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## **Does tourism development contribute to human capital development in Africa?**

### **Abstract**

The literature has been awash with alternative explanations for structural and economic transformation in more recent years. Growth drivers are myriad in empirical depictions and enquiries into deeper causal relationships has preoccupied development discourse. Particularly, the contributory role of tourism development in job creation, thereby increasing the standard of living, national output, foreign exchange earnings and revenue to the government through taxation have been brought into sharper view by extant studies. To this end, the developmental gains arising from expansion of activities in the tourism industry has equally blossomed. This is particularly the case in Africa owing on one hand to the high influx of tourists into the continent as well as the relative size of tourism receipts to gross domestic product (GDP) for key continental destinations on the other hand. Hence, the central question is how has tourism development influenced overall economic development in the African context? To pursue this train of inquisition, this study examined the effect of tourism development on human capital development in Africa. Precisely, the study uncovered the role of tourism in influencing human capital development using data on a panel of twenty-five (25) African countries covering the period from 1998 to 2014. System General Moment Method (GMM) estimation techniques was deployed in the study in a requisite bid to account for endogeneity and unlike previous work human capital is decomposed into education and health to facilitate clearer understanding on the specificity of the impacts of tourism development in the economy. The study findings showed that tourism development vis-à-vis tourist arrival and tourism receipt had positive and significant effect on human capital development in Africa. This result is found to be robust to the choice of human capital indicator albeit with certain variations contingent on model specification. Thus, appropriate policies that will make the continent's tourist sites attractive to tourists need to be implemented.

**Key words:** tourism development; human capital development; system GMM; Africa

### **Introduction**

The developmental gains of tourism industry to the host community has prompted researchers to interrogate the issue of tourism extensively. The development of the industry has been linked with increase in job creation, income to households, revenue to the government, foreign exchange earnings in the host community and the country at large (Sinclair, 1998; Christie, Fernandes, Messerli & Twining-Ward, 2013; Jordan, Havadi-Nagy & Marosi, 2016).

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Tourism development is refers to an increase in the number of tourists that arrived a country over a period of time. Tourism development is associated with increase in tourism receipt. Tourism receipt is the total expenditure incurred by tourists that visited a country over a specified period of time. According to Africa Tourism Monitor (2013, 2015), a total of 37 million international tourists arrived Africa in 2003 and then increased to 65.3 million in 2014. International tourists are tourists who travel to a country other than that in which they have their usual residence, but outside their usual environment, for a period not exceeding 12 months and whose main purpose in visiting is other than an activity remunerated from within the country visited. The observed high influx of tourists into Africa as well as the relative size of tourism receipt to gross domestic product (GDP) within the last decade suggests that the sector cannot be seen as insignificant to Africa development.

Furthermore, Africa Tourism Monitor (2015) accounted that a total of 65.3 million international tourists arrived the continent, leading to the creation of 8.7 million direct jobs, US\$43.6 billion in tourism receipts as well as total tourism receipt as a percentage of export above 8% in 2014. These illustrate that tourism industry play an important role in Africa, which can be seize to improve the continent's level of human capital development. Human capital is the sum of the abilities of an individual, in terms of capacity and the knowledge (Schultz, 1961). Expressed in another form, human capital is the development of the human capacity, which leads to a healthy and knowledgeable existence, to attain decent standard of living as well as capacity to thrive (Becker, 1962). From the foregoing, human capital development entails advancement in the human capacity.

Africa has the lowest human capital development in the world (AfDB/OECD/UNDP, 2015). Specifically, health and education condition in the continent is far below the world average<sup>1</sup>. This suggests that the continent's low living standard and high poverty rate could be attributed to the low level of human capital development. Thus, to increase the living standard and alleviate poverty in Africa. Human capital development has to be improve. In line with the study by Biagi, Ladu and Royuela (2017), we examine whether tourism development has positive effect on human capital development in African countries. According to World Travel and Tourism Council (WTTC) (2017a) Africa tourism industry is projected to growth at average rate of 5.9% over the next ten years. Thus, it is imperative to know the extent to which tourism development will contributes to human capital development in Africa. Hence, this study examined the effect of tourism development on human capital development in Africa over the period of 1998 to 2014. Human capital development is measured along its components, that is, education and health components of human capital development.

Contributions from tourism literature have mainly centred on the impact of tourism development on economic growth (Fayissa, Nsiah & Tadasse, 2008; Akinboade & Braimoh, 2010; Pablo-Romero & Molina, 2013). The study by Ghali (1976) which is the pioneer study in this area showed that in Hawaii tourism contributed to the increase in the growth rate of per capita income. The contribution of tourism to economic growth was equally supported by the findings of Fayissa et al. (2008) and Akinboade and Braimoh (2010). In these separate studies, the authors found that tourism development had positive influence on economic growth. Furthermore and Belloumi (2010) and Tang and Ozturk (2017) found tourism development to Granger caused economic growth in Tunisia and South Africa respectively. The current examine the impact of tourism on economic development by focusing on human development thereby steering clear of existing studies.

We distinguish our study from that of Biagi et al. (2017) by decomposing human capital development into education and health instead of using HDI as used in the latter study. By doing this, we gain understanding on how tourism affects education and health separately. In addition, we examined the

effect of tourism receipts and tourist arrivals separately unlike Biagi et al. (2017) paper which made use of a composite measure for tourism. Through Human capital development, the choice of an individual increases, through increase in human capacity and opportunities resulting from it, since, individual's capacity depends on education, health and skills etc. (Becker, 1962; Schultz, 1961). In other words, Human development can be seen as the development of the people, development for the people and development by the people (United Nations Development Programme, 1990). Human development can be examined as a way of enhancing people to achieve more economic activities with the purpose of attaining overall economic development.

After accounting for endogeneity through the use of system GMM estimation technique. The study findings show that in Africa, international tourists' arrival and tourism receipt as % of GDP has positive and significant effect on both education and health indicators, which were used in the study to gauge human capital development. Overall, we found that tourism development appreciably influenced education and health in the selected African countries. The implication of this study is that for African countries with low human capital such as Burkina Faso, Lesotho, Niger, Rwanda and Swaziland, if they could improve on their tourist sector development, they might be able to improve their level human capital development marginally.

## Overview of tourism development and human capital development in Africa

In this section, we provide background information on tourism development and human capital by examining the trend of tourist arrival, international tourism receipt as % of GDP, secondary school enrolment and life expectancy in Africa against to other regions. So as to benchmark the performance of the tourism sector and the level human capital development in Africa to what is obtained in other regions.

Information on tourist arrival across various region of the world is presented in Table 1. We observed that there is low attendance of international tourists entering Africa. This is in agreement with the observation of Teclé and Schroenn (2006) and UNWTO (2015). The implication of low share of Africa to world tourism market is that the potential of the Africa market is still untapped (UNWTO, 2015, p. 4). However, the number of international tourists entering Africa has been on the increase. Total international tourists arrival increased from 16 million tourists in 1995-1999 to over 20 million international tourists in 2000-2004, and then increased to 28 million international tourists in 2004-2009 and then increased to 35 million international tourists in 2010-2014. The growth rate of Africa tourist arrival is projected to be higher than world average over the next ten years (WTTC, 2017a, b). Furthermore, it shows that Europe and Central Asia is the leading tourist destination in the world, with an average of 447 million international tourists arriving at the region over the period of 1995 and 2014. International tourists' arrival in Africa, over the same period, stood at an average of 25 million people per year. The figure is observed to be higher than what was recorded in South Asia but lower than other regions of the world.

In addition, Table 2 provides information on the share of tourist receipt to GDP in Africa and other regions of the world. It measures the relative size of tourism sector. In Africa, international tourism receipts represents approximately 2% of the region Gross Domestic Product (GDP) over the period of 1995 to 2014. It is the second largest in the world after Europe and Central Africa. This explained while UNWTO (2015, p. 5) refers African tourism sector as source of immunize opportunities and

possibilities. The share of international tourism to GDP increased from 2.47% in 1995-1999 to 2.7% in 2000-2004 but declined to 2.54% in 2004-2009. And then declined further to 1.91% over the period of 2010-2014. The observed decline in the share can be attributed to the region output growth rate, which was higher than the growth rate of international tourism receipt. Despite the observed decline in the share of international tourism receipt to GDP in the region, the region share is observed to be higher than the world share. This suggests that the continent could derive some benefit from the sector. It is against this relative share of the sector that Rogerson (2007) refers the sector as a critical sector in Africa.

Table 1  
International tourist arrival in million

Country name	1995-1999	2000-2004	2004-2009	2010-2014	Average
East Asia and Pacific	84.91	116.24	166.93	221.69	147.44
Europe and Central Asia	345.36	412.65	484.67	545.89	447.14
Latin America and Caribbean	50.20	54.83	67.79	78.72	62.88
North America	64.90	65.30	71.73	83.37	71.33
South Asia	4.15	4.94	7.64	11.00	6.93
Sub-Saharan Africa	16.11	20.49	28.79	35.15	25.13
World	604.54	729.75	908.22	1,074.31	829.21

Source: Computed by authors based on World Development Indicators data (2016).

Table 2  
International tourism receipt as % of GDP

Country name	1995-1999	2000-2004	2004-2009	2010-2014	Average
East Asia and Pacific	1.14	1.31	1.53	1.63	1.40
Europe and Central Asia	2.39	2.56	2.36	2.38	2.42
Latin America and Caribbean	1.55	1.88	1.60	1.24	1.57
North America	1.24	1.04	1.02	1.21	1.13
South Asia	0.79	0.82	0.98	1.03	0.90
Sub-Saharan Africa	2.47	2.70	2.54	1.91	2.41
World	1.67	1.71	1.73	1.74	1.71

Source: Computed by authors based on World Development Indicators data (2016).

We turn to information on human capital. For this study, we focused on secondary school enrolment rate and life expectancy at birth, which are presented in Table 3 and Table 4 respectively. The information presented in Table 3 revealed that Africa had the lowest secondary school enrolment rate in the world. Far below the world average. This is in consonant with the human resource deficiency observed by Teclé and Schroenn (2006). According to them, the impact of tourism on development outcome has been constraint by the low level of human development in the continent. By comparing secondary school enrolment rate in Africa in 1995-1999 to 2010-2014. The enrolment rate suggests improvement but this can still be improved upon. The rate rose from 25.12% in 1995-1999 to 41.82% in 2010-2014.

A closer look at the information on Africa life expectancy at birth as presented in Table 4, depicts similar pattern to what was observed with regards to secondary school enrolment rate over time. It shows that an average African's is expected to life for 50years in 1995-1999. And then increase gradually to 57.5 years in 2010-2014. The observed improvement can be attributed to advancement in health care and the embracement of modern health care facilities. Regrettably, the world life expectancy at birth is higher than Africa by more than 15 years. The implication of this is that African's on average a short lives. This suggest that the region needs to intensive existing efforts in an attempt to catch up with the life expectancy recorded in other region of the world.

Both measures of human capital development, secondary school enrolment and life expectancy at birth, clearly point out that the level of human capital is grossly low in Africa. The implication of this is that the efficiency and effectiveness of workforce in Africa is low when compared to other regions of the world. Furthermore, since human capital development determines the long run standard of living and the quality of life of people. If the current low level of human capital development is not improved upon, the standard of living and the quality of life in Africa will be far behind other regions.

Table 3  
Gross enrolment ratio, secondary, both sexes (%)

Country name	1995-1999	2000-2004	2004-2009	2010-2014	Average
East Asia and Pacific	58.53	62.07	71.64	83.66	68.20
Europe and Central Asia	93.18	95.84	96.07	100.51	96.18
Latin America and Caribbean	79.03	84.68	87.45	89.83	85.00
North America	94.90	94.07	95.33	94.77	94.77
South Asia	42.88	45.57	53.81	63.25	50.75
Sub-Saharan Africa	25.12	28.98	35.31	41.82	32.33
World	58.18	61.00	66.49	73.21	64.27

Source: Computed by authors based on World Development Indicators data (2016).

Table 4  
Information on life expectancy at birth (years)

Country name	1995-1999	2000-2004	2004-2009	2010-2014	Average
East Asia and Pacific	70.41	72.10	73.56	74.55	72.66
Europe and Central Asia	72.47	73.44	74.86	76.49	74.32
Latin America and Caribbean	70.41	72.11	73.37	74.49	72.59
North America	76.47	77.25	78.19	79.03	77.73
South Asia	61.60	63.68	65.55	67.42	64.56
Sub-Saharan Africa	50.00	51.10	54.18	57.50	53.20
World	66.83	68.17	69.64	70.99	68.90

Source: Computed by authors based on World Development Indicators data (2016).

Table 5 provides country specific information on tourist sector development and human capital development in the selected African countries. It gives an insightful pattern on the link between tourism development and human capital development. It points out that Egypt, Morocco, South Africa and Tunisia, which are the top tourist's destination in Africa have an impressive human capital development. The top tourist's destination in Africa tends not to change significantly with time as the study findings is in consonant with the findings in Rogerson (2007, p. 365) study's. We observed that life expectancy at birth and secondary school enrolment rate in these countries are above the continent's average. While countries with low human capital such as Niger, Burkina Faso and Rwanda for secondary school enrolment rate and Swaziland, Lesotho and Nigeria for life expectancy attracts less than one million tourist arrivals on average between 1995 and 2014. The statistics in Table 5 is suggesting that tourism development is positively related to human capital development in Africa.

In summary, this section revealed that wide gap between Africa and other region of the world in terms of human capital is observed to be wide. Hence, for Africa to catch up with other region of the world, there is need to ensure that there is significant improvement in human capital. It will be interesting to know if to development benefits of tourism development extends to human capital development.

Rogerson (2007) highlighted that tourism development contributes to increase in national output, employments creation, improvement in standard of living, government tax revenue increases as well as leads to increase in foreign exchange earns. Similar line of idea is shared by Twining-Ward (2009), Christie et al. (2013) and UNWTO (2015). Thus, an interesting question to ask then is does tourism development contributes to human development in Africa?

Table 5  
Information on selected african countries, averaged from 1995-2014

Country name	Tourist arrival'000	Tourism receipt as % of GDP	Gross enrolment ratio, secondary, both sexes (%)	Life expectancy at birth (year)
Algeria	1593.1	0.2	78.2	72.4
Benin	168.1	2.7	33.7	57.3
Botswana	1439.5	3.4	77.7	56.7
Burkina Faso	209.6	1.0	18.1	54.2
Djibouti	38.0	1.3	27.8	58.9
Egypt	8276.5	5.4	79.6	69.6
Eritrea	91.3	5.7	29.0	59.2
Ghana	642.4	4.4	50.4	59.1
Guinea	45.4	0.1	28.1	54.0
Kenya	1238.8	4.7	49.0	55.2
Lesotho	381.9	1.8	42.0	46.7
Malawi	536.8	1.5	32.1	51.3
Mali	131.9	2.4	29.1	53.2
Mauritius	804.1	17.0	85.9	72.5
Morocco	6729.4	8.1	50.7	70.9
Namibia	842.4	5.9	62.1	58.7
Niger	67.4	1.2	11.0	55.1
Nigeria	959.5	0.2	32.5	49.3
Rwanda	553.0	3.2	21.5	55.6
Seychelles	157.4	35.2	76.8	72.8
South Africa	7588.2	3.0	90.2	54.4
Swaziland	635.0	1.8	49.9	47.9
Togo	134.6	2.2	41.0	55.6
Tunisia	5888.2	7.9	83.2	73.6
Uganda	647.0	3.6	22.4	52.1

Source: Computed by authors based on World Development Indicators data (2016).

## Literature review

This section covers the review of previous studies relating to tourism development, human capital and economic growth. One of the earliest studies on tourism and economic growth was carried out by Ghali (1976). The study focused on the Hawaii economy. The study centred on the effect of tourism in Hawaii on the economy based on demand side analysis. The study's data spa from 1953 to 1970 and found that the growth rate of real GDP per capita was lower when tourism was excluded from it. The author findings suggest that in Hawaii, drop in tourism will bring about slowdown in the growth rate of Hawaii economy.

Following the findings of Ghali (1976) other studies have been carried out to examine the effect of tourism on economic growth and development. Country-specific studies on South Africa by Akinboade and Braimoh (2010), Tunisia by Belloumi (2010) and Egypt by Tang and Ozturk (2017). In each of these studies, it was found that long run relationship existed for these economies. This implies that tourism's impact on an economy could be viewed from a long run perspective. However, studies in non-African countries by Oh (2005) for Singapore and Lee (2008) for Korea economy could not established that long run relationship holds.

Further, the study by Lee (2008), Akinboade and Braimoh (2010), Belloumi (2010) and Tang and Ozturk (2017), which are single country analyses found that tourism Granger causes economic growth. Akinboade and Braimoh (2010) examined the dynamic granger causality between international tourism and economic growth in South African. Annual data that span over the period of 1980 to 2005 was used. The study's findings depicts that tourism development granger cause economic growth in South Africa. Similar findings were found by Belloumi (2010) for Tunisia and Tang and Ozturk (2017) for Egypt. In the study by Belloumi (2010) Vector Error Correction Granger causality test was employed. Annual data that span over the period of 1970 to 2007 was used and found that tourism receipt granger cause economic growth in Tunisia. On the other hand, Tang and Ozturk (2017) utilized Toda-Yamamoto-Dolado-Lutkepohl causality test to determine whether tourism development granger cause economic growth in Egypt. Annual data that span over the period of 1982 to 2011 was used. The study's findings show that in Egypt tourism expansion stimulates economic growth. The above findings suggest that tourism development contributes to economic growth.

Turning to multi-countries analysis, the study by Fayissa et al. (2008) focused on 42 African countries, which utilized annual data that span the period of 1995 to 2004. They found that tourism receipts positively contributed to GDP per capita in the selected African countries, confirming the claim by Sinclair (1998) on the role of tourism development on development especially in developing countries. This reflects the growing financial support by the international developmental donor for funding the development of the tourism sector (see Hawkins & Mann, 2007 for detailed documentation of World Bank funding analysis). In addition, Biagi et al. (2017) extend the role of tourism to human development. The study covers 63 countries comprising of developed and developing countries over the period 1996 to 2008. And found that tourism development stimulates human development. Their results suggest that advancement in the tourism industry focused not only on economic growth and development but also the human capital of people in the average country.

From the above studies, it can be seen that human capital development has not been well investigated in relation to tourism development. Biagi et al. (2017) examined how tourism affected human development, and measured human development using HDI. They did not examine how it influenced education and health separately. Examining these human capital factors separately gives better information on the role of tourism. In addition, their sample comprises of both Africa and non-Africa countries. The focus of our paper is only on African countries. Thus, the present study therefore provides precise explanation on the role of tourism in human capital development in Africa. However, extensive studies has focused on the role of human capital development on tourism development (Singh, 1997; Teclé & Schroenn, 2006). Teclé and Schroenn (2006, p. 453) revealed that deficiency in the human development within the tourism sector constraint it positive effect on economic development. As a result, the authors argued that the development of the human resource development is crucial to maximise the beneficial impacts of tourism (p. 455).

# Theoretical framework, data and methodology

## Theoretical framework

This study examines the benefit of tourism development in the host country by focusing on human capital development. A shift from existing studies, which focus on the effect of tourism development on economic growth. Hawkins and Mann (2007) testify to the developmental role played by tourism sector judging by the continuous commitment on the part of World Bank to finance projects relating to tourism development especially in developing countries. As the bank acknowledged the capacity of the sector to stimulate economic growth, employment creation and poverty reduction as well as serves as diversification option for country that intended to diversify its economy. Having recognised the role of tourism development in enhancing economic growth, and the importance of human capital in realising economic development as agued by Mankiw, Romer and Weil (1992). The implication of this is that, growth in tourism industry could promotes human capital development through the positive spill-over effect of improvement in human resources within the sector necessary to drive the observed growth in the sector (Teclé & Schroem, 2006).

Further, tourism development could enhance human capital in the following ways. First, it serves as a source of livelihood to those working in the sector as well as those rendering services to international tourists during their visit (Sinclair, 1998; Christie et al., 2013; Jordan, et al., 2016). Through their employment, they could afford to acquire basic necessity of life, thereby enabling them to realise a decent life. Thus, it increases their life expectancy.

In addition, since tourism development contributes to government revenues. It serves as additional finances that the government could utilise to subsidy both health and educational services so that it could be affordable to large fraction of the population as well as provide both educational and health facilities. Through the use of the extra finances available to the government, we expect the number of children enrolment level to improve, from primary level to tertiary level. Also, life expectancy at birth should improve as well. This is because better facilities are now available to handle health issues. The availability of improved health care facilities, will reduce mortality rate and as such increase life expectancy at birth (Hertz, Hebert & Landon, 1994). In addition, it complements other sources of foreign exchange. The additional foreign exchange earned from tourism could be used to procure drugs and import health care facilities essential in the country, which are produced in another country. Also, as the number of international tourists arriving for recreational activities and other related activists increases, as they spend/ incur cost during their visit, business activities relating to tourism increases, translating to increase in national output/income as well as taxable income to the government and additional source of foreign exchange earns to the host country (Christie et al., 2013; UNWTO, 2015).

## Model specification

The above theoretical submission shows that through income generation, employment creation, increase in national product, increase in government tax revenue and foreign exchange earns, tourism development enhances human capital. Going be the above theoretical background, we specified human capital equation as a function of tourism development and other explanatory variables.

$$HC_{i,t} = \beta + \rho HC_{i,t-1} + \phi T_{i,t} + \theta' sX_{i,t} + \eta_i + \varepsilon_{i,t} \quad (1)$$

Where HC is human capital, T is tourism development, X is vector of other factors that influence human capital,  $\varepsilon$  is the residual term. The term  $\eta_i$  is the unobserved country specific effect, which are



independently and identically distributed over the countries,  $i$  is the number of cross section,  $t$  is time,  $\beta$  is intercept,  $\rho$  is the coefficient of the lagged of the dependent variable,  $\theta$  is coefficient of tourism development,  $\vartheta$  is the coefficient for the vector of other factors that influence human capital.

In this study, we examine human capital from two perspective, namely, education and health Education is measured as secondary school enrolment rate. We prefer this measure over primary and tertiary enrolment because secondary school education provides the foundational knowledge which an individual required to develops its capacity. While health is measured as life expectancy at birth, the higher the quality of living the longer an individual lives. Thus, the higher the life expectancy at birth.

Based on our measures of human capital, we re-specify equation 1 into two equations, namely, equation 2 and 3. Secondary school enrolment is specified in equation 2 while life expectancy is specified in equation<sup>3</sup>.

$$SSE_{i,t} = \alpha_0 + \alpha_1 SSE_{i,t-1} + \alpha_2 T_{i,t} + \alpha_3 EE_{i,t} + \alpha_4 INV_{i,t} + \alpha_5 GDPPC_{i,t} + \alpha_6 FDI_{i,t} + \eta_i + \varepsilon_{i,t} \quad (2)$$

where SSE is secondary school enrolment, T is tourism development proxy by number of international tourist arrivals (TA) and international tourism receipt as % of GDP (TR), EE is educational expenditure proxy by government expenditure as % of GDP (GOVT), INV is investment proxy by gross fixed capital formation as % of GDP, GDPPC is income proxy by real gross domestic product per capita in US (\$) and FDI is foreign direct investment as % of GDP.

In equation 2, human capital is measure as secondary school enrolment. An increase in educational expenditure is expected to lead to increase in secondary school enrolment (Jung & Thorbecke, 2003). Investment in physical capital is also expected to enhance school enrolment, because as government construct blocks of class rooms in areas where there is not school before, overall enrolment of student is expected to increase (Schultz, 1961; and Biagi, et al., 2017). Due to spill-over effect of technological advancement and educational advance from firm original country to host country, foreign direct investment is expected to enhance school enrolment (Borensztein, Gregorio & Leea, 1998).

$$LE_{i,t} = \delta_0 + \delta_1 LE_{i,t-1} + \delta_2 T_{i,t} + \delta_3 HE_{i,t} + \delta_4 WA_{i,t} + \delta_5 SA_{i,t} + \delta_6 INV_{i,t} + \delta_7 GDPPC_{i,t} + \delta_8 FDI_{i,t} + \eta_i + \varepsilon_{i,t} \quad (3)$$

where LE is life expectancy at birth, HE is health expenditure proxy by government expenditure as % of GDP, WA is improved water as % of GDP, SA is improved sanitation facilities as % of total population, is sanitation while T, INV, GDPPC and FDI remain the same as previously defined.

In equation 3, we measure human capital as life expectancy at birth. We expect that an increase in health expenditure to increase life expectancy at birth (Hertz et al., 1994; Jaba, Balan & Robu, 2014). Since the quality of life depends on the environment, which someone lives in and the quality of water they drink. Thus, increased access to both quality drinking water and sanitation will to increase life expectancy at birth (Rogers & Wofford, 1989; Hertz et al., 1994). In addition, availability of good roads network, housing, basic infrastructural facilities are expected to enhance the quality of living. Therefore, as investment in physical capital increases life expectancy at birth of its citizen is expected to increase.

## Data issues

The definition of the variables are provided in Appendix A. All the variables used in the study were sourced from World Development Indicators. Previous studies on tourism measures tourism

development using tourist arrivals, tourism receipts, tourism expenditure, tourism receipt as % of GDP, tourism expenditure as % of GDP, number of hotel rooms etc. In this study, we focused on two measures of tourism development. They are tourist arrival and tourism receipts as % of GDP. The use of actual number of international tourists that visits African enables us to examine to quantify the effect of tourist arrival on human capital. While the choice of international tourist receipt as % of GDP as the second measure of tourism development is because it provides information on total expenditure incurred by tourist during their visit relative to the size of the economy. An increase depicts that tourists are patronizing the domestic economy. Thus, expanding the market for product rendered by the domestic firms.

Our study covers twenty-five Africa countries. The selected countries were chosen based on two criteria. The first criteria is that at least fifty thousand (50,000) international tourists must visits the country on the average over the last five years and that data on international tourists arrival and international tourist receipt most be available for at least ten years. Given this two criteria, we arrived at twenty-five African countries for our study<sup>3</sup>. The study covers the period of 1998 to 2014. This period was chosen for two reasons. First, due to data available. Second, the data coverage in the study enables us to examine the effect of tourism in the improvement of human capital development in Africa during the 21<sup>st</sup> century.

## Method of analysis

In this study we adopts system General Moment Method (GMM) developed by Arellano and Bond (1991) and Blundell and Bond (1998). The choice of this method of analysis is based on its capacity to solve for endogeneity issues that might arises from the interplay between the variables, measurement errors and omitted variable bias. The estimation technique is also appropriate given the study data structure. In this study, the number of countries is greater than time, i.e.  $N > T$ . The consistency of the GMM estimator depends on the validity of the instruments. To address this issues, we consider two tests, namely, Hansen test of over-identifying restrictions and second order autocorrelation test for the error term. Furthermore, we compute robust two-step standard errors by following the methodology proposed by Windmeijer (2005), this is because two-step standard errors are downward biased in a small sample and Windmeijer (2005) methods corrects for the observed weakness<sup>4</sup>.

## Results

We first perform preliminary check on the variable used in the study by carrying out descriptive analysis, the result obtained is presented in Table 5. It shows that the mean of secondary school enrolment of the period covered for the selected African countries is 48.18%. The implication of this findings is that relative large percentage of the selected African countries children that are of secondary school age are currently out of school. The value of secondary school enrolment standard deviation is 25.657%, this reveals that there is wide dispersion in secondary school enrolment overtime across selected African countries. This corroborates what has been discussed earlier in the study.

In addition, the descriptive result shows that the mean life expectancy at birth is 58.525years and the degree of dispersion is lesser than what was observed for secondary school enrolment. It suggests that on average, people residing in African does not live long to celebrate their 60th birthday. The mean of tourism receipt as % of GDP is 5.090, this suggest that tourism receipts in significant in the continent and an average of 1.634 million international tourists arrived the selected countries.

Table 6  
Descriptive result

Variables	Mean	Minimum	Maximum	Standard deviation
Secondary school enrolment	48.180	6.758	99.860	25.657
Life expectancy	58.525	43.415	74.808	8.687
Tourism receipt	5.090	0.027	42.183	7.385
Tourist arrival 'million	1.634	0.012	14.000	2.670
Government expenditure	18.033	5.153	69.543	8.365
Investment	21.678	5.459	54.135	7.328
Per capita income	2,091.896	205.431	25,697.600	2,784.065
Foreign direct investment	3.645	-4.378	54.063	4.974
Health expenditure	5.766	2.432	12.056	1.851
Water	75.447	41.7	99.9	15.639
Sanitation	43.359	6.000	98.400	29.317

Source: Authors' computation.

We turn to the estimation of equation 2, secondary school enrolment. The study's findings are presented in Table 7. It shows that tourism development contributes to human capital development via secondary school enrolment confirming our theoretical argument that employment creation, income generation, increase in national output, increase in government tax revenue and additional foreign exchanges arising from tourism development. In addition to its effect on increase in economic growth as pointed out by Sinclair (1998), Belloumi (2010) and Tang and Ozturk (2017). The results point out both measures of tourism development possesses expected sign and are significant at 10%. From the study findings, holding all other factors constant, an increase in the number of international tourists into Africa by 10% is expected to increase secondary school enrolment rate by 0.43%. Also, holdings all other factors constant, an increase in tourism receipt as % of GDP by the same 10% is expected to increase secondary school enrolment rate by 0.34%. The implication of the findings is the developmental role of tourism extends to improving enrolment rate in Africa.

As expected, the result reveals that investment, which is measure as gross fixed capital formation as % of GDP, has positive effect on secondary school enrolment. Also, spill-over effect of foreign direct investment on human capital in the host country is confirmed in this study. The effect of income on secondary school enrolment is found to be negative, supporting the trade-off hypothesis between advancement in education and income, with the prospect of higher income in the future. Further, the result shows that the lagged secondary school enrolment has positive effect on the current enrolment. This suggest that future enrolment rate adjust using the current enrolment rate.

The diagnostic test for the study validates the study's findings. Arellono and Bond test for autocorrelation shows that the model is properly specified and free of serial autocorrelation problem. In addition, Hansen test of over-identification restrictions, shows that the instruments used were robust.

Table 7  
Secondary school enrolment, two-step system GMM

	1	2
Secondary school enrolment (-1)	0.9860*** (0.0767)	0.9737*** (0.0452)
Tourism receipt	0.0338* (0.0189)	
Tourist arrival		0.0433*** (0.0116)
Government expenditure	-0.1397 (0.0705)	0.0449 (0.0307)
Investment	0.0511 (0.0535)	0.0022 (0.0197)
Per capita income	-0.0322 (0.0334)	-0.0637** (0.0235)

Table 7 Continued

	1	2
Foreign direct investment	0.0075 (0.0117)	0.0062*** (0.0020)
Constant	0.5203 (0.0189)	-0.1351 (0.1555)
AR(2)	0.444	0.5110
Hansen test	0.624	0.7310
Number of observation	268	274
No of cross section	25	25

Note: The value in the parenthesis is the corrected standard error based on the approach developed by Windmeijer (2005). The coefficient of the parameters estimated is presented above the standard error. \*, \*\* and \*\*\* denote statistical significant at 10%, 5% and 1% respectively.

We turn to the regression estimate for life expectancy at birth, which is presented in Table 8. Human capital is examined from the health perspective. The results confirmed our hypothesis that tourism development positively influence human capital. The study's findings show that, by controlling for other factors, an increase in tourism receipt as % of GDP by 100% will leads to increase in life expectancy at birth by 0.26% while increase in tourist arrival by 100% will translate to increase in life expectancy at birth by 0.31%.

The role of health expenditure on life expectancy was examined. The study's results presented in Table 8 point out that life expectancy increases with an additional health expenditure incurred. Further, average life expectancy at birth is found to increase as citizen as access to improved sanitation facilities and drinking water source. In addition, it shows that income measured as GDP per capita has a negative effect on life expectancy. This can be linked to the fact that higher income is tied with higher responsibility, causing people to have less time to rest, thereby affecting their health status negatively.

The diagnostic test for the study validates the study's findings. Arellono and Bond test for autocorrelation for the result presented in Table 8 shows that the result obtained is devoid of severe serial autocorrelation problem. In addition, Hansen test of over-identification restrictions, shows that the instruments used were robust.

Table 8  
Life expectancy, two-step system GMM

	1	2
Life expectancy (-1)	1.8050*** (0.0762)	1.6880*** (0.2176)
Tourism receipt	0.0026*** (0.0009)	
Tourist arrival		0.0031* (0.0018)
Health expenditure	0.0073 (0.0066)	0.0013 (0.0151)
Water	0.0077 (0.0105)	0.0298 (0.0869)
Sanitation	0.0031 (0.0051)	0.0103 (0.0697)
Investment	0.0019 (0.0029)	-0.0053 (0.0052)
Per capita income	-0.0022 (0.0050)	-0.0059 (0.0110)
Foreign direct investment	0.0005 (0.0004)	0.0001 (0.0009)
Constant	0.1109*** (0.0376)	0.0941 (0.1280)
AR(2)	0.3130	0.3140
Hansen test	0.4070	1.000
Number of observation	328	335
No of cross sectional	25	25

In the baseline estimation, the results obtained depicts the existence of serial autocorrelation as we could not reject the null hypothesis of serial correlation based on AR (2). We introduce the second lag of the dependent variable to correct for the serial correlation. The coefficient for life expectancy is -0.8441 for the equation with tourism receipt and -0.7481 for the equation with tourist arrival. The value in the parenthesis is the corrected standard error based on the approach developed by Windmeijer (2005). The coefficient of the parameters estimated is presented above the standard error. \*, \*\* and \*\*\* denote statistical significant at 10%, 5% and 1% respectively.

WTTC (2017a) reported that total tourist arrival into Africa will grow by 5.9% over the next ten years. This implies that the tourism sector in Africa will experience substantial development over the next ten years. An important question to ask then is, what will be the likely effect of the increase in tourism development on human capital development in Africa? Our findings in Tables 7 and 8 indicate that tourism development has positive and significant effect on both secondary school enrolment and life expectancy. Thus, we expect human capital deficiency in Africa to reduce as the tourism sector developed, given the increasing number of tourists that will visit Africa tourist sites. The positive effect of tourism development on human capital development will be achieved through its effect on employment growth, increase in national income, exchange earnings and government expenditure. This study findings supports the findings of Biagi et al. (2017). In their study, they found tourism index to have positive and significant effect on human development index.

Furthermore, the implication of the study's findings is that the developmental contribution of tourism in developing countries especially, Africa, is not limited to economic growth and poverty reduction effect. As tourism development also has the potential to increase the level of human capital development. Improvement in human capital development can be realised through the employment creation; as more people are taken out of the unemployment pool. This results from growth in the tourism sector. People employed could now afford nutrition meal that support healthy living. Another channel is through increase in national income as well as individual income. Due to employment, household earn income, this could be used by them to send their ward or family members to school. Thus, reducing secondary school ages children that are out of school. Another channel is through increase in government revenue. Tourism development implies higher taxable income for the government. Thus, additional revenue accrued to the government from tourism development adds to the existing pool of funds available to the government to provide quality health and educational facilities as well as render health care and educational services at a subsidies rate. Thus, if the forecast by WTTC on the projected growth rate of tourists arrival into African countries is realised. The continent's human capital development can be boost through tourism development.

## Conclusions

This paper examined the influence of tourism development on human capital development in Africa, with keen attention on education and health. This approach made for better appreciation of the role of tourism in influencing human capital. Our analysis in this study is centred on twenty-five (25) selected African countries, over the period of 1998 to 2014. In other to address endogeneity issue, we use two step system GMM. Our result shows that tourism development proxy using tourist arrival and tourism receipt as % of GDP contributes to human capital development, that is, increase in secondary school enrolment and life expectancy at birth.

The current study suggests that the current low level of human capital development in Africa can be improved through tourism development. Thus, human capital in Africa can be increased by addressing the constraint to tourism development. Africa is known for its rich historical sites, cultural heritage, natural beauty, deserts and beaches (UNWTO, 2015, p. 5). In line with the submission by Christies et al. (2013, p. 5) on the need to increase the number of existing air and land transportation infrastructure, so as to make the continent's tourist site more attractive to tourists. This is because current inadequate air and land transport facilities reduces the competitiveness of Africa as tourist destination (Christies et al., 2013, p. 5). Thus, revenue from tourism as well as finances from development donors should be effectively managed to ensure that good road network and airport are provided within the tourist sites.

Likewise, there is need to pay close attention to other constraints to the attractiveness and competitiveness of African tourist sites such as cost of tourism visa, political instability and mismanagement of tourism assets (Christies et al., 2013, p. 5). The cost of tourism visa should be lowered. To encourage tourists to be attracted to the country. Further, Christies et al. (2013) point out that tourists are less likely to visit countries that are characterised with political instable. This is because such countries are perceive to be less secured. Going by the associated benefit embedded with tourism development, there is need for conscious effort by the government to ensure that political instability is minimised. Since tourism development contributes to economic growth and poverty reduction (Teclé & Schroenn, 2006; Hawkins & Mann, 2007; Christies et al., 2013; UNWTO, 2015). The current study points out that the developmental role of tourism can be extend to human capital development which African countries could benefit from. Thus, it then become necessary to address some of the constraint to tourism development current experienced in various African countries.

Going forward, there is need for country case study on the role of tourism in promoting human capital development in Africa. This is important because country case study analysis will provide in-depth information which cannot be obtain from a panel study such as the current study.

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## Notes

<sup>1</sup>This is extensively discussed in the next section of this paper.

<sup>2</sup> We spilt the two measures of human capital because education and health are influenced by different factors as presented as follows

<sup>3</sup> List of countries covered in the study Algeria, Benin, Botswana, Burkina Faso, Djibouti, Egypt, Eritrea, Ghana, Guinea, Kenya, Lesotho, Malawi, Mali, Mauritius, Morocco, Namibia, Niger, Nigeria, Rwanda, Seychelles, South Africa, Swaziland, Togo, Tunisia, and Uganda.

<sup>4</sup> For comprehensive discussion on System GMM check Arellano and Bond (1991) and Blundell and Bond (1998).

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## Appendix A

### Definition of variables

Representation	Abbreviation	Full name	Definition
Secondary school enrolment	SSE	School enrolment, secondary (% gross)	Gross enrolment ratio is the ratio of total enrolment, regardless of age, to the population of the age group that officially corresponds to the level of education shown. Secondary education lays the foundations for lifelong learning and human development
Life expectancy	LE	Life expectancy at birth, total (years),	Life expectancy at birth indicates the number of years a new-born infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.
Tourism receipt	TR	International tourism receipt as % of GDP	International tourism receipts are expenditures by international inbound visitors, it includes payment made for goods or services received in the destination country. International tourism receipt as % of GDP is International tourism receipts divided by GDP
Tourist arrival	TA	International tourist, number of arrival	International inbound tourists (overnight visitors) are the number of tourists who travel to a country other than that in which they have their usual residence, but outside their usual environment, for a period not exceeding 12 months and whose main purpose in visiting is other than an activity remunerated from within the country visited
Government expenditure	GE	Government expenditure as % of GDP	All government current expenditures for purchases of goods and services divided by gross domestic product
Investment	INV	Gross fixed capital formation as % of GDP	Gross fixed capital formation measure the investment in an economy, it includes plant, machinery, and equipment purchases; the construction of roads, railways, schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings.
Per capita income	GDPPC	Real gross domestic product per capita	Gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products
Foreign direct investment	FDI	Foreign direct investment as % of GDP	Net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor divided by gross domestic +product (GDP)
Health expenditure	HE	Health expenditure as % of GDP	The sum of public and private health expenditure, it covers the provision of health services (preventive and curative), family planning activities, nutrition activities, and emergency aid designated for health, divided by GDP
Water	WA	Improved water as % of total population	The percentage of the population using an improved drinking water source
Sanitation	SA	Improved sanitation facilities as % of total population	The percentage of the population using improved sanitation facilities

Note: All the data for the above series were obtained from World Development Indicators (2016).

Submitted: 17/12/2016

Accepted: 01/08/2017