Is Tourism a Sustainable Haven for Economic Growth in North African Countries? An Evidence From Panel Analysis

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Abstract

Efforts have been made by scholars to analyse the ability of tourism to promote sustainable development. This study therefore adds its voice to the already existing studies by evaluating the relationship between economic growth (GDP) and tourism receipts in North African countries between the years 1995-2016. For robustness, the study includes merchandise exports, inflation and dummy variable which captures the Arab spring of 2011. The study adopts the Pooled Mean Group (PMG) estimate to anlayse this relationship. It shows that tourism has the capacity to drive economic growth both in the short run with a coefficient of (6%) and in the long run with a coefficient of (29%), hence, the study joins the tourism led growth school of thought.

Key words:

IS TOURISM A SUSTAINABLE HAVEN FOR ECONOMIC GROWTH IN NORTH AFRICAN COUNTRIES? EVIDENCE FROM PANEL ANALYSIS

Introduction

African countries are often synonymous to the paradoxical saying of poverty in the midst of plenty. This is because most African countries are naturally endowed but still not performing at their peak economically, socially and politically. Andersen and Nina (2001) argued that developing nations experience poor economic condition accompanied by huge multilateral public borrowing from both domestic and foreign agencies. He explained that Heavily Indebted Poor Countries (HIPC) initiative reported that of the 41 countries that are heavily indebted in the world, 33 of them are Africans with a debt of $156 billion.

With the enormous resources domicile in Africa, UN (2015) reported that all developing regions except African countries have achieved the MDGs of halving poverty between 1990 and 2015. Corroborating these assertions, Addae-Korankye (2014) opined that the richest natural resources are deposited in Africa and yet it is poor-stagnant in growth and development. He explained that in spite of her heavy human and material wealth, Africa remains the world's poorest continent.

The reality is that most of the African countries run mono-economy which summarizes the degree at which the endowed resources are underutilized. Cattaneo (2009) explained that a number of developing countries depend on exports of single or few commodities. Hence, they are highly volatile to fluctuations in the international prices of products in the external market. As a way of escape African countries embrace diversification which is the order of the day in developing countries (Bature, 2013).

This study therefore intends to look at tourism as a root of escape to boosting the economic performance of North African countries by asking whether tourism could be a sustainable haven to economic growth in these countries. The study is outlined as follows: Section one describes the introduction to the topic in question and section two explains the background to the study. The critical review of relevant literature is done in section three while section four deals with the methodology and analysis of results and conclusion is revealed in section 5

2.1 Background to the study

2.2 The Economy of North Africa

North African countries are countries mostly found in the Sahara Desert of Africa. They include Algeria, Morocco, Egypt, Tunisia and Libya (this study, however, excludes Libya due to the presence of outliers). These countries speak Arabic as their major language, practice Islam as a religion and share common climatic and geographical conditions. However, they differ in social, political and economic development. Reports have it that a very large population of Egypt, Morocco and Tunisia is heavily involve in agriculture, variety of manufacturing activities, remittances and tourism as a means of foreign exchange earnings while Algeria and Libya solely depend on oil and gas driven economy (Dadush et al., 2017; Africa Development Bank, 2018). Andrew & Martin (2018) also noticed that Algeria supplies energy to Europe in the form of oil and gas while Morocco supplies phosphates and agricultural products. The European tourism industry major destinations are Tunisia and Morocco.

United Nations Economic Commission for Africa Office for North Africa (2014) argued that the political instability witnessed in Egypt, Libya and Tunisia coupled with the global economic meltdown of 2013 affected the average growth rate of the North Africa which declined to 2.5 percent in 2013 from 6.6 percent recorded in 2012. A report by African Development Bank (2018) showed that North Africa fostered an amazing growth rate (an increase from 3.3 percent in 2016 to 5.0 percent in 2017 and a projected increase to 5.1 percent in 2018) which made them second in Africa. This compared to the output of 2011 Arab revolution is a meager achievement (United Nations Economic Commission for Africa Office for North Africa, 2014).

This amazing growth recorded in North Africa was attributable to the unprecedented recovery in Libya's oil sector which posted an increase of 55.1 percent in GDP in 2017. However, output remains about one-third lower than the previous Arab revolution of 2011 (Africa Development Bank, 2018). Another North Africa country which boosted the North Africa economy is Egypt. The Pharaohs achieved a stable growth rate of 4.1 percent in 2017 as a result of the influx of returns from foreign direct investment and net exports accompanied by foreign exchange depreciation. This compared to the 4.3 percent growth rate recorded in 2016 was a slight decline (Africa Development Bank, 2018).

Algeria on the other hand, was left with the headache of cushioning the effects of fall in oil prices which had an adverse effect on her economy. Hence, the government responded to the fall in government revenue in 2017 by cutting public expenditure from 42 percent of GDP in 2016 to 36 percent of GDP in 2017 (Africa Development Bank, 2018).

The Figure 2 below shows that these countries recorded consistent increase in real gross domestic products where Egypt seems to be very strong until after 2014 when Tunisia and Algeria witnessed a fall in real gross domestic products while Egypt experienced a decline in real gross domestic products after 2016.

Fig 1: Real Gross Domestic Product for Algeria, Egypt, Tunisia and Morocco
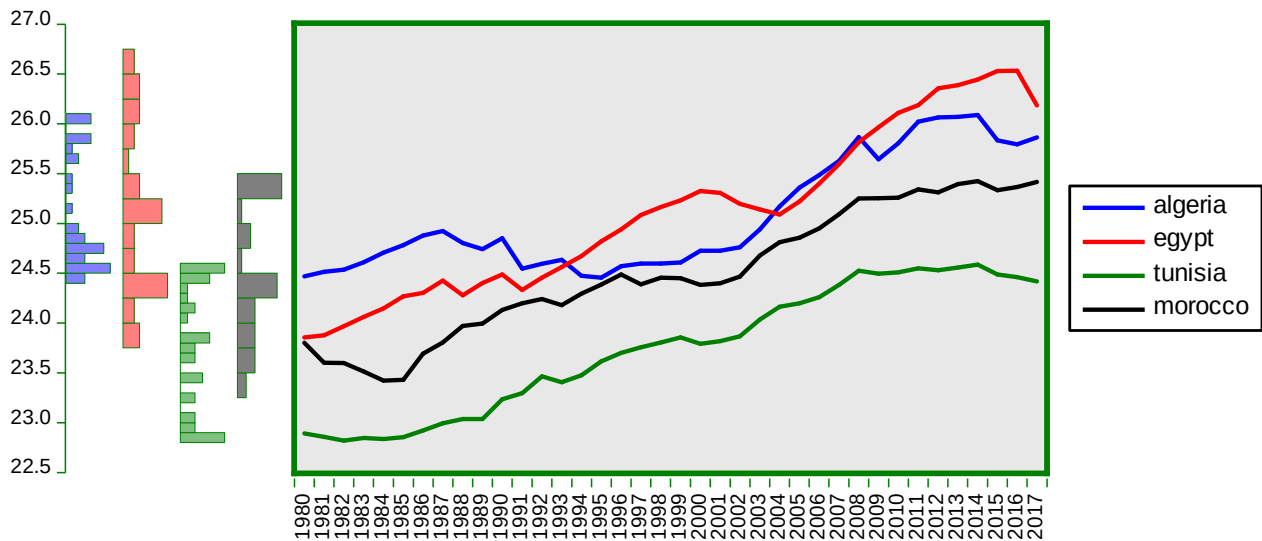
Source: Author

2.3 Tourism from the Global Perspective

The contribution of the service sector to the global economic growth cannot be over emphasized. Gauci et al. (2002) argued that the global market for services has experienced a growth on the average rate of 5 percent annually and expected to grow at about 3 percent in the nearest future. A beautiful content of the service sector to behold is tourism and its roles in the pivotal economic development of the world trade is worthy of investigation. This prompted the United Nations to declare year 2002 as The United Nations Eco-Tourism day.

Shakouri et al. (2017) argued that tourist destinations around the world yielded receipts which grew by 3.6% in 2015 as international tourist arrivals increased by 4.4%. They explained that

international tourism grew consistently faster than world merchandise trade as the share of tourism in world exports increased to 7% in 2016. World Travel and Tourism Council (2018) opined that travel and tourism remains one of the world's largest economic sectors which drive job opportunities, exports and prosperity across the world. This implies that with the right policies and investment decision, tourism could be a sustainable haven for economic growth. This is evident in the report of World Travel and Tourism Council (2018) which explained that tourism and travel directly contributes USD72.8 billion to GDP in 2017 which is also forecast to rise by 4.0% to USD75.6 billion in 2018.

The share of global Tourism growth attracted by developing economies must be mentioned, as this availed developing economies the opportunity to show case their endowed climatic and geographical nature to the world. Tourist arrivals and receipts in Africa have reached 27.6million and US$10.7 billion in the year 2000 respectively (Gauci et al., 2002). Corroborating this argument, African Development Bank (2018) reported that tourists' arrivals in Africa increased from 62.5 million in 2015 to 62.9 million in 2016 approximating 0.64% increase which represents a 5.1% share of world tourists' arrivals. In 2016 global receipts from international tourism was US$1,225 billion while Africa's international tourism receipts was US$36.2 billion (African Development Bank, 2018).

Tourism has shown to the people of Africa that it could be one of the saving umbrellas needed to reduce unemployment, poverty and inequality. Significantly, tourism has been able to reduce the rate of unemployment in Africa as direct travel and tourism employment increased to 9.3 million where sub-Saharan Africa shared 6.8 million and North Africa got 2.5 million in 2017 (African Development Bank, 2018).

The table below shows that Africa recorded the lowest tourist arrivals with a significant percentage increase of 7.8 in 2016 and 8.6 in 2017. However, Europe has the highest number of tourist arrivals with 2.4% change in 2016 and 8.3% change in 2017. On the other hand, Africa's tourism receipts showed a significant increase from USD30, 880 in 2010 to USD37, 320 in 2017 while Europe and other continents of the world also experienced a significant increase. This implies that if tourism has the power to heal the world if well nurtured.

Table 1: International Tourist Arrivals and Tourism Receipts by Continent of Destination

	International Tourist Arrivals			Change (%)		International Tourism Receipts		
	(1000)					(US$ million)		
	2010	2016	2017	16/15	17/16	2010	2016	2017
Europe	487,666	619,492	670,603	2.4	8.3	422,823	468,094	519,232
Asia and the Pacific	208,174	305,967	323,059	7.7	5.6	254,367	370,804	389559
The Americas	150,432	200,719	208,715	3.6	4.0	215,307	313,705	326,162
Africa	50,426	57,747	62,722	7.8	8.6	30,880	33,027	37,320

Source: World Tourism Organisation (UNWTO, 2018)

2.4 Tourism Contribution to GDP in North African Countries

Having established that over the years Africa has enjoyed from the immense contribution of tourism to her GDP, it is important to analyse the share of tourism growth to the growth of North Africa economy. Ali and Hasi (2012) explained that historical and archaeological piece are dominant in Arab countries such as mild climate, the nature of a variety stunning, the strategic location of distinct and the shores of a long extended between the Mediterranean, the Red Sea, the Persian Gulf and Indian Ocean which makes the tourism sectors to attract both domestic and foreign investors boosting the national income and economic development of these countries.

2.4.1 Tunisia

El Djem Amphitheater, Djerba, Carthage, Grand Erg Oriental, Bulla Regia, Kairouan, Sousse Medina, Chott el Djerid, the National Bardo Museum, Sidi Bou Said, Hammamet and Monastir Ribat are some of the fascinating sights nature has endowed Tunisia with. The presence of these tourist attractions have contributed immensely to the Gross Domestic Products of her economy. However, the two terrorist attacks at the Bardo Museum and Sousse Beach in 2015 have sent fear down the spine of tourists from visiting Tunisia, hence, reducing the revenue generated by the sector.

It is worth mentioning that in 2016 travel and tourism have directly contributed TND5,821.9 million to GDP which represents 6.6 percent of GDP and TND6,631.7 million in 2017 which represents 6.9 percent of GDP. A further projection of 4.2 percent rise to TND6,908.2 million in 2018 was made. This growth is attributable to the economic activities of the hotels, travel agents, restaurant and leisure industries directly supported by tourists. All things being equal, by 2028 Tunisia's tourism contribution to GDP will experience a growth of 3.0 percent annually to

TND9, 246.6 million which represents 6.6 percent of GDP (World Travel and Tourism Council, 2018). This is a sign of quick recovery from the Jasmine Revolution of 2011 and the 2015 terrorist attacks.

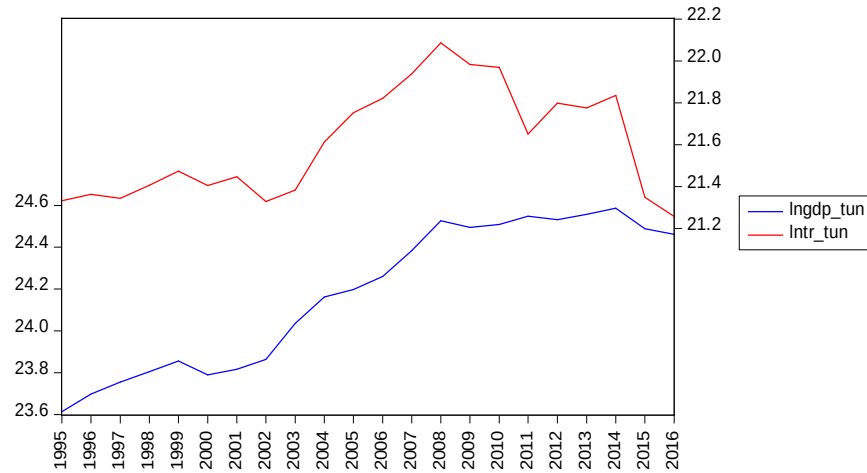Fig 2: The relationship between gross domestic products and tourism receipts of Tunisia

Figure 2 above depicts the relationship between gross domestic products (GDP) and tourism receipts (TR) of Tunisia.

2.4.2 Morocco

Vision 2010 of the Moroccan government served as a landmark in the Moroccan tourism industry to boost the patronage for new tourist destinations and the already existing ones such as the Marrakesh Medina, Hassan II Mosque, Oudaias Kasbah, Fes el Bali, Tangier, Chefchaouen, Volubilis, Bab al-Mansour, Ait Ben Haddou, Dades Valley, Essaouira and Erg Chebbi. It gulped a budget of USD4, 840 million primarily to develop the large resort. The major tenets of the plan are to attract 10 million tourists in 2010, achieve 230, 000 beds accommodation capacity, build six large resorts and job creation. As a way of expansion, vision 2020 was established to complement the achievements of vision 2010 as it aims to make Morocco tourism industry becomes one of the 20 biggest tourist destinations (Almeida and Chachine, 2016). This was evident in 2016 as travel and tourism made a tremendous contribution of MAD81.3 billion to the GDP of Morocco which represents 8.1 percent of GDP and MAD85.9 billion to GDP in 2017 which represents 8.2 percent of GDP. A further projection of 3.5 percent rise to MAD88.9 billion in 2018 was made. This growth is attributable to the economic activities of the hotels, travel agents, restaurant and leisure industries directly supported by tourists. All things being equal, by 2028 Morocco's tourism contribution to GDP will experience a growth of 3.9 percent

annually to MAD130.7 billion which represents 8.2 percent of GDP (Word Travel and Tourism Council, 2018).

Fig 3: The relationship between gross domestic products and tourism receipts of Morocco
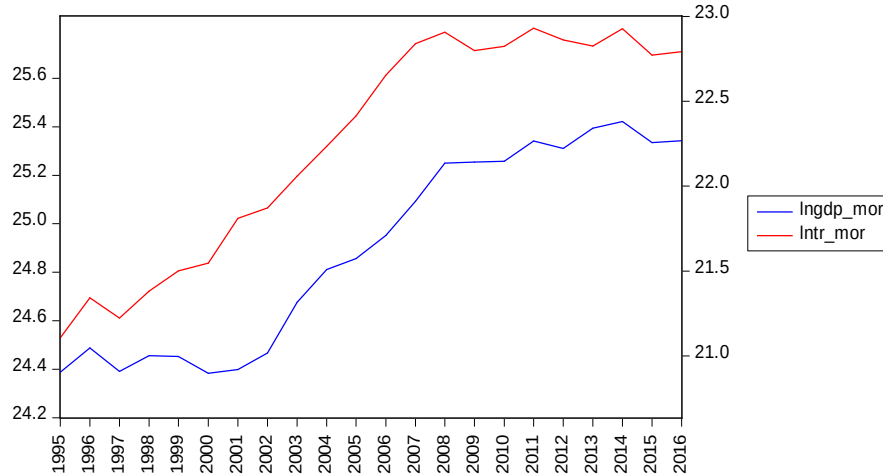
2.4.3 Egypt

The history of tourism in Egypt is as old as the country herself dating back to when the Greeks and Romans visited in ancient times. Some of the fascinating tourist destinations in Egypt include: the Pyramids of Giza, Luxor's Karnak Temple and the Valley of the Kings, Islamic Cairo, Aswan, Abu Simbel, Egyptian Museum, White Desert, Siwa Oasis, Alexandria, St. Catherine's Monastery, South Sinai, Abdos Temple and medical tourism. With these heavy deposits of antiquities, the Egyptian tourism industry is faced with a lot of upheavals. For example, the terror attack in 1992, the temple of Hatshepsut attack in 1997, the arab spring of 2011, the downing of Metrojet 9268 in October 2015 among the host of others.

In other to rebrand the face of her tourism industry, the Egyptian government embarked on series of developmental projects. 2002-2005 were periods that witnessed the development of the Egyptian tourism workforce. It was supported by US agency for international development. The Ministry of Tourism signed $68m contract with J Walter Thompson, advertising outfit to embark on radical publicity of the Egyptian tourism opportunities and markets in September 2015. In the same year, the Egyptian Ministry of Antiquities in cooperation with local and international institutions started the Scan Pyramids Project (SPP). The 2016 Hepatitis C treatment campaign remains a major breakthrough in Egyptian Medical tourism as an estimated 71 million people visited for treatment which cost $8,000 per patient (Reda, 2018).

The results of these giant strides, motivated, the travel and tourism sector in 2017 recording a tremendous contribution of EGP190.3 billion to the GDP of Egypt which represents 5.6 percent of GDP. A further projection of 3.2 percent rise to EGP196.5 billion in 2018 was made. This growth is attributable to the economic activities of the hotels, travel agents, restaurant and leisure industries directly supported by tourists. All things being equal, by 2028 Egypt's tourism contribution to GDP will experience a growth of 4.0 percent annually to EGP289.7 billion which represents 5.3 percent of GDP (Word Travel and Tourism Council, 2018).

Fig 4: The relationship between gross domestic products and tourism receipts of Egypt
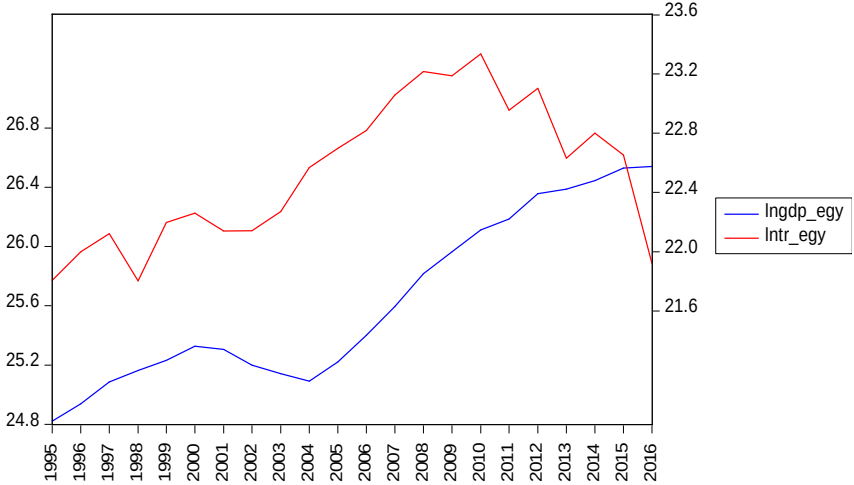
2.4.4 Algeria

Beni Hammad Fort, Djemila, Casbah of Algiers, M'Zab Valley, Timgad and Tassili n'Ajjer are some of the World heritage sites that serve as tourist destinations in Algeria. In order to ensure that her tourism sector continues to yield the expected results, Douli and Slimani (2016) explained that the Algerian government introduced the Confederation of National Clients in Tourism, Travel and Hospitality. This is to encourage major stakeholders in the industry to make wide consultation, reflection and unified action within and outside the industry. In addition the Algerian government has continuously ensured the existence of a strong and functional Public Private Partnership to enable the tourism sector perform optimally. Hence, the government creates an enabling business environment and encourages private investors which culminated into the formation of the Ooredoo Algeria (Horizon 2025). This is a project born during the

National and International Conference of Tourism to provide new dynamics of reception and management in the Algerian tourism industry.

The efforts of the Algerian government did not go unnoticed as year 2017 revealed that travel and tourism made a tremendous contribution of DZD610.4 billion to the GDP of Libya which represents 3.3 percent of GDP. A further projection of 2.9 percent rise to DZD627.8 billion in 2018 was made. This growth is attributable to the economic activities of the hotels, travel agents, restaurant and leisure industries directly supported by tourists. All things being equal, by 2028 Algeria's tourism contribution to GDP will experience a growth of 2.4 percent annually to DZD796.0 billion which represents 3.4 percent of GDP (Word Travel and Tourism Council, 2018).

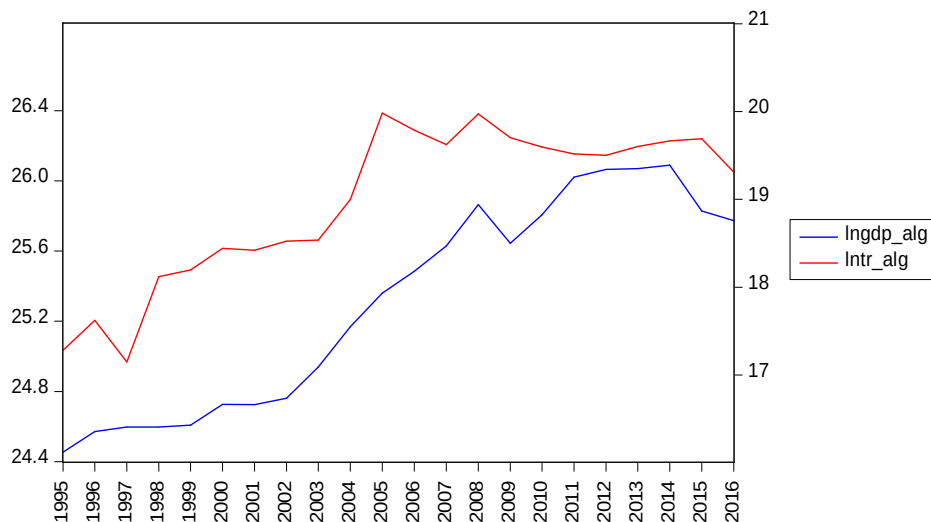Fig 5: The relationship between gross domestic products and tourism receipts of Algeria

2.5 Tourism bottle Necks in North Africa

The tourism sector of North Africa was not exempted from the socio-political crisis that ravaged the region some years ago. For example, the Arab Spring of 2011 which started 2010 in Tunisia spread like a weird fire to other North African countries. During this period the current account balance of the region which comprises movement of goods and services is in deficit especially for Egypt, Morocco and Tunisia whose important tourism sector was sensitive to violence and internal unrest (Raschen, 2015; Ali and Hasi, 2012).

Ali and Hasi (2012) argued that the successful revolutions that overthrown former Presidents Zine El Abidine Ben Ali and Hosni Mubarak of Tunisia and Egypt respectively triggered high level of insecurity which made the companies of tourism to boycott Egypt and Tunisia from their programs. They further explained that the Arab spring revolution has a negative impact on North Africa tourism destinations, hence, tourists change their directions to destinations which a more secured and less risky. Journal of Time International (2012) argued that North Africa experienced a great decline has tourism activities fell in 2011 by 41% in Syria, 32% in Egypt, 31% in Tunisia, 24% in Lebanon and 16% in Jordan even as tourism serves as a major contributor to most of these countries.

Table 2: International tourist arrivals and receipts for North Africa and some well visited Sub-Saharan African Countries

	International Tourist Arrivals					International Tourism Receipts		
				Change (%)				
	(1000)					(US$ million)		
	2010	2016	2017	16/15	17/16	2010	2016	2017
North Africa	**33, 237**	**23, 353**	**29, 099**	**5.0**	**24.6**	**22, 156**	**10, 639**	**16, 491**
Algeria	2, 070	2, 039	2, 451	19.2	20.2	220	209	-
Morocco	9, 288	10, 332	11, 349	15	9.8	6, 703	6, 549	7, 417
Tunisia	7, 828	5, 724	7, 052	6.8	23.2	2, 645	1, 236	1, 299
Egypt	14, 051	5, 258	8, 157	-42.5	55.1	12, 528	2, 645	7, 775
Libya	-	-	-	-	-	60	-	-
Sub-Saharan Africa	**1, 904**	**1, 253**	**3, 182**	**13.1**	**154**	**3, 144**	**3, 199**	**1, 845**
Cabo Verde	336	598	668	15.1	11.6	278	370	436
Burkina Faso	274	152	143	-6.7	-5.9	72	122	-
Comoros	15	27	28	13.6	4.5	35	-	-
Cote d'Ivoire	2, 521	1, 583	1,800	9.9	13.7	201	379	-
Kenya	1, 470	1, 268	1, 364	13.8	7.6	800	824	926
Mali	169	173	193	8.8	11.6	205	200	-
Mauritius	935	1, 275	1, 342	10.8	5.2	1, 282	1, 572	1, 748
Nigeria	1, 555	1, 889	-	50.5	-	576	1, 070	2, 549
Seychelles	175	303	350	9.8	15.4	343	414	483
South Africa	8, 074	10, 044	10, 285	12.8	2.4	9, 070	7, 910	8, 818
Zimbabwe	2, 239	2, 168	2, 423	5.4	11.8	634	890	-

Source: World Tourism Organisation (UNWTO, 2018)

The table above shows that comparatively North African countries are better than some selected Sub-Saharan African countries in terms of tourist arrivals and receipts. However, the degree of insecurity caused by political instability has dampened the efficiency of the sector which recorded a lesser percentage increase of 24.6% between 2016 and 2017, compared to 154% of the Sub-Saharan Africa in the same periods.

3.1 Theoretical Basis

In recent times efforts have been made to make case for tourism as the diversification needed to improve the gross domestic products of the world economies. Scholars have theoretically analysed the relationship between growth and tourism development. There are three extreme

hypothesis of whether tourism predicts growth, growth predicts tourism or they predict one another.

Lee and Chang, (2007) argued that the relationship between economic growth and tourism development to a great extent is dependent on the economic situation obtainable in individual countries under consideration (see Sak & Karymshakov, 2012; Chou, 2013; Alhowaish, 2016; Sokhanvar et al., 2018).

Arslanturk et al. (2011) are strong advocate of tourism led growth hypothesis. After analyzing the relationship between tourism receipts and economic growth using time varying coefficient estimation method argued that tourism has positive predictive power for GDP and GDP cannot cause tourism (see Fayissa, 2007; Ajvaz, 2015; Makochekanwa, 2013; Samimi et al., 2011; Yusuff and Akinde, 2015). Bouzahzah and Menyari (2013) deviated a bit from the assertions above, as they explained that in the short run tourism drives growth but growth drives tourism in the long-run (see Akama, 2016)

3.2 Summary of Relevant Literature

Author & Year	Country(s) & Scope	Methodology		Findings
		variables	Estimation methods	
Ajvaz (2015)	Sweden (2003-2013)	Regional Gross Domestic Product, Physical Capital Formation, Human Capital formation, Tourism Development, Government Debt, Trade	Panel Data Approach	Tourism and economic growth follow the path of Tourism led growth in Sweden

Author	Location/Period	Variables	Method	Findings
Akama (2016)	Kenya (1980-2010)	Intensity Ratio. GDP growth rate, Physical Capital Accumulation, Expenditure on Education, ICT on Exports, GDP Per Capita, Financial Deepening, Internal Shocks, Competitive Advange and International Tourism Receipts	OLS regression, Cointegration and Granger Causality Tests	The growth pattern reveals a tourism led growth as causality runs from international tourism receipts to economic growth in the short run
Alhowaish (2016)	Kuwait, Saudi Arabia, Qatar, UAE, Bahrain and Oman (1995-2012)	Real international tourism revenue and RGDP	Multivariate model with Panel data Analysis	Kuwait, Saudi and UAE follow the path of growth driven tourism while Bahrain follows tourism led growth
Bukola and Olaitan (2018)	7 Cities in South-Western, Nigeria.	Tourism development and Sustainable economic development	Chi-Square	Household income and government revenue have been significantly improved by tourism
Arslanturk et al. (2011)	Turkey (1963-2006)	Tourism Receipts and GDP	Rolling Window and Time Varying Coefficient Estimation Method-Granger Causality VECM based	GDP has no predictive power for tourism receipts but tourism receipts have positive predictive power for GDP

Bouzahzah and Menyari (2013)	Tunisia and Morocco (1980-2010).	Real Tourism Receipts, Real Effective Exchange Rate and Economic Growth	ECM, Cointegration and Granger Causality	In the short run tourism granger causes economic growth while in the long run growth granger causes international tourism receipts.
Caglayan et al. (2012)	World, America, Asia, Europe, East Asia, South Asia, Central Asia, Latin America & Caribbean, Oceania, North Africa and Sub-Sahara Africa (1995-2008)	Real Tourism Revenue(tourism development) and Real GDP	Panel Granger Causality Analysis	Bidirectional Causality exists in Europe between tourism revenue (TR) and GDP, unidirectional causality in America, Latin America & Caribbean and World from TR to GDP and no causal relationship was found in Asia, Middle East and North Africa, Central Asia and Sub-Saharan Africa
Chou (2013)	Romania, Bulgaria, Slovenia, Cyprus, Latvia, Slovakia, Czech Republic and Poland Estonia and Hungary (1988-2011)	Domestic Tourism Spending (DS), Per Capita Real GDP	Panel Causality Test	Growth hypothesis holds for Cyprus, Latvia and Slovakia and tourism holds for Czech Republic and Poland while Bulgaria, Romania and Slovenia remain neutral.
Ekanayake and Aubrey (2012)	140 developing countries(1995-2009)	RGDP, RGFC, Real International Tourism Receipts	Heterogeneous Panel Cointegration Technique, Granger Causality Tests.	The elasticity of tourism revenue with respect to real GDP is positive but statistically insignificant for all regions and no evidence to support

				tourism led growth
Farid (2015)	Mali and Zimbabwe ()	GDP and Tourist Arrival	Descriptive Analysis	There exist a positive relationship between the extent of tourism specialisation and long term GDP growth.
Fayissa (2007)	42 African Countries (1995-2004)	Per Capita Income, Tourism Receipts Per Capita, Gross Fixed Capital Formation, Economic Freedom Index, School Enrollment, FDI, TOT and Household Final Consumption Expenditure Per Capita	Panel Data Analysis	Tourism receipts significantly contribute to the current level of GDP and economic growth of Sub-Sahara Africa
Imikan and Ekpo (2012)	River State, Nigeria	Water, Electricity, Transport, Communication, Accommodation, Tourist Arrivals and Tourism Receipts.	Multiple correlation and Stepwise Regression Analysis	High significant relationship exists between the sets of infrastructure components and tourism development
Lee and Chang (2007)	OECD, non-OECD and Sub-Sahara Africa(1990-2002)	Tourism Receipts, Tourism Arrivals, GDP	Panel Data Analysis	There exists a unidirectional causality from tourism to economic growth in

				and RQ OECD, Sub-Sahara Africa and bidirectional causality in nonOECD but weak in Asia.
Lopes and Soares (2017)	Portugal (2004-2014)	Tourism products and economic development	Descriptive Analysis	Norte region tends toward growth as tourist destinations expand
Makochekanwa (2013)	SADC (2002-2012)	RGDP, Tourist Export Receipts, Economic Freedom Index	Panel Data Analysis	1% increase in tourism receipts causes a 0.16% rise in GDP Per Capita. Hence, tourism triggers economic growth
Agri et, al. (2016)	Nigeria	CIT, DTC, VTE, Employment Income, Infrastructure and standard of living (GDP)	Correlations Analysis, Simple Percentages Statistical Techniques and Descriptive Statistics	Tourism has significant positive impact on economic development
Phiri (2016)	South Africa (1995-2014)	Tourist Receipts and Arrivals (tourism development) and real GDP	Engle and Granger Linear Cointegration and Enders and Granger non-linear Cointegration framework	Llinear framework shows that when tourism receipt is used as a measure of tourism development, the results follow a tourism led growth hypothesis while tourism arrivals follow growth led tourism path. Non linear framework depicts no causality between tourism arrivals and economic growth while a bidirectional

				causality exists between tourism receipts and economic growth
Samimi et al. (2011)	20 developing countries (1995-2009)	GDP, Tourism Arrival (TOUR)	P-VAR Approach	Tourism leads to growth as well as output level which relates to economic wellbeing and level of development.
Shakouri et al. (2017)	Asian Countries (1995-2014)	International Tourism Receipts, Real GDP Per Capita growth, Exchange Rate, Financial Development and Trade Openness	Panel Data Analysis and Variance Decomposition Analysis	Tourism has positive significant impact on economic growth
Sokhanvar et al. (2018)	16 emerging economies (1995-2014)	International tourism receipt, GDP (current) and GDP growth (Annual)	Granger Causality Analysis, Impulse Response Function	Unidirectional causality runs from tourism to economic growth in Brazil, Mexico and Philippines, the reverse is the case in China, India, Malaysia, Indonesia and Peru while Chile faces a bidirectional causality
Terwase et, al. (2015)	Cross River, Nigeria	Tourist Destinations and Economic Development	Critical review of literature and Descriptive Statistics	Cattle Ranch improved the standard of living of the Obudu people and also contributes to the foreign exchange

				earnings of the Nigerian government.
Yusuff and Akinde (2015)	Nigeria (1995-2013)	Real GDP, International Tourist Arrivals (TOAR as a measure of tourism development) and Real Effective Exchange Rate (RER)	Unit Root Tests, Cointegration Tests, VECM based granger causality tests	A long run positive causality runs from tourism to economic growth
Belloumin (2010)	Tunisia (1970-2007)	Tourism Receipts, Real Effective Exchange Rate and Real GDP	Unit root tests, Johansen cointegration tests and VECM based causality test	Tourism and economic growth have long run relationship and a unidirectional causality runs from tourism to growth
Surugiu and Surugiu (2013)	Romania (1988-2009)	Tourism spending, tourism consumption, real exchange rate and GDP annual Previous year growth rate	Cointegration tests, VECM based causality tests and impulse response function	Tourism granger causes economic growth
Sequeira and Campos (2005)	World (1980-1999)	Initial Real GDP Per Capita Income (GDP$_{-1}$), Human Capital Investment, Physical Capital	Panel Data Analysis	Tourism is not sufficient an explanatory variable for higher growth rates.

Figini and Vici (2010)	Over 150 countries (1980-2005)	Investment, Crowding-Out, Trade Openness, Tourism receipts as a % of GDP and Exports Real GDP, initial level of per capita income, trade openness, OECD oil smallness and international tourism receipts,	Cross Section Analysis	Tourism based countries did not grow at a higher rate than non-tourism based countries except between 1980-1990

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4.0 Methodology and Data

4.1 The Model

This study is saddled with the responsibility of examining the tourism-economic growth nexus in North African countries. The paper employs a baseline model of Brau et al. (2004, 2007) adopted by Figini and Vici (2010). For the sake of this analysis the study further modifies the baseline model to accommodate the variables used.

4.1.1 The Baseline Specification

The baseline equation is specified as follows:

Growth = $\beta_0 + \beta_1 Tour + \beta_2 X + \beta_3 \lambda + \varepsilon$

Where Growth is average growth rate of per capita income, Tourism measures the degree of tourism specialization for the country, X is a vector of control variables which based on neoclassical growth assumptions, λ represents a vector of dummy variables which often captures non-economic variables and ε is the error term.

4.1.2 The Modified Model

1Brida and Pulina (2010) in explaining the tourism led growth, theoretically, identified the demand sides model as used by Narayan (2004) and production function model originally used by Solow but expanded by Balassa (1978).

2Figini and Vici (2010) affirmed basically two theoretical strands to the explanation of the relationship between tourism and economic growth. They explained that Keynesian theory of multiplier holds that international tourism is seen as an exogenous component of aggregate demand which is positively related to income and employment through multiplier on one hand and the application of endogenous growth theory to tourism on the other hand.

3Narayan et al. (2010) asserts that 1% increase in tourism export causes 0.72% and 0.24% increase in GDP both in the long run and short run respectively.

The modified model captures real exchange rate to account for international trade and inflation to deflate both GDP and Tourism receipts both at current prices. This is expressed below:

$$\ln GDP_{it} = \beta_0 + \beta_1 \ln Tour_{it} + \beta_2 MERX_{it} + \beta_3 \ln infl_{it} + \beta_4 D2011_{it} + \varepsilon_{it}$$

Here, the number of countries i=1. . ., N; the number of periods t = 1, . . ., T;

lnGDP is the natural logarithm of Gross Domestic Product which proxies economic growth at current prices

lnTour is the natural logarithm of tourism which proxies tourism receipt as a percentage of GDP at current prices

lnMerx represents the natural logarithm of merchandise export as percentage of GDP at current prices

lninfl represents the natural logarithm of inflation

D2011 represents the dummy variable that captures the Arab Spring of 2011

ε represents the disturbance terms

4.2 Estimation Techniques

This study employs pooled mean-group (PMG) estimator for non-stationary dynamic panels with heterogeneous parameters across the groups. The adequacy of this technique lies in the fact that the N and T dimensions are large (Salisu and Isah, 2017). This technique enables us to establish the short run and long run relationships among the dependent variable and the independent variables as it employs an autoregressive distributive lag (ARDL).

4.3 Data Issues and Sources

This study employs data covering the period 1995 to 2016 based on data availability for all the variables in question obtained from World Bank statistical bulletin. The study discovers that various measures have been used to measure tourism in the course of reviewing the literature (see Sequeira and Campos, 2005; Surugiu and Surugiu, 2013). Hence, tourism receipt (TR) as a percentage of GDP at current prices is employed by this study to measure tourism export as an independent variable while GDP at current prices is used to measure economic growth. Merchandise export (MERX) is assumed to have a great influence on economic growth, inflation (INFL) which captures instability within the economy, and D2011 captures the 2010/2011 crisis in North Africa. The selected North African countries covered in this analysis are Algeria, Egypt, Morocco and Tunisia.

5.0 Estimation Results and Discussion

5.1 Panel unit root tests

The determination of the non-stationarity of the series used is very essential, hence, we employ the panel unit root tests of Levin et al. (2002) (LLC), Im et al. (1997) (IPS), Madala and Wu (1999) (ADF Fisher) and Breitung (2000) (Breitung). The test statistics for the natural log levels and first difference of GDP and the independent variables are respectively generated. The table 3 below reveals the test statistics and the probability values. The results for all the variables except inflation show that they are not stationary at level (at 5% level of significance) but rather at first difference.

5.2 Pooled Mean Group (PMG) Estimation

Having determined the non-stationarity of the series, we discover that the series are I(0) and I(1) series which validates the use of PMG. Hence, the study estimates short run and long run relationship between economic growth and tourism in North African countries using PMG. The result of the PMG estimator is presented in the table 4 below:

Table 3	Panel unit root test			
Variables	**LLC test**	**Breitung test**	**IPS**	**ADF Fisher test**
lnGDP	0.7801	1.5069	1.9292	3.8215
	(0.7823)	(0.9341)	(0.9731)	(0.8729)
ΔlnGDP	-5.6292	-3.6548	-1.8995	15.9148
	(0.0000)	(0.0001)	(0.0287)	(0.0436)
lnTour	2.8630	3.2125	4.0332	0.4016
	(0.9979)	(0.9993)	(1.0000)	(0.9999)
ΔlnTour	-5.9127	-4.0891	-6.0627	41.8574
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
lninfl	-3.9936	-1.2831	-4.8756	35.0937
	(0.0000)	(0.0997)	(0.0000)	(0.0000)
Δlninfl	-11.2422	-4.3106	-9.8258	69.3499
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
lnmerx	1.9659	1.5684	2.5290	2.7262
	(0.9753)	(0.9416)	(0.9943)	(0.9503)
Δlnmerx	-6.8562	-5.9528	-5.2453	36.2775
	(0.0000)	(0.0000)	(0.0000)	(0.0000)

Note: Figures in parenthesis are the probability values

Table 4: Summary of PMG results for Gross Domestic Products (GDP)

Dependent Variable: GDP

	Short run				**Long run**			
Regressors	Coefficient	Std. Error	T-stats	P.value	Coefficient	Std. Error	T-stats	P.value

Lninfl	-0.0373	0.0191	-1.9577	0.0549	0.2192	0.0753	2.9115	0.0050
lntour	0.0618	0.0369	1.6751	0.0991	0.2849	0.0948	3.0050	0.0039
lnmerx	0.1110	0.1011	1.0979	0.2766	0.5665	0.0982	5.7701	0.0000
D2011	-0.0025	0.0087	-0.2834	0.7779	0.0649	0.0748	0.8669	0.3895
Cointeq01	-0.2244	0.0644	-3.4842	0.0009				
C	1.2342	0.3273	3.7710	0.0004				

Note: the cointegration shows that there exist a long run relationship between the dependent and the independent variables. It is worth mentioning that the result implies that tourism while statistically significant and positive at 10% in the short run contributes just 6% to economic growth in North African countries but 28% in the long run at 5% level of significance (see Brida & Risso, 2010).

Table 5: Cross-Section Short run Coefficient

Algeria					Egypt				
Regressors	Coefficient	Std. Error	T-stats	P.value	Regressors	Coefficient	Std. Error	T-stats	P.value
Lninfl	0.0115	0.0002	61.2151	0.0000	lninfl	-0.0800	0.0010	-77.3188	0.0000
Lntour	0.0233	0.0008	30.2065	0.0001	lntour	-0.0015	0.0031	-0.4674	0.6721
lnmerx	0.3176	0.0032	100.1476	0.0000	lnmerx	-0.0727	0.0075	-9.6451	0.0024
D2011	0.0127	0.0009	13.7856	0.0008	D2011	-0.0195	0.0018	-10.7651	0.0017
Cointeq01	-0.1561	0.0031	-50.9479	0.0000	Cointeq01	-0.1373	0.0012	-113.6414	0.0000
C	0.9581	0.1578	6.0724	0.0000	C	0.8559	0.0797	10.7397	0.0017
Morocco					**Tunisia**				
Regressors	Coefficient	Std. Error	T-stats	P.value	Regressors	Coefficient	Std. Error	T-stats	P.value
Lninfl	-0.0489	0.0002	-289.5234	0.0000	lninfl	-0.0319	0.0006	-51.0226	0.0000
Lntour	0.1660	0.0088	18.8073	0.0003	lntour	0.0594	0.0045	13.1534	0.0009
lnmerx	-0.0522	0.0106	-4.9300	0.0160	lnmerx	0.2514	0.0084	29.8938	0.0001
D2011	0.0122	0.0009	13.2019	0.0009	D2011	-0.0153	0.0008	-20.2045	0.0003
Cointeq01	-0.4149	0.0183	-22.7074	0.0002	Cointeq01	-0.1893	0.0074	-25.7442	0.0001
C	2.2140	0.9392	2.3574	0.0996	C	0.9087	0.2304	3.9445	0.0290

Note: the cross section analysis of individual countries shows that tourism contribution to economic growth for Algeria is significant and positive; Egypt is negative and insignificant, Morocco is positive and significant; Tunisia is positive and significant.

Conclusion

Sequel to the results of the analysis above, we may conclude that tourism is a viable potential through which sustainable development can be achieved in North Africa, if the share of tourism-growth can be properly managed and tourism aids adequately provided. By tourism aids, we

mean adequate security, political stability, adequate social and infrastructural facilities and accessibility to tourism sites among the host of others.

Table 6: Economic activities of Algeria, Egypt, Morocco and Tunisia

Economic Activities	Algeria	Egypt	Morocco	Tunisia	Eur28	Year (source)
Population (mlm)1	39.7	91.5	34.4	11.3	510.1	2015 (UNESCO)
Population aged 15-34 (mlm)1	13.9	31.5	11.8	3.7	119.8	2015 (UNESCO)
Old-age dependency ratio (%)2	9.1%	8.5%	9.3%	11.0%	29.4%	2015 (WB)
Fertility rate (births per woman)2	2.9	3.3	2.5	2.2	1.5	2014 (WB)
Adult literacy rate (15+)3	79.6%	75.8%	71.7%	81.1%	99.2%	2015 (UNESCO)
Mean years of education4	7.6	6.5	4.4	6.8	11.4	2014 (UNDP)
Youth employment ratio (female, 15-24)5	5,8%	9.6%	14.0%	13.9%	32.2%	2016 (ILOSTAT)
Youth employment ratio (male, 15-24)5	35.3%	33.9%	41.1%	30.4%	36.2%	2016 (ILOSTAT)
Unemployment rates5	11.2%	12.0%	10.0%	14.8%	8.6%	2016 (ILOSTAT)
Youth unemployment rates (15-24)5	26.6%	33.4%	20.6%	35.7%	18.7%	2016 (ILOSTAT)
GINI coefficient (0-100)6	34.2	46.4	39.6	36.7	29.8	2015 (SWIID)
Ease of Doing Business (rank)7	156	122	68	77	30	2017 (WB)
GDP (constant 2010 USD bln)2	190.2	247.7	113.2	48.1	17878.7	2015 (WB)
GDP per capita (constant 2011 USD PPP)2	13822.6	10250	7364.8	10769.9	35622.2	2015 (WB)
GDP per capita growth (2011 USD PPP)2	1.2%	2.2%	2.6%	2.6%	1.4%	1990-2015 avg(WB)
Gross savings (% of GDP)8	43.6%	12.6%	27.2%	14.7%	21.3%	2011-15 avg(IMF)
Total investment (% of GDP)8	44.6%	15.2%	33.6%	23.1%	19.9%	2011-15 avg(IMF)
Current account balance (% of GDP)8	-0.9%	-2.6%	-6.4%	-8.4%	1.4%	2011-15 avg(IMF)
FDI net inflows (% of GDP)2	0.7%	1.2%	3.0%	2.2%	3.6%	2011-15 avg(WB)
Personal remittances received (% of GDP)2	0.1%	6.3%	6.9%	4.8%	0.6%	2011-15 avg(WB)

ODA net loans and grants (% of GDP)9	0.1%	1.0%	1.7%	1.8%	-	2011-15 avg(OECD

Source: Dadush et al. (2017)

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