


Does Tourism Reduce Poverty in Sub-Saharan African Countries?

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Abstract

To achieve the Sustainable Development Goals (SDGs), precisely the one of eradicating extreme poverty at the end of 2030, it is important to understand factors that can reduce poverty. This article examines the effects of tourism development on poverty in Sub-Saharan African countries. Because of the possibility of an endogeneity problem arising from a reverse causation that might exist between poverty and the explanatory variables, the system Generalized Method of Moments (system GMM) estimation technique was deployed. The findings showed that tourism development contributes to poverty reduction in Sub-Saharan African (SSA) countries. In other words, the results obtained provided ample support for the workability of a pro-poor tourism policy agenda. As a result, policies that are targeted at increasing the attractiveness and awareness of the existing SSA tourism sites in order to increase international tourism receipts and arrivals should be promoted since such interventions have considerable poverty reduction potential.

Keywords

tourism, pro-poor tourism, poverty, Sub-Saharan Africa, system GMM

Introduction

The expiration of the United Nations (UN) Millennium Development Goals (MDGs) in 2015 ushered in the Sustainable Development Goals (SDGs) as the new global developmental roadmap. By the end of 2030, the SDGs are targeted at achieving 17 developmental objectives including eradication of poverty. A recent report by the World Bank prepared by Beegle et al. (2016, p. 3) showed that apart from Sub-Saharan Africa, all other developing regions of the world achieved the MDGs of reducing poverty by half in 2015. In the report, extreme poverty in Sub-Saharan Africa measured using poverty headcount—the proportion of the population living on less than \$1.90 a day (in 2011 international purchasing power parity [PPP])—decreased by 13% over the period of 1990 and 2012. Precisely, it fell from 56% in 1990 to 43% in 2012, with the population of the poor rising from 284 million in 1990 to 388 million in 2012, implying that more than 100 million people joined the pool of those living below the extreme poverty line.¹ This suggests that poverty is still high in Sub-Saharan Africa.

A recent report by UNCTAD (2017) argued that the performance of the tourism sector in Africa has been on the upward path over the last two decades. The report showed that the tourism sector contributed to Africa's growth, employment, and trade over the last two decades. Specifically, the report showed that on the average, the contribution of tourism to gross domestic product (GDP)

increased from \$69 billion (representing 6.8% of GDP) during 1995–1998 to \$166 billion (representing 8.5% of GDP) during 2011–2014, and international tourist arrivals during 1995–2014 grew at an average growth rate of 6% per year. In addition, more than 21 million jobs were created directly or indirectly from the tourism sector during 2011–2014, thus, accounting for 7.1% of all jobs in Africa. This implies that during 2011–2014, the tourism sector created 1 of every 14 new jobs in Africa.

In the literature, the role of the tourism sector in stimulating economic growth in developing countries has been extensively documented (Pablo-Romero and Molina 2013; Brida, Cortes-Jimenez, and Paulina 2016). The conclusion from most of these studies is that tourism promotes economic growth. Several channels have been identified through which tourism development promotes economic growth. Notable channels include (1) foreign exchange earnings; (2) investment in physical infrastructure and human capital development; (3) job creation, which leads to an increase in income; (4) additional source of government tax revenues; (5) efficiency in the tourism destination as a result of competition between local firms and corresponding

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businesses in other tourist destinations; and (6) intersectorial linkages with other economic activities (Andriotis 2002; Blake et al. 2008; Pablo-Romero and Molina 2013; Brida, Cortes-Jimenez, and Paulina 2016; Folarin et al. 2017).

The positive effect of tourism development on economic growth is expected to translate into economic development (Sinclair 1998; Croes and Vanegas 2008; Christie et al. 2014). Thus, recent studies in the field of tourism explore the spillover effect of tourism development on human capital development (Croes 2012; Biagi, Ladu, and Royuela 2017; Folarin et al. 2017) and poverty alleviation (Croes and Vanegas 2008; Kim, Song, and Pyun 2016; Mahadevan and Suardi 2017). The latter is the focus of this article.

In this article, our focus is on poverty for two main reasons. First, the existence of poverty constitutes a germane challenge to the realization of sustainable development. Second, the level of human capital development of the poor is low. The current low level of human capital among the poor is as a result of deprivation. This deprivation arises from the inability of the poor to afford quality education and health care facilities (Banerjee and Duflo 2007). Thus, any serious attempt to reduce poverty will indirectly improve the level of human capital development.

Therefore, it is pertinent to ask whether tourism is poverty reducing in Sub-Saharan African countries. Examining this question is important for at least two main reasons. First, the potential of the tourism sector in Sub-Saharan Africa is huge and it is yet to be fully explored (Mitchell and Ashley 2006; Christie et al. 2014). This is evident with the current growth rate of tourist receipts and arrivals in Sub-Saharan Africa, both of which exceed the world average (Folarin et al. 2017, p. 316). In sharp contrast, however, the region's poverty headcount and poverty gap index are high when compared to other developing regions. Sadly, Sub-Saharan Africa is the only region that failed to achieve the MDGs of reducing poverty by half at the end of 2015 (Beegle et al. 2016).

Second, the tourism sector is labour intensive, thus creating an opportunity for the inclusion of women and the informal sector (Mitchell and Ashley 2006). Banerjee and Duflo (2007) argued that poor people engage in multiple activities because of the seasonality of agricultural production, which arises from farm risks. Because of farm risks, the income the poor earn from agriculture becomes unpredictable. To mitigate these risks, the poor engage in non-agricultural activities. Provision of tourism-related services are part of the non-agricultural activities that engages the poor. Since tourism sector creates 1 of every 14 new employment in African countries, there is high probability that the poor engage in the provision of tourism-related services (UNCTAD 2017, p. 3).

Therefore, this article contributes to the ongoing debate on the tourism–poverty nexus. This is achieved by conducting an

econometric analysis on the effects of tourism sector development on poverty in Sub-Saharan African countries. This article is the first study we are aware of that used data for only Sub-Saharan Africa countries. Other studies such as Kim, Song, and Pyun (2016) and Mahadevan and Suardi (2017) focused on developing countries more generally. The authors pooled countries from different developing regions. Available statistics show that the pace of poverty reduction in Sub-Saharan Africa is quite different from other developing regions (Beegle et al. 2016). This suggests that the extent to which tourism impacts poverty in Sub-Saharan Africa will be different from other developing regions. Thus, a study that is focused entirely on Sub-Saharan African countries is needed.

Brief Literature Review

Over the last two decades, there has been an increased advocacy for the use of tourism as a tool for development and diversification in developing countries. This advocacy arises from the positive effect of tourism on job creation and foreign exchange earnings (Sinclair 1998; Ajogbeje, Adeniyi, and Folarin 2017; UNCTAD 2017). While the bulk of the literature examined the effects of tourism on economic growth and found support to Kaldor's proposition, that growth in export (tourism) spurs economic growth (Brida, Cortes-Jimenez, and Paulina 2016), studies on the effects of tourism on the poor are scant compared to those gauging impacts on economic growth (Scheyvens 2008; Zhao and Ritchie 2007; Winters, Corral, and Mora 2013). This observation could be associated with the assumption, somewhat not well-founded, that the growth effect of tourism development will trickle down to the poor (Croes 2014; Scheyvens 2008).

The effect of growth on the poor through tourism development can be classified into two strands (Ravallion and Chen 2003; Kakwani and Pernia 2000; White and Anderson 2001).² The first strand focused on the effect of tourism on inequality, which is the income distribution effect (Blake et al. 2008; Wattanakuljarus and Coxhead 2008; Saayman, Rossouw, and Krugell 2012; Croes and Rivera 2017). The second strand focused on the effect of tourism on poverty reduction (Croes 2014; Njonya and Seetaram 2018). This study focused on the second strand by trying to understand whether or not tourism development contributes to poverty reduction in Africa.

From the literature, four main channels have been identified to explain how tourism affects the poor. They are income channel, tax channel, price channel and risk and other dynamic channels (Blake et al. 2008; ITC 2009; Njonya and Seetaram 2018). The effect could either be direct or indirect. The first channel is through income. According to this channel, tourism expansion leads to an increase in the income of the poor (Blake et al. 2008; Njonya and Seetaram 2018). This is because of the job creation effect and the inter-sectoral linkages of the tourism sector to other

sectors of the economy. The implication of this is that the income of the poor will increase as the business opportunities within the economy as well as job creation increases with tourism expansion.

The second channel is through tax revenue. The principle in this channel is that an expansion of tourism contributes to government tax revenue, thus increasing the pool of funds available for the government to provide infrastructural facilities. The infrastructural facilities provided by the government also improves the competitiveness of a tourist destination. Hence, the provision of social services such as roads, health, and education by the government thereby raises the living standard of the poor (ITC 2009; Njoya and Seetaram 2018). The third channel is through price. In this case, tourism expansion is assumed to affect the poor negatively. An expansion in tourism suggests an increase in the demand for domestically produced goods and services. In the face of scarcity, demand theory states that the price of a product increases with an increase in demand. The implication of the positive relationship between price and tourism expansion is that the poor may no longer be able to afford goods that they could afford before (ITC 2009; Njoya and Seetaram 2018). A lower welfare then ensues from such erosion of their purchasing power.

The fourth channel is referred to as risk and dynamic influences. According to this channel, the effect of tourism on the poor could either be positive or negative. A positive effect occurs when tourism leads to the economic development of the local area of the tourist site through biodiversity conservation, creating funds for natural, cultural, and historical resources. A negative effect arises from the destruction of environmental resources and air, water, and noise pollution, which have been found to be associated with the expansion of the tourism sector (ITC 2009; Njoya and Seetaram 2018).

Empirical studies on the effects of tourism on the poor have been conducted using two approaches, namely, simulation and econometrics (Kim, Song, and Pyun 2016). Studies that make use of the simulation approach includes Blake et al. (2008) for Brazil; Wattanakuljarus and Coxhead (2008) for Thailand; Saayman, Rossouw, and Krugell (2012) for South Africa; Muchapondwa and Stage (2013) for Botswana, South Africa, and Namibia; Croes and Rivera (2017) for Ecuador; and Njoya and Seetaram (2018) for Kenya.³ At the other end, the econometric studies include Croes and Vanegas (2008) for Nicaragua; Croes (2014) and Vanegas, Gartner, and Senauer (2015) for Nicaragua and Costa Rica; Kim, Song, and Pyun (2016) for 69 developing countries; and Mahadevan and Suardi (2017) focused on 13 tourism-intensive economies.

Blake et al. (2008) examined the effects of tourism on different income groups for Brazil. The authors' simulation exercise showed that tourism helps the poor. However, they observed that the distributional benefits arising from tourism development remain more favorable

to the rich than to the poor. Similarly, Croes and Rivera (2017) investigated the effect of an increase in tourism spending on income distribution in Ecuador. The authors utilized a social accounting matrix model and found that the poor benefited the most from an increase in tourism spending. In addition, Njoya and Seetaram (2018) simulated the effect of an increase in tourism on the poverty rate. The authors measured poverty using poverty headcount, poverty gap, and severity of poverty. They found that tourism expansion contributes to poverty reduction. Furthermore, the authors' findings showed that tourism expansion affected poverty gap the most, followed by severity of poverty, while poverty headcount was the least affected.

On the contrary, Wattanakuljarus and Coxhead (2008) employed applied general equilibrium analysis to investigate the effect of tourism growth on income distribution in Thailand. They found that tourism growth benefited all household classes but worsened income distribution. The authors argued that the nature of the effect is because the country's tourism sector is less labor intensive. Saayman, Rossouw, and Krugell (2012) for South Africa showed that the poor hardly benefit from tourism and if they do, the benefit accruing to the poor is very small. Thus, the authors remarked that tourism does not help the poor in South Africa. The authors' submission implies that the trickle-down effect of tourism on the poor, through economic growth, does not hold using data from South Africa. Surprisingly, an earlier study by Akinboade and Braimoh (2010) that also used data from South Africa showed that tourism-led economic growth hypothesis holds. Based on the findings by Akinboade and Braimoh (2010), it could be inferred that tourism helps the poor. In addition, Muchapondwa and Stage (2013) used data for three Southern African countries—Botswana, Namibia and South Africa. They analyzed the data using social accounting matrices and found that in the selected countries, the poor segment of the population benefited the least from tourism development.

Studies that utilized the second approach, econometric approach, showed the extent to which tourism affects poverty. The conclusion from those studies that employed this approach is that tourism contributes to poverty reduction in developing countries. Croes (2014) found that economic development determines the extent to which tourism helps the poor. The author stressed that tourism contributes to poverty reduction in countries with a low level of economic development measured in terms of income per capita. Mahadevan and Suardi (2017) also found that the measure of poverty matters when assessing the effect of tourism on poverty reduction. They found that when poverty is measured as poverty gap, the effect of tourism is significant while an insignificant effect is found when poverty is measured using poverty headcount.

Tourism and Poverty in Sub-Saharan Africa

To understand the effects of tourism on poverty reduction in Sub-Saharan African countries, we provide next a historical account of the tourism sector in the region and also a descriptive comparative analysis of the main variables of interest: tourism and poverty. To do this, we present the trends of tourism and poverty separately across regions. This offers insights into the pattern of tourism and poverty across the different regions over time for the purpose of comparison. In addition, we used scatter diagrams to provide preliminary information on the plausible relationship that exists between tourism and poverty in the selected Sub-Saharan African countries.

Harrison (2000) provided a historical account of the development of tourism in Africa. According to the author, the development of the tourism sector in the region was by the colonialists for the colonialists (p. 37). Thus, the sector was developed purposely for the colonialists. This provides an explanation for the unequal development of the sector in the continent as also observed by Rogerson (2007), Folarin et al. (2017), and UNCTAD (2017). The explanation for this is not far-fetched; tourism development is positively associated with improved infrastructure such as good air and road networks. During the period before the 1960s, the colonialists resided mainly in South Africa and Egypt. In both countries, infrastructural facilities such as air and road transport were provided, thereby serving as a leverage for tourism development long after the expiration of their stay in those countries (Harrison 2000, p. 41). Thus, the infrastructural development in those countries fosters the relative accessibility of those countries, thereby making them the main international tourist destinations in the region.

Over the last two decades, both international development agencies and national governments have identified tourism as a critical sector for the realization of economic and social development in Sub-Saharan Africa. UNCTAD believed in the potential of the tourism sector in stimulating economic development in Africa. This is reflected in its 2017 report on Economic Development in Africa. The importance of tourism toward the realization of economic diversification and structural transformation in Africa was conceptualized in the report by highlighting the sector's contribution to foreign exchange constraint easing, job creation, and its linkage with other sectors of the economy (p. 3).

Furthermore, Rogerson (2007) pointed out that international agencies have been actively involved in unveiling the developmental benefits of tourism to the continent of Africa. Their impact comes in diverse forms. Most noticeable is their role in funding research studies that provided conceptual frameworks on how tourism could contribute to African development. Such studies include Ashley and Mitchell (2005) and Mitchell and Ashley (2006) for the Overseas

Development Institute (ODI) and Hawkins and Mann (2007) and Christie et al. (2014) for the World Bank, just to name a few.⁴ The overriding conclusion from these studies is that tourism has the potential of stimulating economic development in African countries. In addition, New Partnership for Africa's Development (NEPAD) shared a similar perspective on tourism's potential, which informed its 2004 Tourism Action Plan.

Following the proposition that tourism could be utilized as a tool for economic development, the UNCTAD (2017) found that 49 African countries have integrated tourism into their National Development Plan with varying degrees of commitment within the plan to the tourism sector. To reveal the level of commitment, UNCTAD (2017) classified these African countries into three groups. The structure of the three groups is as follows: Group 1—the objectives of the tourism sector is included in the plan; Group 2—the objectives and some policies of the tourism sector is included in the plan; and Group 3—the objectives and policies of the tourism sector with detailed implementation plan is included in the plan. UNCTAD (2017) found that the majority (27) of the African countries fall into Group 2, while 11 each occupied Groups 1 and 3. This suggests that African countries recognize the importance of the tourism sector to economic development; however, only a few countries have drawn up detailed road maps for the implementation of their plans.

Figure 1 provides information about the trend of tourism receipts across the various regions of the world. A glaring conclusion from the trend is that the Europe and Central Asia regions recorded the highest international tourism receipts during 1996–2015, followed by East Asia and the Pacific region. Furthermore, in Figure 2 we represent the information depicted in Figure 1 excluding the two leading regions in terms of international tourism receipts. Our motivation for excluding them was that the two leading international tourism-receiving regions overshadow the performance of the other four regions. Thus, relying on Figure 1 does not provide us with the information about the performance of developing countries clearly compared to what is depicted in Figure 2. From Figure 2, it is seen that Sub-Saharan Africa is one of the weakest performers based on international tourism receipts.

This gloomy composite picture notwithstanding, a striking insight from Figure 2 is that international tourism receipts increased by close to 300% between 2002 and 2014. It rose from less than US\$1.05 billion in 2002 to its peak of US\$3.3 billion in 2014. The observed performance suggests that tourism reforms and plans introduced during those periods yielded results by increasing the region's international tourism receipts. Given the impressive performance of the Sub-Saharan Africa tourism sector over the last two decades, it will be interesting to understand its effects on economic development, especially when this is viewed from the prism of poverty reduction.

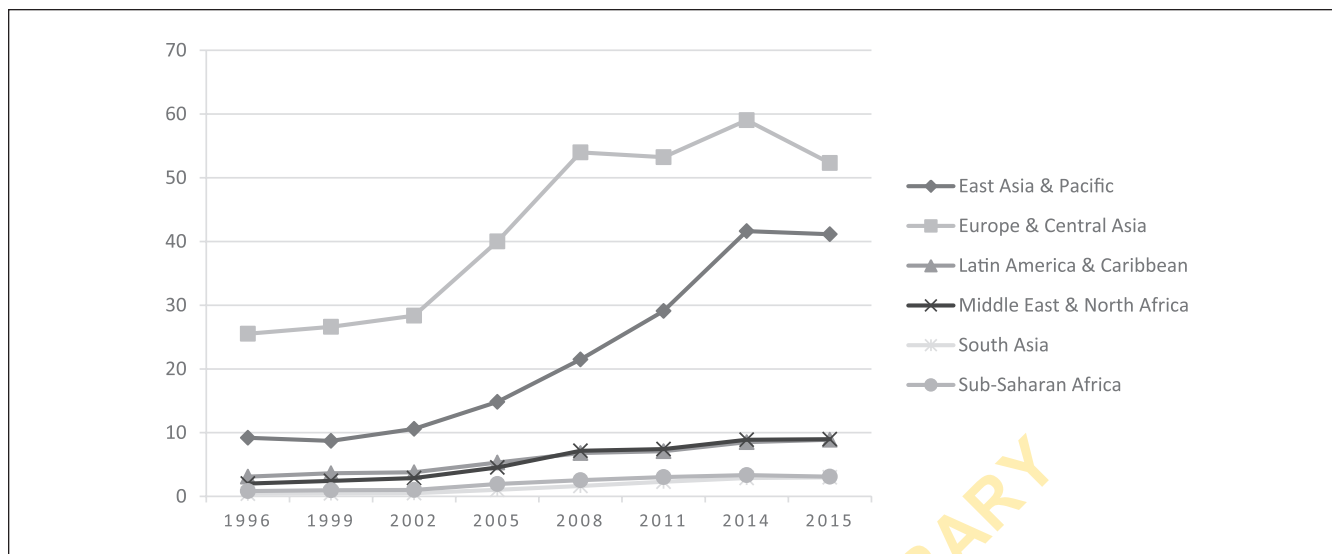


Figure 1. International tourism receipts (billion US\$).
 Source: Authors' computation based on data set from the World Bank Development Indicators (WDIs).

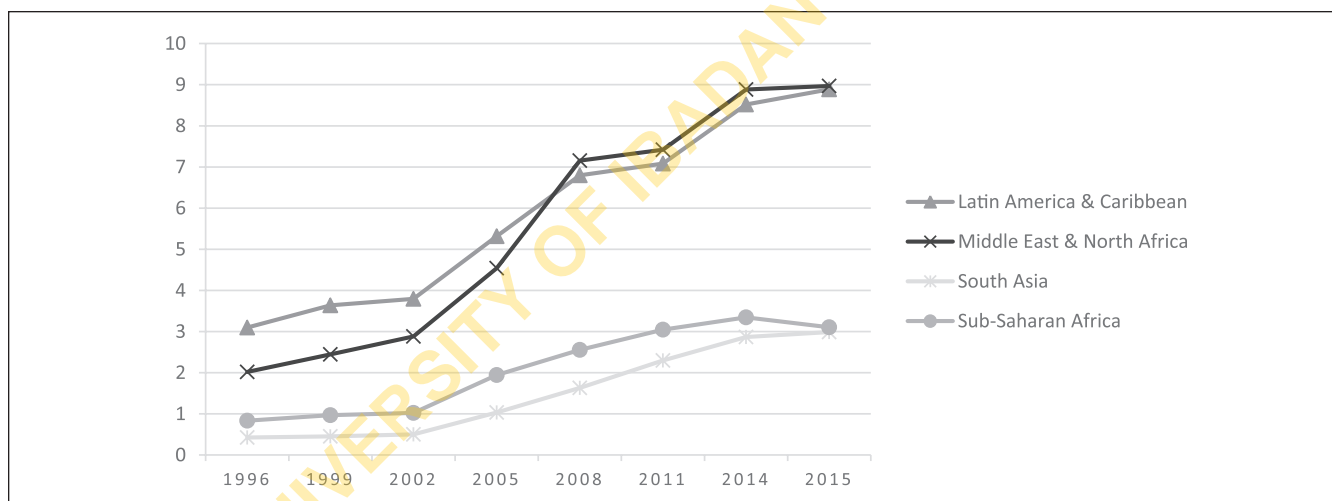


Figure 2. International tourism receipts (billion US\$).
 Source: Authors' computation based on data set from the World Bank Development Indicators (WDIs).

The performance of the various regions of the world in combating poverty is presented in Figures 3 and 4. In Figure 3, poverty is measured using the poverty headcount index while in Figure 4, poverty is measured using poverty gap index.⁵ Both figures showed that the rate of poverty reduction in Africa is slow compared to other regions of the world. In 1990, Sub-Saharan Africa, East Asia & Pacific, and South Asia had poverty headcount indexes above 40%. Two decades later, the poverty headcount index in Sub-Saharan Africa region is still above 40% while that of the other two regions is below 20%. A similar pattern was observed for the second measure of poverty, the poverty gap index, as depicted in Figure 4.

A closer look at both Figures 3 and 4 revealed that prior to 1999, both measures of poverty suggest that poverty in the Sub-Saharan Africa region was persistently high. However, post-1999, poverty began to decline gradually, although it is still high. The observed trend suggests that efforts geared toward meeting the UN MDGs of reducing poverty by half played a significant role in bringing down the trend of poverty in the region. This is because the goal of reducing poverty by half prompted policies based on studies that centered on understanding factors that influence poverty in Africa (Arndt, McKay, and Tarp 2016). In addition, the quantum of poverty reduction recorded post-1999 suggested that tourism initiatives embarked on during this time that led to tourism

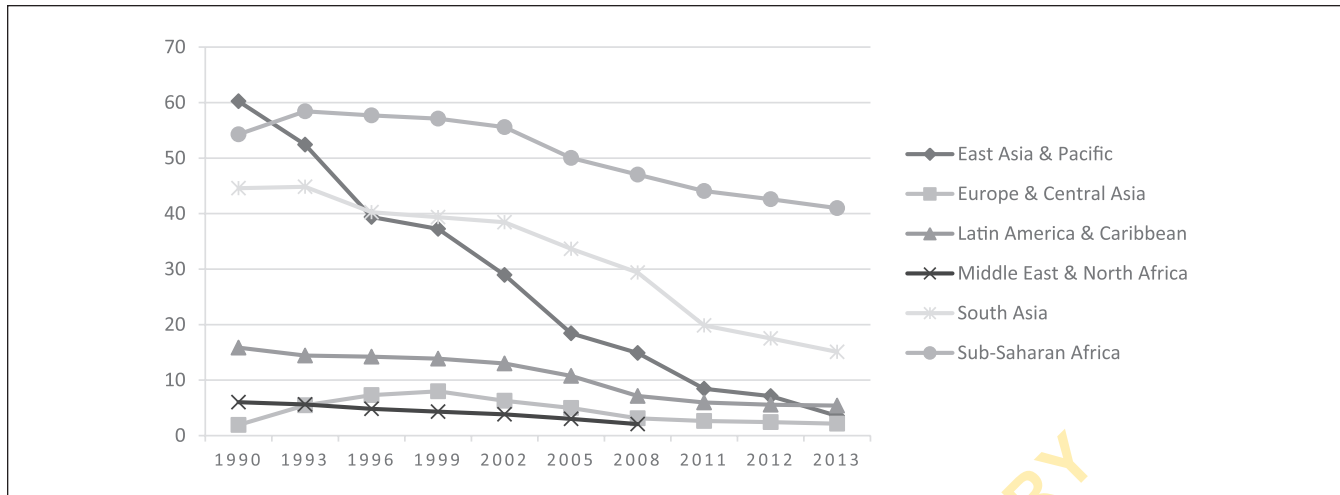


Figure 3. Poverty headcount ratio at \$1.90 a day (2011 PPP) (% of population).
Source: Authors' computation based on dataset from Povcalnet and World Development Indicators.

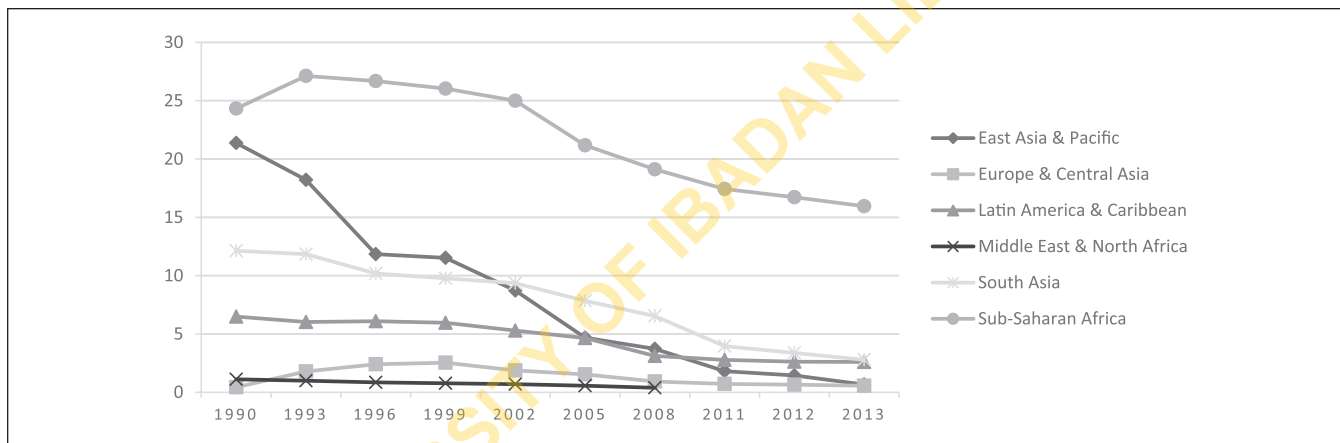


Figure 4. Poverty gap index at \$1.90 a day (2011 PPP) (%).
Source: Authors' computation based on dataset from Povcalnet and World Development Indicators.

expansion might have been instrumental to the poverty reduction on the basis of the spillover effect of tourism on economic growth. This submission is based on the acceptance of tourism as a developmental tool since a large percentage of Sub-Saharan African countries have included the tourism sector in their poverty reduction strategies (Mitchell and Ashley 2006; UNCTAD 2017).

We then explore the relationship that exists between tourism and poverty reduction in Sub-Saharan African countries using scatter diagrams, which we report in Figures 5 and 6. In Figure 5, we measure poverty using poverty headcount while in Figure 6, we measure poverty using poverty gap index. By using both measures, we are able to capture both the level and the depth dimensions of poverty.

A closer examination of both charts showed that tourism alleviates poverty in Sub-Saharan African countries. Thus, we find support for the position of Mitchell and

Ashley (2006) on the role of tourism in reducing poverty in Africa. The authors provided four reasons to support their submission that tourism could help in reducing poverty in African countries based on pro-poor tourism agenda. The reasons are as follows: (1) tourism is significant for African economies given the share of tourism in GDP; (2) some of the benefits of tourism already reach the poor as tourism sector expansion is associated with job creation, foreign exchange easing, and increased economic activities; (3) the prospects for African tourism look good given the average growth rate of tourism arrival exceeding 6% over the last one decade; and (4) the interventions to increase the pro-poor impact of tourism in Africa are yielding positive and impressive results. Thus, this article set out to provide an econometric assessment of the effects of tourism on poverty reduction in Sub-Saharan African countries.

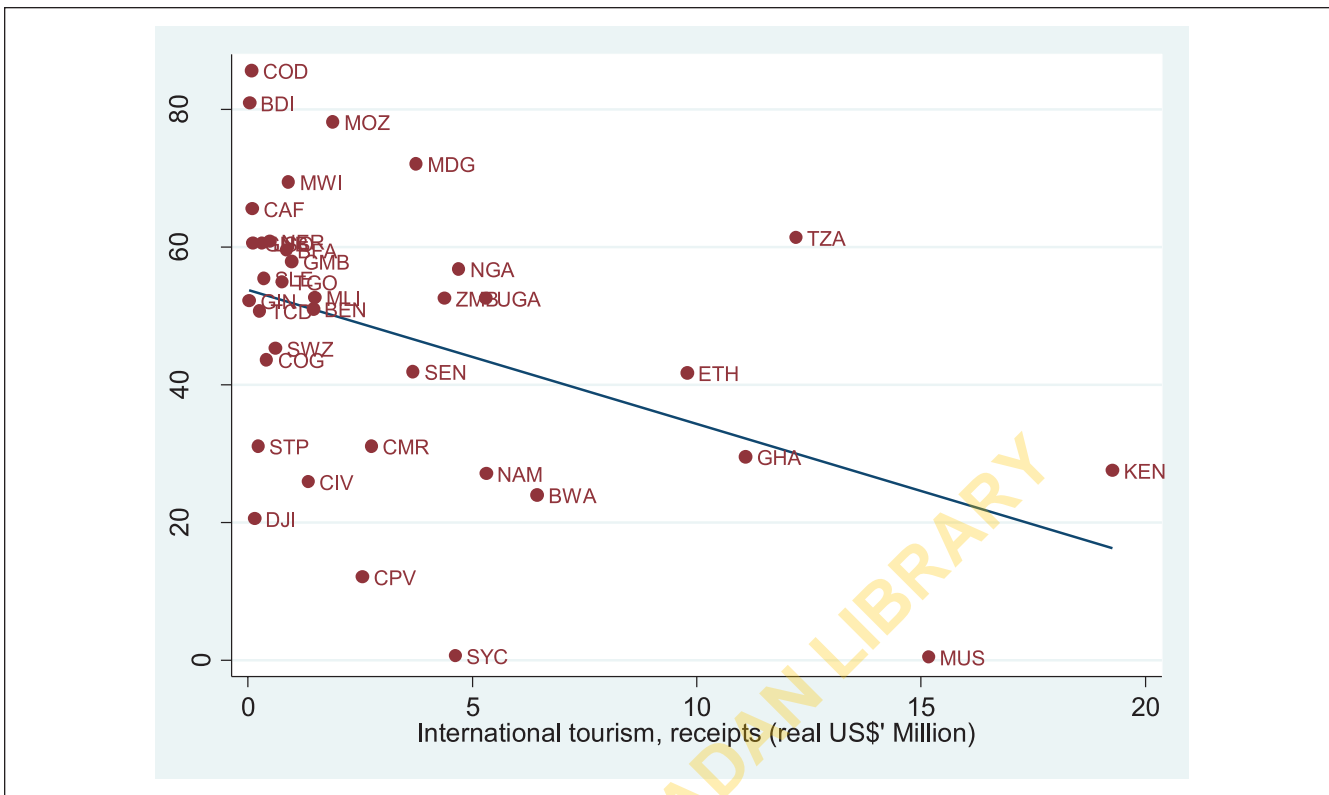


Figure 5. The relationship between tourism and poverty headcount ratio at \$1.90 a day (2011 PPP) (% of population). Source: Authors' computation based on data set from Povcalnet and World Development Indicators.

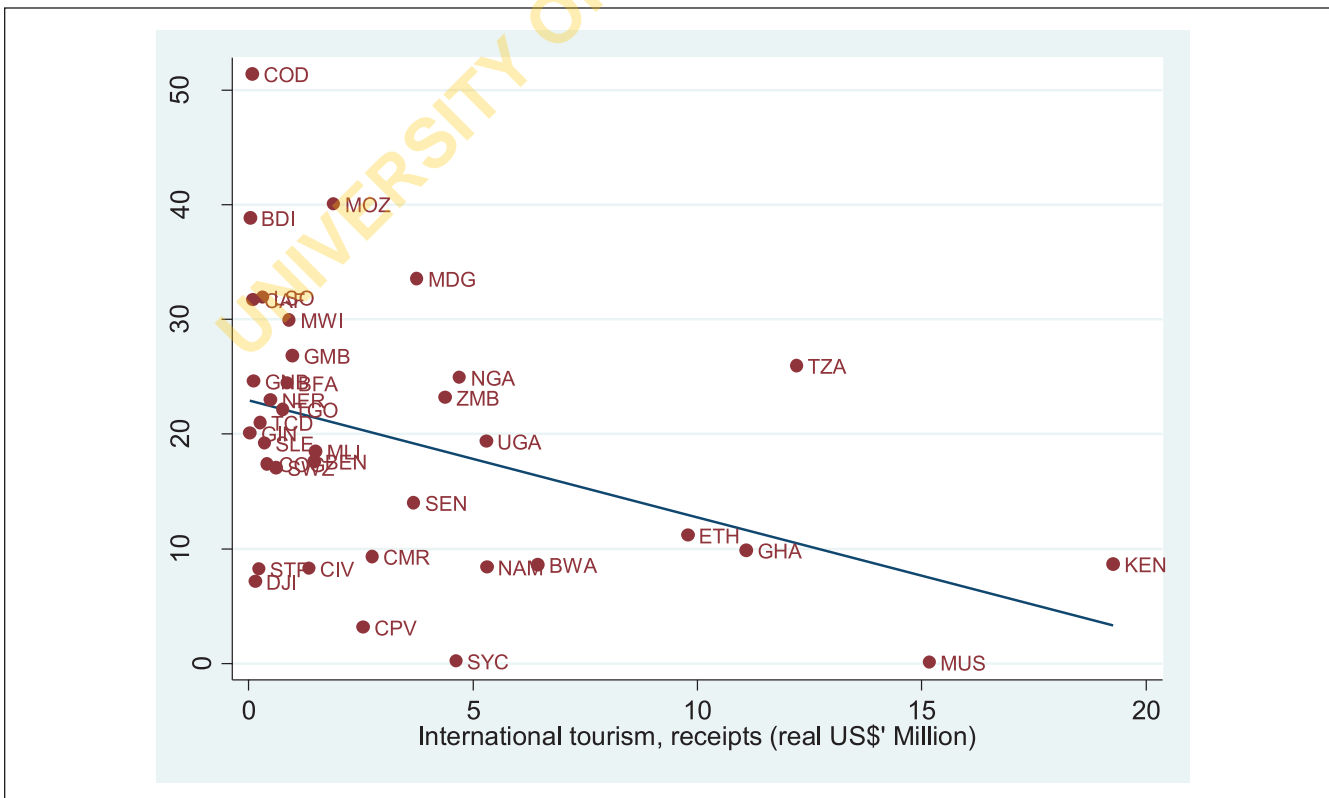


Figure 6. The relationship between poverty gap index at \$1.90 a day (2011 PPP) (%). Sources: Authors' computation based on data set from Povcalnet and World Development Indicators.

Model Specification, Data, and Methodology

Model Specification

To examine the effects of tourism on poverty in Sub-Saharan Africa, we followed the studies by Adams (2004) and Kim, Song, and Pyun (2016). Our model, however, is different from those two studies. The first study focused on the effects of economic growth and inequality on poverty while the second study focused on the effects of tourism development on poverty without accounting for economic characteristics. Thus, we arrived at a tourism-poverty equation as follows:

$$\begin{aligned} \ln(POV)_{it} = & \alpha_1 + \alpha_2 \ln(POV)_{it-1} \\ & + \alpha_3 \ln(TOUR)_{it} + \alpha_4 \ln(INC)_{it} \\ & + \alpha_5 \ln(GINI)_{it} + \alpha_6 X_{it} + C_i + \varepsilon_{it}, \end{aligned} \quad (1)$$

where POV is the measure of poverty, $TOUR$ is the measure of tourism development, INC is the measure of economic growth, $GINI$ is the measure of inequality, X is the measure of economic characteristics, C_i is the country-specific fixed effect, ε_{it} is the error term, \ln is natural logarithm, i is cross-section, and t is time.

Following the study by Adams (2004) and Njoya and Seetaram (2018), three different poverty measures are used in the study: poverty headcount index, poverty gap index, and poverty severity. Poverty headcount index measures the percentage of the population that is living below the poverty line; the poverty line is set at \$1.9 per person per day (in 2011 international purchasing power parity [PPP]) following the recent World Bank recommendation.

The second measure is the poverty gap index. This measure addresses the depth of poverty, which is not captured in the poverty headcount index. According to the World Bank (2005), poverty gap index is expressed in percentage and depicts how far the average expenditures of the poor fall short of the poverty line. The least possible value is zero. A value of zero implies that the average expenditure of all the poor is below the poverty line. Thus, a poverty gap of 10% implies that 90% of the average poor person's expenditures are below the poverty line. Hence, it captures the depth of poverty in an economy.

The third poverty measure is the squared poverty gap index. This measure indicates the severity of poverty. The use of poverty gap index and severity of poverty measures provide additional analytical properties for the study of poverty since it is sensitive to changes in distribution among the poor (Adams 2004; Adams and Page 2005).

In summary, the use of these measures (poverty headcount index, poverty gap index, and squared poverty gap index) enable us to provide robust information about the effect of tourism on poverty in Sub-Saharan Africa. We make this submission because we are able to reflect the

three core dimensions of poverty, that is, level, depth, and severity.

$TOUR$, our primary explanatory variable, which is measured using real international tourism receipts, measures the amount expended by tourists during their visit after adjusting for the price level. Extant studies in the tourism literature used this measure to capture the development of the sector. An upward trend in real international tourism receipts connotes an increase in the demand for tourism products, thereby creating the opportunity to influence the development of the economy as well as affect the lives of the poor. Given the prediction of Mitchell and Ashley (2006) on the positive role of tourism development on poverty reduction based on the performance of the tourism sector in Africa, poverty headcount index, the poverty gap index and the square of poverty gap index are expected to fall as tourism sector development intensifies in Sub-Saharan African countries. Our study extends the study by Mitchell and Ashley (2006) by quantifying the impact of tourism on poverty reduction in Sub-Saharan African countries.

INC is our measure of income per capita. Following the pro-poor growth theory, if growth in income trickles down, the different measures of poverty are expected to reduce as per capita income increases (Adams 2004). $GINI$ is our measure of inequality. Inequality in this study is measured in terms of the Gini coefficient, which ranges from 0 to 1. A value of 0 implies that there is equality in the distribution of resources across different economic agents in an economy, while a value of 1 implies that the distribution of wealth is perfectly unequal. Thus, a reduction in the Gini coefficient connotes an improvement in the distribution of wealth toward equality across the different economic agents. An increase in inequality is expected to increase poverty since the effect of economic growth on poverty reduction is higher in low-inequality countries compared to high-inequality countries (Adams and Page 2005; Fosu 2008).

X is a vector of economic characteristics. Five economic characteristics of a country are considered in this study—life expectancy at birth, inflation rate, corruption perception index, trade openness, and state fragility. These characteristics are informed by the extant literature on poverty in Africa (Fowowe and Abidoye 2013; Fowowe and Shuaibu 2014; Beegle et al. 2016). Life expectancy at birth (LEX) measures the level of human development. An increase in life expectancy at birth connotes an improvement in human development, which is expected to lead to a reduction in poverty.

The inflation rate (INF) depicts the macroeconomic stability of a country. In addition, an increase in the inflation rate is expected to erode consumers' purchasing power. Thus, an increase in the inflation rate is expected to worsen poverty. The Corruption Perception Index (CPI) is another economic characteristic that is considered in this study. It measures the institutional quality of an

Table 1. The Results of the Descriptive Analysis.

Variable	Mean	Minimum	Maximum	Standard Deviation	Observed
POVH	46.184	0.370	94.050	21.965	266
POVG	19.111	0.050	63.590	12.626	266
POVG2	524.044	0.003	4043.688	666.313	266
TOUR	7.930	0.001	577.000	38.000	266
GINI	44.454	29.810	65.760	8.084	266
RGDPPC	1777.663	29.81	65.76	2345.035	266
LEX	55.515	36.482	74.274	7.431	266
INF	16.923	-3.316	1490.523	96.118	266
CPI	3.050	1.267	6.327	1.071	266
TRADE	75.769	22.353	213.474	34.992	259
SECEFF	0.645	0.000	3.000	0.886	252

economy. An improvement in the institutional quality should reduce poverty.

Another economic characteristic examined in this study is trade openness (TRADE). It is measured as the sum of import and export divided by the gross domestic product (GDP). As a country becomes more open, it is expected that the poor would also benefit from the gain from trade. Thus, we expect an inverse relationship between poverty and trade openness.

The other economic characteristic considered is state fragility. State fragility in this study is captured using the measure of security effectiveness provided in the state fragile index. The overall measure of state fragility was not used because it contains some items that depict poverty. Thus, we only use security effectiveness; this measure provides information about the effectiveness of the security outlay of a country. High values of security effectiveness connote high levels of state fragility. Beegle et al. (2016) showed that poverty in fragile countries is higher than non-fragile countries. This is because economic activities slowdown is associated with insecurity. Hence, poverty is expected to increase with an increase in state fragility.

Data⁶

The sample employed in the study consists of 36 Sub-Saharan African countries.^{7,8} A three-year nonoverlapping data from 1996 to 2015 is used in this article. Thus, we arrived at seven nonoverlapping data points. The summary statistics for the variables are presented in Table 1. The mean value of the poverty headcount (POVH) is 46.18%. This indicates that between 1996 and 2015, close to half of the population in the selected African countries live on an amount that is below the poverty line. The poverty line used in this study is the new World Bank poverty line of \$1.90 (in 2011 international purchasing power parity). Comparing the mean value of poverty headcount to the 57% recorded in 1990 and 43% recorded in 2012, the average value obtained (46.18) suggests that poverty in African countries has been on the reducing path,

although it is at a slow pace (Beegle et al. 2016). The standard deviation of the poverty headcount is 21.965%, which is close to the 22.5% obtained by Fowowe and Shuaibu (2014). The high standard deviation suggests that the level of poverty in Africa is dispersed. This is further supported by the wide difference between the minimum and the maximum value of the poverty headcount. The minimum value of the poverty headcount is 0.370% for Seychelles while the maximum value is 94.050% for Congo Democratic Republic.

Another measure of poverty used in this study is the poverty gap index, which measures the depth of poverty. The average poverty gap in the selected African countries is 19.111%. This value suggests that the expenditure of the poor fall short of the poverty line by approximately 80%. The third measure of poverty used in the study is the square of the poverty gap index. The average of this measure is 524.044%. The high value of the square of poverty gap implies that poverty is severe in the SSA region.

In summary, the three measures of poverty used in the study suggest that poverty in Sub-Saharan African countries is high, although reducing at a slow pace. This line of remark is also reflected by Fowowe and Shuaibu (2014) and Beegle et al. (2016). This study, therefore, provides an empirical evidence to test the submission of Mitchell and Ashley (2006) that the tourism sector could serve as a tool in alleviating poverty in Sub-Saharan African countries.

From the correlation analysis presented in Table 2, the results show that tourism development is negatively correlated with the three measures of poverty used in the study. The correlation coefficient ranges from 9.9% to 14.7%. These results suggest that tourism development might be a poverty-reducing strategy for Sub-Saharan African countries.

Methodology

In this study, the cross-section and time-series dimensions of our data are explored using the panel data estimation

Table 2. The Results of the Correlation Analysis.

	POVH	POVG	POVG2	TOUR	GINI	RGDPPC	LEX	INF	CPI	TRADE
POVG	0.950	I								
POVG2	0.804	0.937	I							
TOUR	-0.146	-0.117	-0.099	I						
GINI	-0.103	-0.003	-0.015	0.178	I					
RGDPPC	-0.666	-0.527	-0.362	0.166	0.371	I				
LEX	-0.556	-0.483	-0.317	-0.063	-0.146	0.483	I			
INF	0.019	0.071	0.104	0.869	0.058	0.166	-0.143	I		
CPI	-0.553	-0.471	-0.343	0.045	0.402	0.667	0.594	-0.121	I	
TRADE	-0.478	-0.362	-0.288	0.080	0.276	0.584	0.328	0.103	0.379	I
SECEFF	0.233	0.247	0.249	0.189	-0.145	-0.123	-0.363	0.241	-0.404	-0.213

technique. In the literature, when the number of cross-sections is greater than the time dimension, the use of ordinary least squares (OLS) and fixed effects estimation techniques is adjudged to be inappropriate, which is the nature of our data. Furthermore, the introduction of a lagged dependent variable into equation (1) could bias the coefficient estimates obtained using either fixed effects or OLS.⁹ This is because the inclusion of a lagged dependent variable violates the underlying assumption of both OLS and fixed effects estimation.

Furthermore, there is the possibility of reverse causality between tourism development and poverty (Croes and Vanegas 2008). Since the development of the tourism sector implies an increase in tourist spending. Thus, the implication of an increase in tourist spending is that the demand for tourism products increases, which leads to an increase in job creation in the sector as well as an increase in tourism sector-related businesses. These are expected to translate into poverty reduction in the tourism destination economy (Mitchell and Ashley 2006; Christie et al. 2014). As poor people are being lifted out of poverty, their standard of living improves, thereby providing those that are poor with the opportunity to make investments that will translate into human development. This, in turn, boosts the image of the tourism sector since a low level of human resource development has been identified as a hindrance to tourism development, especially in developing countries (Singh 1997). In addition, measurement issue also informed our choice of system GMM (Fowowe and Shuaibu 2014; Beegle et al. 2016).

In this study, we apply the two-step System GMM estimation technique developed by Arellano and Bond (1991) and Blundell and Bond (1998). This estimation technique provides reliable estimates when the models to be estimated (1) used data that have small time periods relative to the number of cross sections, (2) include the lagged dependent variable, (3) have endogenous issues, and (4) used data that are possibly plagued with measurement errors, which are the feature inherent in this study.¹⁰ We make use of this estimation procedure to understand the

effect of tourism development on poverty in Africa. Since the approach used in this study involves the use of instruments to address the endogeneity issues, the Sargan and Hansen test of overidentifying restrictions, the Wald test of underidentification and weak instruments, and the AR(2) test were performed in order to validate our instruments. The null of not robust, but not weakened by many instruments, was rejected in all the models. Furthermore, we were unable to reject the null of robust, but weakened by many instruments. Also, the test of underidentification and weak instruments suggests that in all the estimated models, except in a few instances, the null of weak instruments is rejected at the 10% significance level. These tests therefore suggest that the results obtained can be relied on, although with caution.¹¹

Empirical Results

The empirical results of the effects of tourism development on poverty are presented in Tables 3–5. These involve estimating equation (1) based on the three different measures of poverty. The results based on poverty headcount, which measures the level of poverty in an economy, are presented in Table 3. Results for the second measure of poverty, the depth of poverty, are reported in Table 4. And results for the third measure of poverty, the severity of poverty, are presented in Table 5.

In Table 3, our focus was on the effects of tourism development on the level of poverty. The results from column (1) show that tourism development is negatively related to the level of poverty. By comparing it to what was obtained when we accounted for the economic characteristics of the tourist destination, we found that controlling for the various economic characteristics, the effects of tourism development increases in most instances. This suggests that the role of tourism development in influencing the poor depends in part on the economic characteristics of the tourism destination. Our findings show that improvement in human capital development helps to alleviate the proportion of the population that lives below the poverty line. This result supports

Table 3. Effects of Tourism on Level of Poverty—Poverty Headcount Index.

	1	2	3	4	5	6
POVH(-1)	0.828*** (0.074)	0.704*** (0.096)	0.786*** (0.091)	0.762*** (0.079)	0.724*** (0.110)	0.704*** (0.157)
RGDPPC	-0.151 (0.090)	-0.204*** (0.074)	-0.180 (0.126)	-0.178* (0.095)	-0.159 (0.094)	-0.197* (0.112)
GINI	0.631 (0.425)	0.557 (0.383)	0.670 (0.651)	0.803 (0.506)	0.794 (0.485)	0.811 (0.489)
TOUR	-0.036* (0.019)	-0.036 (0.024)	-0.041* (0.022)	-0.031 (0.021)	-0.071** (0.028)	-0.059** (0.024)
LEX		-0.536** (0.251)				
INF			>-0.000 (0.002)			
CPI				-0.042 (0.026)		
TRADE					-0.133 (0.123)	
SECEFF						0.058 (0.037)
CONSTANT	-0.243 (0.971)	3.020* (1.712)	0.030 (1.461)	-0.413 (1.216)	0.634 (1.408)	0.143 (1.358)
No.	185	185	185	185	185	185
AR(1)	0.002	0.005	0.003	0.003	0.006	0.005
AR(2)	0.221	0.295	0.218	0.211	0.145	0.299
Hansen test	0.437	0.384	0.436	0.414	0.366	0.370
Sargan test	0.000	0.000	0.000	0.000	0.000	0.000
Wald test	0.000	0.016	0.256	0.304	0.247	0.057

Notes: *, **, and *** imply statistical significance at 10%, 5%, and 1%, respectively. Values in parentheses are the standard errors. For AR(1), AR(2), and Hansen, Sargan, and Wald tests, the probability values are reported.

the findings of Fowowe and Shuaibu (2014) on the poverty-reducing effect of an improvement in human development in African countries.

In addition, we found that an improvement in institutional quality is beneficial to the poor. This further suggests that the high level of poverty recorded in the continent can be associated with the low institutional quality in the continent. This is plausible since the poor largely rely on government provided infrastructure for their day-to-day activities. When the institutional quality is weak, more importantly, when government officials are corrupt, the funds that ought to be used to provide infrastructure is mostly diverted. As a result, the living conditions of the poor might continue to deteriorate because of their reliance on government-provided infrastructure.

In line with the descriptive information about the poverty level in fragile and nonfragile states in the studies by Beegle et al. (2016, p. 10), the results in column 6 show that state fragility contributes to the high level of poverty in Africa. The implication of this finding is that policy aimed at preventing reoccurrence of conflict and crisis might be important in order to reduce the level of poverty in the continent.

Furthermore, we tested the pro-poor growth hypothesis. This hypothesis states that the poor also benefit from the gains of economic growth through trickle-down effects. From our results in Table 3, economic growth benefits the poor as it leads to a reduction in the level of poverty. However, we found that the growth effect on poverty is undermined by an increase in inequality. The positive effects of inequality on the level of poverty as found in this study appears to explain why the level of poverty in the continent is still high despite the 6% average growth rate experienced in the region over the last one decade. Thus, the study confirms the position of Fosu (2008) on the need for more equitable income distribution policies that will ensure that the growth has a noticeable effect on poverty reduction in Africa countries. Hence, the results show that in the absence of policies that will promote equitable income distribution, the benefits from tourism development will be undermined, not necessarily that it will cancel that out. Thus, tourism sector policies will have greater impact in reducing poverty if it is complemented with more equitable income distribution.

In Table 4, we present the results obtained when we measure poverty by a more sensitive measurement, the poverty

Table 4. Effects of Tourism on Depth of Poverty—Poverty Gap Index.

	1	2	3	4	5	6
POVG(-1)	0.730*** (0.121)	0.527*** (0.124)	0.621*** (0.126)	0.622*** (0.100)	0.557*** (0.142)	0.461*** (0.175)
RGDPPC	-0.275* (0.153)	-0.359*** (0.130)	-0.377** (0.181)	-0.310** (0.130)	-0.294 (0.180)	-0.367** (0.138)
GINI	1.278* (0.696)	1.287* (0.721)	1.658** (0.784)	1.690** (0.779)	1.568 (0.974)	1.708** (0.650)
TOUR	-0.071** (0.029)	-0.083** (0.033)	-0.081*** (0.029)	-0.071** (0.032)	-0.132** (0.049)	-0.127*** (0.038)
LEX		-1.034** (0.437)				
INF			0.000 (0.002)			
CPI				-0.095** (0.042)		
TRADE					-0.220 (0.201)	
SECEFF						0.129** (0.054)
CONSTANT	-1.262 (1.491)	4.135 (2.868)	-1.570 (1.645)	-1.988 (1.894)	0.024 (2.701)	-0.797 (2.108)
No.	185	185	185	185	185	180
AR(1)	0.018	0.048	0.032	0.019	0.045	0.031
AR(2)	0.335	0.414	0.305	0.308	0.252	0.586
Hansen test	0.463	0.393	0.535	0.415	0.547	0.537
Sargan test	0.000	0.000	0.000	0.000	0.000	0.000
Wald test	0.000	0.019	0.002	0.058	0.010	0.000

Note: *, **, and *** imply statistical significance at 10%, 5%, and 1%, respectively. Values in parentheses are the standard errors. For AR(1), AR(2), and Hansen, Sargan, and Wald tests, the probability values are reported.

gap index. This measure addresses the limitation of poverty headcount in providing information about the depth of poverty in an economy (Adams and Page 2005). The results confirmed our initial findings of the poverty-reducing role of tourism development in Africa. Using this measure, the effects of tourism development on poverty is almost twice what was obtained when poverty was measured using poverty headcount. This suggests that the importance of tourism development to the poor is underestimated when poverty is measured using poverty headcount.

Similarly, our third measure of poverty—severity of poverty—shows that tourism development contributes to poverty reduction in Africa. The results obtained based on this measure of poverty are presented in Table 5. When we compare the results obtained from the three measures of poverty, a similar conclusion can be deduced in terms of the direction of the effects of tourism development on poverty, but the magnitude of the effect differs. This difference is expected as pointed out by Adams and Page (2005). Although their study focused on the effects of remittances on poverty, they found that the effects of remittance and migration on poverty are higher when poverty is measured using a more sensitive measure of poverty—poverty gap and severity of poverty.

Finally, we performed a sensitivity analysis. First, we use another measure of tourism development, which is tourism receipt per arrival. Second, we exclude Nigeria from the list of African countries. The findings are very similar to the ones reported earlier. For brevity, these results are not reported but are available on request.

Conclusion and Policy Implications

The primary purpose of this article was to conduct an econometric assessment of the effects of tourism on poverty using data from Sub-Saharan African countries. This assessment will enable us to understand whether the poor in the region benefit from tourism expansion that has been taking place in the region over the last two decades. Furthermore, this assessment is necessary given the enlistment of eradication of poverty in the SDGs after the expiration of the MDGs.

In this article, we make use of panel data for 38 Sub-Saharan African countries over the period of 1996 to 2015. Tourism development is measured in the article as international tourism real receipts. In addition, we made use of three different measures of poverty: poverty headcount, poverty gap index, and square of poverty gap index. The study

Table 5. Effects of Tourism on Severity of Poverty – Squared of Poverty Gap Index.

	1	2	3	4	5	6
POVG2(-1)	0.816*** (0.091)	0.527*** (0.124)	0.621*** (0.126)	0.622 (0.100)	0.557*** (0.142)	0.461 (0.175)
RGDPPC	-0.325 (0.232)	-0.719*** (0.260)	-0.754** (0.362)	-0.619** (0.260)	-0.588 (0.359)	-0.734** (0.277)
GINI	1.538 (1.082)	2.573* (1.442)	3.316** (1.568)	3.380** (1.558)	3.136 (1.948)	3.416** (1.300)
TOUR	-0.110** (0.053)	-0.165** (0.065)	-0.161*** (0.057)	-0.143** (0.064)	-0.264** (0.097)	-0.254*** (0.077)
LEX		-2.068** (0.874)				
INF			0.001 (0.005)			
CPI				-0.189** (0.084)		
TRADE					-0.440 (0.402)	
SECEFF						0.259** (0.108)
CONSTANT	-1.130 (2.368)	8.270 (5.735)	-3.140 (3.289)	-3.977 (3.787)	0.049 (5.403)	-1.594 (4.217)
No.	185	185	185	185	185	180
AR(1)	0.010	0.048	0.032	0.019	0.045	0.031
AR(2)	0.369	0.414	0.305	0.308	0.252	0.586
Hansen test	0.396	0.393	0.535	0.415	0.547	0.537
Sargan test	0.000	0.000	0.000	0.000	0.000	0.000
Wald test	0.000	0.019	0.002	0.058	0.010	0.002

Note: *, **, and *** imply statistical significance at 10%, 5%, and 1%, respectively. Values in parentheses are the standard errors. For AR(1), AR(2), and Hansen, Sargan, and Wald tests, the probability values are reported.

findings showed that tourism development significantly reduces poverty in African countries. Our results are robust to the inclusion of country economic characteristics. Thus, we were able to confirm Mitchell and Ashley's (2006) position on the role of tourism development in reducing poverty in Africa, especially when it is accompanied by equitable income distribution.

Our results have important implications for policy formulation. The study findings provided empirical support for the pro-poor tourism agenda. Thus, the following policy propositions are put forward: (1) the amount allotted to marketing and promoting of tourism sites and products should be increased via budget provisioning; (2) increase investment in infrastructural development, especially in road and air transportation, within and around tourist sites; (3) empowering people, most especially the poor residing within the geographical location where tourists visit, with the appropriate tourism-related skills; and (4) governments should create incentives that will promote domestic participation both in the designing, formulation, and implementation of tourism policies.

The above policy initiatives are important for a number of reasons. First, international tourists tend to have little awareness about tourism sites in the absence of aggressive

tourism-related marketing and promotional activities. Second, since tourists are rational, and in the presence of equal marketing and promotional activities across different tourist sites, international tourists are more likely to visit tourist sites with accessible networks, especially air and road. Christie et al. (2014) revealed that international tourism spending and arrival are constrained by inaccessible infrastructural networks, which undermines the expansion capacity of the sector. Thus, policy initiatives that encourage the provision of infrastructural facilities will, therefore, increase international tourism arrival and receipt, thus positively impacting the poor. Third, the impact of tourism on the poor occurs mainly due to job creation that is directly and indirectly associated with the expansion of the sector. Fourth, Mbaiwe (2017) argued that tourism could not contribute to rural development in Botswana because the sector is weakly linked to the domestic economy as a result of the dominance of foreigners in the sector. This can be addressed by implementing empowerment programs that will focus on the indigenes, especially the poor. These kinds of empowerment programs are expected to increase domestic participation within the tourism sector value chain by centering the poor and therefrom strengthening the desirable impact of the sector on local-level development.

Appendix A

Table A1. Variable Description and Sources of Data.

Variable	Description	Source
POVH	Poverty headcount: Proportion of people living below \$1.90 a day. It measures the level of poverty in an economy	Povcalnet and the World Bank Development Indicators (WDIs)
POVG	Poverty gap index: This measure of poverty depicts how far the average expenditures of the poor fall short of the poverty line.	Povcalnet and the World Bank Development Indicators (WDIs)
POVG2	Severity of poverty: Squared of poverty gap index	Computed based on data obtained from Povcalnet and The World Bank Development Indicators (WDIs)
TOUR	Real international tourism receipts. It reflects the amount expended by tourists during their visit over a period of time.	Computed based on data obtained from the World Bank Development Indicators (WDIs)
GINI	Gini coefficient. It reflects the level of income inequality in an economy. Values range from 0 to 1, with 0 implying equality in the distribution of income and 1 implying absolute inequality in the distribution of income.	The World Bank Development Indicators (WDIs)
RGDPPC	Real gross domestic product per capita. This measures the average income earned by each individual in an economy.	The World Bank Development Indicators (WDIs)
LEX	Life expectancy at birth. High values reflect better health outcomes and conditions.	The World Bank Development Indicators (WDIs)
INF	Inflation rate. It measures the macroeconomic situation in an economy. Higher values reflect a reduction in the purchasing power of people.	The World Bank Development Indicators (WDIs)
CPI	Corruption perception index. This assigns a value of 1 to the most corrupt country and 10 to the least corrupt.	The World Resources Institute
TRADE	Trade openness. This is derived by dividing the sum of export and import by gross domestic product. Higher values reflect that the economy is highly open.	The World Bank Development Indicators (WDIs)
SECEFF	Security effectiveness. It measures the effectiveness of the security outfit in an economy. This assigns a value of 0 to the least fragile country and 3 to the most fragile.	Center for Systemic Peace

Appendix B

List of Sub-Saharan African countries selected for the study

Angola; Benin; Botswana; Burkina Faso; Burundi; Cape Verde; Cameroon; Central African Republic; Chad; Congo Democratic Republic; Congo Republic; Cote d'Ivoire; Djibouti; Ethiopia; Gambia; Ghana; Guinea; Guinness-Bissau; Kenya; Lesotho; Madagascar; Malawi; Mali; Mauritius; Mozambique; Namibia; Niger; Nigeria; Sao Tome and Principe; Senegal; Seychelles; Sierra Leone; South Africa; Swaziland; Tanzania; Togo; Uganda; Zambia.

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Notes

1. The observed rise in the population of the poor in Sub-Saharan Africa despite the slight reduction in the poverty ratio during 1990 and 2012 has been attributed to the growth rate of population in the region (Beegle et al. 2016).
2. We appreciate the anonymous reviewer for drawing our attention to this critical point.
3. See Croes and Rivera (2017) and Njoya and Sectaram (2018) for a more detailed review.
4. Rogerson (2007, p. 362) contains a comprehensive list of these studies.
5. We did not capture the third measure of poverty because it was computed from the poverty gap index. Thus, the trend of the third measure, severity of poverty, should mirror the poverty gap index.
6. Variable definition and sources are presented in Appendix A.
7. The selection of the countries were based on the conduct of at least two surveys over the period covered. Hence, countries with only one survey over the period covered in the study were dropped. To fill up the missing data points, we apply a simple

interpolation rule, which is to fill up missing data points using values for the preceding period. Thus, we assumed that the poverty rate remains the same.

8. Sub-Saharan African countries included in the analysis are listed in Appendix B.
9. In this study, we included the lagged value of the dependent variable to test for the existence of persistence. This is informed by the downward nature of the measures of poverty—headcount and gap depicted in Figures 3 and 4, respectively. Thus, it is expected that order one serial autocorrelation, AR(1), should hold, which was confirmed with our inability to reject the null of no first-order serial autocorrelation in Tables 3 and 4. However, the higher-order serial autocorrelation, AR(2), is expected not to hold, and the study results establish this.
10. In poverty analysis, issues relating to the quality and measurement of data are reoccurring issues.
11. The authors acknowledged that instrument is an issue when using system GMM; however, the estimator employed in the study is suitable given the peculiarity of the poverty data, which is prone to measurement error as well as poor quality of data (Beegle et al. 2016).

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