulating an economic growth strategy for Africa. Some of these policy recommendations can be found in section 7.4 above.

7.6 Study Limitations

Chapter 5 investigated the evidence of the tourism-led growth for African countries. Nonetheless, the study removed Somalia from the list of African countries due to missing data for 6 of the variables in the data set. This had the effect of reducing the number of observations in the data set as 53 instead of 54 African countries were investigated in the research. Chapter 6 focused on finding the prerequisites for the TLG and Taiwan was also excluded from the list due to missing data on the variables in the World Bank Indicators. This also reduced the number of observations in the data set. The research again suffered from some missing observations of variables in the data set. However, the problem was resolved by averaging the observations over, for example, 5 year period.

7.7 Suggestions for Future Research

The research suggests that there is a lot of room for further study on the TLG in Africa. Future researches can disintegrate the African continent into regions and studies could be carried out in the sub-regions: Southern Africa; East Africa; West Africa; North Africa; and Central Africa.

More variables could be added to the estimation process. Moreover, different proxies to those used in this study could be used to estimate the regressions to determine what will happen to the estimation results. The proxies for infrastructure used in the CSFs (ie, internet users per 100 people and mobile cellular users per 100 people) were not very economy based because the data for specific tourism infrastructure is not readily available for African countries. The human capital proxies used in the CSFs (ie, HDI, total labour force as a percentage of population, and total population) were country specific and not tourism sector based. This is an area that future researches could improve on.

The study does not reveal how the African continent is faring in the tourism industry in terms of whether the continent is lagging behind or not. Future studies can focus on a comparative study of African tourism with other regions of the world, for example, South America, Europe and Asia.

7.8 Final Remarks

The African continent has experienced one of the worst economic growth tragedies towards the end of the twentieth and at the beginning of the twenty-first centuries. Under the right circumstances, this may be alleviated partially by promoting tourism in the continent. TLG should therefore not be disregarded as a policy option for turning around the misfortunes of the continent.

Appendix A1: Cross Section 1 Descriptive Summary Statistics

Table A1.1 Cross Section 1 Summary Statistics: Production Function

	LY	LK	LH	LHCI	LTOURR	LTOURP	LRCA	LTRADE	LME
Mean	7.791210	2.862929	3.319905	0.558253	2.867124	1.014646	0.312933	4.136385	0.684315
Median	7.694913	2.889798	3.396814	0.588519	2.634002	0.921742	0.434405	4.096614	0.600524
Maximum	9.196336	3.374531	4.480154	0.941571	6.376901	2.771873	1.540372	4.901972	4.224739
Minimum	6.439405	1.740379	1.787386	0.150362	0.807271	-0.656778	-2.336683	3.515929	-3.263539
Std. Dev.	0.879444	0.385409	0.815463	0.223071	1.658847	0.934917	1.069026	0.373863	2.278940
Skewness	0.258483	-1.492074	-0.389213	-0.251400	0.487487	0.086023	-0.824605	0.578201	-0.093151
Kurtosis	1.817099	5.490856	2.190880	2.314692	2.279590	2.216256	3.156153	2.796008	1.922776
Jarque-Bera	1.180443	10.70256	0.892941	0.511738	1.040942	0.456063	1.943864	0.976706	0.846544
Probability	0.554205	0.004742	0.639882	0.774243	0.594241	0.796099	0.378351	0.613636	0.654901
Sum	132.4506	48.66980	56.43839	9.490296	48.74110	17.24899	5.319859	70.31854	11.63335
Sum Sq. Dev.	12.37474	2.376644	10.63967	0.796173	44.02836	13.98512	18.28506	2.236379	83.09705
Observations	17	17	17	17	17	17	17	17	17

Source: EViews8 Regression Results, 2017

Table A1.2 Cross Section 1 Summary Statistics: Growth Function

	GROWTH	LY1	LK	LH	LHCI	LTOURR	LTOURP	LRCA	LTRADE	LME
Mean	1.996487	7.747057	2.862929	3.319905	0.558253	2.867124	1.014646	0.312933	4.136385	0.684315
Median	1.407337	7.695554	2.889798	3.396814	0.588519	2.634002	0.921742	0.434405	4.096614	0.600524
Maximum	4.631663	9.182940	3.374531	4.480154	0.941571	6.376901	2.771873	1.540372	4.901972	4.224739
Minimum	-1.040056	6.385589	1.740379	1.787386	0.150362	0.807271	-0.656778	-2.336683	3.515929	-3.263539
Std. Dev.	1.709293	0.876014	0.385409	0.815463	0.223071	1.658847	0.934917	1.069026	0.373863	2.278940
Skewness	0.000764	0.238881	-1.492074	-0.389213	-0.251400	0.487487	0.086023	-0.824605	0.578201	-0.093151
Kurtosis	1.800802	1.818916	5.490856	2.190880	2.314692	2.279590	2.216256	3.156153	2.796008	1.922776
Jarque-Bera	1.018639	1.149778	10.70256	0.892941	0.511738	1.040942	0.456063	1.943864	0.976706	0.846544
Probability	0.600904	0.562767	0.004742	0.639882	0.774243	0.594241	0.796099	0.378351	0.613636	0.654901
Sum	33.94028	131.7000	48.66980	56.43839	9.490296	48.74110	17.24899	5.319859	70.31854	11.63335
Sum Sq. Dev.	46.74691	12.27840	2.376644	10.63967	0.796173	44.02836	13.98512	18.28506	2.236379	83.09705
Observations	17	17	17	17	17	17	17	17	17	17

Source: EViews8 Regression Results, 2017

Appendix A2: Cross Section 2 Descriptive Summary Statistics

Table A2.1 Cross Section 2 Summary Statistics: Production Function

	LY	LK	LH	LHCI	LTOURR	LTOURP	LRCA	LTRADE	LME
Mean	7.767608	2.863084	3.414236	0.587603	2.878396	0.901519	0.255654	4.120592	0.990577
Median	7.440160	2.957604	3.562305	0.589588	2.830790	1.070118	0.453136	4.123747	1.246485
Maximum	9.755700	3.519699	4.468675	0.998902	6.614278	2.852486	3.823802	5.252746	3.845034
Minimum	6.398025	1.772031	2.018199	0.150607	-1.653410	-1.823965	-5.965368	3.212004	-2.927404
Std. Dev.	1.015790	0.417420	0.745404	0.233851	1.913676	1.052103	1.677167	0.498060	1.973918
Skewness	0.478062	-0.869030	-0.319886	-0.167998	-0.228216	-0.961458	-1.643690	0.459980	-0.317854
Kurtosis	1.912953	3.339734	2.046361	2.104850	2.685377	4.064123	8.567750	3.015539	1.899745
Jarque-Bera	2.357826	3.528309	1.483577	1.028461	0.345732	5.433706	47.03255	0.952388	1.816523
Probability	0.307613	0.171332	0.476261	0.597961	0.841250	0.066082	0.000000	0.621143	0.403225
Sum	209.7254	77.30326	92.18436	15.86528	77.71669	24.34101	6.902655	111.2560	26.74559
Sum Sq. Dev.	26.82756	4.530233	14.44630	1.421847	95.21605	28.77994	73.13509	6.449653	101.3052
Observations	27	27	27	27	27	27	27	27	27

Source: EViews8 Regression Results, 2017

Table A2.2 Cross Section 2 Summary Statistics: Growth Function

	GROWTH	LY1	LK	LH	LHCI	LTOURR	LTOURP	LRCA	LTRADE	LME
Mean	1.426582	7.737223	2.863084	3.414236	0.587603	2.878396	0.901519	0.255654	4.120592	0.990577
Median	1.876957	7.395726	2.957604	3.562305	0.589588	2.830790	1.070118	0.453136	4.123747	1.246485
Maximum	4.390058	9.777365	3.519699	4.468675	0.998902	6.614278	2.852486	3.823802	5.252746	3.845034
Minimum	-7.131432	6.367923	1.772031	2.018199	0.150607	-1.653410	-1.823965	-5.965368	3.212004	-2.927404
Std. Dev.	2.581678	1.018062	0.417420	0.745404	0.233851	1.913676	1.052103	1.677167	0.498060	1.973918
Skewness	-1.387527	0.478845	-0.869030	-0.319886	-0.167998	-0.228216	-0.961458	-1.643690	0.459980	-0.317854
Kurtosis	5.414323	1.944838	3.339734	2.046361	2.104850	2.685377	4.064123	8.567750	3.015539	1.899745
Jarque-Bera	15.22111	2.284354	3.528309	1.483577	1.028461	0.345732	5.433706	47.03255	0.952388	1.816523
Probability	0.000495	0.319124	0.171332	0.476261	0.597961	0.841250	0.066082	0.000000	0.621143	0.403225
Sum	38.51772	208.9050	77.30326	92.18436	15.86528	77.71669	24.34101	6.902655	111.2560	26.74559
Sum Sq. Dev.	173.2916	26.94768	4.530233	14.44630	1.421847	95.21605	28.77994	73.13509	6.449653	101.3052
Observations	27	27	27	27	27	27	27	27	27	27

Source: EViews8 Regression Results, 2017

Appendix A3: Cross Section 3 Descriptive Summary Statistics

Table A3.1 Cross Section 3 Summary Statistics: Production Function

	LY	LK	LH	LHCI	LTOURR	LTOURP	LRCA	LTRADE	LME
Mean	7.853172	3.020158	3.639258	0.640433	3.302311	0.898034	0.535839	4.248963	1.323161
Median	7.623603	3.107765	3.693931	0.660453	3.047213	1.117947	0.616082	4.213183	1.554631
Maximum	9.539227	3.493289	4.532907	1.028741	7.080744	2.936491	3.912131	5.132861	3.890014
Minimum	6.474238	1.806268	2.423784	0.196733	-1.540195	-2.021434	-2.085176	3.565196	-3.580001
Std. Dev.	0.950312	0.358958	0.585104	0.219440	1.836802	1.122381	1.247433	0.419798	1.923953
Skewness	0.385776	-1.578950	-0.279393	-0.332284	-0.225861	-0.603472	0.191033	0.354730	-0.558421
Kurtosis	1.917489	5.894814	2.292388	2.409693	3.289588	3.104185	3.658055	2.258214	2.609872
Jarque-Bera	2.061644	21.41100	0.948449	0.921799	0.335900	1.712165	0.675512	1.229176	1.632791
Probability	0.356714	0.000022	0.622367	0.630716	0.845396	0.424823	0.713369	0.540864	0.442022
Sum	219.8888	84.56442	101.8992	17.93213	92.46472	25.14495	15.00349	118.9710	37.04851
Sum Sq. Dev.	24.38350	3.478978	9.243353	1.300157	91.09369	34.01298	42.01437	4.758211	99.94304
Observations	28	28	28	28	28	28	28	28	28

Source: EViews8 Regression Results, 2017

Table A3.2 Cross Section 3 Summary Statistics: Growth Function

	GROWTH	LY1	LK	LH	LHCI	LTOURR	LTOURP	LRCA	LTRADE	LME
Mean	2.082043	7.803150	3.020158	3.639258	0.640433	3.302311	0.898034	0.535839	4.248963	1.323161
Median	2.271816	7.586996	3.107765	3.693931	0.660453	3.047213	1.117947	0.616082	4.213183	1.554631
Maximum	5.478151	9.453015	3.493289	4.532907	1.028741	7.080744	2.936491	3.912131	5.132861	3.890014
Minimum	-5.201910	6.411833	1.806268	2.423784	0.196733	-1.540195	-2.021434	-2.085176	3.565196	-3.580001
Std. Dev.	2.175930	0.936446	0.358958	0.585104	0.219440	1.836802	1.122381	1.247433	0.419798	1.923953
Skewness	-1.140319	0.349144	-1.578950	-0.279393	-0.332284	-0.225861	-0.603472	0.191033	0.354730	-0.558421
Kurtosis	5.508129	1.909710	5.894814	2.292388	2.409693	3.289588	3.104185	3.658055	2.258214	2.609872
Jarque-Bera	13.40736	1.955727	21.41100	0.948449	0.921799	0.335900	1.712165	0.675512	1.229176	1.632791
Probability	0.001226	0.376114	0.000022	0.622367	0.630716	0.845396	0.424823	0.713369	0.540864	0.442022
Sum	58.29722	218.4882	84.56442	101.8992	17.93213	92.46472	25.14495	15.00349	118.9710	37.04851
Sum Sq. Dev.	127.8362	23.67714	3.478978	9.243353	1.300157	91.09369	34.01298	42.01437	4.758211	99.94304
Observations	28	28	28	28	28	28	28	28	28	28

Source: EViews8 Regression Results, 2017

Appendix A4: Cross Section 4 Descriptive Summary Statistics

Table A4.1 Cross Section 4 Summary Statistics: Production Function

	LY	LK	LH	LHCI	LTOURR	LTOURP	LRCA	LTRADE	LME
Mean	7.772032	3.101468	3.780340	0.636057	3.367622	0.664606	0.557658	4.175741	1.694650
Median	7.554249	3.082196	3.808904	0.647745	3.363307	0.645790	0.640105	4.185812	1.710862
Maximum	9.704654	3.629663	4.621294	0.972633	7.206782	2.729293	1.703970	5.012294	4.078094
Minimum	6.600016	2.527396	2.752841	0.242562	-1.236313	-2.112550	-1.421207	3.423240	-1.224602
Std. Dev.	0.914394	0.270537	0.497543	0.208034	1.804404	1.193806	0.918994	0.400153	1.681617
Skewness	0.750116	-0.166100	-0.170906	-0.287098	-0.236626	-0.472095	-0.628587	0.170344	-0.209495
Kurtosis	2.552123	2.893375	2.536467	2.250845	3.542468	2.734793	2.444222	2.282142	1.962907
Jarque-Bera	2.451292	0.121725	0.331699	0.890935	0.518238	0.961830	1.889376	0.631388	1.251114
Probability	0.293568	0.940952	0.847174	0.640525	0.771731	0.618218	0.388801	0.729282	0.534963
Sum	186.5288	74.43522	90.72815	15.26537	80.82294	15.95053	13.38380	100.2178	40.67161
Sum Sq. Dev.	19.23067	1.683382	5.693616	0.995395	74.88509	32.77896	19.42463	3.682824	65.04019
Observations	24	24	24	24	24	24	24	24	24

Source: EViews8 Regression Results, 2017

Table A4.2 Cross Section 4 Summary Statistics: Growth Function

	GROWTH	LY1	LK	LH	LHCI	LTOURR	LTOURP	LRCA	LTRADE	LME
Mean	1.981936	7.743960	3.101468	3.780340	0.636057	3.367622	0.664606	0.557658	4.175741	1.694650
Median	2.128559	7.544370	3.082196	3.808904	0.647745	3.363307	0.645790	0.640105	4.185812	1.710862
Maximum	7.070687	9.654962	3.629663	4.621294	0.972633	7.206782	2.729293	1.703970	5.012294	4.078094
Minimum	-8.222394	6.586577	2.527396	2.752841	0.242562	-1.236313	-2.112550	-1.421207	3.423240	-1.224602
Std. Dev.	2.776891	0.910672	0.270537	0.497543	0.208034	1.804404	1.193806	0.918994	0.400153	1.681617
Skewness	-1.852898	0.780528	-0.166100	-0.170906	-0.287098	-0.236626	-0.472095	-0.628587	0.170344	-0.209495
Kurtosis	8.952875	2.569351	2.893375	2.536467	2.250845	3.542468	2.734793	2.444222	2.282142	1.962907
Jarque-Bera	49.16964	2.622357	0.121725	0.331699	0.890935	0.518238	0.961830	1.889376	0.631388	1.251114
Probability	0.000000	0.269502	0.940952	0.847174	0.640525	0.771731	0.618218	0.388801	0.729282	0.534963
Sum	47.56647	185.8550	74.43522	90.72815	15.26537	80.82294	15.95053	13.38380	100.2178	40.67161
Sum Sq. Dev.	177.3558	19.07442	1.683382	5.693616	0.995395	74.88509	32.77896	19.42463	3.682824	65.04019
Observations	24	24	24	24	24	24	24	24	24	24

Source: EViews8 Regression Results, 2017

Appendix A5: Average Panel Descriptive Summary Statistics

Table A5.1 Average Panel Summary Statistics: Production Function

	LY	LK	LH	LHCI	LTOURR	LTOURP	LRCA	LTRADE	LME
Mean	7.790723	2.960813	3.546313	0.610024	3.211634	0.865029	0.439105	4.157550	1.243943
Median	7.582859	2.995007	3.630149	0.624995	3.184046	1.051766	0.545911	4.126256	1.473169
Maximum	9.755700	3.629663	4.621294	1.028741	7.206782	2.936491	3.912131	5.252746	4.224739
Minimum	6.398025	1.740379	1.787386	0.150362	-2.283761	-2.112550	-5.965368	3.212004	-3.580001
Std. Dev.	0.927185	0.367637	0.669176	0.219141	1.957339	1.067407	1.240764	0.424014	1.926718
Skewness	0.506832	-1.202821	-0.523605	-0.273334	-0.307205	-0.621505	-1.217513	0.403439	-0.438960
Kurtosis	2.107367	4.932961	2.721719	2.314839	3.057726	3.357512	9.511448	2.827263	2.335183
Jarque-Bera	7.373244	38.49063	4.745272	3.105174	1.539196	6.761265	195.3269	2.751935	4.901431
Probability	0.025056	0.000000	0.093235	0.211700	0.463199	0.034026	0.000000	0.252595	0.086232
Sum	755.7001	287.1989	343.9923	59.17234	311.5285	83.90777	42.59316	403.2823	120.6625
Sum Sq. Dev.	82.52849	12.97510	42.98842	4.610179	367.7929	109.3784	147.7915	17.25965	356.3751
Observations	97	97	97	97	97	97	97	97	97

Source: EViews8 Regression Results, 2017

Table A5.2 Average Panel Summary Statistics: Growth Function

	GROWTH	LY1	LK	LH	LHCI	LTOURR	LTOURP	LRCA	LTRADE	LME
Mean	1.882790	7.606001	2.960813	3.546313	0.610024	3.211634	0.865029	0.439105	4.157550	1.243943
Median	2.045036	7.290179	2.995007	3.630149	0.624995	3.184046	1.051766	0.545911	4.126256	1.473169
Maximum	7.070687	9.890319	3.629663	4.621294	1.028741	7.206782	2.936491	3.912131	5.252746	4.224739
Minimum	-8.222394	6.141891	1.740379	1.787386	0.150362	-2.283761	-2.112550	-5.965368	3.212004	-3.580001
Std. Dev.	2.336535	0.896786	0.367637	0.669176	0.219141	1.957339	1.067407	1.240764	0.424014	1.926718
Skewness	-1.545979	0.475517	-1.202821	-0.523605	-0.273334	-0.307205	-0.621505	-1.217513	0.403439	-0.438960
Kurtosis	7.733789	2.228224	4.932961	2.721719	2.314839	3.057726	3.357512	9.511448	2.827263	2.335183
Jarque-Bera	129.2079	6.062924	38.49063	4.745272	3.105174	1.539196	6.761265	195.3269	2.751935	4.901431
Probability	0.000000	0.048245	0.000000	0.093235	0.211700	0.463199	0.034026	0.000000	0.252595	0.086232
Sum	182.6306	737.7821	287.1989	343.9923	59.17234	311.5285	83.90777	42.59316	403.2823	120.6625
Sum Sq. Dev.	524.1021	77.20559	12.97510	42.98842	4.610179	367.7929	109.3784	147.7915	17.25965	356.3751
Observations	97	97	97	97	97	97	97	97	97	97

Source: EViews8 Regression Results, 2017

Appendix A6: Total Cross-section Descriptive Summary Statistics

Table A6.1 Total Cross-section Summary Statistics: Production Function

	LY	LK	LH	LHCI	LTOURR	LTOURP	LRCA	LTRADE	LME
Mean	7.872121	3.004243	3.556347	0.603230	3.062256	0.666237	0.135005	4.209373	1.335853
Median	7.611936	3.023686	3.622119	0.606220	2.708735	0.786162	0.246196	4.171927	1.523026
Maximum	9.775077	3.625866	4.528459	1.002686	6.854093	2.779232	3.669924	5.129682	3.975907
Minimum	6.487169	2.397235	2.326799	0.169775	-1.435401	-1.936643	-6.289159	3.432486	-2.817433
Std. Dev.	0.958182	0.289097	0.577695	0.219694	1.730784	1.073082	1.669112	0.438803	1.802277
Skewness	0.416412	-0.150095	-0.202992	-0.196105	-0.101830	-0.426099	-1.638722	0.280668	-0.334044
Kurtosis	2.019181	2.807180	2.304293	2.263130	3.157043	2.746328	8.560062	2.318569	2.185252
Jarque-Bera	2.138485	0.164422	0.838074	0.900042	0.085431	1.021182	53.80558	1.006785	1.433949
Probability	0.343268	0.921078	0.657680	0.637615	0.958184	0.600141	0.000000	0.604477	0.488227
Sum	244.0358	93.13154	110.2468	18.70012	94.92995	20.65335	4.185167	130.4905	41.41145
Sum Sq. Dev.	27.54340	2.507317	10.01195	1.447959	89.86838	34.54516	83.57800	5.776438	97.44602
Observations	31	31	31	31	31	31	31	31	31

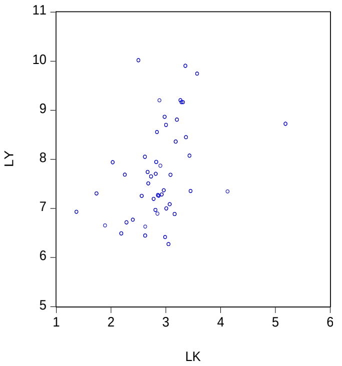
Source: EViews8 Regression Results, 2017

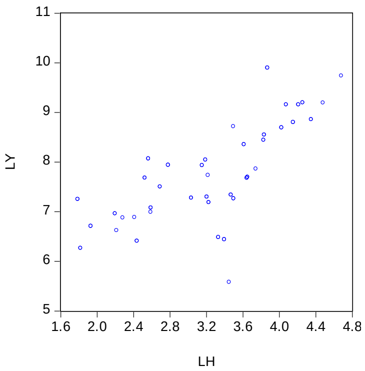
Table A6.2 Total Cross-section Summary Statistics: Growth Function

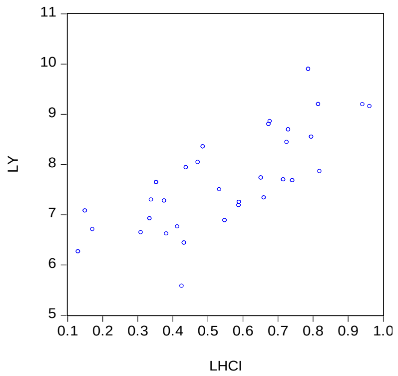
	GROWTH	LY1	LK	LH	LHCI	LTOURR	LTOURP	LRCA	LTRADE	LME
Mean	1.722659	7.340243	3.004243	3.556347	0.603230	3.062256	0.666237	0.135005	4.209373	1.335853
Median	1.361597	7.481157	3.023686	3.622119	0.606220	2.708735	0.786162	0.246196	4.171927	1.523026
Maximum	5.751897	9.890319	3.625866	4.528459	1.002686	6.854093	2.779232	3.669924	5.129682	3.975907
Minimum	-2.042431	-3.713613	2.397235	2.326799	0.169775	-1.435401	-1.936643	-6.289159	3.432486	-2.817433
Std. Dev.	1.787897	2.261037	0.289097	0.577695	0.219694	1.730784	1.073082	1.669112	0.438803	1.802277
Skewness	-0.115621	-3.835702	-0.150095	-0.202992	-0.196105	-0.101830	-0.426099	-1.638722	0.280668	-0.334044
Kurtosis	2.811073	19.79824	2.807180	2.304293	2.263130	3.157043	2.746328	8.560062	2.318569	2.185252
Jarque-Bera	0.115174	440.4987	0.164422	0.838074	0.900042	0.085431	1.021182	53.80558	1.006785	1.433949
Probability	0.944040	0.000000	0.921078	0.657680	0.637615	0.958184	0.600141	0.000000	0.604477	0.488227
Sum	53.40244	227.5475	93.13154	110.2468	18.70012	94.92995	20.65335	4.185167	130.4905	41.41145
Sum Sq. Dev.	95.89724	153.3686	2.507317	10.01195	1.447959	89.86838	34.54516	83.57800	5.776438	97.44602
Observations	31	31	31	31	31	31	31	31	31	31

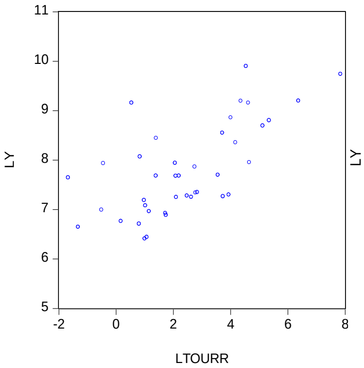
Source: EViews8 Regression Results, 2017

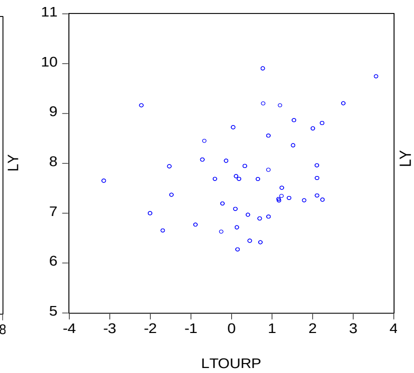
Appendix A7: Cross Section 1 Scatter Plots

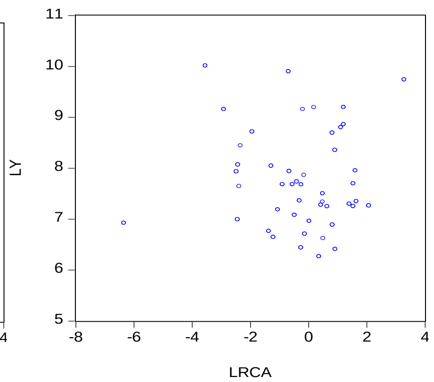


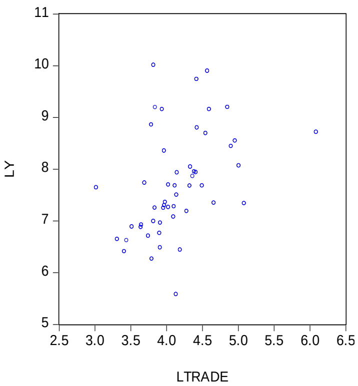


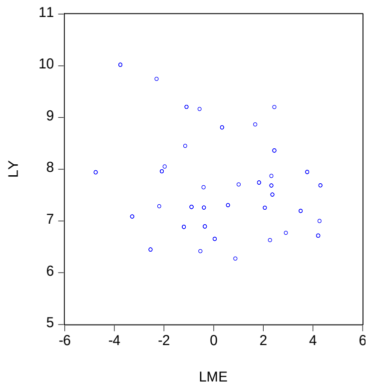


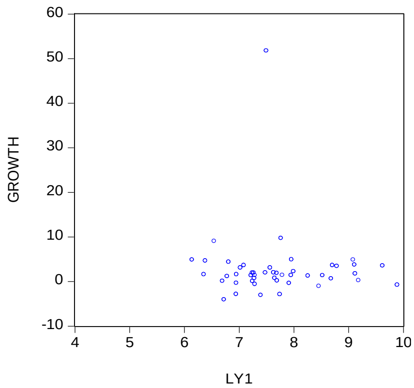


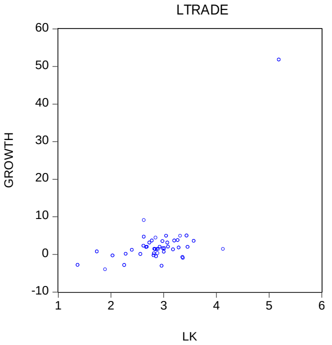


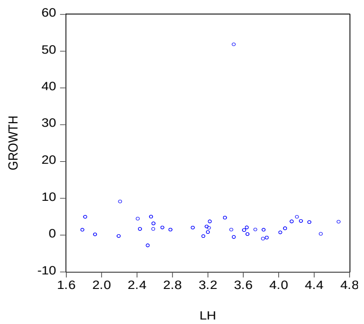


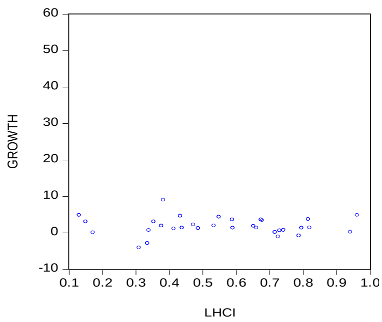












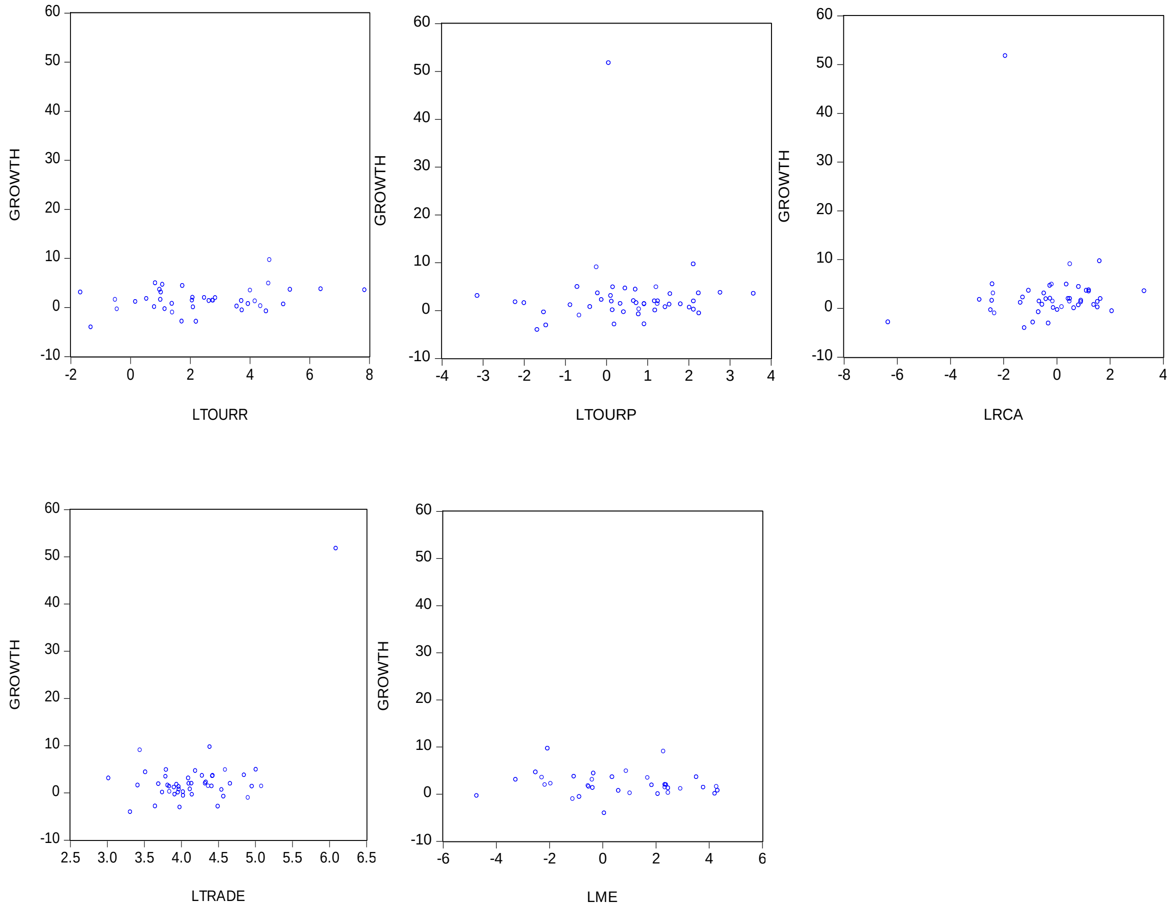
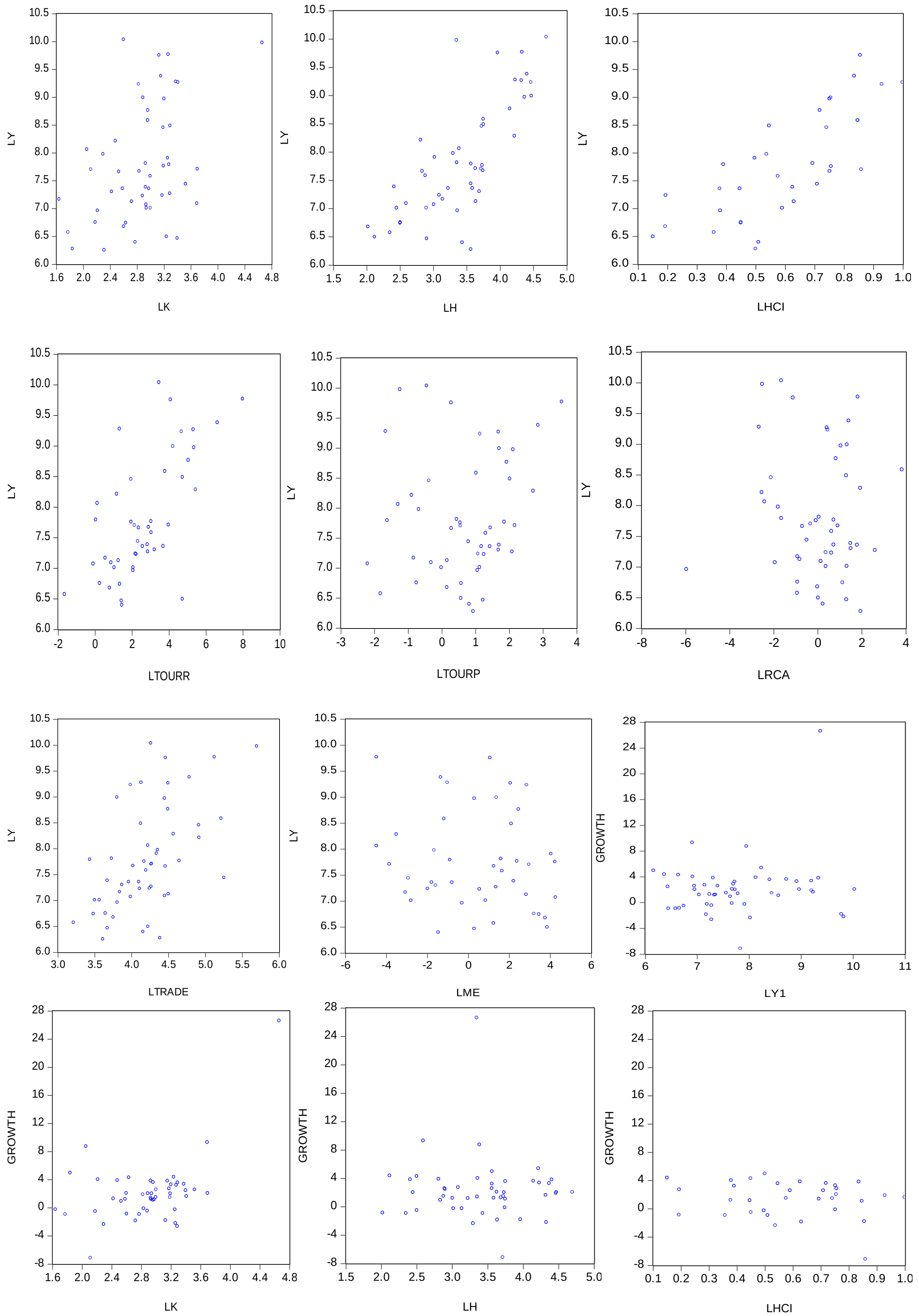


Figure A1 Cross Section 1 Scatter Plots

Source: EViews8 Regression Results, 2017

Appendix A8: Cross Section 2 Scatter Plots



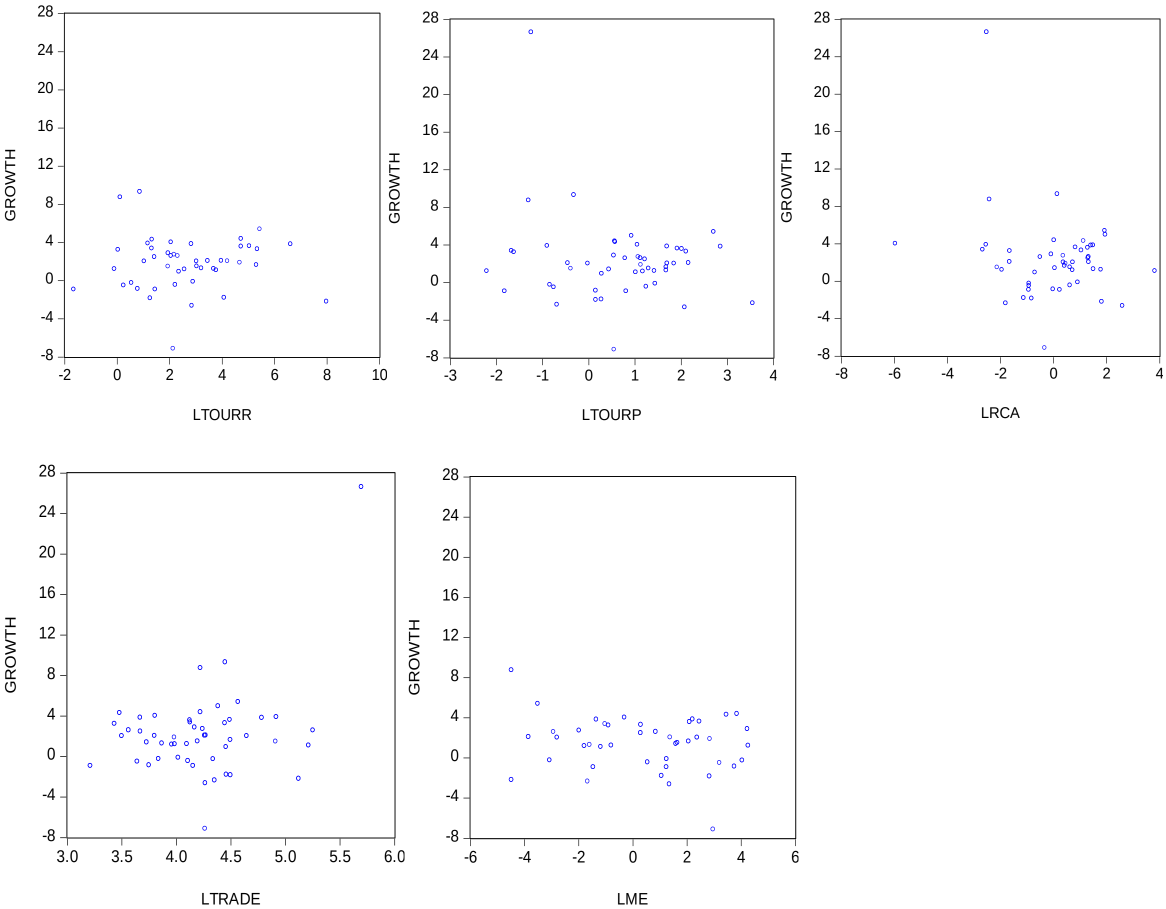
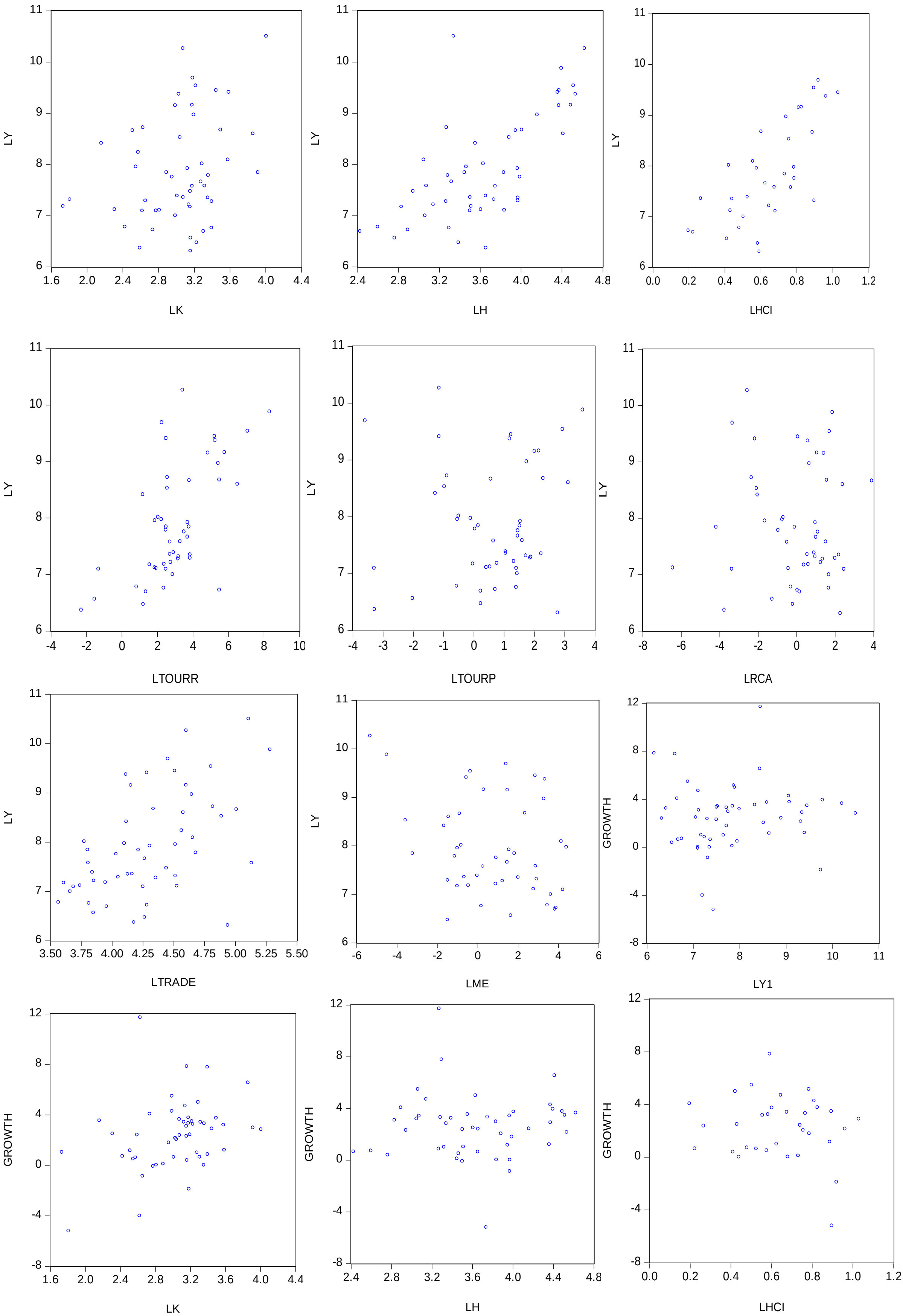


Figure A2 Cross Section 2 Scatter Plots

Source: EViews8 Regression Results, 2017

Appendix A9: Cross Section 3 Scatter Plots



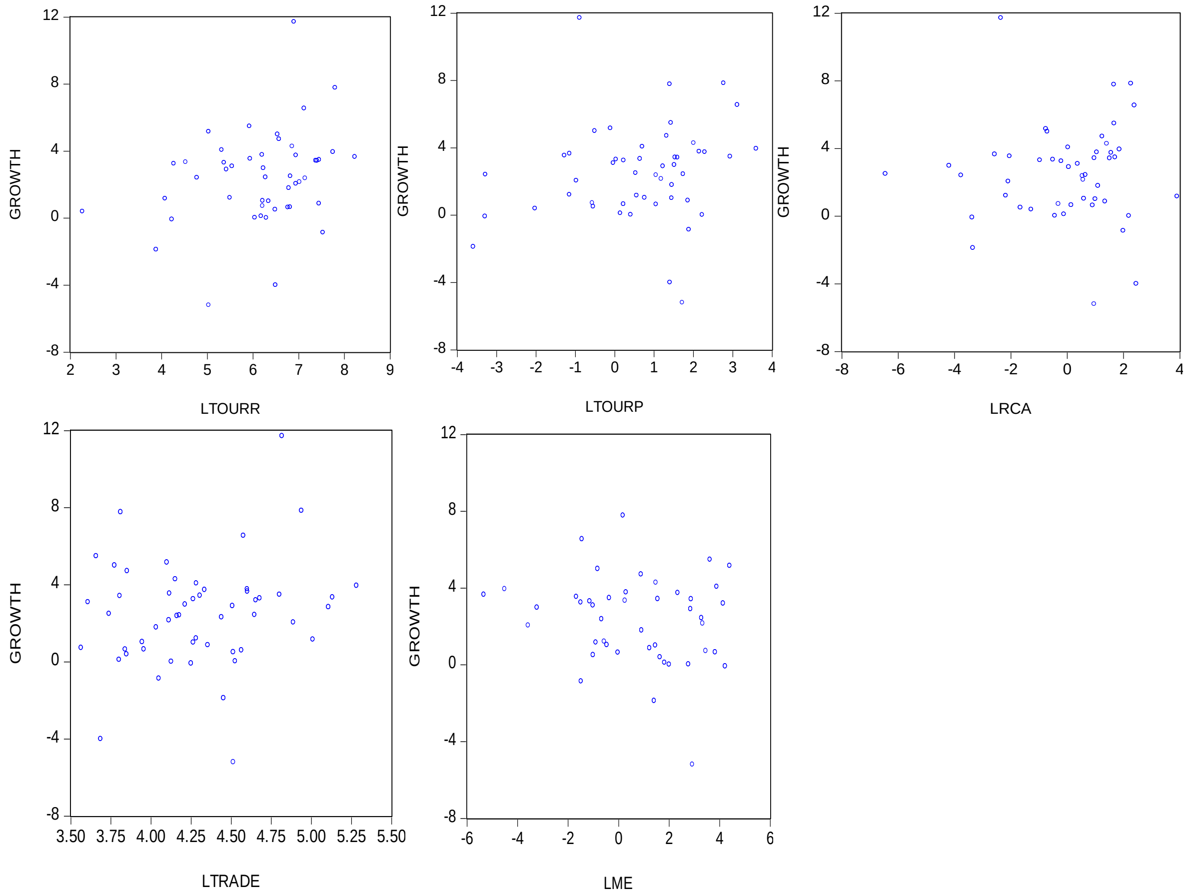
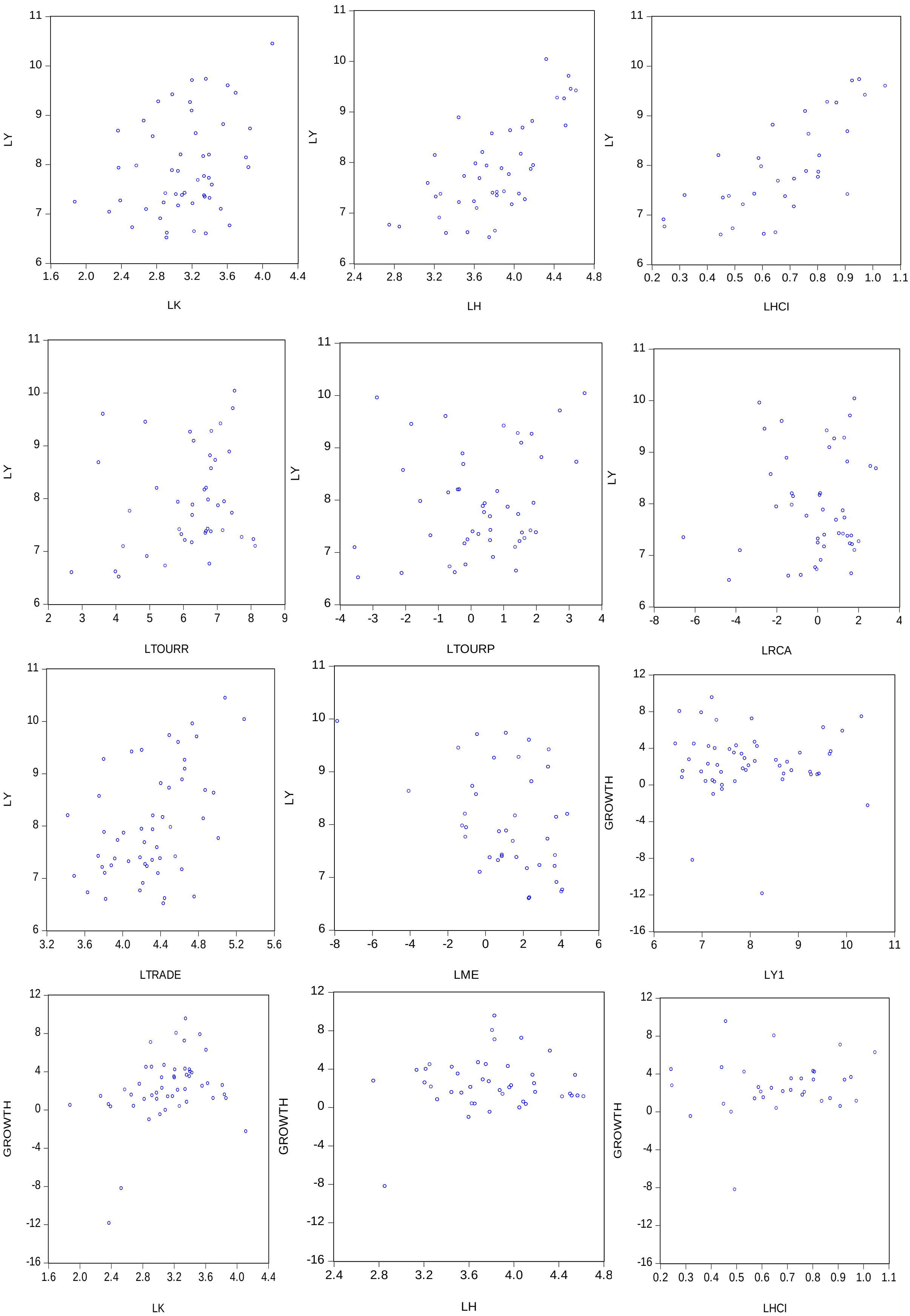


Figure A3 Cross Section 3 Scatter Plots

Source: EViews8 Regression Results, 2017

Appendix A10: Cross Section 4 Scatter Plots



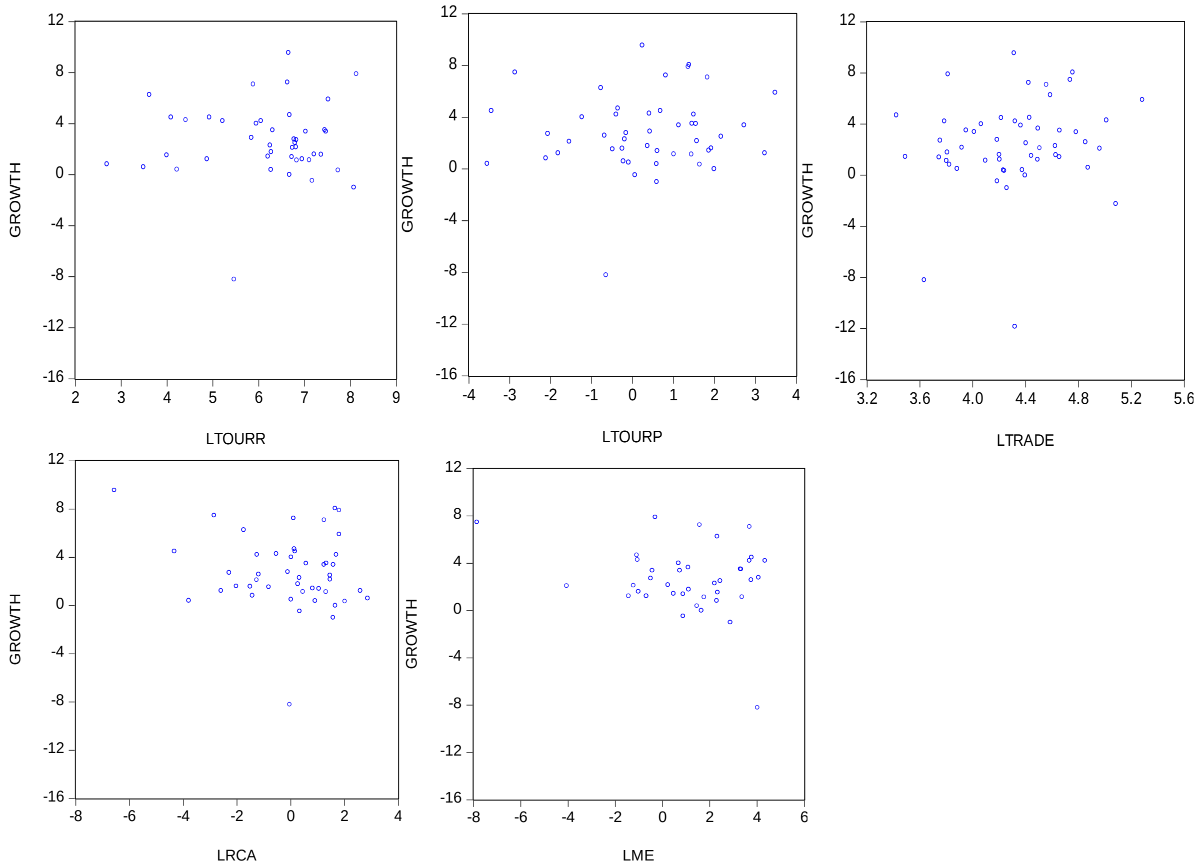
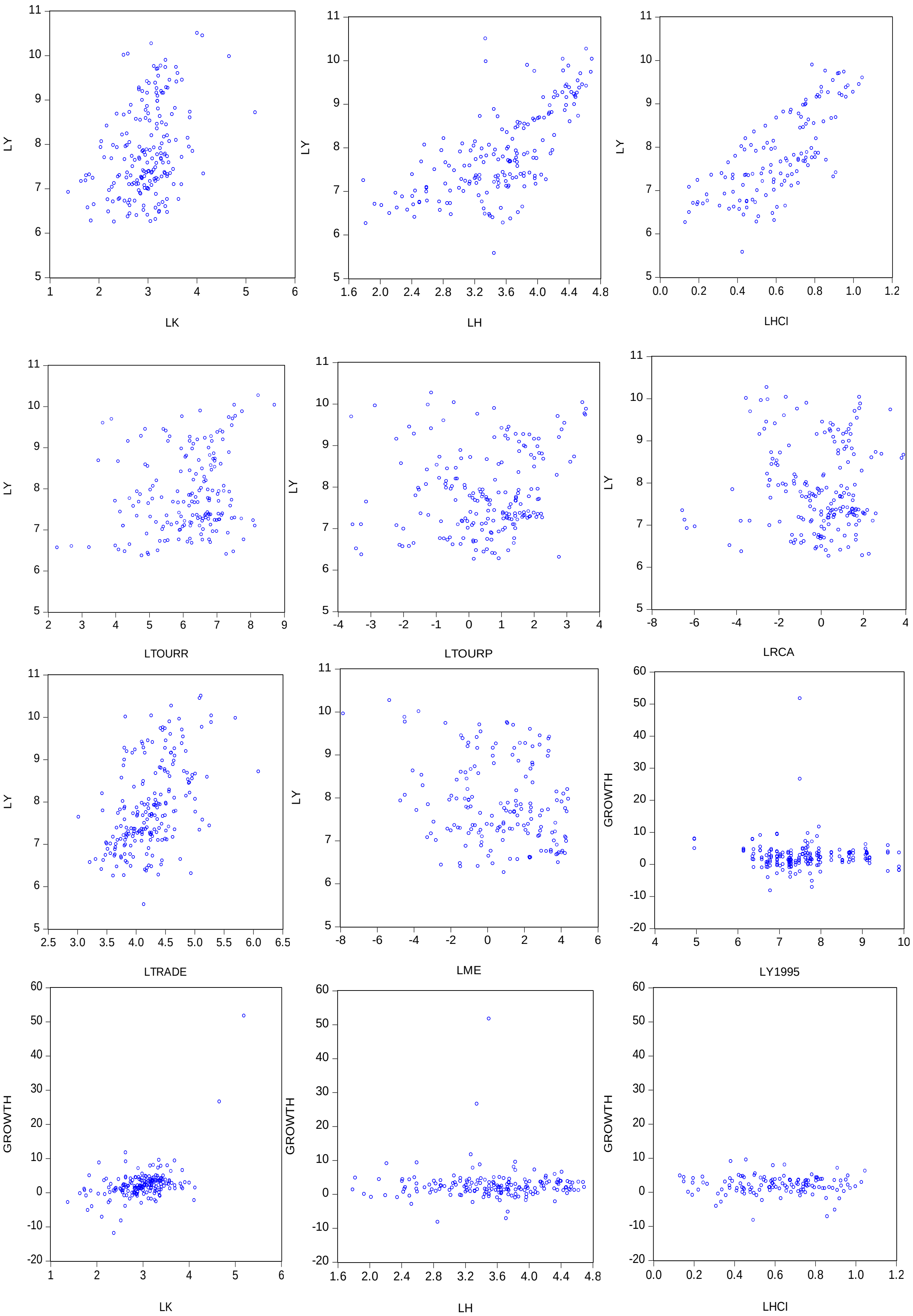


Figure A4 Cross Section 4 Scatter Plots

Source: EViews8 Regression Results, 2017

Appendix A11: Average Panel Scatter Plots



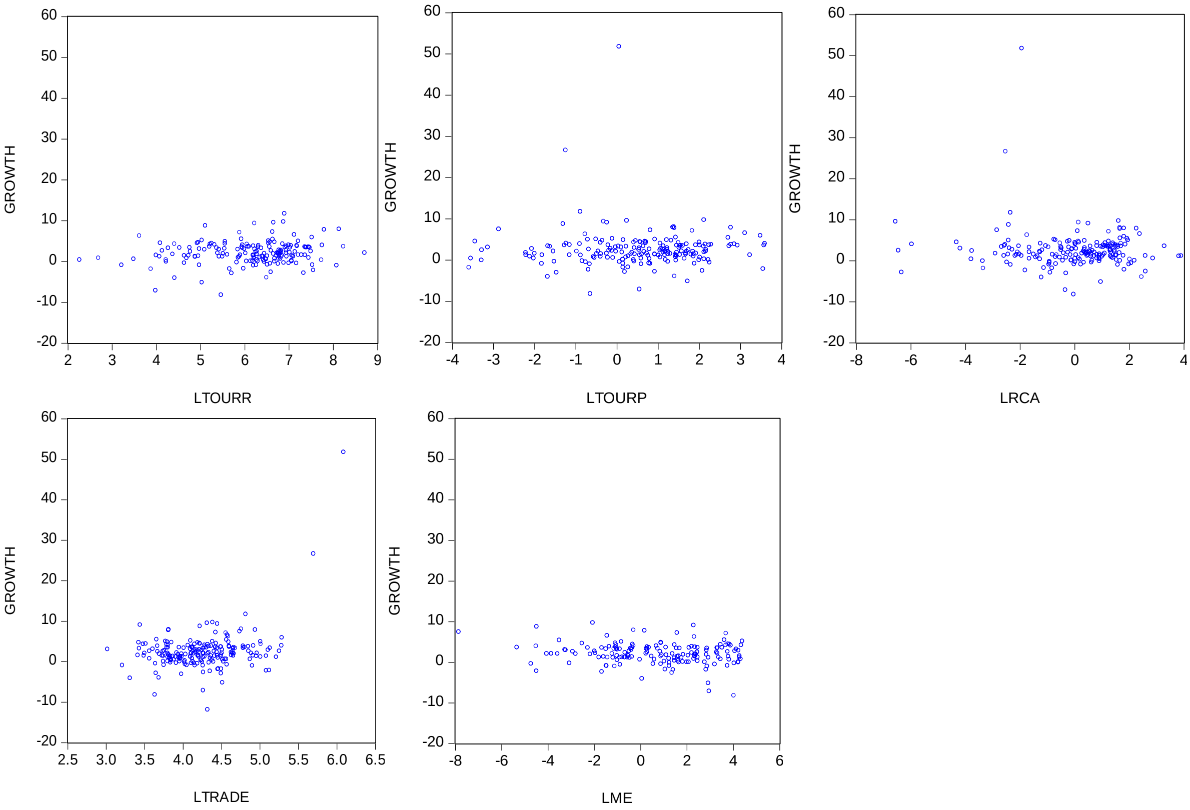
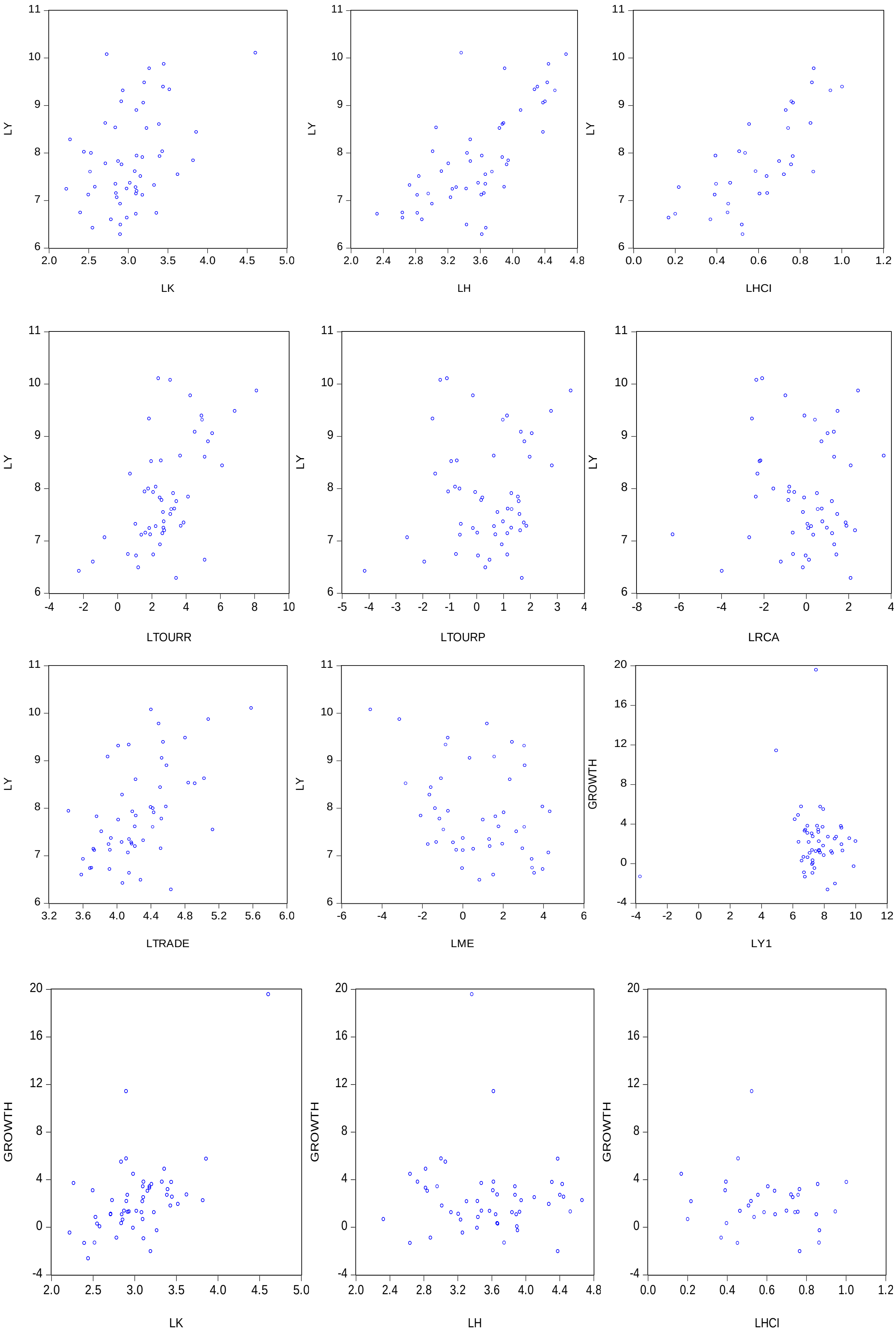


Figure A5 Average Panel Scatter Plots

Source: EViews8 Regression Results, 2017

Appendix A12: Total Cross Section Scatter Plots



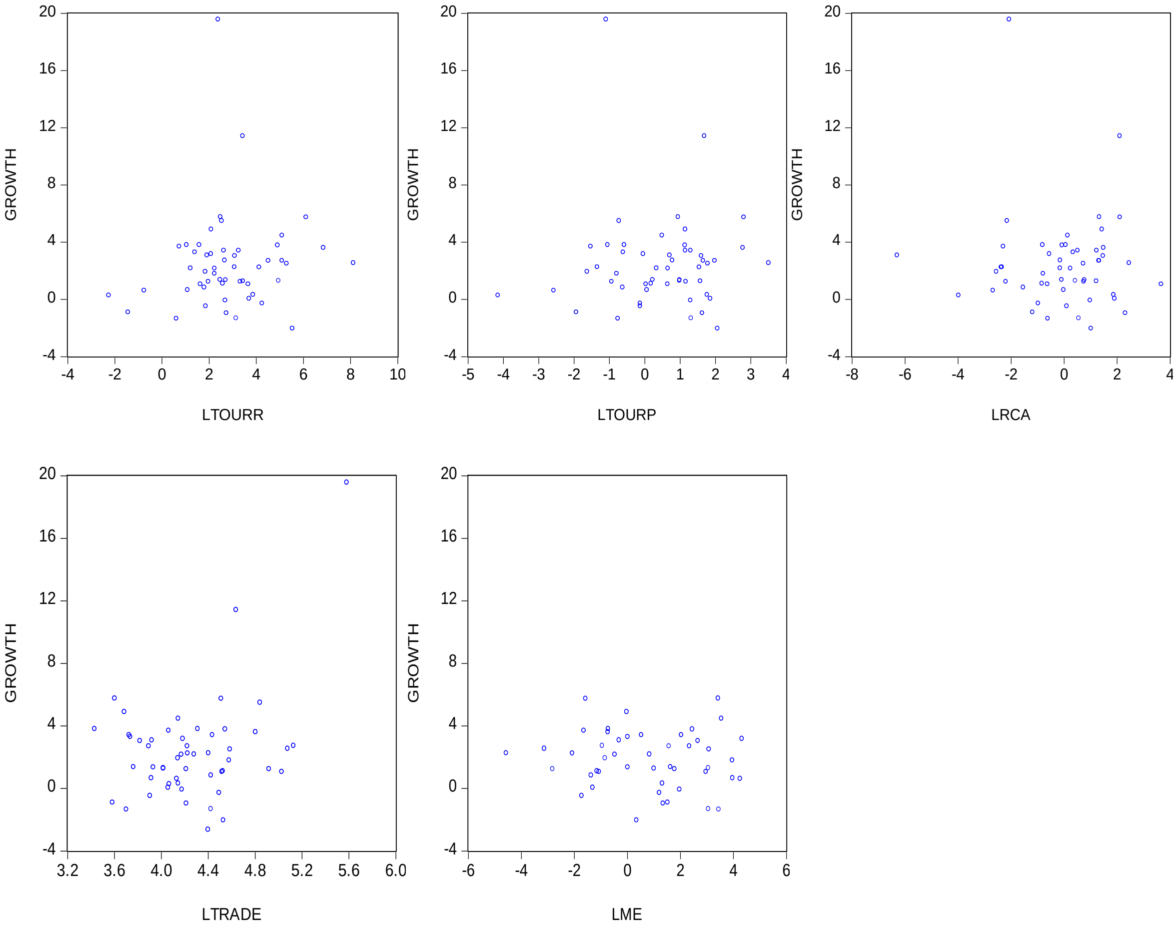


Figure A6 Total Cross Section Scatter Plots

Source: EViews8 Regression Results, 2017

Appendix A13: Panel Unit Root Tests

Table A13.1 Panel Unit Root Test Results

VARIABLE	LLC LEVEL	LLC 1st DIFF	IPS LEVEL	IPS 1st DIFF	ORDER OF INTEGRATION
LY	-0.67089	-16.3737	4.89802	13.4136	I(1)
	(0.2511)	<(0.0001)	(1.0000)	<(0.0001)	
LK	-3.67424		-1.17826	-20.7521	I(1) or I(0)
	(0.0001)		(0.1193)	<(0.0001)	
LHCI	-2.17163		10.0091	3.31481	I(1) or I(0)
	(0.0149)		(1.0000)	(0.9995)	
LH	6E-13		7.09105	-6.75389	I(1) or I(0)
	<(0.0001)		(1.0000)	<(0.0001)	
LME	-9.66403		-4.29553		I(0)
	<(0.0001)		<(0.0001)		
LTRADE	-4.37896		-2.22257		I(0)
	<(0.0001)		(0.0131)		
LTOURP	-7.64931		-4.13894		I(0)
	<(0.0001)		<(0.0001)		
LTOURR	-7.39552		-1.42508	-14.3746	I(1) or I(0)
	<(0.0001)		(0.0771)	<(0.0001)	

Source: EViews8 Regression Results, 2017

Appendix A14: Correlation Matrices

Table A14:1 Correlation Matrix- Cross section 1 production function

	LY	LK	LH	LTOURR	LHCI	LTOURP	LRCA	LTRADE	LME
LY	1.0000								
LK	0.3886	1.0000							
LH	-0.0429	0.1216	1.0000						
LTOURR	0.6609	0.3838	0.3743	1.0000					
LHCI	0.7547	0.4909	-0.1742	0.6438	1.0000				
LTOURP	0.2775	0.1737	0.0277	0.8839	0.4151	1.0000			
LRCA	-0.0169	0.2357	0.1008	0.6510	0.2307	0.7117	1.0000		
LTRADE	0.4271	0.6572	-0.0539	0.4763	0.5408	0.2910	0.0387	1.0000	
LME	-0.1620	-0.0390	-0.0494	-0.0939	0.1217	-0.1047	0.0108	-0.0439	1.0000

Source: STATA13 Regression Results, 2017

Table A14:2 Correlation Matrix- Cross section 1 growth function

	GROWTH	LK	LH	LTOURR	LHCI	LTOURP	LRCA	LTRADE	LME
GROWTH	1.0000								
LK	0.6458	1.0000							
LH	0.0199	0.1216	1.0000						
LTOURR	0.2740	0.3838	0.3743	1.0000					
LHCI	-0.0343	0.4909	-0.1742	0.6438	1.0000				
LTOURP	0.0183	0.1737	0.0277	0.8839	0.4151	1.0000			
LRCA	-0.0405	0.2357	0.1008	0.6510	0.2307	0.7117	1.0000		
LTRADE	0.5194	0.6572	-0.0539	0.4763	0.5408	0.2910	0.0387	1.0000	
LME	-0.1232	-0.0390	-0.0494	-0.0939	0.1217	-0.1047	0.0108	-00438	1.0000

Source: STATA13 Regression Results, 2017

Table A14:3 Correlation Matrix- Cross section 2 production function

	LY	LK	LH	LTOURR	LHCI	LTOURP	LRCA	LTRADE	LME
LY	1.0000								
LK	0.4097	1.0000							
LH	0.0746	-0.1223	1.0000						
LTOURR	0.6429	0.4398	0.0326	1.0000					
LHCI	0.7544	0.2448	0.0531	0.4973	1.0000				
LTOURP	0.1465	0.2254	-0.0224	0.8293	0.3625	1.0000			
LRCA	-0.0673	0.1316	-0.0807	0.4903	0.2190	0.6815	1.0000		
LTRADE	0.5511	0.4649	0.0059	0.5147	0.4568	0.1850	0.0142	1.0000	
LME	-0.1609	-0.0259	-0.1650	-0.1608	0.0326	-0.1614	0.0205	-0.2638	1.0000

Source: STATA13 Regression Results, 2017

Table A14:4 Correlation Matrix- Cross section 2 growth function

	GROWTH	LK	LH	LTOURR	LHCI	LTOURP	LRCA	LTRADE	LME
GROWTH	1.0000								
LK	0.4828	1.0000							
LH	-0.0147	-0.1223	1.0000						
LTOURR	0.0086	0.4398	0.0326	1.0000					
LHCI	-0.1612	0.2448	0.0531	0.4973	1.0000				
LTOURP	-0.1802	0.2254	-0.0224	0.8293	0.3625	1.0000			
LRCA	-0.2051	0.1316	-0.0807	0.4903	0.2190	0.6815	1.0000		
LTRADE	0.3380	0.4649	0.0059	0.5147	0.4568	0.1850	0.0142	1.0000	
LME	-0.1615	-0.0259	-0.1650	-0.1608	0.0326	-0.1614	-0.0205	-0.2638	1.0000

Source: STATA13 Regression Results, 2017

Table A14:5 Correlation Matrix- Cross section 3 production function

	LY	LK	LH	LTOURR	LHCI	LTOURP	LRCA	LTRADE	LME
LY	1.0000								
LK	0.3021	1.0000							
LH	-0.0594	-0.2954	1.0000						
LTOURR	0.6185	0.3205	-0.0386	1.0000					
LHCI	0.7216	-0.0430	0.0897	0.4235	1.0000				
LTOURP	0.0849	0.2455	0.0377	0.7995	0.1069	1.0000			
LRCA	-0.0232	0.1182	-0.1524	0.5234	0.1517	0.7131	1.0000		
LTRADE	0.5302	0.2012	-0.0773	0.4461	0.4508	0.1573	0.0643	1.0000	
LME	-0.3581	-0.1815	0.0350	-0.1687	-0.0905	-0.0234	0.1920	-0.3639	1.0000

Source: STATA13 Regression Results, 2017

Table A14:6 Correlation Matrix- Cross section 3 growth function

	GROWTH	LK	LH	LTOURR	LHCI	LTOURP	LRCA	LTRADE	LME
GROWTH	1.0000								
LK	0.3307	1.0000							
LH	-0.2611	-0.2954	1.0000						
LTOURR	0.2195	0.3205	-0.0386	1.0000					
LHCI	-0.1358	-0.0430	0.0897	0.4235	1.0000				
LTOURP	0.1772	0.2455	0.0377	0.7995	0.1069	1.0000			
LRCA	0.0152	0.1182	-0.1524	0.5234	0.1517	0.7131	1.0000		
LTRADE	0.1794	0.2012	-0.0773	0.4461	0.4508	0.1573	0.0643	1.0000	
LME	-0.2480	-0.1815	0.0350	-0.1687	-0.0905	-0.0234	0.1920	-0.3639	1.0000

Source: STATA13 Regression Results, 2017

Table A14:7 Correlation Matrix- Cross section 4 production function

	LY	LK	LH	LTOURR	LHCI	LTOURP	LRCA	LTRADE	LME
LY	1.0000								
LK	0.3098	1.0000							
LH	-0.0231	-0.3023	1.0000						
LTOURR	0.6537	0.2017	-0.0322	1.0000					
LHCI	0.7259	-0.0215	0.1709	0.4341	1.0000				
LTOURP	0.2112	0.2331	-0.0698	0.8898	0.2898	1.0000			
LRCA	0.0604	-0.0693	-0.0348	0.6120	0.2330	0.7120	1.0000		
LTRADE	0.4536	0.2812	0.1575	0.3589	0.3895	0.1397	-0.0160	1.0000	
LME	-0.4148	-0.1238	-0.1978	-0.0644	-0.1649	0.2613	0.3297	-0.2177	1.0000

Source: STATA13 Regression Results, 2017

Table A14:8 Correlation Matrix- Cross section 4 growth function

	GROWTH	LK	LH	LTOURR	LHCI	LTOURP	LRCA	LTRADE	LME
GROWTH	1.0000								
LK	0.3480	1.0000							
LH	0.1174	-0.3023	1.0000						
LTOURR	0.1359	0.2017	-0.0322	1.0000					
LHCI	0.1516	-0.0215	0.1709	0.4341	1.0000				
LTOURP	0.0783	0.2331	-0.0698	0.8898	0.2898	1.0000			
LRCA	-0.2001	-0.0693	-0.0348	0.6120	0.2330	0.7120	1.0000		
LTRADE	0.1674	0.2812	0.1575	0.3589	0.3895	0.1397	-0.0160	1.0000	
LME	-0.2267	-0.1238	-0.1978	-0.0644	-0.1649	0.2613	0.3297	-0.2177	1.0000

Source: STATA13 Regression Results, 2017

Table A14:9 Correlation Matrix- Average panel production function

	LY	LK	LH	LTOURR	LHCI	LTOURP	LRCA	LTRADE	LME
LY	1.0000								
LK	0.3922	1.0000							
LH	-0.0439	-0.2159	1.0000						
LTOURR	0.5486	0.3345	0.0013	1.0000					
LHCI	0.7482	0.2362	0.0336	0.4895	1.0000				
LTOURP	0.1482	0.2169	0.0301	0.8487	0.3255	1.0000			
LRCA	-0.0144	0.1025	-0.0180	0.5649	0.2234	0.7199	1.0000		
LTRADE	0.5349	0.4228	0.0053	0.3968	0.4717	0.1600	0.0469	1.0000	
LME	-0.3102	-0.0452	-0.0371	-0.1454	-0.0857	-0.0531	0.1093	-0.2339	1.0000

Source: STATA13 Regression Results, 2017

Table A14:10 Correlation Matrix- Average panel growth function

	GROWTH	LK	LH	LTOURR	LHCI	LTOURP	LRCA	LTRADE	LME
GROWTH	1.0000								
LK	0.5949	1.0000							
LH	-0.1325	-0.2159	1.0000						
LTOURR	0.1649	0.3345	0.0013	1.0000					
LHCI	-0.0755	0.2362	0.0336	0.4895	1.0000				
LTOURP	0.0433	0.2169	0.0301	0.8487	0.3255	1.0000			
LRCA	-0.0317	0.1025	-0.0180	0.5649	0.2234	0.7199	1.0000		
LTRADE	0.3451	0.4228	0.0053	0.3968	0.4717	0.1600	0.0469	1.0000	
LME	-0.1921	-0.0452	-0.0371	-0.1454	-0.0857	-0.0531	0.1093	-0.2339	1.0000

Source: STATA13 Regression Results, 2017

Table A14:11 Correlation Matrix- Cross Total (whole period) production function

	LY	LK	LH	LTOURR	LHCI	LTOURP	LRCA	LTRADE	LME
LY	1.0000								
LK	0.3405	1.0000							
LH	-0.0028	-0.1518	1.0000						
LTOURR	0.6526	0.3610	0.0082	1.0000					
LHCI	0.7401	0.2619	0.1026	0.5121	1.0000				
LTOURP	0.1823	0.2003	-0.0205	0.8282	0.2757	1.0000			
LRCA	-0.0129	0.1391	-0.0773	0.5738	0.2122	0.7257	1.0000		
LTRADE	0.4988	0.4324	0.0322	0.4773	0.4848	0.2012	0.0436	1.0000	
LME	-0.2501	-0.0361	-0.0529	-0.1032	0.0059	-0.0293	0.1112	-0.1972	1.0000

Source: STATA13 Regression Results, 2017

Table A14:12 Correlation Matrix- Cross Total (whole period) growth function

	GROWTH	LK	LH	LTOURR	LHCI	LTOURP	LRCA	LTRADE	LME
GROWTH	1.0000								
LK	0.4847	1.0000							
LH	-0.0339	0.1518	1.0000						
LTOURR	0.1956	0.3610	0.0082	1.0000					
LHCI	0.0109	0.2619	0.1026	0.5121	1.0000				
LTOURP	0.0186	0.2003	-0.0205	0.8282	0.2757	1.0000			
LRCA	-0.0546	0.1319	-0.0773	0.5738	0.2122	0.7257	1.0000		
LTRADE	0.3441	0.4324	0.0322	0.4773	0.4848	0.2012	0.0436	1.0000	
LME	-0.1972	-0.0361	-0.0529	-0.1032	0.0059	-0.0293	0.1112	0.1972	1.0000

Source: STATA13 Regression Results, 2017

Appendix A15 - Dynamic panel-data estimation, one-step system GMM

Table A15:1 GMM1- The Production Function- Dependent Variable LY

Equation	**1**	**2**	**3**	**4**	**5**	**6**
Constant	-0.0636 (0.315)	3.437 (2.195)	3.584 (2.494)	0.178 (0.338)	-0.466 (0.258)	-0.61251** (0.24989)
L.LY	1.006*** (0.0441)	0.452 (0.373)	0.409 (0.412)	0.906*** (0.0463)	1.016*** (0.0428)	1.042*** (0.0502)
LK	0.0341 (0.0332)	0.291 (0.272)	0.363 (0.280)	0.150* (0.0586)	0.167** (0.0488)	0.168** (0.0479)
LH	-0.000625 (0.00154)	0.00235 (0.00555)	0.00209 (0.00467)			
LHCI				0.0870 (0.156)	-0.146 (0.167)	-0.212 (0.175)
LTOURR	0.00653 (0.0138)			0.0423*** (0.0100)		
LTOURP		0.0562 (0.0582)			0.0224** (0.00641)	
LRCA			-0.0279 (0.0595)			0.00840 (0.0130)
Arellano-Bond test of 1st order autocorrelation	-1.31	-0.22	-0.30	-1.14	-1.52	-1.65*
Sargan test of over-identifying restrictions	154.20***	93.66***	105.51***	114.36***	113.11***	132.34***
Hansen's test of over-identifying restrictions	24.08***	14.47	10.52	19.70	19.86**	19.74**
Number of groups	46	47	47	30	31	31
Number of observations	101	110	108	80	89	88

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses
Source: EViews8, STATA13 Regression Results, 2017

Table A15:2- GMM2- The Growth Function- Dependent Variable Growth

Equation	**1**	**2**	**3**	**4**	**5**	**6**
Constant	10.17 (24.85)	-0.0857 (15.92)	12.78 (13.69)	-10.40 (12.58)	-6.016 (10.20)	-10.08 (10.19)
L.GROWTH	-0.865*** (0.244)	0.150 (0.177)	0.149 (0.159)	-0.934*** (0.231)	-0.830*** (0.225)	-0.881*** (0.221)
LY1	-1.652 (3.432)	-0.994 (2.237)	-2.819 (1.926)	0.0454 (1.793)	-0.646 (1.343)	-0.00229 (1.534)
LK	1.517 (1.670)	3.121*** (1.115)	3.440* (1.302)	4.599*** (1.506)	4.784*** (1.685)	5.049*** (1.677)
LH	-0.00391 (0.0349)	0.0718 (0.0545)	0.0829 (0.0566)			
LHCI				-4.379 (5.397)	-0.702 (5.261)	-2.367 (5.585)
LTOURR	0.679 (0.969)			0.769** (0.370)		
LTOURP		-0.162 (0.446)			0.755** (0.339)	
LRCA			-0.300 (0.354)			0.345 (0.402)
Arellano-Bond test of 1st order autocorrelation	-1.01	-1.08	-1.12	-1.30	-1.30	-1.35
Sargan test of over-identifying restrictions	6.78***	48.09***	46.85***	18.03**	12.69*	14.53**
Hansen's test of over-identifying restrictions	10.16	11.55	12.30	7.17	6.48	5.26
Number of groups	44	45	45	30	31	31
Number of observations	98	107	106	80	89	88

where, *** means 1% level of significance, ** 5% level of significance and * 10% level of significance.
Standard errors in parentheses
Source: EViews8, STATA13 Regression Results, 2017

Appendix B1

Table B1.1 Cross section 1 regression results TLGH2 (1995-2000 period) [Human capital proxy – Human development index]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.040 (0.122)			0.644 (1.354)	0.139 (0.385)	0.202 (0.579)	0.077 (0.214)	0.110 (0.319)
Tourism safety & security index	1.50e-08** (1.08e-07)	2.39e-09** (1.93e-08)	4.29e-12** (5.06e-11)	5.37e-07** (3.08e-06)	6.08e-08** (4.19e-07)	6.07e-08 ** (4.30e-07)	8.24e-10** (7.02e-09)	4.12e-09** (3.38e-08)
Human development index	2.26e+14** (3.04e+15)	1.63e+16** (2.68e+17)	1.16e+23** (2.99e+24)	3.46e+13*** (3.81e+14)	4.14e+10 * (5.66e+11)	6.41e+12 ** (8.21e+13)	3.45e+14** (4.82e+15)	1.47e+16** (2.22e+17)
Trade openness index	0.295 (0.356)	0.308 (0.367)	0.434 (0.527)	0.112** (0.123)	0.357 (0.436)	0.169 (0.245)	0.222 (0.277)	0.239 (0.368)
CO2 Emissions (metric tons per capita)	0.633* (0.161)	0.701 (0.166)	0.695* (0.513)	0.683** (0.141)	0.660 (0.216)	0.612 (0.196)	0.604 (0.191)	0.598* (0.162)
Depth of Credit Information Index	1.843* (0.580)	1.782* (0.562)	2.352* (1.168)		1.686* (0.522)	1.688* (0.521)	1.814* (0.566)	1.979* (0.716)
High-tech exports [% of manufactured exports]	0.994 (0.051)	0.982 (0.051)	0.972 (0.051)	1.020 (0.046)	0.994 (0.054)	1.007 (0.055)	0.987 (0.054)	0.970 (0.060)
Blue Flag accreditation [1=Yes; 0=No]	0.249 (0.359)	0.525 (0.631)	0.451 (0.551)	0.604 (0.664)				
Internet users per 100 people		0.661 (0.450)						
Mobile cellular users per 100 people			0.341 (0.310)					
Financial Domestic Credit (% of GDP)				0.598 (0.632)				
Cereal Yield (kgs per hectare)					2.559 (3.264)			
Existence of world wonders [1=Yes; 0=No]						0.384 (0.514)		
Forest Area (% Land Area)							2.767 (2.415)	
% Land area in geographical tropics								6.919 (11.848)
Constant	6.13e+07* (6.19e+08)	1069.654 (8928.099)	27.305 (230.504)	812126.1* (6552906)	9.788 (11.73)	7067820* (6.64e+07)	6.51e+07* (6.09e+08)	718618.5 (6771882)
Pseudo R^2	0.496	0.483	0.509	0.397	0.460	0.487	0.506	0.455
Prob > chi2	0.000	0.000	0.000	0.003	0.001	0.000	0.000	0.004
Observations	42	42	42	42	40	42	42	37

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table B1:2 Cross section 1 regression results TLGH2 (1995-2000 period) [Human capital proxy – Secondary school enrolment (% of gross)]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.109 (0.287)			3.523 (7.726)	0.246 (0.635)	0.240 1.429 (0.598)	0.084 (0.215)	0.043 (0.132)
Tourism safety & security index	6.02e-10** (5.79e-09)	1.16e-09** (1.07e-08)	3.92e-10** (3.86e-09)	0.0001** (0.001)	6.84e-10** (6.51e-09)	3.26e-09** (2.93e-08)	8.88e-10** (7.72e-09)	6.95e-08** (5.78e-07)
Secondary school enrolment (% of gross)	167348.4 ** (943735.3)	183369.3 ** (1042687)	650411.7** (4302322)	465.630** (1434.548)	26360.97* (147916.8)	45317.83** (236814.7)	50107.23* (250235.7)	162077.9** (908481.5)
Trade openness index	0.190 (0.256)	0.167 (0.226)	0.174 (0.236)	0.052** (0.073)	0.237 (0.320)	0.151 (0.230)	0.113 (0.176)	0.144 (0.269)
CO2 Emissions (metric tons per capita)	0.491* (0.181)	0.504* (0.193)	0.495* (0.185)	0.712 (0.173)	0.516 (0.233)	0.507* (0.201)	0.507* (0.203)	0.436* (0.203)
Depth of Credit Information Index	2.618** (1.111)	2.336* (0.891)	2.491** (1.029)		2.108* (0.815)	2.314* (0.876)	2.135* (0.779)	2.107* (0.864)
High-tech exports [% of manufactured exports]	1.058 (0.056)	1.060 (0.060)	1.067 (0.063)	1.086 (0.259)	1.046 (0.064)	1.062 (0.059)	1.059 (0.059)	1.084 (0.081)
Blue Flag accreditation [1=Yes; 0=No]	0.383 (0.500)	0.607 (0.746)	0.643 (0.753)	1.248 (1.244)				
Internet users per 100 people		0.885 (0.572)						
Mobile cellular users per 100 people			0.735 (0.429)					
Financial Domestic Credit (% of GDP)				0.220 (0.259)				
Cereal Yield (kgs per hectare)					4.115 (5.537)			
Existence of world wonders [1=Yes; 0=No]						0.610 (0.808)		
Forest Area (% Land Area)							3.896 (4.533)	
% Land area in geographical tropics								2.861 (5.004)
Constant	0.002 (0.025)	9.36e-07 (0.000)	1.87e-08 (3.07e-07)	25.304 (288.261)	3.11e-06 (0.000)	0.009 (0.130)	0.090 (1.216)	0.0001 (0.002)
Pseudo R^2	0.485	0.472	0.477	0.316	0.483	0.477	0.507	0.451
Prob > chi2	0.001	0.001	0.001	0.030	0.001	0.001	0.000	0.006
Observations	39	39	39	39	38	39	39	35

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table B1:3 Cross section 1 regression results TLGH2 (1995-2000 period) [Human capital proxy – Labour Force as a % of population]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.121 (0.290)			0.937 (1.784)	0.123 (0.319)	0.200 (0.484)	0.074 (0.185)	0.093 (0.229)
Tourism safety & security index	0.039 (0.152)	0.003 (0.013)	0.006 (0.025)	0.797 (2.328)	0.0004 (0.002)	0.037 (0.131)	0.030 (0.124)	0.025 (0.117)
Labour force as a % of population	0.034 (0.099)	0.066 (0.195)	0.049 (0.143)	0.019 (0.050)	0.001* (0.004)	0.036 (0.136)	0.004 (0.013)	0.055 (0.175)
Trade openness index	0.245 (0.265)	0.219 (0.257)	0.222 (0.242)	0.088** (0.089)	0.314 (0.399)	0.164 (0.197)	0.248 (0.232)	0.500 (0.755)
CO2 Emissions (metric tons per capita)	0.928 (0.098)	0.855 (0.162)	0.877 (0.143)	0.995 (0.096)	0.943 (0.213)	0.943 (0.105)	0.991 (0.145)	0.986 (0.149)
Depth of Credit Information Index	1.724* (0.424)	1.589* (0.404)	1.517 (0.282)		1.533 (0.417)	1.670* (0.422)	1.591* (0.445)	1.755* (0.506)
High-tech exports [% of manufactured exports]	1.032 (0.043)	1.002 (0.048)	1.008 (0.044)	1.041 (0.037)	1.016 (0.051)	1.034 (0.043)	1.023 (0.051)	1.014 (0.055)
Blue Flag accreditation [1=Yes; 0=No]	0.801 (0.825)	0.708 (0.752)	0.722 (0.771)	0.826 (0.756)				
Internet users per 100 people		1.612 (0.765)						
Mobile cellular users per 100 people			1.507 (0.656)					
Financial Domestic Credit (% of GDP)				0.606 (0.555)				
Cereal Yield (kgs per hectare)					25.681** (37.522)			
Existence of world wonders [1=Yes; 0=No]						0.383 (0.441)		
Forest Area (% Land Area)							2.695 (1.866)	
% Land area in geographical tropics								1.301 (1.724)
Constant	136521.2 (1187746)	83348.71 (669168.7)	14751.31 (105882.4)	8671.506 (61506.96)	0.000 (0.000)	210465.3 (1872839)	8391.403 (76022.13)	41152.14 (375458.2)
Pseudo R^2	0.356	0.362	0.358	0.227	0.461	0.368	0.395	0.283
Prob > chi2	0.008	0.007	0.008	0.105	0.001	0.006	0.004	0.079
Observations	42	42	42	42	40	42	42	37

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table B1:4 Cross section 1 regression results TLGH2 (1995-2000 period) [Human capital proxy – Human capital index]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.588 (1.647)			2.733 (5.486)	0.198 (0.555)	0.435 (1.112)	0.350 (0.870)	0.361 (0.957)
Tourism safety & security index	0.000* (0.000)	9.86e-06** (0.000)	0,000** (0.000)	0.003 (0.010)	0.000* (0.000)	0.000* (0.001)	0.000* (0.000)	0.000* (0.000)
Human capital index	11.423 (18.182)	11.558* (16.445)	12.132* (17.420)	11.411* (15.633)	2.933 (5.294)	9.561 (14.514)	9.121 (14.299)	9.597 (15.616)
Trade openness index	0.321 (0.369)	0.265 (0.311)	0.272 (0.315)	0.102** (0.106)	0.430 (0.511)	0.210 (0.272)	0.321 (0.377)	0.606 (0.795)
CO2 Emissions (metric tons per capita)	0.811 (0.155)	0.732 (0.193)	0.764 (0.164)	0.832 (0.147)	0.923 (0.195)	0.833 (0.151)	0.848 (0.160)	0.821 (0.163)
Depth of Credit Information Index	1.836** (0.528)	1.810* (0.536)	1.766* (0.517)		1.737* (0.517)	1.796* (0.515)	1.868* (0.546)	1.898* (0.579)
High-tech exports [% of manufactured exports]	0.994 (0.050)	0.980 (0.049)	0.986 (0.048)	1.019 (0.041)	0.987 (0.051)	0.999 (0.050)	0.987 (0.0522)	0.984 (0.052)
Blue Flag accreditation [1=Yes; 0=No]	1.472 (1.626)	1.140 (1.281)	1.238 (1.412)	1.912 (1.838)				
Internet users per 100 people		1.490 (0.183)						
Mobile cellular users per 100 people			1.289 (0.628)					
Financial Domestic Credit (% of GDP)				0.695 (0.656)				
Cereal Yield (kgs per hectare)					5.570 (6.958)			
Existence of world wonders [1=Yes; 0=No]						0.457 (0.522)		
Forest Area (% Land Area)							1.395 (0.976)	
% Land area in geographical tropics								0.633 (0.812)
Constant	579159.2 (4959166)	8161720* (6.62e+07)	1401700* (1.02e+07)	122949.5 (895465.7)	284.7564 (3011.289)	2733229* (2.32e+07)	1901811* (1.58e+07)	229737 (1955145)
Pseudo R^2	0.388	0.397	0.392	0.255	0.391	0.394	0.390	0.310
Prob > chi2	0.005	0.004	0.004	0.070	0.007	0.004	0.005	0.056
Observations	41	41	41	41	39	41	41	36

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Appendix B2

Table B2:1 Cross section 2 regression results TLGH2 (2001-2005 period) [Human capital proxy – Human development index]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.341 (0.966)			0.402 (0.909)	0.521 (1.401)	0.901 (2.582)	0.181 (0.487)	0.570 (1.605)
Tourism safety & security index	1.05e-08** (8.55e-08)	3.34e-09** (2.58e-08)	5.72e-16** (8.88e-15)	1.19e-06** (6.87e-06)	3.85e-08** (3.04e-07)	1.81e-08** (1.46e-07)	4.75e-11** (4.75e-10)	3.77e-09** (3.30e-08)
Human development index	2.06e+14** (2.87e+15)	1.07e+14** (1.61e+15)	1.15e+31** (3.75e+32)	2.99e+13*** (3.39e+14)	2.20e+10 (3.36e+11)	1.88e+13** (2.60e+14)	1.50e+16** (2.46e+17)	1.27e+16 ** (2.01e+17)
Trade openness index	0.194 (0.258)	0.192 (0.257)	0.498 (0.706)	0.090 (0.110)	0.269 (0.365)	0.150 (0.224)	0.111 (0.164)	0.176 (0.290)
CO2 Emissions (metric tons per capita)	0.634* (0.160)	0.615* (0.167)	0.575* (0.173)	0.630** (0.144)	0.691 (0.231)	0.617 (0.187)	0.565 (0.201)	0.586* (0.170)
Depth of Credit Information Index	1.828** (0.546)	1.861** (0.571)	2.870** (1.157)		1.702* (0.530)	1.774* (0.538)	2.029** (0.672)	2.049** (0.698)
High-tech exports [% of manufactured exports]	0.979 (0.049)	0.968 (0.050)	0.957 (0.050)	1.005 (0.041)	0.979 (0.052)	0.992 (0.051)	0.975 (0.048)	0.966 (0.050)
Blue Flag accreditation [1=Yes; 0=No]	0.352 (0.450)	0.344 (0.456)	0.564 (0.803)	0.449 (0.484)				
Internet users per 100 people		1.340 (1.219)						
Mobile cellular users per 100 people			0.094 (0.136)					
Financial Domestic Credit (% of GDP)				1.601 (1.617)				
Cereal Yield (kgs per hectare)					3.112 (4.014)			
Existence of world wonders [1=Yes; 0=No]						0.489 (0.655)		
Forest Area (% Land Area)							4.266 (4.270)	
% Land area in geographical tropics								5.437 (8.879)
Constant	1110066 (1.10e+07)	233253.2 (1812750)	15192.88 (119595.4)	112827.3 (979091)	685.007 (8158.037)	359487.7 (3521055)	1.26e+08* (1.32e+09)	27123.74 (254607.5)
Pseudo R^2	0.502	0.501	0.570	0.380	0.479	0.495	0.535	0.472
Prob > chi2	0.000	0.000	0.000	0.005	0.001	0.003	0.000	0.002
Observations	43	43	43	42	41	43	43	38

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table B2:2 Cross section 2 regression results TLGH2 (2001-2005 period) [Human capital proxy – Secondary school enrolment (% of gross)]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.035 (0.134)			0.196 (0.433)	0.077 (0.232)	0.069 (0.205)	0.008 (0.025)	0.019 (0.063)
Tourism safety & security index	6.35e-07** (4.27e-06)	3.31e-11** (3.52e-10)	9.16e-08** (6.51e-07)	0.000 (0.000)	3.64e-08** (2.93e-07)	1.03e-06** (6.83e-06)	7.45e-09** (6.07e-08)	1.13e-07** (8.96e-07)
Secondary school enrolment (% of gross)	461.359 (1767.918)	5665.207 (32178.91)	184.437 (628.293)	175.431 (570.258)	239.793 (1081.463)	392.844 (1488.415)	387.846 (1405.981)	436.61 (1851.906)
Trade openness index	0.047 (0.089)	0.011* (0.028)	0.044* (0.081)	0.026** (0.043)	0.074 (0.143)	0.023* (0.050)	0.021 (0.044)	0.111 (0.244)
CO2 Emissions (metric tons per capita)	0.753 (0.213)	0.448 (0.230)	0.759 (0.192)	0.797 (0.192)	0.840 (0.264)	0.761 (0.215)	0.803 (0.223)	0.762 (0.239)
Depth of Credit Information Index	1.864* (0.600)	2.205* (0.932)	1.749 (0.596)		1.712 (0.587)	1.762* (0.573)	1.993** (0.701)	1.919* (0.724)
High-tech exports [% of manufactured exports]	1.063 (0.065)	1.031 (0.071)	1.044 (0.062)	1.077 (0.063)	1.036 (0.071)	1.075 (0.071)	1.043 (0.063)	1.067 (0.082)
Blue Flag accreditation [1=Yes; 0=No]	0.819 (1.015)	0.264 (0.439)	0.908 (1.120)	1.068 (1.129)				
Internet users per 100 people		10.513* (13.751)						
Mobile cellular users per 100 people			1.883 (1.789)					
Financial Domestic Credit (% of GDP)				0.992 (1.521)				
Cereal Yield (kgs per hectare)					5.975 (7.367)			
Existence of world wonders [1=Yes; 0=No]						0.296 (0.413)		
Forest Area (% Land Area)							5.060 (5.974)	
% Land area in geographical tropics								0.203 (0.324)
Constant	1.47e+07 (1.72e+08)	493238.1 (5412537)	97439.82 (935676.3)	693210.3 (7260188)	205.438 (3194.116)	4.80e+07 (6.15e+08)	4.83e+11* (6.87e+12)	6.97e+07 (9.61e+08)
Pseudo R^2	0.463	0.533	0.445	0.324	0.494	0.478	0.511	0.425
Prob > chi2	0.003	0.003	0.001	0.004	0.040	0.002	0.001	0.014
Observations	37	37	37	36	36	37	37	33

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table B2:3 Cross section 2 regression results TLGH2 (2001-2005 period) [Human capital proxy – Labour force as a % of population]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.125 (0.297)			0.234 (0.441)	0.386 (0.913)	0.193 (0.468)	0.059 (0.148)	0.090 (0.221)
Tourism safety & security index	0.018 (0.072)	0.000 (0.001)	0.008 (0.034)	0.273 (0.860)	0.000* (0.000)	0.019 (0.071)	0.006 (0.026)	0.022 (0.092)
Labour as a % of population	0.097 (0.296)	0.155 (0.498)	0.071 (0.212)	0.097 (0.245)	0.003 (0.012)	0.085 (0.265)	0.006 (0.025)	0.123 (0.401)
Trade openness index	0.208 (0.225)	0.207 (0.247)	0.204 (0.219)	0.112** (0.112)	0.265 (0.333)	0.140 (0.170)	0.239 (0.299)	0.396 (0.515)
CO2 Emissions (metric tons per capita)	0.935 (0.095)	0.800 (0.144)	0.927 (0.112)	0.952 (0.106)	0.991 (0.140)	0.940 (0.097)	1.025 (0.141)	0.940 (0.096)
Depth of Credit Information Index	1.842* (0.490)	1.735** (0.461)	1.753** (0.454)		1.583 (0.456)	1.799** (0.487)	1.796* (0.555)	1.886** (0.539)
High-tech exports [% of manufactured exports]	1.013 (0.037)	0.971 (0.046)	1.007 (0.039)	1.015 (0.033)	0.994 (0.042)	1.019 (0.039)	0.994 (0.045)	1.001 (0.041)
Blue Flag accreditation [1=Yes; 0=No]	0.836 (0.846)	0.485 (0.542)	0.876 (0.948)	0.682 (0.604)				
Internet users per 100 people		3.448 (2.598)						
Mobile cellular users per 100 people			1.194 (0.819)					
Financial Domestic Credit (% of GDP)				2.010 (1.656)				
Cereal Yield (kgs per hectare)					22.035** (30.040)			
Existence of world wonders [1=Yes; 0=No]						0.396 (0.464)		
Forest Area (% Land Area)							3.425 (2.621)	
% Land area in geographical tropics								1.141 (1.469)
Constant	1899942 (1.96e+07)	557726.8 (4763753)	6085.049 (42811.28)	70470.05 (536669.5)	0.000 (0.000)	2525124 (2.67e+07)	140496.6 (1498707)	312259.9 (3399230)
Pseudo R^2	0.367	0.408	0.355	0.206	0.465	0.378	0.418	0.308
Prob > chi2	0.005	0.002	0.007	0.152	0.001	0.004	0.002	0.043
Observations	43	43	43	42	41	43	43	38

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table B2:4 Cross section 2 regression results TLGH2 (2001-2005 period) [Human capital proxy – Human capital index]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.389 (0.934)			0.354 (0.699)	0.258 (0.619)	0.370 (0.861)	0.232 (0.545)	0.213 (0.509)
Tourism safety & security index	0.000* (0.000)	1.15e-06** (6.97e-06)	0.000** (0.000)	0.002 (0.008)	0.000* (0.000)	0.000* (0.000)	0.000** (0.000)	0.000* (0.000)
Human capital index	11.883* (17.339)	16.832* (26.433)	15.776* (23.084)	22.310** (31.919)	4.600 (7.167)	11.105* (16.121)	9.400 (13.981)	9.182 (13.323)
Trade openness index	0.265 (0.319)	0.170 (0.232)	0.275 (0.336)	0.089** (0.103)	0.278 (0.326)	0.170 (0.234)	0.255 (0.320)	0.455 (0.601)
CO2 Emissions (metric tons per capita)	0.828 (0.134)	0.647 (0.169)	0.825 (0.140)	0.732 (0.144)	0.904 (0.126)	0.833 (0.134)	0.873 (0.150)	0.840 (0.133)
Depth of Credit Information Index	1.929** (0.553)	2.020* (0.659)	1.920** (0.543)		1.810* (0.553)	1.906** (0.550)	2.017** (0.614)	1.971** (0588)
High-tech exports [% of manufactured exports]	0.987 (0.043)	0.953 (0.049)	0.987 (0.045)	1.005 (0.037)	0.977 (0.044)	0.994 (0.045)	0.974 (0.046)	0.978 (0.044)
Blue Flag accreditation [1=Yes; 0=No]	1.206 (1.288)	0.528 (0.679)	1.589 (1.900)	1.188 (1.094)				
Internet users per 100 people		3.765 (3.259)						
Mobile cellular users per 100 people			0.850 (0.601)					
Financial Domestic Credit (% of GDP)				2.487 (2.455)				
Cereal Yield (kgs per hectare)					5.975 (7.218)			
Existence of world wonders [1=Yes; 0=No]						0.487 (0.558)		
Forest Area (% Land Area)							1.877 (1.427)	
% Land area in geographical tropics								0.792 (0.953)
Constant	2980441 (2.71e+07)	5.22e+07** (4.36e+08)	190364.9* (1247964)	428579.5 (3385951)	682.785 (7515.824)	1.09e+07* (1.01e+08)	1.85e+07* (1.71e+08)	1435264 (1.30e+07)
Pseudo R^2	0.415	0.461	0.413	0.286	0.429	0.421	0.426	0.350
Prob > chi2	0.002	0.001	0.002	0.039	0.003	0.002	0.002	0.023
Observations	42	42	42	41	40	42	42	37

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Appendix B3

Table B3:1 Cross section 3 regression results TLGH2 (2006-2013 period) [Human capital proxy – Human development index]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.822 (2.471)			1.007 (2.232)	1.841 (5.069)	4.951 (13.827)	1.547 (4.038)	5.274 (14.068)
Tourism safety & security index	2.45e-09** (2.14e-08)	2.88e-09** (2.30e-08)	2.88e-09 ** (2.26e-08)	6.51e-07** (3.89e-06)	1.87e-09** (1.62e-08)	2.67e-09** (2.28e-08)	1.72e-11** (1.77e-10)	6.17e-10** (5.63e-09)
Human development index	1.78e+14** (2.59e+15)	7.82e+11* (1.13e+13)	6.18e+13** (8.88e+14)	2.74e+12*** (3.01e+13)	5.65e+11* (8.29e+12)	6.67e+13** (9.61e+14)	7.43e+15** (1.20e+17)	1.57e+16** (2.52e+17)
Trade openness index	0.087 (0.132)	0.072* (0.108)	0.065 (0.135)	0.090* (0.113)	0.163 (0.246)	0.071 (0.115)	0.062* (0.102)	0.129 (0.210)
CO2 Emissions (metric tons per capita)	0.611** (0.151)	0.585** (0.153)	0.602** (0.153)	0.645** (0.139)	0.567* (0.188)	0.586* (0.173)	0.530* (0.177)	0.571** (0.155)
Depth of Credit Information Index	1.994** (0.639)	2.156** (0.821)	1.959** (0.642)		1.763* (0.606)	1.892** (0.602)	2.148** (0.747)	2.052** (0.683)
High-tech exports [% of manufactured exports]	1.003 (0.060)	0.991 (0.059)	1.008 (0.062)	1.010 (0.051)	1.019 (0.064)	1.023 (0.063)	1.012 (0.059)	0.997 (0.061)
Blue Flag accreditation [1=Yes; 0=No]	0.243 (0.339)	0.181 (0.248)	0.222 (0.312)	0.301 (0.350)				
Internet users per 100 people		3.223 (4.010)						
Mobile cellular users per 100 people			2.172 (7.593)					
Financial Domestic Credit (% of GDP)				2.303 (2.305)				
Cereal Yield (kgs per hectare)					5.678 (8.388)			
Existence of world wonders [1=Yes; 0=No]						0.416 (0.554)		
Forest Area (% Land Area)							3.365 (3.242)	
% Land area in geographical tropics								4.016 (6.109)
Constant	1.66e+07 (2.11e+08)	1.65e+07** (1.33e+08)	1909660 (1.95e+07)	20746.86 (212202.6)	9.331 (124.781)	215541.2 (2480903)	2.06e+07 (2.44e+08)	1166.909 (12275.09)
Pseudo R^2	0.492	0.508	0.493	0.359	0.482	0.481	0.506	0.445
Prob > chi2	0.000	0.000	0.000	0.006	0.001	0.001	0.000	0.003
Observations	44	44	44	43	42	44	44	39

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table B3:2 Cross section 3 regression results TLGH2 (2006-2013 period) [Human capital proxy – Secondary school enrolment (% of gross)]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.006 (0.017)			0.131 (0.262)	0.119 (0.295)	0.175 (0.407)	0.037 (0.084)	0.082 (0.182)
Tourism safety & security index	3.39e-07** (2.28e-06)	7.81e-08** (5.45e-07)	1.84e-07** (1.26e-06)	0.000** (0.001)	2.69e-07** (1.78e-06)	1.14e-06** (7.11e-06)	2.45e-08** (1.86e-07)	1.59e-06** (9.88e-06)
Secondary school enrolment (% of gross)	14302.6* (73197.14)	788.470 (3390.455)	1765.95* (7245.419)	499.154* (1638.299)	134.848 (586.162)	624.117 (2475.485)	1293.189* (5165.352)	541.734 (2125.09)
Trade openness index	0.018** (0.034)	0.016** (0.030)	0.022** (0.039)	0.038** (0.054)	0.065* (0.105)	0.022** (0.040)	0.018** (0.035)	0.065* (0.103)
CO2 Emissions (metric tons per capita)	0.670 (0.173)	0.614* (0.163)	0.723 (0.162)	0.784 (0.152)	0.802 (0.214)	0.770 (0.169)	0.749 (0.165)	0.738 (0.173)
Depth of Credit Information Index	2.276** (0.882)	2.235* (0.954)	1.874* (0.620)		1.791 (0.635)	1.911* (0.652)	2.046** (0.683)	1.917* (0.653)
High-tech exports [% of manufactured exports]	1.106 (0.078)	1.051 (0.080)	1.075 (0.071)	1.076 (0.060)	1.050 (0.076)	1.094 (0.072)	1.080 (0.070)	1.087 (0.074)
Blue Flag accreditation [1=Yes; 0=No]	0.086 (0.146)	0.181 (0.243)	0.264 (0.357)	0.332 (0.363)				
Internet users per 100 people		8.681 (10.315)						
Mobile cellular users per 100 people			9.461 (24.307)					
Financial Domestic Credit (% of GDP)				1.481 (1.458)				
Cereal Yield (kgs per hectare)					6.806 (9.414)			
Existence of world wonders [1=Yes; 0=No]						0.305 (0.419)		
Forest Area (% Land Area)							3.269 (3.381)	
% Land area in geographical tropics								0.613 (0.724)
Constant	161507.9 (2406850)	72.767 (802.440)	0.010 (0.115)	255.236 (3083.199)	10.254 (183.697)	161121.6 (2449172)	1.36e+07 (1.85e+08)	22463.59 (318362.9)
Pseudo R^2	0.463	0.471	0.414	0.271	0.443	0.424	0.443	0.360
Prob > chi2	0.001	0.001	0.003	0.066	0.002	0.003	0.002	0.023
Observations	40	40	40	39	39	40	40	36

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table B3:3 Cross section 3 regression results TLGH2 (2006-2013 period) [Human capital proxy – Labour force as a % of population]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.060 (0.144)			0.112 (0.218)	0.311 (0.697)	0.367 (0.774)	0.141 (0.281)	0.188 (0.368)
Tourism safety & security index	0.021 (0.082)	0.000* (0.001)	0.003 (0.011)	0.185 (0.569)	0.001 (0.004)	0.012 (0.045)	0.006 (0.024)	0.015 (0.059)
Labour force as a % of population	0.073 (0.252)	0.079 (0.303)	0.042 (0.137)	0.025 (0.070)	0.001 (0.006)	0.052 (0.183)	0.017 (0.067)	0.110 (0.363)
Trade openness index	0.114* (0.141)	0.067* (0.095)	0.059** (0.085)	0.060** (0.077)	0.077* (0.103)	0.076* (0.109)	0.120 (0.162)	0.213 (0.266)
CO2 Emissions (metric tons per capita)	0.916 (0.120)	0.740 (0.146)	0.882 (0.123)	0.916 (0.131)	0.755 (0.149)	0.928 (0.129)	0.936 (0.143)	0.911 (0.130)
Depth of Credit Information Index	1.796** (0.461)	1.958* (0.703)	1.606* (0.400)		1.612* (0.443)	1.745** (0.445)	1.704* (0.474)	1.750** (0.449)
High-tech exports [% of manufactured exports]	1.037 (0.052)	1.000 (0.059)	1.038 (0.052)	1.036 (0.043)	1.067 (0.050)	1.051 (0.054)	1.035 (0.062)	1.033 (0.057)
Blue Flag accreditation [1=Yes; 0=No]	0.347 (0.399)	0.242 (0.291)	0.358 (0.410)	0.296 (0.307)				
Internet users per 100 people		11.929** (14.567)						
Mobile cellular users per 100 people			17.847 (44.001)					
Financial Domestic Credit (% of GDP)				2.704 (2.270)				
Cereal Yield (kgs per hectare)					21.362** (32.651)			
Existence of world wonders [1=Yes; 0=No]						0.341 (0.421)		
Forest Area (% Land Area)							2.548 (1.866)	
% Land area in geographical tropics								1.177 (1.330)
Constant	2.88e+08* (3.40e+09)	175807.5 (1658259)	51.929 (462.769)	2924262 (2.71e+07)	0.002 (0.025)	7933849 (8.81e+07)	1838152 (2.06e+07)	1097991 (1.22e+07)
Pseudo R^2	0.370	0.443	0.387	0.224	0.433	0.368	0.384	0.2880
Prob > chi2	0.004	0.001	0.004	0.101	0.002	0.004	0.003	0.052
Observations	44	44	44	43	42	44	44	39

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table B3:4 Cross section 3 regression results TLGH2 (2006-2013 period) [Human capital proxy – Human capital index]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.134 (0.353)			0.408 (0.831)	0.233 (0.562)	0.476 (1.048)	0.251 (0.547)	0.313 (0.663)
Tourism safety & security index	0.001 (0.005)	0.000** (0.000)	0.000** (0.000)	0.001* (0.005)	0.000* (0.001)	0.001* (0.003)	0.000* (0.001)	0.001 (0.006)
Human capital index	6.123 (8.756)	6.234 (9.730)	5.864 (8.273)	28.357** (43.213)	2.887 (4.513)	6.328 (8.910)	5.088 (7.279)	5.387 (7.548)
Trade openness index	0.075* (0.112)	0.054* (0.083)	0.020* (0.043)	0.048** (0.066)	0.076* (0.105)	0.054* (0.089)	0.075* (0.114)	0.121 (0.182)
CO2 Emissions (metric tons per capita)	0.792 (0.143)	0.676* (0.152)	0.726 (0.149)	0.685* (0.147)	0.767 (0.134)	0.786 (0.149)	0.806 (0.151)	0.793 (0.146)
Depth of Credit Information Index	1.854** (0.508)	2.109* (0.832)	1.696* (0.466)		1.765* (0.518)	1.798** (0.489)	1.858** (0.520)	1.785** (0.487)
High-tech exports [% of manufactured exports]	1.032 (0.057)	0.994 (0.061)	1.043 (0.061)	1.025 (0.048)	1.040 (0.055)	1.044 (0.060)	1.028 (0.059)	1.032 (0.059)
Blue Flag accreditation [1=Yes; 0=No]	0.439 (0.530)	0.266 (0.340)	0.317 (0.402)	0.496 (0.511)				
Internet users per 100 people		7.955 (9.782)						
Mobile cellular users per 100 people			36.213 (113.682)					
Financial Domestic Credit (% of GDP)				3.641 (3.631)				
Cereal Yield (kgs per hectare)					5.676 (7.161)			
Existence of world wonders [1=Yes; 0=No]						0.460 (0.525)		
Forest Area (% Land Area)							1.776 (1.418)	
% Land area in geographical tropics								1.103 (1.300)
Constant	1.25e+09* (1.45e+10)	2.05e+07** (1.58e+08)	4706.652 (39162.98)	898897.2 (9010447)	35933.51 (395581.2)	1.21e+08* (1.28e+09)	3.39e+08* (3.58e+09)	1.23e+07 (1.24e+08)
Pseudo R^2	0.399	0.452	0.415	0.296	0.405	0.400	0.400	0.320
Prob > chi2	0.003	0.001	0.002	0.028	0.003	0.003	0.002	0.033
Observations	43	43	43	42	41	43	43	38

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Appendix B4

Table B4:1 Cross Total regression results TLGH2 [Human capital proxy – Human development index]

VARIABLES	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Gross capital formation [% of GDP]	0.207 (0.698)			0.494 (1.189)	0.857 (2.539)	1.514 (4.773)	0.364 (1.069)	1.405 (4.117)
Tourism safety & security index	1.22e-08** (9.89e-08)	2.88e-09** (2.28e-08)	4.61e-10** (3.94e-09)	6.51e-07** (3.72e-06)	1.20e-08** (9.59e-08)	9.71e-09** 7.96e-08)	1.05e-10** (1.03e-09)	1.33e-09** (1.20e-08)
Human development index	2.26e+14** (3.06e+15)	3.90e+13 ** (5.71e+14)	3.02e+17** (5.01e+18)	1.85e+13*** (1.98e+14)	5.38e+11* (7.63e+12)	8.53e+13** (1.18e+15)	6.66e+15** (1.02e+17)	3.35e+16** (5.26e+17)
Trade openness index	0.126 (0.185)	0.128 (0.184)	0.295 (0.495)	0.071** (0.093)	0.192 (0.276)	0.096 (0.158)	0.085 (0.136)	0.124 (0.214)
CO2 Emissions (metric tons per capita)	0.602** (0.152)	0.582** (0.157)	0.636* (0.159)	0.618** (0.140)	0.585 (0.191)	0.559* (0.174)	0.517* (0.177)	0.562** (0.156)
Depth of Credit Information Index	1.836** (0.559)	1.902* (0.641)	1.962** (0.654)		1.667 (0.530)	1.751* (0.544)	1.945** (0.648)	2.023** (0.703)
High-tech exports [% of manufactured exports]	1.000 (0.058)	0.983 (0.055)	0.979 (0.055)	1.014 (0.049)	1.004 (0.059)	1.016 (0.061)	1.004 (0.057)	0.980 (0.060)
Blue Flag accreditation [1=Yes; 0=No]	0.231 (0.326)	0.244 (0.330)	0.472 (0.645)	0.348 (0.389)				
Internet users per 100 people		1.976 (2.216)						
Mobile cellular users per 100 people			0.164 (0.449)					
Financial Domestic Credit (% of GDP)				2.034 (2.185)				
Cereal Yield (kgs per hectare)					3.296 (4.493)			
Existence of world wonders [1=Yes; 0=No]						0.444 (0.598)		
Forest Area (% Land Area)							3.127 (3.023)	
% Land area in geographical tropics								5.941 (9.756)
Constant	2.67e+07 (3.31e+08)	927988.7 (7046233)	2269499* (1.81e+07)	222038 (2233219)	309.160 (4125.173)	439367 (4943236)	6.92e+07 (8.28e+08)	15256.35 (161837.4)
Pseudo R^2	0.498	0.500	0.502	0.398	0.468	0.486	0.507	0.443
Prob > chi2	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.003
Observations	44	44	44	44	42	44	44	38

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table B4:2 Cross Total regression results TLGH2 [Human capital proxy – Secondary school enrolment (% of gross)]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.063 (0.170)			0.640 (1.383)	0.435 (1.105)	0.443 (1.098)	0.107 (0.252)	0.195 (0.458)
Tourism safety & security index	0.000** (0.000)	2.59e-07** (1.72e-06)	7.11e-06** (0.000)	0.001 (0.003)	1.73e-06** (0.000)	0.000** (0.000)	2.56e-06** (0.000)	0.000* (0.000)
Secondary school enrolment (% of gross)	500.689* (1776.416)	642.292* (2408.887)	356.594* (1172.652)	119.840 (308.223)	112.034 (354.561)	187.958 (600.304)	232.024 (720.512)	171.652 (544.399)
Trade openness index	0.105 (0.160)	0.059* (0.097)	0.081 (0.140)	0.068** (0.090)	0.201 (0.273)	0.079 (0.130)	0.074* (0.121)	0.181 (0.295)
CO2 Emissions (metric tons per capita)	0.693 (0.174)	0.549* (0.181)	0.679 (0.186)	0.770 (0.151)	0.729 (0.172)	0.718 (0.182)	0.707 (0.181)	0.718 (0.180)
Depth of Credit Information Index	1.855** (0.524)	1.985** (0.669)	1.682** (0.443)		1.583 (0.450)	1.661* (0.446)	1.709** (0.450)	1.699* (0.490)
High-tech exports [% of manufactured exports]	1.060 (0.060)	1.029 (0.062)	1.053 (0.060)	1.059 (0.052)	1.032 (0.056)	1.064 (0.061)	1.056 (0.061)	1.050 (0.064)
Blue Flag accreditation [1=Yes; 0=No]	0.282 (0.346)	0.198 (0.260)	0.351 (0.456)	0.568 (0.535)				
Internet users per 100 people		7.081* (8.222)						
Mobile cellular users per 100 people			2.811 (5.625)					
Financial Domestic Credit (% of GDP)				1.195 (1.209)				
Cereal Yield (kgs per hectare)					7.075 (8.700)			
Existence of world wonders [1=Yes; 0=No]						0.392 (0.478)		
Forest Area (% Land Area)							2.573 (2.204)	
% Land area in geographical tropics								1.258 (1.509)
Constant	590.689 (7008.522)	3.420 (31.112)	0.192 (1.700)	26.039 (270.232)	0.001 (0.008)	195.573 (2302.967)	18118.12 (211680.2)	52.742 (588.874)
Pseudo R^2	0.395	0.434	0.381	0.257	0.413	0.386	0.400	0.310
Prob > chi2	0.003	0.001	0.005	0.060	0.003	0.004	0.003	0.045
Observations	42	42	42	42	41	42	42	37

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table B4:3 Cross Total regression results TLGH2 [Human capital proxy – Labour force as a % of population]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.073 (0.194)			0.157 (0.333)	0.498 (1.250)	0.329 (0.811)	0.122 (0.285)	0.175 (0.407)
Tourism safety & security index	0.066 (0.253)	0.001 (0.006)	0.012 (0.049)	0.331 (1.051)	0.001 (0.006)	0.033 (0.120)	0.031 (0.126)	0.063 (0.253)
Labour force as a % of population	0.037 (0.121)	0.040 (0.139)	0.028 (0.087)	0.020 (0.053)	0.001* (0.003)	0.040 (0.128)	0.006 (0.022)	0.049 (0.155)
Trade openness index	0.134 (0.167)	0.107 (0.144)	0.091* (0.126)	0.062** (0.073)	0.112* (0.149)	0.094* (0.130)	0.125 (0.183)	0.229 (0.316)
CO2 Emissions (metric tons per capita)	0.913 (0.116)	0.761 (0.146)	0.864 (0.143)	0.938 (0.123)	0.795 (0.131)	0.917 (0.124)	0.932 (0.144)	0.922 (0.123)
Depth of Credit Information Index	1.710** (0.412)	1.684* (0.479)	1.543* (0.373)		1.470 (0.369)	1.650** (0.397)	1.574* (0.418)	1.665** (0.428)
High-tech exports [% of manufactured exports]	1.039 (0.047)	1.002 (0.052)	1.033 (0.048)	1.035 (0.040)	1.044 (0.043)	1.045 (0.049)	1.037 (0.058)	1.029 (0.053)
Blue Flag accreditation [1=Yes; 0=No]	0.430 (0.465)	0.315 (0.348)	0.381 (0.461)	0.381 (0.364)				
Internet users per 100 people		6.850* (6.968)						
Mobile cellular users per 100 people			5.082 (10.156)					
Financial Domestic Credit (% of GDP)				2.371 (2.090)				
Cereal Yield (kgs per hectare)					27.966** (44.087)			
Existence of world wonders [1=Yes; 0=No]						0.382 (0.453)		
Forest Area (% Land Area)							2.570 (1.821)	
% Land area in geographical tropics								1.577 (1.870)
Constant	6791363 (7.40e+07)	33857.14 (276326.9)	408.699 (2955.323)	363827.7 (3157529)	2.77e-06 (0.000)	779255.8 (8159082)	72106.85 (751969.2)	48989.33 (511247.3)
Pseudo R^2	0.362	0.418	0.356	0.242	0.438	0.362	0.382	0.271
Prob > chi2	0.005	0.001	0.006	0.064	0.001	0.005	0.003	0.078
Observations	44	44	44	44	42	44	44	38

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 Results, 2017

Table B4:4 Cross Total regression results TLGH2 [Human capital proxy – Human capital index]

VARIABLES	1	2	3	4	5	6	7	8
Gross capital formation [% of GDP]	0.257 (0.768)			0.815 (1.810)	.356 (0.966)	0.548 (1.393)	0.354 (0.893)	0.365 (0.917)
Tourism safety & security index	0.001 (0.004)	0.000** (0.000)	0.000* (0.001)	0.002 (0.009)	0.000* (0.001)	0.001 (0.005)	0.000* (0.002)	0.001 (0.006)
Human capital index	6.684 (10.109)	6.784 (10.280)	7.925 (11.234)	12.840* (18.153)	3.207 (4.952)	6.909 (10.178)	6.218 (9.429)	5.844 (8.738)
Trade openness index	0.144 (0.194)	0.109 (0.152)	0.114 (0.174)	0.070** (0.086)	0.151 (0.191)	0.097 (0.149)	0.139 (0.194)	0.205 (0.303)
CO2 Emissions (metric tons per capita)	0.803 (0.143)	0.688* (0.152)	0.770 (0.151)	0.769 (0.141)	0.808 (0.118)	0.794 (0.144)	0.811 (0.149)	0.808 (0.145)
Depth of Credit Information Index	1.756** (0.454)	1.852* (0.598)	1.682** (0.441)		1.646* (0.443)	1.701** (0.440)	1.756* (0.460)	1.734** (0.463)
High-tech exports [% of manufactured exports]	1.018 (0.053)	0.987 (0.053)	1.013 (0.051)	1.007 (0.047)	1.016 (0.051)	1.025 (0.055)	1.013 (0.054)	1.012 (0.054)
Blue Flag accreditation [1=Yes; 0=No]	0.657 (0.760)	0.401 (0.467)	0.639 (0.805)	0.662 (0.653)				
Internet users per 100 people		4.785 (4.869)						
Mobile cellular users per 100 people			2.202 (4.500)					
Financial Domestic Credit (% of GDP)				3.061 (3.032)				
Cereal Yield (kgs per hectare)					4.916 (5.483)			
Existence of world wonders [1=Yes; 0=No]						0.493 (0.558)		
Forest Area (% Land Area)							1.442 (1.040)	
% Land area in geographical tropics								1.153 (1.362)
Constant	1.18e+07 (1.26e+08)	4953009* (3.54e+07)	129617.5 (846915.5)	102586.2 (928909.3)	813.269 (9150.376)	5307466 (5.29e+07)	760966884 (7.51e+07)	781054.8 (7473762747 3762)
Pseudo R^2	0.366	0.410	0.365	0.258	0.370	0.370	0.369	0.291
Prob > chi2	0.006	0.002	0.007	0.059	0.009	0.006	0.006	0.062
Observations	42	42	42	42	40	42	42	37

Robust standard errors in parentheses;
*** p<0.01, ** p<0.05, * p<0.1

Source: STATA13 regression results, 2017

REFERENCES

ABDULNASSER, H & MANUCHEHR, I. 2000. Time Series Evidence for Balassa's Export-led Growth Hypothesis, *Journal of International Trade and Economic Development*, 9: 355-365.

ABOU-STAIT, F. 2005. Are Exports the Engine of Economic Growth? An Application of Cointegration and Causality Analysis for Egypt, 1977 – 2003. Economic Research Working Paper Series, Tunis: African Development Bank.

ACEMOGLU, D., JOHNSON S. & ROBINSON J. 2002. Reversal of fortune: geography and institutions in the making of the modern world income distribution, *Quarterly Journal of Economics*, 117 (4): 1231–94.

ADAMOU, A. & CLARIDES, S. 2009. Prospects and Limits of Tourism-led Growth: The International Evidence, The Rimini Centre for Economic Analysis (RCEA), WP41.09.

ADEGOKE, J. A., SUNDAY, A. A. & KAYODE, S. O. 2012. Human Capital Development and Economic Growth: A Lesson from Nigeria, *Journal of Economics and Sustainable Development*, 3(12): 139-143.

AFRICA ECONOMIC OUTLOOK. 2016. Table 2 - Real GDP Growth Rates, 2006-2016, http://www.africaneconomicoutlook.org/en/statistics/ Date of access: 12 May 2016.

AFRICAN DEVELOPMENT BANK, 2015. African Economic Outlook 2015: Regional Development and Spatial Inclusion, OECD Publishing, Paris, http://dx.doi.org/10.1787/aeo-2015-en. http://www.oecd.org/dev/african-economic-outlook-19991029.htm Date of access: 22 Feb. 2016.

AFRICAN DEVELOPMENT BANK. 2007. African Development Report 2007- Chapter IV, Africa's Natural Resources: The Paradox of Plenty, http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/(E)%20AfricanBank%202007%20Ch4.pd Date of access: 22 Feb. 2016.

AGÉNOR, P. 2004. Growth and Technological Progress: The Solow–Swan Model. The Economics of Adjustment and Growth, Second edition, Cambridge: Harvard University Press. 765 p.

AGHION, P. & HOWITT, P. 1992. A model of growth through creative destruction. *Econometrica60*: 323–51.

AGHION, P. & HOWITT, P. 1998. Endogenous Growth Theory. Cambridge, MA: MIT Press, 708 p.

AGHION, P., HARRIS, C., HOWITT, P. & VICKERS, J. 2001. Competition, imitation and growth with step-by-step innovation. *Review of Economic Studies*: 467–492.

AGOSIN, M. 1999. Trade and growth in Chile, *Cepal Review*, 68: 79 – 100.

AHIAWODZI, A.K. 2013. Tourism Earnings and Economic Growth in Ghana, British *Journal of Economics, Finance and Management Sciences*, 7 (2): 187-202.

AKAN, Y., ARSLAN, I. & IS K, C. 2007. The Impact of Tourism on Economic Growth: The Case of Turkey, *Journal of Tourism*, IX, 1-24.

AKHTAR, M. A. 1973. The Stationary State of Ricardo and Malthus – Comment, in: Wood J. C. (1991), David Ricardo – Critical Assessments, London: *Taylor & Francis*: 250-253.

AKINBOADE, O. & BRAIMOH, L. A. 2010. International tourism and economic development in South Africa: A Granger causality test. *International Journal of Tourism Research*, 12: 149 –163.

AL AZM, S. J. 2011. The Arab Spring: Why exactly at this Time? Reason Papers (Fall 2011): 223-229.

ALDRICH, J. 2004. The Discovery of Comparative Advantage, Journal of the History of Economic Thought, 26 (3): 379-399.

ALESINA, A. & RODRIK, D. 1994. Distributive politics and economic growth, *Quarterly Journal of Economics,* 109: 465-490.

AMAGHIONYEODIWE, L. A. 2012. A causality analysis of tourism as a long-run economic growth factor in Jamaica, *Tourism Economics*, 18(5): 1125– 1133.

AMELUNG, B., NICHOLLS, S. & VINER, D. 2007. Implications of Global Climate Change for Tourism Flows and Seasonality. *Journal of Travel Research,* 45: 285-296.

ANAND, S. & KANBUR, R. 1993. The Kuznets Process and the Inequality-Development Relationship, *Journal of Development Economics,* 40: 25-52.

ANAND, R., MISHRA, S. & SPATAFORA, N. 2012. Structural Transformation and the Sophistication of Production, IMF Working Paper, WP/12/59, https://www.imf.org/external/pubs/ft/wp/2012/wp1259.pdf Date of access: 16 Feb. 2017.

ANDRIOTIS, K. 2002. Scale of hospitality firms and local economic development- evidence from Crete, *Tourism Management*, 23(4): 333-341.

ARDAHAEY, F. T. 2011. Economic Impact of Tourism Industry, *International Journal of Business Management,* 6 (8), 206-215.

ARMSTRONG, H. & READ, R. 2004. The Economic Performance of Small States and Islands: The Importance of Geography, Paper presented at Islands of the World VIII International Conference, Taiwan.

ARSLANTÜRK, Y. & ATAN, S. 2012. Dynamic Relation between Economic Growth, Foreign Exchange and Tourism Incomes: An Econometric Perspective on Turkey, *Journal of Business, Economics & Finance* 1 (1): 30-37.

ARTADI, E. V. & SALA-I-MARTIN, X. 2003. The Economic Tragedy of the XXth Century Growth in Africa, National Bureau of Economic Research, National Bureau of Economic Research (NBER) Working Paper Series, Working Paper 9865.

ARTELARIS, P., ARVANITIDIS, P. & PETRAKOS, G. 2007. Theoretical and methodological study on dynamic growth regions and factors explaining their growth performance, Paper presented at the 2nd Workshop of DYNREG in Athens, 9-10 March.

ARVANITIDIS, P., PAVLEAS, S. & PETRAKOS, G. 2009. Determinants of economic growth: the view of the experts, University of Thessaly, Department of Planning and Regional Development, Discussion Paper Series, 15(1): 1-22.

ASAFU-ADJAYE, J. & D. CHAKRABORTY. 1999. Export-Led Growth and Import Compression: Further Time Series Evidence from LDCs. *Australia Economics Papers* 38: 164–175.

ASHLEY, C. & MITCHELL, J. 2006a. Can Tourism Help Reduce Poverty in Africa? Overseas Development Institute (ODI), Briefing Paper, ODI: London.

ASHLEY, C. & MITCHELL, J. 2006b. Tourism Business and the Local Economy: Increasing Impact through a Linkages Approach, Overseas Development Institute (ODI), Briefing Paper, ODI: London.

ASLAN, A. 2013. Tourism development and economic growth in the Mediterranean countries: evidence from panel Granger causality tests, *Current Issues in Tourism*, DOI:10.1080/13683500.2013.768607.

ASLAN, A. 2015. The sustainability of tourism income on economic growth: does education matter? *Qual Quant 49*: 2097–2106.

ASSADZADEH, A. & NASAB, M. H. N. 2012. Investigating the Relationship between Tourism Industry and GDP in the Islamic Republic of Iran, *International Review of Business Research Papers,* 8 (2): 85 – 95.

ATOYEBI K. O., OLALEYE S. O., ISHOLA A. S., ADEKUNJO F. O. & KADIRI K. IBRAHIM. 2013. Human capital and economic growth in Nigeria (1970 – 2010) an empirical analysis, *International Journal of Humanities and Social Science Invention,* 2 (2): 58-69.

AUERBACH, A., HASSETT, K. & OLINER S. 1994, “Reassessing the social returns to equipment investment”, *Quarterly Journal of Economics*, 109: 789-802.

AY, A., KARTAL, M. & ARSLAN, A. 2015. Tourism-Led Economic Growth Hypothesis: An Application on Turkey, *The Journal of International Social Research,* 8(38): 816-825.

AYRES, C. 1962. The theory of economic progress. A study of the Fundamental Economic Development and Cultural Change, New York: Schocken, 317 p.

BACHER, T. 2005. Questioning the Diversification of Tourism Products: Two Examples of Achievement in the Mid-French Mountains - dissertation, Bournemouth University, Université de Savoie. Available online at: http://www.du.se/PageFiles/5052/Bacher%20Tanja%20.pdf

BAKER, M. J. 1998. The Marketing Manual. Butterworth Heinemann: Great Britain, United Kingdom 11, 2010 http://www.tti.gov.bc.ca/tourism/docs/tourism_action_plan.pdf Date of access: 15 Jun. 2016.

BALAGUER, J. & CANTAVELLA-JORDÁ, M. 2002. Tourism as a Long-Run Economic Growth Factor: The Spanish Case, *Applied Economics*, 34(7): 877-884.

BALASSA, B. 1978. Exports and economic growth: Further evidence. *Journal of Development Economics*, 5: 181 –189.

BALCILAR, M., INGLESI-LOTZ, R. E. R. & GUPTA, R. 2014. Time-varying linkages between tourism receipts and economic growth in South Africa, *Applied Economics*, 46 (36): 4381-4398.

BANNOCK, G., BAXTER, R. E. & REES, R. 1984. The Penguin Dictionary of Economics, Third Edition, Great Britain, Cox & Wyman Ltd, Reading, 461 p.

BARRO, R. & MCCLEARY, R. 2003. Religion and Economic Growth, NBER Working Paper no. 9682.

BARRO, R. J. & SALA-I-MARTIN, X. 1995. Economic Growth, McGraw-Hill, Cambridge, MA, 539 p.

BARRO, R. J. 1991. Economic growth in a cross-section of countries. *Quarterly Journal of Economics*, 106(2): 407-443.

BARRO, R. J. 1996. Determinants of economic growth: A cross-country empirical study, NBER Working Paper 5698, www.nber.org/papers/w5698 Date of access: 30 Nov. 2015.

BARRO, R. J. 1997. Determinants of economic growth: a cross-country study, Cambridge: MIT.

BARRO, R. J. 1999. Determinants of economic growth: Implications of the global evidence for Chile, *Cuadernos de Economia Ano*, 36(107): 443-478.

BARRO, R. J. 2000. Inequality and Growth in a Panel of Countries. *Journal of Economic Growth*. 5 (1): 5–32.

BARRO, R. J. 2003. Determinants of economic growth in a panel of countries, *Annals of Economics and Finance 4*: 231-274.

BARRO, R. J. 2008. Working with the Solow Growth Model. *Macroeconomics: A Modern Approach* (Internet. student ed.). Mason, OH: Thomson South-Western, 512 p.

BARRO, R.J. & SALA-I-MARTIN, X. 1992. Convergence. *Journal of Political Economy*: 223–51.

BARRO, R.J. & SALA-I-MARTIN, X. 1995. Economic Growth, McGraw Hill. Inc. New York, 539 p.

BASSIL, C., HAMADEH, M. & SAMARA, N. 2015). The tourism led growth hypothesis: the Lebanese case, *Tourism Review*, 70: 43 – 55.

BASU, A., CALAMITSIS E. A. & GHURA, D. 2005. Adjustment and Growth in Sub-Saharan Africa, Economic Issue is based on IMF Working Paper 99/51.

BEARDSHAW, J., BREWSTER, D., CORMACK, P. & ROSS, A. 2001. Economics: A Student's Guide, Fifth Edition, Pearson Education Limited, England, 740 p.

BECKEN S. & HAY J. 2007. Tourism and Climate Change – risks and opportunities, Clevedon: Channel View Publications, 289 p.

BECKEN, S. 2010. The Importance of Climate and Weather for Tourism: Literature Review, Land and Environment & People (LEaP): 1-23.

BELLOUMI, M. 2010. The Relationship between Tourism Receipts, Real Effective Exchange Rate and Economic Growth in Tunisia, *International Journal of Tourism Research*, 12: 550–560.

BENCIVENGA, V.R. & SMITH, B.D. 1991. Financial intermediation and endogenous growth, *Review of Economic Studies* 58: 195–209.

BENCIVENGA, V.R; SMITH, B.D. & STARR, R.M. 1995. Transaction costs, technological choice, and endogenous growth, *Journal of Economic Theory* 67: 53–117.

BENTO, J. P. C. & SANTOS, M. 2012. Tourism as a long run economic growth factor in Portugal: Evidence from causality analysis, *Revista Turismo & Desenvolvimento*, 17 (18): 1759-1765.

BERGOEING, R. & KEHOE, T. J. 2003. Trade Theory and Trade Facts, Federal Reserve Bank of Minneapolis Research Department Staff Report 284.

BURGER, R. & DU PLESSIS, S. 2006. Examining the Robustness of Competing Explanations of Slow Growth in African Countries, Credit Research, Paper No. 06/02, Center for Research in Economic Development and International Trade, University of Nottingham.

BERGSTRAND, J. H. 1985. The Gravity Equation in International Trade: Some Microeconomic Foundations and Empirical Evidence, *The Review of Economics and Statistics*, 67(3): 474-481.

BHAGWATI, J. & SRINIVASAN, T. 1979. Trade Policy and Development, in International Economic Policy: Theory and Evidence, (Eds) R. Dornbunsch and J. Frenkel, Johns Hopkins University Press, Baltimore: 1-35.

BHARADWAJ, R. 1962. Factor Proportions and the Structure of Indo-U.S. Trade. *Indian Economic Journal 10*: 105–16.

BHATT, M. S. & MUNJAL, P. 2013. Social Accounting Matrix to Study the Socio-economic Linkages of Tourism Sector- A case study of India, *Indian Economic Review,* 48(2), 381-408.

BIAGI, B., LADU, M. G. & ROYUELA, V. 2015. Human development and tourism specialization. Evidence from a panel of developed and developing countries, Research Institute of Applied Economics, Working Paper 2015/05 1/45.

BINNS, T. & NEL, E. 2002. Tourism as a local Development Strategy in South Africa, *The Geographical Journal,* 168 (3): 235-247.

BLACKMAN, A., FOSTER, F., HYVONEN, T., JEWELL, B., KUILBOER, A. & MOSCADO, G. 2004. Factors Contributing to Successful Tourism Development in Peripheral Regions, *The Journal of Tourism Studies,* 15 (1): 59-70.

BLAKE, A., & SINCLAIR, M. T. 2003. Tourism crisis management US response to September 11. *Annals of Tourism Research,* 30: 813-832.

BLAKE, A., SINCLAIR, T. M., & CAMPOS SORIA, J. A. 2006. Tourism productivity. Evidence from the United Kingdom, *Annals of Tourism Research*, 33(4): 1099–11.

BLANKE, J. & CHIESA, T. 2007. The Travel & Tourism Competitiveness Index: Assessing Key Factors Driving the Sector's Development. The Travel & Tourism Competitiveness Report 2007. Geneva: World Economic Forum: 3–25.

BLANKE, J. & CHIESA, T. 2013. The Travel and Tourism Competitiveness Report 2013- Reducing Barriers to Economic Growth and Job Creation, World Economic Forum Insight Report, Geneva, 484 p.

BLAUG, M. 1997. Economic Theory in Retrospect, Edition 5, Cambridge: Cambridge University Press, 725 p.

BLINDER, A. 1973. Wage discrimination: Reduced form and structural estimates, *Journal of Human Resources,* 8(4): 436–455.

BLINDER, A. S. 1986. Keynes after Lucas, *Eastern Economic Journal*: 209-216.

BLINDER, A. S. Keynes, Lucas, and Scientific Progress. American Economic Review (May 1987): 130-36. (Reprinted in John Maynard Keynes (1833-1946), Vol. 2, edited by Mark Blaug. 1991).

BLOOM, D. & SACHS, J. D. 1998 Geography, Demography and Economic Growth in Africa, *Brookings Papers on Economic Activity*, 2: 207-295.

BLOOM, D. & WILLIAMSON, J. 1998. Demographic Transitions and Economic Miracles in Emerging Asia, *World Bank Economic Review* 12: 419-56.

BLUE FLAG. 2015. Beaches and Marinas with Blue Flag, http://www.blueflag.org/ Date of access: 23 Nov. 2015.

BLUE FLAG. 2015. Beaches, http://www.blueflag.org/menu/criteria/beaches Date of access: 23 Nov. 2015.

BODENHEIMER, S. 1964. Dependency and Imperialism: The Roots of Latin American Underdevelopment, *Politics & Society*, 1(3): 327-357, doi:10.1177/003232927100100303.

BORISS, S. & HERZER, D. 2006. Export-Led Growth hypothesis: evidence for Chile, *Applied Economics Letters 13*: 319-324.

BORTIS, H. 1997. Institutions, Behaviour and Economic Theory – A Contribution to Classical-Keynesian Political Economy, Cambridge: Cambridge University Press, 435 p.

BORTIS, H. 2008. The Multiplier Relation as the Pure Theory of Output and Employment in a Monetary Production Economy, in: Gnos C., Rochon L. P. (2008), The Keynesian Multiplier, New York: Routledge, 58-84.

BOTE GO´MEZ, V., & SINCLAIR, M.T. 1996. Tourism, the Spanish economy and the balance of payments. In M. Barke, J. Towner, & M.T. Newton (Eds.), *Tourism in Spain*, 89–117, Oxon, UK: CAB International.

BOUZAHZAH, M. & MENYARI, Y. E. 2013. International tourism and economic growth: the case of Morocco and Tunisia, *The Journal of North African Studies*, 18(4): 592– 607.

BOWEN, H. P., LEAMER, E. E & L. SVEIKAVSKAS, L. 1995. Multicountry, Multifactor Tests of the Factor Abundance Theory. In J. P. Neary (ed.) International Trade: Structure, Trade and Growth, Vol. 2. Brookfield, Vermont, Edward Elgar 269–287.

BOWLER, P. J. 2003. Evolution: the history of an idea, Berkeley: University of California Press, 464 p.

BRAU, R., LANZA, A. & PIGLIARU, F. 2004. How fast are tourism countries growing? Cross country evidence, in Lanza, A., Markandya, A. & Pigliaru, F. eds, The Economics of Tourism and Sustainable Development, Edward Elgar, Cheltenam.

BRAU, R., LANZA, A., & PIGLIARU, F. 2007. How fast are small tourism countries growing? Evidence from the data for 1980–2003. *Tourism Economics*, 13(4), 603 –613.

BRIASSOULIS, H. 2002. Sustainable Tourism and the question of the commons. *Annals of Tourism Research*, 29(4): 1065-1085.

BRIDA, J. B., CORTES-JIMENEZ, I. & PULINA, M. 2014. Has the tourism-led growth hypothesis been validated? A literature review, *Current Issues in Tourism*, http://www.tandfonline.com/loi/rcit20 Date of access: 7 Apr. 2014.

BRIDA, J. B., LANZILOT, B., LIONETTI, S., & RISSO, W.A. 2010. Research note: The Tourism-led Growth Hypothesis for Uruguay, *Tourism Economics*, 16 (3): 765–771.

BRIDA, J. G., & RISSO, W. A. 2009. Tourism as a factor of long-run economic growth: An empirical analysis for Chile. *European Journal of Tourism Research*, 2(2): 178 –185.

BRIDA, J. G., & RISSO, W. A. 2010. Tourism as a determinant of long-run economic growth. *Journal of Policy Research in Tourism, Leisure and Events*, 2(1): 14–28.

BRIDA, J. G., LANZILOTTA, B., LEONETTI, S. & RISSO, W. A. 2010. The tourism-led growth hypothesis for Uruguay, *Tourism Economics,* 16(3): 765-771.

BRIDA, J. G., PEREYRA, J. S., RISSO, W. A., & DEVESA, M. J. S., & AGUIRE, S. Z. 2009. The Tourism-Led Growth Hypothesis: Empirical Evidence from Colombia, *TOURISMOS: An International Multidisciplinary Journal of Tourism*, 4(2): 13-27.

BRIDA, J. G., PUNZO, L. F. & RISSO, W. A. 2011. Research note: Tourism as a factor of growth – the case of Brazil, *Tourism Economics,* 17(6): 1375–1386.

BRIDA, J. G., SANCHEZ CARRRERA, E. J., & RISSO, W. A. 2008. Tourism's impact on long-run Mexican economic growth, *Economics Bulletin,* 3(21): 1–8.

BRIDA, J.B., LANZILOTTA, B., LEONETTI, S. & RISSO, W. A. 2010. Research note: The tourism-led growth hypothesis for Uruguay, *Tourism Economics*, 16 (3): 765–771.

BROTHERTON, B. 2004a. Critical Success Factors in UK Budget Hotel Operations, *International Journal of Operations and Production Management*, 24 (9): 944-969.

BROTHERTON, B. 2004b. Critical Success Factors in UK Corporate Hotels, *The Service Industries Journal*, 24 (3): 19-42.

BRUNETTI, A. 1997. Political variables in cross-country growth analysis, *Journal of Economic Surveys*, 11(2): 163-190.

BUCHANAN, J. M. & WAGNER, R. E. 1977. Democracy in Deficit: The Political Legacy of Lord Keynes, http://oll.libertyfund.org/titles/buchanan-democracy-in-deficit-the-political-legacy-of-lord-keynes Date of access: 6 Jun. 2016.

BUENO, A. 1999. Competitiveness in the tourist industry and the role of the Spanish Public Administration, *Tourism and Hospitality*, 47(4): 316-331.

BUHALIS, D. 2000. Marketing the competitive destination of the future, *Tourism Management,* 21: 97-116.

BUKHARI, S. A. H. A. S., AHMAD, M. H., ALAM, S., BUKHARI, S. S. H. A. S., & BUTT, M. S. 2005. An Empirical Analysis of the Linder Theory of International Trade for South Asian Countries, The Pakistan Development Review, 44(3): 307–320.

BULLEN, C.V. 1995. `Re-examining productivity critical success factors', *Information Systems Management*, 12(3): 13-18.

BURGER, R. & DU PLESSIS, S. 2006. Examining the Robustness of Competing Explanations of Solow Growth in African Countries, Centre for Research in Economic and International Trade, CREDIT Research Paper, No 06/02, University of Nottingham.

CAGLAYAN, E., SAK, N. & KARYMSHAKOV, K. 2012. Relationship between tourism and economic growth: A panel granger causality approach. *Asian Economic and Financial Review*, 2(5): 591-602.

CAI, J., LEUNG, P., & MAK, J. 2005. Tourism's forward and backward linkages, Department of Economics Working Paper No 200516, University of Hawaii at Manoa.

CAIRNCROSS, A. K. 1963. "Capital Formation in the Take-off." In Rostow, 452–456.

CAMBRIDGE DICTIONARIES ONLINE. 2015. Critical Success Factor, http://dictionary.cambridge.org/dictionary/english/critical-success-factor Date of access: 4 Oct. 2015.

CAPÓ, J., FONT, A. R. & NADAL, J. R. 2007. Dutch disease in tourism economies: evidence from the Balearics and the Canary Islands. *Journal of Sustainable Tourism*, 15(6): 615-627.

CAPO´, J., RIERA FONT, A., & ROSSELLO ´ NADAL, J. 2007. Tourism and long-term growth. A Spanish perspective. *Annals of Tourism Research*, 34(3): 709 –726.

CARALLI, R. A. 2004. The Critical Success Factor Method: Establishing a Foundation for Enterprise Security Management, Technical Report CMU/SEI-2004-TR-010 ESC-TR-2004-010, Networked Systems Survivability Program Survivable Enterprise Management Team.

CARRERA, E. J. S., RISSO, W. A., & BRIDA, J. G. 2008. Tourism's impact on long-run Mexican economic growth, *Economics Bulletin*, 3(21): 1–8.

CENTENO, M. A., & PORTES, A. 2003. The Informal Economy in the show of the State. In P. Fernandez-Kelly, & J. Sheffner. The Informal Economy in Latin America. Princeton, N.J., Princeton University Press.

CENTRE FOR INTERNATIONAL DEVELOPMENT AT HARVARD UNIVERSITY (RESEARCH DATASETS). 2016. Malaria, http://www.cid.harvard.edu/ciddata/geographydata.htm Date of access: 13 Apr. 2016.

CENTRE FOR INTERNATIONAL DEVELOPMENT AT HARVARD UNIVERSITY (RESEARCH DATASETS). 2016. Physical factors, http://www.cid.harvard.edu/ciddata/geographydata.htm Date of access: 13 Apr. 2016.

CERNAT, L. & GOURDON, J. 2012. Paths to success: Benchmarking cross-country sustainable tourism. *Tourism Management*, 33: 1044 –1056.

CHANCHARAT, S. 2011. Thai Tourism and Economic Development: The Current State of Research, *Kasetsart J. (Soc. Sci)*, 32: 340 – 351.

CHANG, R., KALTANI, L. & LOAYZA, N. 2009. Openness is Good for Growth: The Role of Policy Complementarities, *Journal of Development Economics*, 90: 33-49.

CHAO, C.-C., HAZARI, B. R., LAFFARGUE, J.-P., SGRO, P. M., & YU, E. S. H. 2006. Tourism, Dutch disease and welfare in an open dynamic economy. *The Japanese Economic Review*, 57(4): 501-515.

CHARALAMBOS, L. 2013. Tourist Arrivals and Economic Growth: Time Series Evidence from the United Kingdom, *Journal of Regional & Socio-Economic Issues*, 3(2): 49-60.

CHATZIANTONIOU, I., FILIS, G., EECKELS, B. & APOSTOLAKIS, A. 2012. Oil prices, tourism income and economic growth: A structural VAR approach for European Mediterranean countries, *Tourism Management xxx*: 1-11.

CHEN, C. F., & CHIOU-WEI, S. Z. 2009. Tourism expansion, tourism uncertainty and economic growth: new evidence from Taiwan and Korea. *Tourism Management*, 30: 812-818.

CHEN, M. R., JHABAVALA, & LUND, F. 2001. Supporting Workers in the Informal Economy: Paper prepared for ILO Task Force on the Informal Economy, http://info.worldbank.org/etools/docs/library/75867/dc2003/proceedings/pdfpaper/module6mcrjfl.pdf Date of access: 6 Jun. 2016.

CIURIAK, D., LAPHAM, B., & WOLFE, R. COLLINS-WILLIAMS, T. & JOHN M. CURTIS, J. M. 2011. New-New Trade Policy, Queen's Economics Department Working Paper No. 1263.

CLARKE, G. 2000. Marketing a Service for Profit. A Practical Guide to Key Service Marketing Concepts, Kogan Page, London, 200 p.

COLANDER, D. 1984. "Was Keynes a Keynesian or a Lernerian?" *Journal of Economic Literature* 22: 1571–1579, argues for the influence of Abba Lerner's interpretation Keynes in "textbook" Keynesianism.

COLLIER, P. PATTILLO, C. eds (2000), Investment and Risk in Africa, Macmillan, London, 388 p.

COMIN, D. 2006. Total Factor Productivity, HBS People Space, www.people.hbs.edu/dcomin/def.pdf Date of access: 22 Feb. 2016.

COPELAND, B. 1991. Tourism, welfare and de-industrialization in a small open economy, *Economica,* 58: 515-529.

COPELAND, B.R. 2001. Benefits and costs of trade and investment liberalization in services: implications from trade theory, Paper prepared for the Department of Foreign Affairs and International Trade, Government of Canada.

CORDEN, W. M., & NEARY, J. P. 1982. Booming sector and de-industrialisation in a small open economy. *The Economic Journal*, 92: 825–848.

CORRIE, K., STOECKL, N., & CHAIECHI, T. 2013. Tourism and economic growth in Australia: An empirical investigation of causal links. *Tourism Economics*, 19(6): 1317-1344.

CORTE´S-JIME´NEZ, I., & ANTON CLAVE´, S. in press. Tourism in Spain: Southern European perspectives. In J.-C. Dissart, J. Dehez, & J.-B. Marsat (Eds.), Tourism, recreation and regional development: Perspectives from France and abroad. Farnham: Ashgate.

CORTE´S-JIME´NEZ, I., NOWAK, J., & SAHLI, M. 2011. Mass beach tourism and economic growth: Lessons from Tunisia, *Tourism Economics*, 17(3): 531– 547.

CORTÉS-JIMÉNEZ, I. & PULINA, M. 2010. Inbound tourism and long-run economic growth, *Current Issues in Tourism*, 13 (1): 61-74.

CORTÉS-JIMÉNEZ, I., PULINA, M., PRUNERA, C. R. & ARTIS, M. 2009. Tourism and Exports as a means of Growth, Research Institute of Applied Economics, Working Papers 2009/10, 1-28.

COŞKUN, I. O. & ÖZER, M. 2014. A Reexamination of the Tourism-Led Growth Hypothesis under Growth and Tourism Uncertainties in Turkey, *European Journal of Business and Social Sciences*, 3(8): 256 – 272.

CROES, R. 2006. A paradigm shift to a new strategy for small island economies: Embracing demand side economics for value enhancement and long term economic stability. *Tourism Management*, 27: 453– 465.

CROES, R., & VANEGAS SR, M. 2008. Cointegration and causality between tourism and poverty reduction, *Journal of Travel Research*, 47: 94 –103.

CROUCH G.I. 1994. The Study of International Tourism Demand: a Survey of Practice, *Journal of Travel Research*, 32 (4): 41-55.

CROUCH, G. I. & RITCHIE, J. R. B. 1999. Tourism, competitiveness and societal prosperity, *Journal of Business Research*, 44: 137-152.

DABLA-NORRIS, E.; KALPANA, K.; SUPHAPHIPHAT, N.; FANTISEK, R. & EVRIDIKI, T. 2015. Causes and Consequences of Income Inequality: A Global Perspective, IMF Staff Discussion Note.

DAGHIGHIASLI, A. MOHAMMADI, T. & SHAHBAZI, M. 2014. The Survey of Human Capital Effect on Economic Growth in Oil Rich Countries, *International Review of Management and Business Research*, 3(1): 319-326.

DAVID, A. C.; BASTOS, F. B. & MILLS, M. 2011. Post-conflict Recovery: Institutions, Aid, or Luck? IMF Working Paper, WP/11/149.

DE FREITAS, C. R. 2003. Tourism climatology: evaluating environmental information for decision making and business planning in the recreation and tourism sector, *International Journal of Biometeorology*, 48: 45-54.

DE LA CRUZ GALLEGOS, J. L., RIVERA, C. C. &MORA, J. A. N. 2010. Drivers of Economic Growth: The Case for Tourism in Mexico, *R. Bras. Eco. de Emp*, 10(2): 38-53.

DEARDORFF, A. V. 1984. Testing Trade Theories and Predicting Trade Flows. In R. W. Jones and P. B. Kenen (eds.) Chapter 10 in Handbook of International Economics. Amsterdam, I.: Elsevier Science Publisher, 1: 467-517.

DEMIROZ, D. M. & ONGAN, S. 2005. The contribution of tourism to the long-run Turkish economic growth, *Journal of Economics* (Ekonomický *Casopis)*, 53(9): 880-894.

DENG, T., MA, M., & CAO, J. 2013a. Tourism resource development and long-term economic growth– a resource curse hypothesis approach. *Tourism Economics*, Advance online publication, doi:10.5367/te.2013.0325.

DEPARTMENT OF ECONOMIC AFFAIRS, AGRICULTURE AND TOURISM PROVINCIAL ADMINISTRATION OF THE WESTERN CAPE. 2001. White Paper on Sustainable Tourism Development and Promotion in the Western Cape, Submitted to the Cabinet, https://www.westerncape.gov.za/text/2004/1/whitepapertourism.pdf Date of access: 13 May 2016.

DEREK, L. 2013. Arab Uprisings, Armed Force, and Civil-Military Relations, *Armed Forces & Society*, 39(1): 28–52.

DFID. 2004. The importance of financial sector development for growth and poverty reduction, Policy Division Working Paper, (Report nr. PD 030).

DHUNGEL, K. L. 2015. An Econometric Analysis on the Relationship between Tourism and Economic Growth: Empirical Evidence from Nepal, *International Journal of Econometrics and Financial Management,* 3(2): 84-90.

DI LIBERTO, A. 2013. High skills, high growth: Is tourism an exception? *The Journal of International Trade & Economic Development,* 22(5): 749– 785.

DIEKE, P.U.C. (Ed.). 2000. The Political Economy of Tourism Development in Africa. Cognizant: Elmsford, New York, 385 p.

DIEKE, P.U.C. 2001a. Kenya and South Africa. In D.B. Weaver (Ed.) The Encyclopedia of Ecotourism. Wallingford: CAB International, 89-105.

DINOPOULOS, E. & THOMPSON, P. 1998. Schumpeterian growth without scale effects. *Journal of Economic Growth*: 313–35.

DOLAN, C. J., FRENDREIS J. P., & TATALOVICH, R. 2008. The Presidency and Economic Policy, Lanham: Rowman & Littlefield, 277 p.

DOLLAR, D. 1992. Outward-Oriented Developing Economies Really Do Grow More Rapidly: Evidence from 95 LDCs, 1976-1985. *Economic Development and Cultural Change,* 40 (3): 523-544.

DOMAR, E. 1946. Capital Expansion, Rate of Growth and Employment, *Econometrica,* Vol. 14, 137-147.

DRAGOUNI, M., FILIS, G. & ANTONAKAKIS, N. 2013. Time-Varying Interdependencies of Tourism and Economic Growth: Evidence from European Countries, MPRA Paper No. 48715, posted 30. July 2013 11:55 UTC. Online at http://mpra.ub.uni-muenchen.de/48715/

DRIML, S; ROBINSON, J; TKACZYNSKI, A, & DWYER, L. 2010. Tourism Investment in Australia: A scoping study, CRC for Sustainable Tourism Pty Ltd, Queensland, 77 p.

DRITSAKIS, N. 2004. Tourism as long-run economic growth factor: an empirical investigation for Greece using causality analysis. *Tourism Economics,* 10(3): 305-316.

DUPEYRAS, A. & MACCALLUM, N. 2013. Indicators for Measuring Competitiveness in Tourism: A Guidance Document, OECD Tourism Papers 2013/02.

DURBARRY, R. (2004). Tourism and economic growth: the case of Mauritius. *Tourism Economics,* 10(4): 389-401.

DURBARRY, R. 2002. The economic contribution of tourism in Mauritius. *Annals of Tourism Research,* 29(3): 862–865.

DWYER, L. & FORSYTH, P. 1992. The Case for Tourism Promotion: An Economic Analysis, *Revue de Tourisme AIEST* 43: 16–26.

DWYER, L. & FORSYTH, P. 1994. Government Support for Tourism Promotion: Some Neglected Issues, *Australian Economic Papers*, 33(63): 355–374.

DWYER, L. 2001. Destination competitiveness: development of a model with application to Australia and the Republic of Korea (unpublished report). Sydney: University of Western Sydney.

DWYER, L. 2007. International Handbook on the Economics of Tourism, Edward Elgar Publishing, Business Economics, Glos GL50, 520 p.

DWYER, L., FORSYTH, P. & RAO, P. (2000). The price competitiveness of travel and tourism: A comparison of 19 destinations. *Tourism Management*, 21(1): 9-22.

DWYER, L., FORSYTH, P., & SPURR, R. 2004. Evaluating tourism's economic effects: New and old approaches, *Annals of Tourism Research*, 25: 307 –317.

EASTERLY, W. & LEVINE, R. 1997. Africa's Growth Tragedy: Policies and Ethnic Divisions, *Quarterly Journal of Economics* 112(4): 1203-1250.

EASTERLY, W. & LEVINE, R. 2003. Tropics, germs and crops: how endowments influence economic development, *Journal of Monetary Economics*, 50(1): 3-39.

EASTERLY, W. & REBELO, S. 1993. Fiscal policy and economic growth: An empirical investigation, *Journal of Monetary Economics 32*, 417-458.

ECONOMY HORIZONS. 2014. A high value domestic credit to private sector (% of GDP) is a sign of a strong economy, https://ecohorizons.wordpress.com/2014/09/22/713/ Date of access: 16 Feb. 2017.

EDGEWELL, D. L., ALLEN, M. P., SMITH, G., & SWANSON, J. 2008. Tourism Policy and Planning Yesterday, Today and Tomorrow. Butterworth Heinemann, 422 p, http://shora.tabriz.ir/Uploads/83/cms/user/File/657/E_Book/Tourism/Tourism%20Policy%20And%20Planning.pdf Date of access: 7 Jun.2016.

EDWARDS, S. 1998. Openness, productivity and growth: what do we really know? *Economic Journal*, 108: 383– 398.

EECKELS, B., FILIS, G. &LEON, C. 2012. Tourism income and economic growth in Greece: empirical evidence from their cyclical components, *Tourism Economics*, 18 (4): 817–834.

EJA, E. I., UKWAYI, J. K., & OJONG, F. E. 2012. Success Factors Determining Nigeria as a Tourist Destination, *Journal of Emerging Trends in Educational Research and Policy Studies (JETERAPS)* 3(4): 426-432.

EKANAYAKE, E. M. & LONG, A. E. 2012. Tourism development and economic growth in developing countries, *The International Journal of Business and Finance Research*, 6(1): 51– 63.

ELTIS, W. 1984. The Classical theory of Economic growth, Macmillian Press, London, 372 p.

ENDO, K. 2006. Foreign Direct Investment in Tourism – Flows and Volumes, *Tourism Management 27*: 600-614.

ENGLEBERT, P. 2000. Solving the Mystery of the Africa Dummy, *World Development, 28 (10),* 1821-1835.

ERTUGRUL, H. M. & MANGIR, F. 2015. The tourism-led growth hypothesis: empirical evidence from Turkey, *Current Issues in Tourism*, 18(7): 633-646.

ESU, B. B. 2012. Linking Human Capital Management with Tourism Development and Management for Economic Survival: The Nigeria Experience, *International Journal of Business and Social Science,* 3(11): 276-287.

EASTERLY, W. & LEVINE, R. 1997. Africa's growth tragedy: policies and ethnic divisions, *Quarterly Journal of Economics*, 112 (4), 1203-1250.

EUGENIO-MARTIN, J., MORALES, N., & SCARPA, R. 2004. Tourism and economic growth in Latin American countries: A panel data approach. FEEM working paper no. 26. Trieste, Italy: Global Network of Environmental Economists.

EVANS, P. 1996. Using cross-country variances to evaluate growth theories. *Journal of Economic Dynamics and Control 20*: 1027–49.

EWUGI, M. S. & YAKUBU, I. 2012. Malthusian Population theory and the Nigerian Economy: A Political Economy Approach, *International Journal of Human Resource Studies*, 2(4): 197-206.

FAGERBERG, J; SRHOLEC, M. & KNELL, M. 2005. The Competitiveness of Nations, 10th Year Anniversary DRUID Summer Conference Aalborg, Denmark, June 27-29th, 2005.

FAKEY, P.C. & CROMPTON, J.L. 1991. Image differences between prospective first-time and repeat visitors to the lower Rio Grande Valley, *Journal of Travel Research,* 30(2): 10-16.

FATAI, K., OXLEY, L. & SCRIMGEOUR, F.G. 2004. Modelling the Causal Relationship between Energy Consumption and GDP in New Zealand, Australia, India, Indonesia, the Philippines and Thailand, Mathematics and Computers in Simulation, 64 (3-4): 431-445.

FAYISSA, B., NSIAH, C., & TADESSE, B. 2011. Research note: tourism and economic growth in Latin American countries- further empirical evidence, *Tourism Economics*, 17: 1365-1373.

FEDER, G. 1983. On exports and economic growth, *Journal of Development Economics*, 12: 59-73.

FEENSTRA, R. C., ROBERT, I. & MARCEL, P. T. 2015. The Next Generation of the Penn World Table, *American Economic Review,* 105(10), 3150-3182.

FENG, R., & MORRISON, A. M. 2007. Quality and value network. Marketing travel clubs. *Annals of Tourism Research,* 34(3): 588 –609.

FERRARIO, F. 1979a. The evaluation of Tourist resources: An Applied Methodology (Part 1), *Journal of Travel Research*, 17 (3): 18-22.

FERRARIO, F. 1979b. The evaluation of tourist resources: An applied research (Part 2), *Journal of Travel Research*, 17 (4): 24-30.

FIGINI, P. & VICI, L. 2010. Tourism and growth in a cross section of countries, *Tourism Economics,* 16(4): 789-805.

FLANAGAN, C. 2005. An Investigation into the Performance Measurement Practices of Irish Hotel Groups. Unpublished M. Sc Thesis, Dublin Institute of Technology, Dublin.

FLORESCU, C., MÂLCOMETE, P. & POP N. AL. (coordinators), 2003. Dictionar de Marketing, Economica Publishing House, Bucharest.

FOURIE, J & SANTANA-GALLEGO, M. 2011. The Determinants of African Tourism, Stellenbosch University and University of the Balearic Islands, Working Paper 260.

FRANCILLON, G. 1990. The Dilemma of Tourism in Bali. In Sustainable Development and Environmental Management of Small Islands, ed. W. Beller, P. D'Ayala and P.Hein. Paris: UNESCO and Parthenon Publishing Group, 267-272.

FRANKEL, M. 1962. The production function in allocation and growth: a synthesis. *American Economic Review 52*: 995–1022.

GALLEGOS, J. L. D. L., RIVERA, C. C. & MORA, J. A. N. 2010. Drivers of Economic Growth: The Case for Tourism in Mexico, *R. Bras. Eco. de Emp.* 10(2): 38-53.

GALLUP, J., SACHS, J. & MELLINGER A. 1999. Geography and Economic Development, *International Regional Science Review*, 22 (2): 179-232.

GALLUP, J. L., & SACHS, J. D. 2000. The Economic Burden of Malaria, CID Working Paper No 52, Harvard University, Cambridge, MA.

GANI, A. 2009. Technological Achievement, High Technology Exports and Growth, *Journal of Comparative International Management*, 12 (2), 31-47

GARIN-MUNOZ, T. & AMARAL, T.P. 2000. An Econometric Model for International Tourism Flows to Spain, *Applied Economics Letters*, 7: 525-529.

GATES, L. P. 2010. Strategic Planning with Critical Success Factors and Future Scenarios: An Integrated Strategic Planning Framework, Technical Report CMU/SEI-2010-TR-037 ESC-TR-2010-102.

GAUCI, A., GEROSA, V., & MWALWANDA, C. 2002. Tourism in Africa and the Multilateral Trading System: Challenges and Opportunities, Background Paper for the Economic Commission for Africa, Addis Ababa

GEORGANTOPOULOS, A. G. 2012. Forecasting Tourism Expenditure and Growth: A VAR/VECM Analysis for Greece at both Aggregated and Disaggregated Levels, *International Research Journal of Finance and Economics,* 96.

GEORGANTOPOULOS, A. G. 2013. Tourism Expansion and Economic Development: VAR/ VECM, Analysis and Forecasts for the Case of India, *Asian Economic and Financial Review,* 3(4): 464-482.

GERSCHENKRON, A. 1952. Economic backwardness in historical perspective. In The Progress of Underdeveloped Areas, ed. B.F. Hoselitz. Chicago: University of Chicago Press.

GHALI, M. A. 1976. Tourism and Economic Growth: An Empirical Study, *Economic Development and Cultural Change,* 24(3): 527-538.

GHARTEY, E. E. 2013. Effects of tourism, economic growth, real exchange rate, structural changes and hurricanes in Jamaica, *Tourism Economics*, 19(4): 919-942.

GHATAK, S. (2006). Introduction to Development Economics, 4th Edition, British Library Cataloguing in Publication Data, London, 458 p.

GHIRMAY, T., GRABOWSKI, R. & SHARMA, S. C. 2001. Exports, investment, efficiency and economic growth in LDC: An empirical investigation. *Applied Economics,* 33(6): 689-700.

GHOSH, S. 2011. Examining Tourism Led Growth Hypothesis for India. *Int. J. Indian Culture and Business Management*, 4 (3): 347-355.

GOFF, M. L. & Singh, R. J. 2013. Can Trade Reduce Poverty in Africa? The World Bank, Poverty Reduction and Economic Management Network, Number 114, www.worldbank.org/economicpremise Date of access: 14 Nov. 2015.

GÓMEZ MARTÍN, MA. 2005. Weather, Climate and Tourism. A Geographical Perspective. *Annals of Tourism Research,* 32(3): 571-591.

GRANATO, J., INGLEHART, R. & LEBLANG, D. 1996. The effect of cultural values on economic development: theory, hypotheses, and some empirical tests. *American Journal of Political Science 40,* 3: 607-631.

GRANGER, C. W. J. 1988. Causality, cointegration and control. *Journal of Economic Dynamics and Control,* 12: 551– 559.

GRANT, S. J. 2000. Stanlake's Introductory Economics, 7th Edition, Longman, Essex, 646 p.

GREENE, W. H. 2002. Econometric analysis, 5th Edition, Prentice Hall, New Jersey, 1024p.

GRIER, K. & TULLOCK, G. 1989. An empirical analysis of cross-national economic growth, 1951-1980, *Journal of Monetary Economics*, 24, 1: 259-276.

GRONINGEN GROWTH AND DEVELOPMENT, 2016. Penn World Tables, The Database, Penn World Table Version 9.0. http://www.rug.nl/ggdc/productivity/pwt/ Date of access: 23 Feb. 2017.

GRONROOS, C. 1995. Relationship marketing: the strategic continuum, *Journal of the Academy of Marketing Science*, 23: 252-254.

GROSSMAN, G. & ELHANAN, H. 1994. Endogenous Innovation in the Theory of Growth, in: Journal of Economic Perspectives, 8 (1): 23-44.

GROSSMAN, G. M., & HELPMAN, E. 1991. Innovation and growth in the global economy Cambridge: MIT Press, 359 p.

GROSSO, M., LESHER, M., & PINALI, E. 2007. Services trade liberalisation and tourism development, OECD Trade Policy Working Paper No 57.

GRULLÓN, S. 2013. Is the Tourism-Led Growth Hypothesis Valid for the Dominican Republic: Results from the Bounds Test for Cointegration and Granger Causality Tests, *European Journal of Business and Management*, 5(25): 1-9.

GUJARATI, D. N. 1988. Basic Econometrics, Second Edition, McGraw Hill Inc, Singapore, 705p.

GUNDUZ, L. & HATEMI-J, A. 2005. Is the tourism-led growth hypothesis valid for Turkey? *Applied Economics Letters*, 12: 499–504.

GYIMAH-BREMPONG, K.; PADDISON, O. & MITIKU, W. 2006. Higher Education and Economic Growth in Africa, *Journal of Development Studies*, 42(3): 509–529.

GYLFASON, T. 2001. Natural resources, education, and economic development. *European Economic Review*, 45: 847-859.

HACHICHA, N. 2003. Exports, Export Composition and Growth: A Simultaneous Error-Correction Model for Tunisia, *International Economic Journal*, 17 (1): 101-120.

HAINES, J. D. & SHARIF, N. M. 2006. Competitiveness Review: A framework for managing the sophistication of the components of technology for global competition, *Research Gate*, 16 (2): 106-121.

HAKTANIR, M. & HARRIS, P. 2005. Performance Measurement Practice in an Independent Hotel Context: A Case Study Approach, *International Journal of Contemporary Hospitality Management*, 17(1): 39-50.

HALL, R. & JONES C. 1998. Why do Some Countries Produce so Much More Output than Others? *The Quarterly Journal of Economics*, 114 (1): 83-116.

HAMILTON, A. 1781. Quoted from Hammond, 1991. Banks and Politics in America: From the Revolution to the Civil War (Princeton University Press, Princeton, NJ), 773 p.

HAMILTON, J. M. & LAU, M. 2005. The Role of Climate Information in Tourist Destination Choice Decision-Making, 229-250. In: Gössling, S. and C.M. Hall (eds.). Tourism and Global Environmental Change. London: Routledge.

HARROD, R. F. 1939. An Essay in Dynamic Theory, *Economic Journal*, 49 (193): 14-33.

HASSEN, S.S. 2000. Determinants of market competitiveness in an environmentally sustainable tourism industry, *Journal of Travel Research*, 38(3): 239-245.

HATEMI-J, A. 2015. On the tourism-led growth hypothesis in the UAE: a bootstrap approach with leveraged adjustments, Applied Economics Letters 2015, 1-4.

HAVI, E. D. K. &ENU, P. 2013. The Impact of Tourism on Economic Performance in Ghana, *European Scientific Journal*, 9(34), 242-257.

HE, L. H. & ZHENG, X. G. 2011. Empirical analysis on the relationship between tourism development and economic growth in Sichuan, *Journal of Agricultural Science*, 3(1): 212 –217.

HELPMAN, E. & KRUGMAN, P. 1985. Market Structure and Foreign Trade, MIT Press, Cambridge, 271 p.

HERMES, N. & LENSINK, R. 2000. “Foreign direct investment, financial development and economic growth”, *Journal of Development Studies*, 40 (1): 142-163.

HERZER, D., LEHMANN, F. N. & SILIVERSTOVS, B. 2004. Export-Led Growth in Chile: Assessing the Role of Export Composition in Productivity Growth, Ibero-America Institute for Economic Research Discussion Papers.

HICKS, J. R. 1985. Methods of Dynamic Economics, New York: Oxford University Press, 173 p.

HOFF, K. & STIGLITZ, J. 2000.Modern economic theory and development, en G.M. Meier, J.E. Stiglitz (eds.), Frontiers of development economics. The future in perspective, World Bank and Oxford University Press, Oxford.

HOLZNER, M. 2011. Tourism and economic development: The beach disease? *Tourism Management,* 32: 922-933.

HOWITT, P. 1999. Steady endogenous growth with population and R&D inputs growing. *Journal of Political Economy*: 715–30.

HOWITT, P. 2000. Endogenous growth and cross-country income differences. *American Economic Review*: 829–46.

HOYLE, D. 2012. ISO 9000: 2000: An A-Z Guide, Routledge, Business Economics – 155 p.

HSIAO, C. 2006. Panel Data Analysis- Advantages and Challenges, *Sociedad de Estad´ıstica e Investigaci´on Operativa*, Test, 00(0): 1–63.

HUA, W., CHAN, A. & MAO, Z. 2009. Critical Success Factors and Customer Expectation in Budget Hotel Segment: A Case Study of China, *Journal of Quality Assurance in Hospitality and Tourism*, 10 (1): 59 – 74.

HUSEIN, J. & KARA, M.S. 2011. Research note: Re-examining the tourism-led growth hypothesis for Turkey, *Tourism Economics*, 17 (4): 917–924.

HYE, Q. M. A. & KHAN, R. E. A. 2013. Tourism-Led Growth Hypothesis: A Case Study of Pakistan, *Asia Pacific Journal of Tourism Research*, 18(4): 303-313.

IBRAHIM, M. A. M. A. 2011. The Determinants of International Tourism Demand for Egypt: Panel Data Evidence, *European Journal of Economics, Finance and Administrative Sciences*, 30: 50-58.

INCHAUSTI-SINTES, F. 2015. Tourism: Economic Growth, employment and Dutch Disease, *Annals of Tourism Research* 54: 172-189.

INDEX MUNDI. 2017. Depth of credit information index (0 = low to 8 = high), http://www.indexmundi.com/facts/indicators/IC.CRD.INFO.XQ Date of access: 16 Feb. 2017.

INGLEHART, R & BAKER, W. 2000. Modernization, cultural change and the persistence of traditional values, *American Sociological Review*, 65: 19-51.

INNES, J. L. 2004. Forests in Environmental Protection, in Forests and Forest Plants, [Eds. John N. Owens, and H. Gyde Lund], in Encyclopedia of Life Support Systems (EOLSS), Developed under the Auspices of the UNESCO, Eolss Publishers, Oxford, UK, http://www.eolss.net/ebooks/Sample%20Chapters/C10/E5-03-01-07.pdf Date of access: 7 Jun. 2016.

INTERNATIONAL LABOUR ORGANISATION. 2011. Toolkit on Poverty Reduction through Tourism in Rural Areas, Cataloguing in Publication Data, Geneva, http://www.ilo.org/wcmsp5/groups/public/ed_emp/documents/instructionalmaterial/wcms_176290.pdf Date of access: 6 Jun.2016.

INTERNATIONAL MONETARY FUND, 2013. Top 15 poorest countries in Africa, http://www.financenews24.com/2013/06/26/the-top-15-poorest-countries-in-africa-in-2013/ Date of access: 27 Nov. 2015.

INTERNATIONAL MONETARY FUND, 2015. IMF Engagement with Countries in Post-Conflict and Fragile Situations – Stocktaking, Washington D.C., 44 p.

INTERNATIONAL MONETARY FUND (IMF). 2014. Fiscal Policy and Income Inequality. IMF Policy Paper, Washington DC.

INTERNATIONAL MONETARY FUND (IMF). 2016. Real GDP Growth- Annual Percentage Change, http://www.imf.org/external/datamapper/V4/NGDP_RPCH@WEO/OEMDC/ADVEC/WEOWORLD Date of access: 17 Feb. 2017.

JACKMAN, M. & LORDE, T. 2010. On the relationship between tourist flows and household expenditure in Barbados: A dynamic OLS approach, *Economics Bulletin*, 30: 1–9.

JACKMAN, M. & LORDE, T. 2012. Examination of Economic Growth and Tourism in Barbados: Testing the Supply-side Hypothesis, *Tourismos: An International Multidisciplinary Journal Of Tourism,* 7(2): 203-215.

JACKSON, I. 2002. Potential impact of climate change on tourism. Issues Paper, prepared for the OAS – Mainstreaming Adaptation to Climate Change (MACC) Project.

JAFORULLAH, M. 2015. International tourism and economic growth in New Zealand, University of Otago Economics Discussion Papers, No. 1502.

JALIL, A., MAHMOOD, T. & IDREES, M. 2013. Tourism–growth nexus in Pakistan: Evidence from ARDL bounds tests, *Economic Modelling 35*: 185–191.

JAMIESON W. 2001. Promotion of Investment in Tourism Infrastructure, UN Economic and Social Commission for Asia and the Pacific, ST/ESCAP/2133, New York, http://www.walterjamieson.com/resources/Promotion%20of%20Investment%20in%20Tourism%20Infrastructure.pdf Date of access: 7 Jun. 2016.

JAYATHILAKE, P. M. B. 2013. Tourism and Economic Growth in Sri Lanka: Evidence from Cointegration and Causality Analysis, *International Journal of Business, Economics and Law*, 2 (2): 22-27.

JENKINS, J. 2006. The role of the state in tourism, in J. Beech & S. Chadwick (Eds), *The Business of Tourism Management* (41-58), Essex, UK: Prentice Hall.

JERVEN, M. 2011. The quest for the African dummy: explaining African post-colonial economic performance revisited, *Journal of International Development, 23 (2)*, 288-307.

JOHANSEN, S. 1988. Statistical Analysis of Cointegration Vectors, *Journal of Economic Dynamics and Control*, 12: 231-254.

JOHANSEN, S., & JUSELIUS, K. 1990. Maximum Likelihood Estimation and Inference on Cointegration - With Applications to the Demand for Money, *Oxford Bulletin of Economics and Statistics*, 52 (2): 169-210.

JOHNSON, M. D. GUSTAFSSON, A. 2003. Competing in a Service Economy: How to Create a Competitive Advantage through Service Development and Innovation, John Wiley & Sons, Inc., 208 p.

JONES, C. I. 1995. R & D-based models of economic growth, *Journal of Political Economy* 103: 759–84.

JONKER, J. A., HEATH, E. T. & DU TOIT, C. M. 2004. The identification of management-process critical success factors that will achieve competitiveness and sustainable growth for South Africa as a Tourism Destination, *Southern African Business Review,* 8 (2): 1-15.

JUNG, W. &. MARSHALL, P. J. 1985. Exports, Growth and Causality in Developing Countries, *Journal of Development Economics,* 18: 1-12.

JURAN, J. M. & BLANTON, G. A. 2004. Juran's Quality Handbook, 5th Edition, Library of Coingress in Publication Data, New York, http://www.pqm-online.com/assets/files/lib/books/juran.pdf Date of access: 7 Jun. 2016.

KALDOR, N. 1970. Model of Distribution, in: Amartya S. (1970), Growth Economics, Suffolk: Richard Clay (Chaucer Press), 81-91. Excerpt from Kaldor Nicholas (1960): Essays on Value and Distribution, London: Duckworth, 227-236. First published as Alternative Theories of Distribution, in: Review of Economic Studies, 23, 1955/6, 94-100.

KAPLAN, M. & CELIK, T. 2008. The Impact of Tourism on Economic Performance: A Case of Turkey, *The International Journal of Applied Economics and Finance,* 2 (1): 13-18.

KAPLAN, R.S. & NORTON, D.P. 1996. Translating Strategy into Action: the Balanced Scorecard. Boston: Harvard Business School Press, 322 p.

KARADŽOVA, V. & DIČEVSKA, S. 2011. Interactions between Financial System Development and Tourism Development: Conditions in Republic of Macedonia, *Sustainable Tourism: Socio-Cultural, Environmental and Economics Impact*: 169-186.

KAREEM, O. 1. & AJIDE, K. B. 2010. What are the Factors Determining Tourist Destinations in Africa, *Pakistan Journal of Social Sciences,* 7 (4): 301-303.

KAREEM, O. 1. 2008. A Panel Data Analysis of Demand for Tourism in Africa, Proceedings of the 14th Annual Conference on African Econometric Society, July 2008, Cape Town, South Africa, 1-27.

KAREEM, O. I. 2013. A Reassessment of Tourism-Exports Led Growth Hypothesis in Africa, *American Journal of Tourism Research*, 2 (1): 130-140.

KARTICIOGLU, S. T. 2007. Tourism, trade and growth: The case of Cyprus, *Applied Economics*, 41: 2741-2750.

KASIMATI, E. E. & VAGIONIS, N. 2012. The Relationship between Tourist Receipts, Real Exchange Rate and Economic Growth in Greece, 2nd Advances in Hospitality and Tourism Marketing & Management Conference, Corfu Island, Greece.

KASSIMATI, E. 2011. Economic impact of tourism on Greece's economy: cointegration and causality analysis. *International Research Journal of Finance and Economics,* 79: 79-85.

KATIRCIOGLU, S. 2009a. 'Revisiting the tourism-led-growth hypothesis for Turkey using the bounds test and Johansen approach for cointegration', *Tourism Management,* 30 (1): 17–20.

KATIRCIOGLU, S. 2009b. 'Trade, tourism and growth: the case of Cyprus', *Applied Economics,* 41 (21): 2741–2750.

KATIRCIOGLU, S. 2010. Research Note: Testing the tourism-led growth hypothesis for Singapore-an empirical investigation from bounds test to cointegration and Granger causality tests, *Tourism Economics,* 16 (4): 1095-1101.

KATIRCIOGLU, S. T. 2009. Tourism, trade and growth: the case of Cyprus, *Applied Economics*, 41: 2741–2750.

KATIRCIOGLU, S. T. 2009. Testing the Tourism-Led Growth Hypothesis: The Case of Malta, *ActaOeconomica*, 59(3): 331-343.

KATIRCIOGLU, S. T. 2010. Research note: Testing the tourism-led growth hypothesis for Singapore – an empirical investigation from bounds test to cointegration and Granger causality tests, *Tourism Economics,* 16 (4): 1095-1101.

KEESING, D.B. 1967. Outward-looking policies and economic development, *Economic Journal* 77: 303–320.

KEINTZ, R.M. 1971. A study of the demand for international travel to and from the United States, American Economist, 15(1): 137–138.

KELLEN, V. 2003. Business Performance Measurement: At the Crossroads of Strategy, Decision-Making, Learning and Information Visualisation, Faculty, E-Commerce DePaul University, Chicago, IL, US.

KELLEY, A. & SCHMIDT, R. 1995. Aggregate Population and Economic Growth Correlations: The Role of the Components of Demographic Change. *Demography*, 32: 543-55.

KENELL, L. 2008. Dutch Disease and Tourism: The Case of Thailand, Bachelor Thesis, Department of Economics, Lund University.

KEYNES, J. M. 2007. The General Theory of Employment, Interest and Money, New Edition, New York: Palgrave Macmillan, 463 p.

KHADAROO, J. & SEETANAH, B. 2007. Transport Infrastructure and Tourism Development, *Annals of Tourism Research*, 34(4): 1021–1032.

KHALIL, S., KAKAR, M. K. & WALIULLAH, 2007. Role of Tourism in Economic Growth: Empirical Evidence from Pakistan Economy, *The Pakistan Development Review* 46: 4 Part II, 985–995.

KIBARA, O. N., ODHIAMBO, N. M. & NJUGUNA, J. M. 2012. Tourism and Economic Growth in Kenya: An Empirical Investigation, International Business & Economics Research Journal, 11(5): 517-528.

KIM, C. & DWYER, L. 2003. Destination Competitiveness and Bilateral Tourism Flows between Australia and Korea, *The Journal Of Tourism Studies*, 14(2): 55-67.

KIM, H. 1998. Perceived attractiveness of Korean destinations, *Annals of Tourism Research*, 25(2): 340-367.

KIM, H. J., CHEN, M. & JANG, S. S. 2006. Tourism expansion and economic development: The case of Taiwan, *Tourism Management 27*: 925–933.

KIM, S., LIM, H. & PARK, D. 2009. Imports, Exports and Total Factor Productivity in Korea. *Applied Economics* 41: 1819–1834.

KING, R.G. & LEVINE, R. 1993a. Finance and growth: Schumpeter might be right, *Quarterly Journal of Economics*, 108: 717–738.

KIRKPATRICK, C., & ARMANDO, B. (2004). The Lewis Model after 50 Years. The Manchester School, 72(6): 679-690.

KIREGYERA, B. 2015. The emerging data revolution in Africa: strengthening the statistics, policy and decision making chain, 1st Edition, Sun Press, Stellenbosch, South Africa.

KNACK, S. & KEEFER, P. 1995. "Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures." *Economics and Politics* 7(3): 207-227.

KNACK, S. & KEEFER, P. 1997. Does social capital have an economic impact? A cross-country investigation, *Quarterly Journal of Economics*, 112 (4): 1252-88.

KNEDLIK, T. & REINOWSKI, E. 2008. The African Growth and the Realisation of the MDGs, Proceedings of the German Development Economics Conference, Zürich, No. 23, http://hdl.handle.net/10419/39875.

KOETSE, M.J. & RIETVELD, R. 2009. The impact of climate change and weather on transport: An overview of research findings. Transportation Research Part D, *Elsevier*, *Transportation Research Part D*: 205-221.

KORMENDI, R. & MEGUIRE, P. 1985. Macroeconomic determinants of growth: cross-country evidence, *Journal of Monetary Economics*, 16 (4): 141-63.

KOVÁCS, F. 2005. Problems in the Relationship between CO2 Emissions and Global Warming, *Acta Montanistica Slovaca Ročník 10,* číslo, 1: 9-18.

KOZAK, M. & RIMMINGTON, R. 1999. Measuring tourist destination competitiveness: conceptual considerations and empirical findings, *Hospitality Management*, 18: 273-83.

KOZAK, N., UYSAL, M. & BIRKAN, I. 2008. An analysis of cities based on tourism supply and climatic conditions in Turkey. *Tourism Geographies*, 10(1): 81-97.

KREISHAN, F. M. 2011. Time-series Evidence for Tourism-led Growth Hypothesis: A Case Study of Jordan, *International Management Review*, 7 (1): 89-93.

KREISHAN, F. M. 2015. Empirical Study on Tourism and Economic Growth of Bahrain: An ARDL Bounds Testing Approach, *International Journal of Economics and Finance,* 7(11): 1-9.

KRISTO, J. 2014. Evaluating the Tourism-Led Economic Growth Hypothesis in a Developing Country: The Case of Albania, Mediterranean Journal of Social Sciences MCSER Publishing, Rome-Italy, 5 (8): 39-51.

KRUEGER, A. & LINDHAL, M. 2001, Education for Growth: Why and For Whom? *Journal of Economic Literature* 39(4): 1101-1136.

KRUEGER, A. O. 1980. Trade policy as an input to development. *American Economic Review,* 70: 188– 292.

KRUGMAN, P. 1979. Increasing Returns, Monopolistic Competition, and International Trade, *Journal of International Economics*, 9: 469–479.

KRUGMAN, P. 1995. Growing World Trade: Causes and Consequences, Brookings Papers on Economic Activity, 1: 327-362.

KUMAR, R. R. 2014. Exploring the nexus between tourism, remittances and growth in Kenya, *Qual Quant,* 48: 1573–1588.

KUMAR, R. R., & KUMAR, R. 2012. Exploring the nexus between information and communications technology, tourism and growth in Fiji. *Tourism Economics,* 18(2): 359– 371.

KUMAR. R. R., LOGANATHAN, N., PATEL, A. & KUMAR, R. D. 2015. Nexus between tourism earnings and economic growth: a study of Malaysia, *Qual Quant* 49:1101–1120.

KUZNETS, S. 1955. Economic Growth and Income Inequality, *American Economic Review*, XLV (1): 1-28.

KWOK, Y. & YU, E. S. H. 2005. Leontief paradox and the role of factor intensity measurement: 1-19.

LANZA, A. & PIGLIARU, F. 2000. Tourism and economic growth: Does country's size matter? *Rivista Internazionale di Scienze Economiche e Commerciali*, 47: 77–85.

LANZA, A., TEMPLE, P., & URGA, G. 2003. The implications of tourism specialisation in the long run: an econometric analysis for 13 OECD economies. *Tourism Management*, 24(3): 315-321.

LANZA, A., TEMPLE, P. & URGA, G. 2003. The implications of tourism specialisation in the long run: an econometric analysis for 13 OECD economies. *Tourism Management*, 24: 315-321.

LAU, E., OH, S. & HU, S. 2008. Tourist Arrivals and Economic Growth in Sarawak, MPRA Paper No. 9888.

LEAMER, E. E. 1995. The Heckscher-Ohlin Model in Theory and Practice, Princeton Studies in International Finance, No 77, February 1995, International Finance Section, Department of Economics, Princeton University.

LEAN, H. H. & TANG, C. F. 2010. Is the Tourism-led Growth Hypothesis Stable for Malaysia? A Note, *International Journal of Tourism Research*, 12: 375–378.

LEAN, H. H., CHONG, S. H. & HOOY, C. 2014. Tourism and Economic Growth: Comparing Malaysia and Singapore, *Int. Journal of Economics and Management* 8(1): 139 – 157.

LEE, C. & CHANG, C. 2008. Tourism development and economic growth: A closer look at panels, *Tourism Management*, *29*: 180–192.

LEE, C. & CHIEN, M. 2008. Structural breaks, tourism development, and economic growth: Evidence from Taiwan, *Mathematics and Computers in Simulation*, 77: 358–368.

LEE, C. & CHIEN, M. 2008. Structural breaks, tourism development, and economic growth: Evidence from Taiwan, *Mathematics and Computers in Simulation 77*: 358–368.

LEE, C. C., & CHANG, C. P. 2008. Tourism development and economic growth: a closer look at panels. *Tourism Management*, 29: 180-192.

LEE, C. G. 2012. Tourism, trade, and income: evidence from Singapore, *Anatolia – An International Journal of Tourism and Hospitality Research*, 23(3): 348-358.

LEE, J. W. & KWAG, M. 2013. Green growth and sustainability: The role of tourism, travel and hospitality service industry in Korea, *Journal of Distribution Science*, 11(7): 15–22.

LEJA´RRAGA, I. & WALKENHORST, P. 2010. On linkages and leakages: measuring the secondary effects of tourism, *Applied Economics Letters*, 17: 417–421, Routledge, Taylor & Francis Group.

LEJARRAJA, I. & WALKENHORST, P. 2007. Diversification by Deepening Linkages with Tourism, World Bank, Washington DC, http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.469.7979&rep=rep1&type=pdf Date of access: 15 May 2016.

LEMMETYINEN, A., & GO, F. M. 2009. The key capabilities required for managing tourism business networks. *Tourism Management*, 30: 31 –40.

LENSINK, R. 2001. Financial development, uncertainty and economic growth, *De Economist*, 149 (3): 299-312.

LENSINK, R., BO, H. & STERKEN, E. 1999. Does Uncertainty Affect Economic Growth? An Empirical Analysis, *Weltwirtschaftliches Archiv*, 135: 379-396.

LENSINK, W. & MORRISSEY, O. 2006. "Foreign Direct Investment: Flows, Volatility and the Impact on Growth, *Review of International Economics*, 14 (3): 478-493.

LEVINE, R. & RENELT, D.1992. A Sensitivity Analysis of Cross-Country Growth Regressions, *American Economic Review* 82(4): 942-963.

LEVINE, R; LOAYZA, N. & BECK, T. 2000. Financial intermediation and growth: Causality and causes, *Journal of Monetary Economics*, 46: 31-77.

LI, C. C., MAHMOOD, R., ABDULLAH, H, & CHUAN, O. S. 2013. Economic Growth, Tourism and Selected Macroeconomic Variables: A Triangular Causal Relationship in Malaysia, *Margin— The Journal of Applied Economic Research*, 7 (2): 185–206.

LICHTENBERG, F. 1992, R&D Investment and International Productivity Differences, NBER Working Paper, No. 4161.

LIM, C., MIN, J.C.H. & MCALEER, M. 2008. Modelling income effects on long and short haul international travel from Japan, *Tourism Management* 29(6): 1099-1109.

LIN, B. H., & LIU, H. H. 2000. A study of economies of scale and economies of scope in Taiwan international tourist hotels. *Asia Pacific Journal of Tourism Research*, 5: 21-28.

LISE, W. & TOL, R. 2002. Impact of climate on tourist demand, *Climatic Change*, 55: 429-449.

LORDE, T., FRANCIS, B. & LISA DRAKES, L. 2011. Tourism Services Exports and Economic Growth in Barbados, *The International Trade Journal*, 25(2): 205-232.

LOVE, J. L. 1980. Raúl Prebisch and the Origins of the Doctrine of Unequal Exchange, *Latin American Research Review*, 15: 45–72.

LUCAS, JR. R. E. 2003. The Industrial Revolution: Past and Future. In Federal Reserve Bank of Minneapolis, Annual Report. Minneapolis, MN, https://www.minneapolisfed.org/publications/the-region/the-industrial-revolution-past-and-future Date of access: 6 Jun.2016.

LUCAS, R. E. 1988. On the Mechanics of Economic Development, *Journal of Monetary Economics*, 22 (1): 3-42.

LUNDGREN, C. J., THOMAS, A. H. &. YORK, R. C. 2013. Boom, Bust, or Prosperity? Managing Sub-Saharan Africa's Natural Resource Wealth, International Monetary Fund, Washington DC, http://www.imf.org/external/pubs/ft/dp/2013/dp1302.pdf Date of access: 22 Feb. 2016.

LUTTERBECK, D. 2013. Arab Uprisings, Armed Forces, and Civil-Military Relations, *Armed Forces & Society*, 39(1): 28–52.

MADDALA, G. S. 1992. Introduction to Econometrics, 2nd Edition, Macmillan Publishing Company, New York, 631 p.

MADDISON, A. 1996. Monitoring the World Economy: 1820-1992. Paris: OECD, 255 p.

MADDISON, A. 2001. Development Centre Studies: The World Economy: Historical Statistics, Paris 2003: Organization for Economic Cooperation and Development, 288 p.

MADDISON, D. 2001. In search of warmer climates? The impact of climate change on flows of British tourists, *Climatic Change*, 49: 193-2208.

MAKOCHEKANWA, A. 2013. An analysis of tourism contribution to economic growth in SADC Countries, *BOJE: Botswana Journal of Economics*: 42-56.

MALIK, S., CHAUDHRY, I. S., SHEIKH, M. R., & FAROOQI, F. S. 2010. Tourism, economic growth and current account deficit in Pakistan: Evidence from co-integration and causal analysis, *European Journal of Economics, Finance and Administrative Sciences*, 22: 1450–2275.

MANESCHIOLD, P. 2008. A Note on the Export-Led Growth Hypothesis: A Time Series Approach, *Cuadernos de Economía*, 45: 293-302.

MANKIW, N. G. 2004. Principles of economics, Thomson – South-Western, USA, 848 p.

MANKIW, N.G., ROMER, D. & WEIL, D.N. 1992. A contribution to the empirics of economic growth. *Quarterly Journal of Economics*: 407–37.

MANSFELD, Y. & PIZAM, A. 2006. Tourism, Security and Safety: From Theory to Practice, Routledge, Business Economics, British Library Cataloguing-in-Publication-Data, Oxford, 361 p.

MAPS OF WORLD. 2015. Landlocked countries in Africa, http://www.mapsofworld.com/africa/thematic/landlocked-countries.html Date of access: 17 Aug. 2015.

MARIN, D. 1992. Is the Export-Led Growth Hypothesis Valid for Industrialised Countries? *Review of Economics and Statistics*, 74(4): 678-688.

MARX, K. 1853. The Future Results of the British Rule in India, New York Daily Tribune, No.3840.

MASSIDDA, C. & MATTANA, P. 2012. A SVECM Analysis of the Relationship between International Tourism Arrivals, GDP and Trade in Italy, *Journal of Travel Research* XX(X): 1 –13.

MASTERS, W. & MCMILLAN, M. 2001. Climate and Scale in Economic Growth, *Journal of Economic Growth,* 6: 167-186.

MASTNY, L. 2001. Traveling Light: New Paths for International Tourism, Worldwatch Paper No. 159, Worldwatch Institute, Washington, http://www.worldwatch.org/system/files/WP159.pdf Date of access: 7 Jun. 2016.

MATAHIR, H. &TANG, C. F. 2015. An Empirical Evidence of Education Tourism and Economic Growth in Malaysia, *Prosiding Perkem* 10: 85 – 92.

MATHIESON, A. & WALL, G. 1982. Tourism – economic, physical and social impact, Harlow, Longman, 208 p.

MAURO, P. 1995. Corruption and growth, *Quarterly Journal of Economics* 110(3), 681–712.

MAYO, E & JARVIS, L. 1980. The psychology of leisure travel. Boston, CBI Publishing, 281 p.

MCCALLUM, B. T. 1996. Neo-Classical vs. Endogenous Growth Analysis: An Overview, *Federal Reserve Bank of Richmond Economic Quarterly*, 82/4 Fall, 41-71.

MCKEAN, P. 1973. Culture involution: Tourists, Balinese and the process of modernisation in anthropological perspective, unpublished PhD thesis, Brown University.

MCKINNON, D. R. I. 1964. Foreign exchange constraint in economic development and efficient aid allocation. *Economic Journal*, 74: 388 –409.

MCKINNON, R. 1964. Foreign exchange constraint in economic development and efficient aid allocation. *Economic Journal*, 74: 388–409.

MCTAGGART, W.D. 1980. Tourism and tradition in Bali: *World development 8:* 457-466, Paris.

MÉRIDA, A. & GOLPE, A. A. 2014. Tourism-led Growth Revisited for Spain: Causality, Business Cycles and Structural Breaks, Wiley Blackwell (John Wiley & Sons) in *International Journal of Tourism Research,* doi:10.1002/jtr.2031.

MIECZKOWSKI, Z. 1985. The tourism climate index: A method for evaluating world climates for tourism. *The Canadian Geographer*, 29: 220-233.

MILANOVIĆ, M. & STAMENKOVIĆ, M. 2012. Causality between Tourism and Economic Growth: A Case Study of Serbia, 2nd Advances in Hospitality and Tourism Marketing and Management Conference, Corfu Island, Greece.

MILIĆ, V. J; JOVANOVIĆ, S. & B. KRSTIĆ, B. 2011. Human Resources in Tourism as a Factor of its Employment and Competitiveness Growth – Comparative Analysis of Serbia and Surrounding Countries, *FACTA UNIVERSITATIS Series: Economics and Organization*, 8(4), 433 – 445.

MILL, R. C., & MORRISON, A. M. 2002. The tourism system, 4th edition. Iowa, Dubuque: Kendall/Hunt Publishing Company, 452 p.

MISHRA, P. K., ROUT, H. B. & MOHAPATRA, S. S. (2010). Causality between tourism and economic growth: Empirical evidence from India, *European Journal of Social Sciences*, 18(4): 518 – 527.

MISRA, V. & PURI, K. 2010. Economics of Development and Planning- Theory and Practice, 12th edition, Himalaya Publishing House, New Dehli, 924 p.

MORABITO, M., CECCHI, L., MODESTI, P.A., CRISCI, A., ORLANDINI, S., MARACCHI, G. & GENSINI, G.F. 2004. The impact of hot weather conditions on tourism in Florence, Italy: the summers 2002-2003 experience. 2nd International Workshop on Climate, Tourism and Recreation. Orthodox Academy of Crete, Kolimbari, Greece, 8–11 June 2004 (158-165).

MORARU, A. D. 2011. Development and Diversification of Services: An Approach at Tourism Services Level in Romania, *Annales Universitatis Apulensis Series Oeconomica*, 13(1): 127-133.

MORGAN, N., ANNETTE, P. & RACHEL, P. 2002b. New Zealand, 100% Pure. The creation of a powerful niche destination brand, *Journal of Brand Management*, 9 (4-5): 335-354.

MPANDE, S. & KANNAN, A. 2014. African Economic Outlook: Seychelles 2014, AfDB, OECD, UNDP.

MSWELI, P. 2015. Human capital development: what can South Africa learn from Botswana? *Environmental Economics*, 6(1): 144-151.

MUHANNA, E. 2006. Sustainable Tourism Development and Environmental Management for Developing Countries, *Problems and Perspectives in Management*, 4(2): 14-30.

MURPHY, L., BENCKENDORFF, P., MOSCARDO, G. & PEARCE, P. L. 2010. Tourist Shopping Villages: Forms and Functions, Routledge, Advances in Tourism, New York, 278 p.

MUSAI, M., MEHRARA, M., NEMATI, S. F. & TAK, M. N. 2011. Demand for Travel to Iran and Human Development Index, *European Journal of Social Sciences*, 25(1): 14-20.

MUSTAFA, A. M. M. & SANTHIRASEGARAM, S. 2014. Empirical Investigation of the Relationship between Tourism Receipts and Sustainable Economic Growth in Sri Lanka, *Journal of Emerging Trends in Economics and Management Sciences,* 5 (7): 131-137.

MYINT, H. 1954. An Interpretation of Economic Backwardness. Oxford Economic Papers, NS6 (3), 132–163.

NABILA, A., ASMA, A. & HAFEEZ UR, R. 2012. Human Capital and Economic Growth in Pakistan: A Cointegration and Causality Analysis, *International Journal of Economics and Finance*, 4(4): 135-147.

NAFZIGER, E. W. 2006. Economic Development, Fourth Edition, Cambridge: Cambridge University Press. 846 p.

NARAYAN, P. 2004. Economic impact of tourism on Fiji's economy: empirical evidence from the computable general equilibrium model, *Tourism Economics 10*: 419–433.

NARAYAN, P. K. (2004). Fiji's tourism demand: The ARDL approach to cointegration, *Tourism Economics*, 10(2): 193 –206.

NARAYAN, P. K. 2004. Economic impact of tourism on Fiji's economy: empirical evidence from the computable general equilibrium model. *Tourism Economics*, 10: 419-433.

NAUDE, W. A. & SAAYMAN. A. 2004. The Determinants of Tourism Arrivals in Africa: A Panel data regression analysis, International Conference, Centre for the Study of African Economies, St. Catherine's College, University of Oxford, United Kingdom, 21-22 March 2004.

NDULU, B. 2007. Challenges of African Growth, Opportunities, Constraints and Strategic Directions, The World Bank, Washington D.C. 204433, http://siteresources.worldbank.org/AFRICAEXT/Resources/AFR_Growth_Advance_Edition.pdf Date of access: 6 Jun. 2016.

NDULU, B. J., & O'CONNELL, S .A. 2006. "Policy Plus: African Growth Performance 1960–2000." Draft Chapter 1 of the synthesis volume of the African Economic Research Consortium's Explaining African Economic Growth project: 3-75.

NETO, F. 2003. A New Approach to Sustainable Tourism Development: Moving Beyond Environmental Protection, DESA Discussion Paper No. 29, ST/ESA/2003/DP/29, United Nations.

NEUMAYER, E. 2004. The Impact of Political Violence on Tourism: Dynamic Cross-National Estimation, *Journal of Conflict Resolution,* 48(2): 259-281, DOI: 10.1177/0022002703262358.

NOWAK, J. J., SAHLI, M., & CORTE´S-JIME´NEZ, I. 2007. Tourism, capital goods imports and economic growth: Theory and evidence for Spain. *Tourism Economics*, 13(4): 515–536.

NOWAK, J. J. & SAHLI, M. 2007. Coastal tourism and 'Dutch disease' in a small island economy, *Tourism Economics*, 13 (1): 49-65.

NOWJEE, A., POLOODOO, V., .LAMPORT, M., PADACHI, K. & RAMDHONY, D. 2012. The Relationship between Exchange Rate, Tourism and Economic Growth: Evidence from Mauritius, Conference Proceedings from the International Conference on International Trade and Investment (ICITI) 2012.

ODHIAMBO, N. M. 2011. Tourism Development and Economic Growth in Tanzania: Empirical Evidence from the ARDL-Bounds Testing Approach, *Economic Computation and Economic Cybernetics Studies and Research,* 45(3): 71-83.

ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD). 2014. Focus on Inequality and Growth, https://www.oecd.org/social/Focus-Inequality-and-Growth-2014.pdf Date of access: 2 February 2017.

OH, C. O. 2005. The contribution of tourism development to economic growth in the Korean economy. *Tourism Management*, 26: 39-44.

OLORUNFEMI, F. & RAHEEM, U. A. 2008. Sustainable Tourism Development in Africa: The Imperative for Tourists/Host Communities Security, *Journal of Sustainable Development in Africa*, 10(3): 201-220.

ONGAN, S., & DEMIROZ, D. M. 2005. 'The contribution of tourism to the long-run Turkish economic growth', *Journal of Economics,* 53 (9): 880–894.

OSAKWE, P. N. 2010. Africa and the global financial and economic crisis: Impacts, responses and opportunities. In: Dullien S, Kotte D, Marquez A and Priewe J, eds. The Financial and Economic Crisis of 2008–2009 and Developing Countries. *United Nations and HTW Berlin University of Applied Sciences*: 203–222.

OTTO, J.E. & RITCHIE, J.R.B. 1996. The service experience in tourism, *Tourism Management*, 17(3): 165-174.

OZTURK, I. & ACARAVCI, A. 2009. On the Causality between Tourism Growth and Economic Growth: Empirical Evidence from Turkey, *Transylvanian Review of Administrative Sciences:* 73-81.

PADACHI, K.; SEETANAH, B. & ROJID S. 2011. Tourism and Economic Growth: African Evidence from Panel VAR framework, United Nations University, Working Paper No. 2011/33.

PAGE, S.J. & CONNELL, J. 2009. Tourism – A modern synthesis, South-Western Cengage Learning, 663 p.

PAITOON, K. 2009. Roles of Human Capital and Total Factor Productivity Growth as Sources of Growth: Empirical Investigation in Thailand, *International Business & Economics Research Journal,* 8(12): 37-52.

PALMER, A. 1998. Principles of Services Marketing, 7th Edition, McGraw-Hill, London, 495 p.

PALMER, N. T. 2012. The Importance of Economic Growth, Article presented to Certified Public Accountants.

PALMER, T. & RIERA, A. 2003. Tourism and environmental taxes: With special reference to the Balearic ecotax, *Tourism Management,* 24: 665–674.

PANAHI, H., MAMIPOUR, S. & KAVEH NAZARI, K. 2015. Tourism and economic growth: a time-varying parameter approach, *Anatolia-An International Journal of Tourism and Hospitality Research,* 26 (2): 173-185.

PAPYRAKIS, E., & GERLAGH, R. 2004. The resource curse hypothesis and its transmission channels, *Journal of Comparative Economics,* 32: 181-193.

PAPYRAKIS, E., & GERLAGH, R. 2007. Resource abundance and economic growth in the United States, *European Economic Review,* 51: 1011-1039.

PARENTE, S. 2001. The Failure of Endogenous Growth (Online at the University of Illinois at Urbana Champaign, published in Knowledge, Technology & Policy, XIII (4).

PARRILLA, J. C., FONT, A. R. & NADAL, J. R. 2007. Tourism and long-term growth A Spanish perspective, *Annals of Tourism Research,* 34 (3): 709-726.

PASINETTI, L. 1993. Structural Economic Dynamics, New York: Cambridge University Press, 208 p.

PAUDEL, R. C. 2014. Economic Growth in Developing Countries: Is Landlockedness Destiny? Working Papers in Trade and Development, Australian National University, Working Paper No. 2014/01.

PAYNE, J. E. & MERVAR, A. 2010. Research note: The tourism–growth nexus in Croatia, *Tourism Economics*, 16 (4): 1089–1094.

PEGG, S. 2010. Is there a Dutch disease in Botswana? *Resources Policy*, 35(1): 14 –19.

PERETTO, P.F. 1998. Technological change and population growth, *Journal of Economic Growth*: 283–311.

PEREZ-RODRÍGUEZ, J. V., LEDESMA-RODRÍGUEZ, F. & SANTANA-GALLEGO, M. 2015. Testing dependence between GDP and tourism's growth rates, *Tourism Management 48*: 268-282.

PETERSON, J. 1988. Export Shares and Revealed Comparative Advantage. A Study of International Travel, *Applied Economics*, 20: 351-365.

PIKE, S. 2002. Destination image analysis – a review of 142 papers from 1973 to 2000. *Tourism Management*, 23: 541-549.

PO, W. & HUANG, B. 2008. Tourism development and economic growth – a nonlinear approach, *Physica A.* 387: 5535-5542.

PORTER, M. 1985. Competitive advantage: Creating and sustaining superior performance. New York: The Free Press, 541 p.

PREBISCH, R. 1950. *The Economic Development of Latin America and Its Principal Problems*, New York: United Nations.

PREBISCH, R. 1959. Commercial Policy in the Underdeveloped Countries," *American Economic Review* 49: 251–273.

PRITCHETT, L. 2001. Where has all the education gone? *World Bank Economic Review*, 15: 367-91.

QUORA, 2017. What are the major differences between the neoclassical growth models and endogenous growth models? What do they say about economic convergence? https://www.quora.com/What-are-the-major-differences-between-the-neoclassical-growth-models-and-endogenous-growth-models-What-do-they-say-about-economic-convergence Date of access: 26 Feb. 2017.

RAINA, A. K. & AGARWAL, S.K. 2004. The Essence of Tourism Development: Dynamics, Philosophy, and Strategies, Sarup & Sons, New Dehli, 416 p.

RAZZAQ, A. R. B., MUSTAFA, M. Z., SURADIN, A. & HASSAN, R. 2012. Community Capacity Building for Sustainable Tourism Development: Experience from Miso Walai Homestay, *Business and Management Review*, 2(5): 10–19, http://www.businessjournalz.org/bmr

RICARDO, D. 1811. Reply to Mr. Bosanquet's Practical Observations on the Report of the Bullion Committee, in: McCulloch J. R. (1846), The Works of David Ricardo, Edition 2, London: John Murray, 303-304.

RICARDO, D. 1821a. On the Principles of Political Economy and Taxation, Edition 3, London: John Murray, 333 p.

RICARDO, D. 1951. Works and Correspondence, Volume 2, Cambridge: University Press for the Royal Economic Society, http://oll.libertyfund.org/titles/ricardo-the-works-and-correspondence-of-david-ricardo-vol-2-notes-on-malthus Date of access: 23 Jun. 2016.

RILEY, G. 2004. AQA A2 Economics Course Companion 2005 Government Policy, the National and International Economy, Boston Spa and West Yorkshire: Tutor2u Limited.

RITCHIE, B. J. R & GEOFFERY, C. I. 1993, Competitiveness in international tourism: A Framework for understanding and analysis, in Proceedings of the 43rd Congress of the AIEST. San Carlos de Bariloche, Argentina.

RITCHIE, J. R. B. & CROUCH, G. I. 2000. The competitiveness destination: a sustainability perspective, *Tourism Management*, 21: 1-7.

ROBINSON, J. 1956. The Accumulation of Capital, London, *Cambridge Journal of Economics*, 13 (1): 37-45.

ROBINSON, J. 1970. Model of Accumulation, in: Amartya S. (1970), Growth Economics, Suffolk: Richard Clay (Chaucer Press) Ltd., 115-140. Excerpt from Robinson Joan (1962): A Model of Accumulation, in: Essays in the Theory of Economic Growth, London: Macmillan, 34-59.

ROCKART, J.F. 1979. Chief executives define their own data needs, *Harvard Business Review*, 57: 81-92.

RODRIGUEZ F. & RODRIK, D. 1999. Trade Policy and Economic Growth: a Skeptic's Guide to the Cross-national Evidence, NBER Working Paper 7081, Cambridge MA: National Bureau of Economic Research.

RODRIK, D. 1999. "Where did all the growth go? External shocks, social conflict and Growth collapses" *Journal of Economic Growth* 4 (4): 385–412.

RODRIK, D. 2000. "Institutions for High-quality Growth: What they are and How to Acquire them", *Studies in Comparative International Development*, 35: 3–31.

RODRIK, D. SUBRAMANIAN, A. & TREBBI, F. 2002. Institutions rule: the primacy of institutions over geography and integration in economic development, NBER Working Paper, no. 9305.

ROMER P. M. 1994. New Goods, Old Theory, and the Welfare Costs of Trade Restrictions, in: *Journal of Development Economics*, 43: 5-38.

ROMER, D. 1996. Advanced Macroeconomics, Library of Congress Cataloging in Publication Data, United States of America, 540 p.

ROMER, P. M. 1987. Crazy Explanations for the Productivity Slowdown, in Stanley Fischer, ed., NBER Macroeconomics Annual 1987. Cambridge, Mass: MIT Press, 1987.

ROMER, P. M. 1989. Capital Accumulation in the Theory of Long-Run Growth, in Robert J. Barro, ed., Modern Business Cycle Theory. Cambridge, Mass.: Harvard University Press, 1989.

ROMER, P. M. 1994. The Origins of Endogenous Growth, *Journal of Economic Perspectives*, 8 (1): 3-22.

ROMER, P.M. 1986. Increasing returns and long-run growth. *Journal of Political Economy*: 1002–37.

ROMER, P.M. 1990. Endogenous Technological Change, *Journal of Political Economy*, 98(2): 71-102.

ROMER. P. 1993. Two strategies for economic development: Using ideas and producing ideas, proceedings of the World Bank annual conference on development economics, 1992, ed. Summers, L.H; Shah, S., pp. 63--91. Washington, D.C.: World Bank.

RÓZSA, E. N. 2012. The Arab Spring: Its Impact on the Region and on the Middle East Conference, Policy Brief for the Middle East Conference On A WMD/DVs Free Zone, Nos 9/10, Academic Peace Orchestra Middle East.

ROSS, J. 2011. Why Adam Smith's 'classical theory' correctly explained Asia's growth - and how this clarifies why Paul Krugman's critique of Asian growth failed to predict events, http://ablog.typepad.com/keytrendsinglobalisation/2011/06/adam_smith.html Date of access 9 Oct. 2014.

ROSINY, R. 2012. The Arab Spring: Triggers, Dynamics and Prospects, *German Institute of Global and Area Studies 1*, 1-8, https://www.giga-hamburg.de/en/system/files/publications/gf_international_1201.pdf Date of access: 5 Jul. 2016..

ROTICH, D., NTHIGA, R., BO, T. & KOGOLA, B. 2012. Product Diversification for Sustainable Tourism Development: Exploring the Strengths and Challenges of Kisumu Region, Kenya, *European Journal of Business and Social Sciences*, 1(9): 108-117.

SACHS, G. & WARNER, T. 1995. Natural Resource Abundance and Economic Growth. NBER Working Paper No. 5398.

SACHS, J. & WARNER, A. 1995. Economic Reform and the Process of Global Integration, *Brooking Papers on Economic Activity*, 1: 1-118.

SACHS, J. 2003. Institutions Don't Rule: Direct Effects of Geography on Per Capita Income, NBER Working Paper W9490.

SACHS, J. D. & WARNER, A. M. 1997. Fundamental Sources of Long-Run Growth, *American Economic Review*, 87 (2): 184–188.

SACHS, J. D. & WARNER, A. M. 1997. Sources of Slow Growth in African Economies, *Journal of African Economics*, 6 (3): 335-376.

SACHS, J. D., & WARNER, A. M. 2001. Natural resources and economic development: the curse of natural resources. *European Economic Review*, 45: 827-838.

SAHA, S. & YAP, G. 2013. The Moderation Effects of Political Instability and Terrorism on Tourism Development: A Cross-Country Panel Analysis, Journal of Travel Research, DOI: 10.1177/0047287513496472, http://jtr.sagepub.com/content/early/2013/07/15/0047287513496472 Date of access: 16 Nov. 2014.

SAHLI, M., & NOWAK, J. J. 2007. Does inbound tourism benefit developing countries? A trade theoretic approach, *Journal of Travel Research*, 45(4): 426–434.

SAKAI, M. 2009. Public sector investment in tourism infrastructure. In L. Dwyer & P. Forsyth (Eds.), International handbook on the economics of tourism. Cheltenham: Edward Elgar, 520 p.

SALA-I-MARTIN, X. 1997. I Just Ran Two Million Regressions. *American Economic Review,* Papers and Proceedings, 87(2): 178-183.

SALA-I-MARTIN, X.; DOPPELHOFFER, G. & MILLER, R. 2004. The Empirical Determinants of Growth: A Bayesian Averages of Classical Estimates (BACE) approach, *American Economic Review,* 94 (4): 813-835.

SALVADORI, N. 2003. The Theory of Economic Growth: a 'Classical' Perspective, Edward Elgar Publishing, https://phamtrung.wikispaces.com/file/view/the+theory+of+economics+growth.pdf Date of access: 23 Jun. 2016.

SAMIMI, A. J., SADEGHI, S. & SADEGHI, S. 2011. Tourism and Economic Growth in Developing Countries: P-VAR Approach, *Middle-East Journal of Scientific Research* 10 (1): 28-32.

SAMSON, J., BERTEAUX, D., MCGILL, B. J. & HUMPHRIES, M. M. 2011. Geographic disparities and moral hazards in the predicted impacts of climate change on human populations, *Global Ecology and Biogeography, (Global Ecol. Biogeogr.),* 20: 532–544.

SARDADVAR, S. 2011. Economic Growth in the Regions of Europe Theory and Empirical Evidence from a Spatial Growth Model, Springer Verlag Heidelberg, Berlin, 140 p.

SARMIDI, T. & SALLEH, N. H. M. 2010. Dynamic inter-relationship between trade, economic growth and tourism in Malaysia, MPRA Munich Personal RePEc Archive Paper No. 21056.

SATO, R. 1964. The Harrod-Domar Model vs the Neo-Classical Growth Model, *The Economic Journal*, 74 (294): 380–387.

SAVAŞ, B. & ŞAMILOĞLU, F. 2011. Tourism-Growth Nexus: An ARDL Causality Analysis for Turkey, *Gazi Üniversitesi Endüstriyel Sanatlar Eğitim Fakültesi Dergisi Sayı*, 27: 52-57.

SAVAŞ, B., BEŞKAYA, A. & ŞAMİLOĞLU, F. 2010. Analysing the Impact of International Tourism on Economic Growth in Turkey, *ZKU Journal of Social Sciences,* 6(12): 121-136.

SAVVIDES, A. 1995. Economic Growth in Africa, *World Development*, 23(3): 449-458.

SAY, J. B. 1857. A Treatise on Political Economy, or the Production, Distribution and Consumption of Wealth, New American Edition (translated from the 4th edition of the French), Philadelphia: J. B. Lippincott & Co, 450 p.

SCHLUTER, G. & LEE, G. K. 1978. Is Leontief's Paradox Applicable to U.S. Agricultural Trade? *Western Journal of Agricultural Economics,* 165-172.

SCHUBERT, F. S., BRIDA, J. G., & RISSO, W. A. 2011. The impacts of international tourism demand on economic growth of small economies dependent of tourism. *Tourism Management*, 32(2): 377 –385.

SCHUBERT, S. F., & BRIDA, J. G. 2011. Dynamic model of economic growth in a small tourism driven economy. *Tourism Economics,* 3: 149-168.

SCHUBERT, S. F., BRIDA, J. B. & RISSO, W. A. 2011. The impact of international tourism demand on economic growth of small economies dependent on tourism, *Tourism Management 32,* 377-385.

SCHULTZ, T. W. 1964. Transforming Traditional Agriculture. New Havan, CT, Yale University, Press, 21 p.

SCHUMACHER, R. 2012. Adam Smith's theory of absolute advantage and the use of doxography in the history of economics, *Erasmus Journal for Philosophy and Economics*, 5(2): 54-80.

SCHUMACHER, R. 2013. Deconstructing the Theory of Comparative Advantage, *World Economic Review 2*: 83-105.

SCHUMPETER, J. A. 1946. John Maynard Keynes 1883-1946, *The American Economic Review,* 36 (4): 495-518.

SCOTT, D. & LEMIEUX, C. 2009. Weather and Climate Information for Tourism, commissioned by the World Meteorological Organisation and United Nations World Tourism Organisation, http://sdt.unwto.org/sites/all/files/docpdf/wcc3tourismwhitepaper.pdf Date of access: 23 Jun.2016.

SCOTT, P. 2012. Pluralism, the Lucas critique, and the integration of macro and micro, Economics Department Working Paper 2012-04, University Of Massachusetts Amherst, http://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1143&context=econ_workingpaper Date of access: 23 Jun.2016.

SCULLY, G. 1988. The Institutional Framework and Economic Development, *Journal of Political Economy*, 96 (3): 652–62.

SECK, D. 2015. Accelerated economic growth in West Africa, Springer- Business & Economics, 211 p.

SEETANAH, B. 2005. Transport Capital as a Determinant of Tourism Development: A Time Series Approach. *TOURISMOS: An International Multidisciplinary Refereed Journal of Tourism*, 1(1): 55-73.

SEETANAH, B. 2011. Assessing the Dynamic Economic Impact of Tourism for Island Economies, *Annals of Tourism Research*, 38(1): 291–308.

SEETANAH, B. 2012. Trade Openness and Economic Performance: An African Perspective, ICITI 2012: 1-41.

SEGERSTROM, P.S., ANANT, T.C.A. & DINOPOULOS, E. 1990. A Schumpeterian model of the product life cycle. *American Economic Review*: 1077–1091.

SEN, A. 1983. Development: Which Way Now? *Economic Journal*, 93, 372: 745-762.

SEN, S. 1975. Reaping the Green Revolution: Food and Jobs for all, New York, McGraw –Hill, 397 p.

SEQUEIRA, T. N. & NUNES, P. M. 2008. Does tourism influence economic growth? A dynamic panel data approach. *Applied Economics*, 40: 2431-2441.

SHAN, B. Y. & MARN, J. T. M. 2013. Perceived Critical Success Factors (CSFS) for the tourism industry of Penang Island: A Supply Perspective, *Interdisciplinary Journal of Contemporary Research in Business*, 4(9): 495- 510.

SHAN, J. & SUN, F. 1998. On the export–led growth hypothesis: the econometric evidence from China, *Applied Economics*, 30: 1055-65.

SHAN, J. & SUN, F. 1998. On the Export-Led Growth Hypothesis: The Econometric Evidence from China, *Applied Economics*, 30: 1055-1065.

SHARMA, S.S. & SYMTH, R. 2009. Is Economic growth export-led or import-led in the Pacific Island countries? Evidence from panel data models, *Development Research Unit Discussion Paper DEVDP 09-15*, Monash University Business and Economics.

SHARPLEY, R. 2009. Tourism development and the Environment: Beyond Sustainability? London: Earthscan, 240 p.

SHENG, L. 2011. Taxing tourism and subsidizing non-tourism: A welfare-enhancing solution to "Dutch disease?" *Tourism Management*, 32: 1223–1228.

SILVA, S. J. M. C. & TENREYRO, S. 2006. The Log of Gravity, *The Review of Economics and Statistics*, 88(4): 641–658.

SINCLAIR, M. T. 1998. Tourism and economic development: A survey, *Journal of Development Studies*, 34 (5): 1-51.

SKYSCANNER, 2015. 10 Most amazing wonders of the world: in pictures, http://www.skyscanner.net/news/10-most-amazing-natural-wonders-world-pictures Date of access: 23 Nov.2015.

SLOMAN, J. 2003. Economics, 5th Edition, Pearson Education, Lambard, 762 p.

SMITH, A. 1776. An Inquiry into the Nature and Causes of the Wealth of Nations, Books I-V, ElecBook Classics, 1281 p.

SOGAARD, V. 1993. Media in Church and Mission: Communicating the Gospel. William Carey Library: California.

SOLOW, R. M. 1956. A Contribution to the Theory of Economic Growth, *The Quarterly Journal of Economics*, 70 (1): 65-94.

SOLOW, R. M. 1957. Technical Change and the Aggregate Production Function, *The Review of Economics and Statistics,* 39 (3): 312-320.

SOUKIAZIS, E., & PROENCA, S. 2008. Tourism as an alternative source of regional growth in Portugal: a panel data analysis at NUTS II and III levels, *Portuguese Economic Journal,* 7: 43-61.

SPURR, R. 2009. Tourism satellite accounts. In L. Dwyer & P. Forsyth (Eds.), International handbook on the economics of tourism, Cheltenham: Edward Elgar, 520 p.

SR, M.V. & CROES, R.R. 2003.Growth, development and tourism in a small economy: evidence from Aruba, *International Journal of Tourism Research 5*: 315–330.

SRINIVASAN, P., KUMAR, P. K. S. & GANESH, L. 2012. Tourism and Economic Growth in Sri Lanka an ARDL Bounds Testing Approach, *Environment and Urbanization ASIA.* 3(2): 397–405.

SRINIVASAN, P; SANTHOSH KUMAR, P. K. & GANESH, P. 2012. Tourism and Economic Growth in Sri Lanka: An ARDL Bounds Testing Approach, *The Romanian Economic Journal*, Year XV No. 45: 211-226.

STERREN, J. V. D. 2008. Financial Markets, Microfinance and Tourism in Developing Countries, NHTV Breda University of Applied Sciences, Breda, The Netherlands, V1(1): 35-44.

SULEIMAN, N. N. & ALBIMAN, M. M. 2014. Dynamic relationship between tourism, trade, infrastructure and economic growth: Empirical evidence from Malaysia, *Journal of African Studies and Development*, 6 (3), 49-55.

SUNKEL, O. 1969. National Development Policy and External Dependence in Latin America, *The Journal of Development Studies,* 6 (1): 22-49.

SURESH K.G., VIKAS, G. & MUKUND, K.2011. Analysing the Relationships among Tourism, Trade, and Economic Growth in Indian Perspective, *Journal of International Business and Economy,* 12(1): 1-11.

SURESH, J. & SENTHILNATHAN, S. 2014. Relationship between Tourism and Economic Growth in Sri Lanka, International Conference of Eastern University, Sri Lanka, September 2013.

SWAN, T.W. 1956. Economic growth and capital accumulation. *Economic Record*: 334–361.

TANG, C. F. & ABOSEDRA, S. 2014. Small sample evidence on the tourism-led growth hypothesis in Lebanon, *Current Issues in Tourism*, 17:3: 234-246.

TANG, C. F. & ABOSEDRA, S. 2015. Tourism and growth in Lebanon: new evidence from bootstrap simulation and rolling causality approaches, Empir Econ, DOI 10.1007/s00181-015-0944-9, Springer-Verlag Berlin Heidelberg 2015.

TANG, C. F. & TAN, E. C. 2015. Does tourism effectively stimulate Malaysia's economic growth? *Tourism Management*, 46: 158-163.

TANG, C. F. & TAN, E. C. 2015. Tourism-Led Growth Hypothesis in Malaysia: Evidence based upon Regime Shift Cointegration and Time-Varying Granger Causality Techniques, *Asia Pacific Journal of Tourism Research 20*: 1-21, DOI: 10.1080/10941665.2014.998247

TANG, C. F. 2011. Is the Tourism-led Growth Hypothesis Valid for Malaysia? A View from Disaggregated Tourism Markets, *International Journal of Tourism Research*, 13: 97–101.

TANG, C. F. 2013. Temporal Granger causality and the dynamic relationship between real tourism receipts, real income, real exchange rates in Malaysia, *International Journal of Tourism Research*, 15(3): 272–284.

TELCE, Y.H. & SCHROENN, J.L. 2006 'The Contribution of HRD to Tourism-Led Development in an African Context', *South Africa Journal of Economics and Management Sciences*, 9 (4): 444-457.

TEMPLE, J. & JOHNSON, P. 1998. Social Capability and Economic Growth. *Quarterly Journal of Economics August*, 113 (3): 965-990.

THE BLUE FLAG. 2015. The Blue Flag Eco-Label Programme for Beaches and Marinas, http://www.blueflag.org/ Date of access: 5 Oct. 2015.

THE ECONOMIST. 2013. Daily chart**:** Africa's impressive growth**.** http://www.economist.com/blogs/dailychart/2011/01/daily_chart Date of access: 1 Jul. 2013.

THIRLWALL, A. P. 2011. Economics of Development, 9th Edition, Pelgrave Macmillan, China, 678 p.

TODARO, M. P. & SMITH, S. C. 2005. Economic Development, Eight Edition, Pearson Education, New Dehli, 825 p.

TODARO, M. P. & SMITH, S. C. 2006. Economic Development, Harlow: Pearson Education Limited, 784 p.

TOYE, J. & TOYE, R. 2003. The Origins and Interpretation of the Prebisch- Singer Thesis, *History of Political Economy*, 35 (3): 437-467.

TRANG, N. H. M., & DUC, N. H. C. 2013. The contribution of tourism to economic growth in Thua Thien Hue Province, Vietnam, *Middle East Journal of Business*, 4(1): 70 –77.

TRANG, N. H. M., DUC, N. H. C. & DUNG, N. T. 2014. Research note: Empirical assessment of the tourism-led growth hypothesis – the case of Vietnam, *Tourism Economics*, 20 (4): 885–892.

TRAVEL AND TOURISM ECONOMIC IMPACT 2011 – World, World Travel & Tourism Council http://www.tourismiskey.com/downloads/2011/WTTC_Tourism2011.pdf Date of access: 14 Aug. 2015.

TSANGARIDES, C. G. 2012. Determinants of Growth Spells: Is Africa Different? IMF Working Paper, WP/12/227.

TUGCU, C. T. 2014. Tourism and economic growth nexus revisited: A panel causality analysis for the case of the Mediterranean Region, *Tourism Management 42*, 207-212.

TURNER, L.W. & WITT, S.F. 2001. Factors influencing the demand for international tourism: tourism demand analysis using structural equation modelling, revisited, *Tourism Economics*, *7(1)*: 21–38.

TUTOR2U.NET. 2016. Costs & Benefits of Economic Growth - Economics Revision, https://www.google.co.zw/?gws_rd=cr,ssl&ei=FMxbV7evNIP6UJqyk9gD#q=benefits+of+economic+growth Date of access: 11 Jun. 2016.

UCDP. 2016. Timeline Arab Spring, http://www.pcr.uu.se/digitalAssets/87/87711_chronologic_timeline_arabian_spring.pdf Date of access: 5 Jul. 2016.

UN, 2001a. Sustainable development of tourism, Report of the Secretary-General (Document No. E/CN.17/2001/PC/21), New York, UN.

UNDP. 2008. Crisis Prevention and Recovery Report 2008: Post-Conflict Economic Recovery Enabling Local Ingenuity, New York, USA, 238 p.

UNEP & UNWTO. 2005. Making Tourism More Sustainable - A Guide for Policy Makers**,** Paris and Madrid, United Nations Publication, 209 p.

UNEP. 2013. Tourism: Green Economy and Trade, Paris, United Nations Publication, 291 p.

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT (UNCTAD). 2002. The Relationship between Competition, Competitiveness and Development, Trade and Development Board, Commission on Investment, Technology and Related Financial Issues Intergovernmental Group of Experts on Competition Law and Policy, Fourth session, Geneva, 3–5 July 2002.

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT (UNCTAD). 2013. Sustainable Tourism: Contribution to Economic Growth and Sustainable Development, Expert Meeting on Tourism's Contribution to Sustainable Development, 14-15 March, Geneva, Switzerland.

UNITED NATIONS DEVELOPMENT PROGRAMME. 2016. Human Development Index. http://hdr.undp.org/en/content/human-development-index-hdi Date of access: 13 Apr. 2016.

UNCTAD. 2014. Economic Development in Africa Report 2014: Catalysing Investment for Transformative Growth in Africa, United Nations, New York and Geneva, 100 p.

UNTONG, A, 2014. Examining the Tourism-led Growth Hypothesis: A Case Study of Thailand, *Applied Economics Journal*, 21(2): 30-51.

UNWTO ANNUAL REPORT. 2010. 'Understanding Tourism: Basic Glossary' media, www.unwto.org/en/content/understanding-tourism-basic-glossary Date of access: 18 Jan. 2015.

UNWTO TOURISM HIGHLIGHTS. 2014. The Top 10 Tourism Destinations in 2013, based on international tourist arrivals, http://www.ion.icaew.com/Tourismandhospitalityblog/post/UNWTO-Tourism-Highlights-2014 Date of access 26 Jan. 2015.

UNWTO. 2007. About the World Tourism Organization. http://www.unwto.org/abouthwto/eng/aboutwto.htm Date of access: 29 May 2015.

UNWTO. 2011. UNWTO Annual Report 2010-A year of recovery, Madrid, Spain, 80 p.

UNWTO, UNEP & WMO. 2008. Climate Change and Tourism: Responding to Global Challenges. Madrid: United Nations World Tourism Organization; Paris: United Nations Environment Program; Geneva: World Meteorological Organization, http://sdt.unwto.org/sites/all/files/docpdf/climate2008.pdf Date of access: 23 Jun.2016.

UNWTO. 1996. Tourist Safety and Security: Practical Measures for Destinations, Madrid, 173 p.

UNWTO. 2010. UNWTO World Tourism Barometer. Interim Update, http://www.e-unwto.org/doi/abs/10.18111/wtobarometereng.2010.8.2.1a Date of access: 1 Feb. 2013.

UNWTO. 2014. Glossary of tourism terms, http://cf.cdn.unwto.org/sites/all/files/Glossary-of-terms.pdf Date of access: 4 Jun. 2016.

UNWTO. 2014. Glossary of tourism terms, http://cf.cdn.unwto.org/sites/all/files/Glossary-of-terms.pdf Date of access: 28 Jul. 2014.

UNWTO. 2014. UNWTO Tourism Highlights 2014 Edition, downloaded from www.e-**unwto**.org/doi/pdf/10.18111/9789284416226 Date of access: 25 Aug, 2015.

UNWTO. 2014. UNWTO Tourism Highlights 2014, downloaded from http://www.ion.icaew.com/Tourismandhospitalityblog/post/UNWTO-Tourism-Highlights-2014 Date of access: 29 May 2015.

UNWTO. 2014. World Tourism Organisation UNWTO Annual Report 2013, Madrid, Spain, 84 p.

USAID. 2005. Powering Tourism Electrification and Efficiency Options for Rural Tourism Facilities, Washington DC, 59 p.

USAID. 2010. Programming for Growth, The Critical Role of Economic Growth, Briefing Note 2, http://www.nathaninc.com/sites/default/files/2_Role_EconomicGrowth.pdf Date of access: 26 May 2016.

UZAWA, H. 1965. Optimal technical change in an aggregative model of economic growth. *International Economic Review*: 18–31.

VALDÉS, B. 1999. Economic Growth – Theory, Empirics and Policy, Massachusetts, Edward Elgar Publishing, 197 p.

VAMVAKIDIS, A. 2002. How Robust is the Growth-Openness Connection? Historical Evidence, *Journal of Economic Growth*, 7: 57–80.

VAN DER STERREN, J. & NAWIJN, J. 2006. Pro-poor, is tourism the best alternative? Paper presented at the Imagine there's no Countries: 5th International Symposium on Aspects of Tourism, University of Brighton on 22 June 2006, Eastbourne, United Kingdom.

VANEGAS, M., & CROES, R. 2003. Growth, development and tourism in a small economy: evidence from Aruba, *International Journal of Tourism Research*, 5: 315-330.

VANEGAS, SR, M., & CROES, R. R. 2003. Growth, development and tourism in small economy: Evidence from Aruba. *International Journal of Tourism Research*, 5: 315 –330.

VINER, J. 1957. Some Reflections on the Concept of Disguised Unemployment. Indian Journal of Economics, 38: 17-23.

WAHAB, S., & COOPER, C. P. 2001. Tourism in the age of globalisation. London: Routledge, 345 p.

WANG, B., & XIA, M. 2013. A study on the relationship between tourism industry and regional economic growth – a case study of Jiangsu Gaochun district, *Modern Economy*, 4: 482 –488.

WENG, C.-C., & WANG, K.-K. 2004. Scale and scope economies of international tourist hotels in Taiwan. *Tourism Management*, 25: 761– 769.

WILKS, J., PENDERGAST, D. & LEGGAT, P. 2006. Tourism in Turbulent Times: Towards Safe Experiences for Visitors, Routledge, Business and Economics, 382 p.

WONDERSLIST. 2015. Top 10 Wonders of The World, http://www.wonderslist.com/top-10-wonders-of-the-world/ Date of access: 23 Nov. 2015.

WONG, K.N & TANG, T. C. 2010. Tourism and openness to trade in Singapore: evidence using aggregate and country-level data, *Tourism Economics*, 16(4): 965–980 doi: 10.5367/te.2010.0017.

WOODSIDE, A. G. & MARTIN, G. 2008. Tourism Management: Analysis, Behaviour and Strategy, CABI, Business and Economics, 528 p.

WORLD BANK, 2015. Private Sector Investment, http://blogs.worldbank.org/psd/should-we-be-promoting-tourism-sector-investment, Date of access: 12 Aug. 2015.

WORLD BANK. 2005. Doing Business Indicators: Why aggregate, and how to do it, http://siteresources.worldbank.org/EXTAFRSUMAFTPS/Resources/db_indicators.pdf Date of access: 6 Sept. 2015.

WORLD BANK. 2009. Regional Fact Sheet: The World Development Indicators 2009 Middle East and North Africa, http://siteresources.worldbank.org/DATASTATISTICS/Resources/mna_wdi.pdf Date of access: 6 Sept. 2015.

WORLD BANK. 2015. CO2 Emissions (metric tons per capita). http://data.worldbank.org/indicator/EN.ATM.CO2E.PC Date of access: 14 Nov. 2015.

WORLD BANK. 2015. Domestic Credit provided by Financial Sector (% GDP), http://data.worldbank.org/indicator/FS.AST.DOMS.GD.ZS Date of access: 14 Nov. 2015.

WORLD BANK. 2015. Ease of doing business index (1 = most business –friendly regulations), http://data.worldbank.org/indicator/IC.BUS.EASE.XQ Date of access: 6 Sept. 2015.

WORLD BANK. 2015. Forest area (% of land area), http://data.worldbank.org/indicator/AG.LND.FRST.ZS Date of access: 14 Nov. 2015.

WORLD BANK. 2015. GDP per capita growth (% annual), http://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG Date of access: 4 Aug. 2015.

WORLD BANK. 2015. GDP per capita, PPP (constant 2011 international $), http://data.worldbank.org/indicator/NY.GDP.PCAP.PP.KD Date of access: 4 Aug. 2015.

WORLD BANK. 2015. Gross Capital Formation (% GDP), http://data.worldbank.org/indicator/NE.GDI.TOTL.ZS Date of access: 14 Nov. 2015.

WORLD BANK. 2015. High-technology exports (% of manufactured exports), http://data.worldbank.org/indicator/TX.VAL.TECH.MF.ZS Date of access: 14 Nov. 2015.

WORLD BANK. 2015. International tourism, receipts (current US$), http://data.worldbank.org/indicator/ST.INT.RCPT.CD Date of access: 4 Aug. 2015.

WORLD BANK. 2015. Investment as a share of GDP- Gross Capital formation (% of GDP), http://data.worldbank.org/indicator/NE.GDI.TOTL.ZS Date of access: 4 Aug. 2015.

WORLD BANK. 2015. Ores and metal exports (% of merchandise exports), http://data.worldbank.org/indicator/TX.VAL.MMTL.ZS.UN Date of access: 4 Aug. 2015.

WORLD BANK. 2015. Population total, http://data.worldbank.org/indicator/SP.POP.TOTL Date of access: 29 Nov. 2015.

WORLD BANK. 2015. School enrolment, secondary (gross %), http://data.worldbank.org/indicator/SE.SEC.ENRR Date of access: 4 Aug. 2015.

WORLD BANK. 2015. Trade (% of GDP), http://data.worldbank.org/indicator/NE.TRD.GNFS.ZS Date of access: 14 Nov. 2015.

WORLD BANK. 2015. Trade openness- Trade (% of GDP), http://data.worldbank.org/indicator/NE.TRD.GNFS.ZS Date of access: 4 Aug. 2015.

WORLD BANK. 2016. Cereal yield (kgs per hectare), http://data.worldbank.org/indicator/AG.YLD.CREL.KG Date of access: 19 Mar. 2016.

WORLD BANK. 2016. GDP per capita (current US$), http://data.worldbank.org/indicator/NY.GDP.PCAP.CD Date of access: 14 May. 2016.

WORLD BANK. 2016. Internet users (per 100 people), http://data.worldbank.org/indicator/IT.NET.USER.P2 Date of access: 19 Mar. 2016.

WORLD BANK. 2016. Labour Force, total, http://data.worldbank.org/indicator/SL.TLF.TOTL.IN Date of access: 14 Nov. 2015.

WORLD BANK. 2016. Mobile cellular subscriptions (per 100 people), http://data.worldbank.org/indicator/IT.CEL.SETS.P2 Date of access: 19 Mar. 2016.

WORLD ECONOMIC FORUM, 2015. The Travel and Tourism Competitiveness Report 2015- Growth through Shocks, Insight Report, Geneva, 508 p.

WORLD ECONOMIC FORUM. 2015. The Human Capital Report 2015, Employment, Skills and Human Capital Global Challenge Insight Report, www.weforum.org/reports/human-capital-report-2015 Date of access: 18 Feb. 2016.

WORLD OF NEW 7 WONDERS. 2007. New 7 Wonders of the World, http://world.new7wonders.com/?n7w-page=new7wonders-of-the-world Date of access: 23 Nov. 2015.

WORLD TOURISM ORGANISATION. 2004. Indicators of Sustainable Development for Tourism Destinations: A Guidebook, World Tourism Organisation, Madrid, 516 p.

WORLD TOURISM ORGANISATION. 2011. Annual Report: A Year of Recovery 2010, UNWTO, Madrid, 82 p.

WORLD TOURISM ORGANISATION. 2012. Annual Report 2011, UNWTO, Madrid, 46 p.

WORLD TOURISM ORGANISATION (WTO). 1996. Tourist Safety and Security: Practical Measures for Destinations, Madrid, Spain, 173 p. file:///C:/Users/Lecture%20One/Downloads/tourist_safety_and_security.pdf Date of access: 7 Jun. 2016.

WORLD TRAVEL & TOURISM COUNCIL. 2014. Travel & Tourism Economic Impact 2014: United Kingdom.

WORLD TRAVEL AND TOURISM COUNCIL (WTTC). 2015. Travel & Tourism Economic Impact: Egypt, https://www.wttc.org/-/media/files/reports/economic%20impact%20research/countries%202015/egypt2015.pdf Date of access: 7 Jun. 2016.

WORLD TRAVEL AND TOURISM COUNCIL. 2001. Competitiveness Monitor. London: WTTC.

WORLDATLAS. 2015. The Seven Natural Wonders of the World, http://www.worldatlas.com/articles/the-seven-natural-wonders-of-the-world.html Date of access: 23 Nov. 2015.

WRIGHT, S., & POIRIER, R. A. 1991 Tourism and Economic Development in Africa, *TransAfrica Forum 8*: 13-17.

WTTC. 2014. Travel & Tourism Economic Impact 2014, www.wttc.org Date of access: 26 Feb. 2015.

YAZDI, S. K. & MASTORAKIS, N. 2013. Tourism Development and Economic Growth in Iran: Using ARDL Bounds Tests, Advances in Economics, *Law and Political Sciences*, 172-180.

YAZDI, S. K. & MASTORAKIS, N. 2014. Tourism Development and Economic Growth in Iran: Using ARDL Bounds Tests, *Advances in Economics, Law and Political Sciences:* 172-180.

YIAMJANYA, S. & WONGLEEDEE, K, 2014. International Tourists' Travel Motivation by Push-Pull Factors and the Decision Making for Selecting Thailand as Destination Choice, World Academy of Science, Engineering and Technology, *International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering,* 8(5): 1348-1353.

YILDIRIM, J. & ÖCAL, N. 2004. Tourism and economic growth in Turkey, *Ekonomik Yaklasim*, 15(52-53): 131-141.

YOUNG, A. 1998. Growth without scale effects. *Journal of Political Economy*, 41–63.

YURTSEVEN, C. 2012. International Tourism and Economic Development in Turkey: A Vector Approach, *Afro Eurasian Studies*, 1(2): 37-50.

ZAK, P. & KNACK, S. 2001. Trust and growth, *The Economic Journal*, 111: 295-32.

ZARRA-NEZHAD, M. & HOSAINPOUR, F. 2011. Review of Growth Models in Less Developed Countries, *The International Journal of Applied Economics and Finance*, 5 (1): 1-17.

ZIFFER, K. 1989. Ecotourism the uneasy alliance, Conservation International and Ernest & Young, *Working Papers on Ecotourism*: 1-36.

ZIMBABWE NATIONAL STATISTICS AGENCY. 2013. Poverty and Poverty Datum Line Analysis in Zimbabwe 2011/12, Government Printers, Harare, 201 p.

ZORTUK, M. 2009. Economic impact of tourism on Turkey's economy: evidence from cointegration tests. *International Research Journal of Finance and Economics*, 25: 231-239.

ZSOHAR, P. 2012. Short Introduction to the Generalised Method of Moments, Hungarian Statistical Review, Special Number 16, 150-170.

ZUNIGA, H. C. 2000. Export-Led Growth in Honduras and the Central American Region, *Master* Thesis, The Department of Agricultural Economics and Agribusiness, Louisiana State University. http://etd.lsu.edu/docs/available/etd-12032004070104/unrestricted/Final_Thesis_Document.pdf Date of Access: 10 Oct. 2013.