Journal of Sustainability Science and Management
Volume 15 *Number* 1, January 2020: 162-174
eISSN: 2672-7226

IS TOURISM A TOOL FOR POVERTY REDUCTION IN A DEVELOPING COUNTRY? A STUDY ON UGANDA

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Abstract: Tourism sector is widely recognized for its role in poverty reduction in many developing nations including those in Sub-Saharan Africa. Some of these nations (i.e. Botswana) have graduated from least developed country (LDC) status contribute by the tourism sector that boost the of tourism to the economy of these countries. In Uganda, although tourism is considered as a leading export commodity for the nation, the empirical work in relation to tourism's role in poverty reduction is limited. Therefore, this study is aimed at conducting an empirical investigation to establish whether tourism can reduce poverty in Uganda. The study uses time series data for the period of 1985 - 2014 and employs VAR, VECM Granger causality tests. The study also forecasts tourism's role for poverty reduction using impulse response and variance decomposition analyses. Findings indicate that tourism does cause poverty reduction in Uganda. Meanwhile, impulse response and variance decomposition analysis indicate that the impact of tourism on poverty reduction in Uganda is high in the short run but declines in the long run

Keywords: Tourism sector, Poverty, VECM Ganger causality, Uganda.

Introduction

Poverty is neither dream nor fiction but a reality adversely affecting communities in developing countries. Poverty has also been defined as people whose expenditure is below the poverty line living on less than USD 1.25 per day (World Bank Institute 2005; World Bank 2009). Due to the alarming living conditions among the communities in developing countries including Uganda, poverty alleviation became a major concern. Since early 1980s, the Government of Uganda (GOU) undertook several initiatives through the Ministry of Finance, Planning and Economic Development to alleviate poverty such as openness, human capital development and maintaining macro-economic stability by controlling inflation. Openness was aimed increasing the nation's participation in international trade through GOU Export-led Growth Strategy (ELG) and accelerating foreign capital flows in form of foreign direct investment (FDI) and tourism. The benefits from the tourism sector include economic growth foreign exchange earnings, employment creation and government revenue (Pratt, 2015).

Tourism is a multi-faceted industry that requires support from other industries such as air travel, tour operators, hotels and transport services in the host nation which create demand for labour as well as investment opportunities. Tourism is labour intensive, and it creates employment for communities to participate in economic growth directly and indirectly and provides income for the poor (Gerosa & Gauci 2003; Bolwell & Weinz 2008; Mwaura & Ssekitoleko 2012). Tourism enhances entrepreneurial skills and innovation that cause the growth of small and medium enterprises (SMEs) in retail outlets dealing in commodities such as souvenirs, art and crafts for tourists. In sum, it is anticipated that poverty could be alleviated by promoting higher levels of international tourism through increasing employment in SMEs and tourism FDI induced projects which is the well-known link between poverty reduction and tourism. In this way, Mitchell and Faal (2008) indicate that tourism has created tangible benefits to countries such as Tanzania, Egypt and Gambia. Also, countries such as Botswana, Vanuatu, Samoa, Maldives

and Cape Verde have achieved the developing nation status due to tourism (Encontre 2001; Gerosa & Gauci 2003). However, studies such as Ardahaey 2011; Rolfe (2010) mention some negative impacts of tourism on communities which include dominance of hospitality industry by multinational corporations yet those employed receive lower wages with little job security leading to increase in unemployment in these communities. Due to the need, to construct hotels and other tourist demand facilities and services, the poor communities are denied of their social and economic capital, for example in Sinai Peninsula in Egypt the Bedouin community's access to fishing sites has reduced.

Withstanding the negative impacts, tourism still stands as a tool for poverty reduction in many developing countries. As echoed *"Uganda the Pearl of Africa"*, in 1908 by British Prime Minister Winston Churchill the country is endowed with a rich diversity of tourist attractions including the nations rich flora and fauna, volcanic mountains and craters, lakes, rivers and water falls, game parks and cultural sites. Having identified the importance of tourism as a tool for poverty reduction, in 1994 the GOU established , agencies such as the Uganda Tourist Board (UTB), Uganda Wildlife Statute and Uganda Wildlife Authority (UWA). As a result of these initiatives, inbound international tourists and tourism expenditure in Uganda has increased as shown in Figure 1 below.

As shown in Figure 1, international tourism arrivals increased from 27,039 in 1985 to 1.266 million in 2014 while during the same period tourist expenditure increased from USD 1.003 million to USD 1,039 million. Despite the significant milestone in accelerating international tourism flows and tourism expenditure into Uganda, not many studies have examined the contribution of tourism towards poverty reduction in the country. Past studies that include Encontre (2001); Gerosa and Gauci (2003), Tang and Tan (2015), concentrate on tourism and its impacts on economic growth in LDCs. Most studies on the contribution of tourism to Uganda such as Lepp (2007); Ashely *et al.* (2008) and World Travel & Tourism Council (2015) often generalize that with increase in tourists in Uganda, automatically contributes to poverty reduction sound without economic analysis. Since there is no econometric study that has investigated the impact of tourism on poverty reduction in Uganda; this study examines the hypothesis whether there is a link between international tourism and poverty reduction in Uganda? Tourism has been in Uganda for several years, but the communities surrounding tourism sites are the poorest in the country. If this study establishes that tourism in economic analysis contributes to economic growth and employment as key variables for poverty reduction, the answers can lead to dramatic change of policy directions that increase investment in tourism and the supporting activities such as roads, which further increase employment. The remainder of this paper is divided into six sections. The first

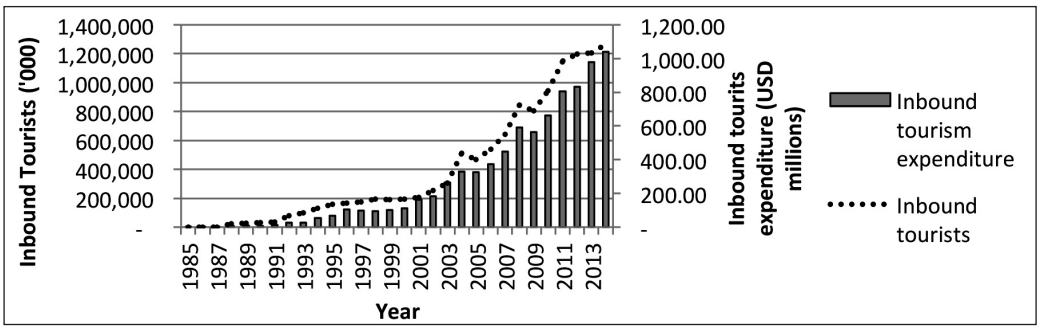

Figure 1: The growth of tourism in Uganda, 1985–2014
Source: World Bank Development Indicators (WDI); UBOS (1985-2014)

section provides a snapshot of poverty trends in Uganda. The second section examines the tourism potential for poverty reduction. The third section presents the theoretical model that underpins this study. The fourth section presents the econometric modelling approach indicating the methodology through which investigation is conducted. Finally, results are presented followed by conclusions and recommendations.

Overview

A snapshot on Poverty trends in Uganda

Poverty in a developing nation such as Uganda is not limited to the conventional definition of living below the poverty line that includes only basic needs such as food, shelter and clothing. The additional dimensions of poverty include (i) the lack of capacity to participate in society and households' deprivation to access health services and education, (ii) powerlessness in terms of job, political and armed conflict insecurity to which the poor live in a state of perpetual uncertainty and (iii) exploitation of the poor who include low income earners with low wages for the employed and low prices for those employed in agriculture especially the peasantry. These additional dimensions of poverty indicate the high intensity of vulnerability for communities to natural, political and economic shocks. In Uganda, vulnerability takes two forms. Firstly, a large section of the community faces a high risk of remaining poor. Secondly, vulnerability in Uganda can also mean that some households currently not classified as poor possess high risk of reverting to poverty classified as insecure non-poor (INR)[1] meaning though not poor, the probability of sinking into poverty is quite high (MFPED 2012, 2013, 2014; World Bank 2016).

The main cause of poverty in Uganda can be attributed to first, the nation's descent into political instability and the 1972 international sanctions that crippled the nation's economy. With economic reform package support from international donor agencies such as the World

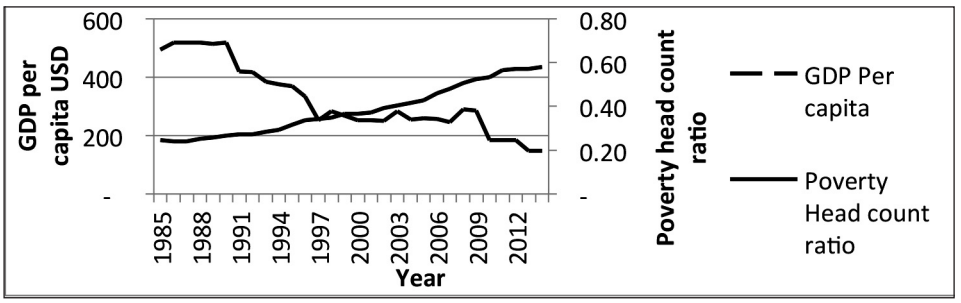

Figure 2: Trends in poverty reduction and GDP percapita
Source: UBOS; WDI (1985-2014)

Figure 3: Vulnerability strata classification of Uganda's population
Source: Based on MFPED 2014; World Bank 2016

[1] INR is a large section of Uganda's population comprised of the working class and self-employed who earner from hand to mouth for survival. Upon retirement or disaster such people sink back into poverty.

Bank and International Monetary Fund, the GOU introduced a number of initiatives that included tourism promotion. Due to these economic reforms implemented since the early 1980s, the welfare of Ugandans started to improve as illustrated in the Figure 1.

As shown in Figure 2, poverty head count has reduced, meaning that poverty reduced from 65.9% in 1985 to 19.7% in 2014. GDP per capita increased from USD 185 to USD 434 during the same period indicating improvement in the livelihood of communities in Uganda. In spite of the significant decline in the poverty, vulnerability to poverty in Uganda is high (World Bank 2016). Thus, a large section of Ugandans is classified as INR meaning the population of Uganda can be summarised into three strata as the poor, INR and non-poor demonstrated by Figure 2.

Poverty and vulnerability in Uganda are not a fiction but a reality that affects a large section of Uganda's population. During the period 2005 and 2009, Ssewanyana and Kasirye (2013) indicated that for every three Ugandans lifted out of poverty, two fell back into poverty, demonstrating that vulnerability is high since the gains realized by the poorest households can be easily eroded; while the Gini coefficient indicates that income inequality increased from 0.36 in 1992 to 0.40 in 2014. Also, about 75% of Uganda's total population lives in rural areas of which 70.2% remain poor or at risk of poverty (MFPED, 2014). Against this backdrop, while poverty ravages the Ugandan communities as previously mentioned, inbound tourists have continued to increase yet there is no econometric study that has tested the hypothesis to establish whether tourism can reduce poverty in Uganda

The tourism potential for poverty reduction in Uganda

'Tourism' refers to the activities of persons travelling to and staying in places outside of their usual environment, for a period not more than one year, mainly for leisure, business and other purposes not related to exercise (Uganda Tourism Act 2008). The contribution of tourism can be identified through backward and forward linkages created by integrating Uganda into regional and global value chains (Mwaura & Ssekitoleko 2012). The value chain, demonstrates that a nation achieves higher levels of economic growth and poverty reduction though six components of travel and tourism: domestic and international tourists; transport sector service providers; leisure and hospitality accommodation providers; entertainment and theatre arts; business goods and services providers; recreational, cultural, sporting and archaeological gazette sites and activities. The components of travel and tourism demonstrate that the impact of tourism to a nation has origins from the motives of tourists while staying in the country of destination that include: health, sports, business, conferences and workshops, holidaymaking, religion, study and visiting friends or relatives (Sinclair 1998). These activities directly contribute to economic growth and employment which in-turn causes poverty to reduce through money spent by tourists in Uganda (World Travel and Tourism Council 2015). In Uganda, the contribution of tourists' receipts to the balance of payments as a percentage share to exports increased from 0.49% in 1985 to 32.31% 2014 making tourism the single largest foreign exchange earning commodity. This indicates that tourism represents more than twice the earnings of coffee, the second biggest export commodity.

Government collects tax revenue from international visitors in form of entry visa fees and Value Added Tax (VAT) on various goods and services such as: transport services, conference hall hiring, consumer goods, theatre fees, mountain climbing and cruises. The tax revenue can be used by the GOU for infrastructure, social services and contribute towards wages and salaries for government employees. The foreign exchange earnings become a source of income for investment by the private sector. To this end, tourism is linked to other sectors of a nation through investment both SMEs and tourism induced FDI in large sectors such as hotels, cruises and air-travel that supports economic growth (Pratt 2015). In

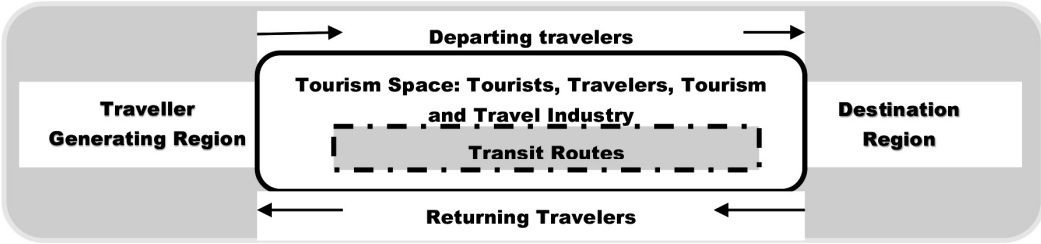

Figure 4: The tourism system: The Leiper Model
Source: Based on Candela and Figini (2012)

Uganda, FDI increased from USD 30 million in 1985 to USD 1,146.13 in 2014, representing a USD 359.08 million annual FDI inflow, growing at 20.11% per annum. Moreover, tourism is a source of capital for SMEs leading to growing agricultural tourism arising from demand for local products and labour for communities around tourism sites. This is further extended to hotels and campsites that purchase such products in bulk creating a linkage to trade a spiral of SMEs growth. As a result, the structure of peasants' livelihood is transformed from total dependence on agriculture to the tourism service-oriented sector. As investment and trade thrives, the nation benefits through direct, indirect and induced effects. The direct effects are associated with immediate production changes arising from tourist spending. Indirect effects arise from tourists' expenditure in the form of goods and services, and the associated backward and forward linkages. Backward linkages include various supplies from industries and services offering catering services linked to hotels and tourism sites. Forward linkages are due to SMEs serving the tourism sector. In sum, tourism induced effects are channels for job creation through investment and incomes earned that contribute to poverty reduction. Though tourism can contribute positively to Uganda's economy, the nation is still indicated as HIPC.

Theoretical Modelling

The model to establish whether tourism can reduce poverty in Uganda is based on the tourism value chain which indicates the role of inbound tourists' demand for goods and services in the country of destination. Specifically, we employ the Leiper Model, which indicates that the tourism system is comprised of three main sectors: tourists who constitute the main economic element; the tourism space consisting of geographical regions specified as the generating and destination region, as well as transit routes and the tourism sites that are visited and, investors who provide services that promote tourism.

The economic importance begins to emerge, both in the generating and destination nation when tourists start travelling, through tourist demand for goods and services. The demand function for tourism exports is specified:

$$ToDGS_{gs}.P_{gs} = \beta TD_{gs}.ToEXP_{REV} \quad (1)$$

Where: *$ToDGS_{gs}$ = Tourist quantity demand for a nation's good and services (gs); P_{gs} = price (P) for a nation's good and services; βTD_{gs} = The share of tourism demand for goods and services; $ToEXP_{REV}$ = Torist expenditure as revenue in the country of destination.*

Following Equation 1, tourists' expenditure is revenue to GOU and income to firms and households, expressed:

$$ToEXP_{REV} = \psi.TToA_{C} \quad (2)$$

Where: ψ = Tourist percapita consumption; $TToA_{C}$ = Total tourist Arrivals in country c.

In the Augmented Solow Swan Model (ASSM), money spent by tourists is a foreign capital flow. Following Tang & Tan (2015), the production function explaining how tourism leads to economic growth can be specified:

$$ln\frac{Y_t}{L_t} = \beta_0 + \theta lnz + \frac{\alpha}{1-\alpha} lns_t - \frac{\alpha}{1-\alpha} \ln (n + g + \delta)_t \quad (3)$$

Following Equation 3, tourists' expenditure as a foreign flow, is income that supplements the private-sector financing gap in form of tourism-induced FDI and capital for SMEs. As such, when investment increases, poverty declines through employment of a nation's labor force and economic growth but subject to variable, representing tourism expansion, innovation and institutional factors such as political stability.

Data and Theoretical Modelling

Data on Uganda's annual time-series endogenous and exogenous variables for the period 1985–2014 has been collected. The sources of data are: World Bank Development Indicators (WDI) and Uganda Bureau of Statistics (UBOS) databases. Following, the ASSM the variables included in this study are expressed logarithmic terms. First, in the neoclassical growth model tourism expenditure and FDI are foreign capital flows. The tourism is defined as ratio of inbound tourists' expenditure, measured in US dollars to exports (EXP) is employed as a proxy. FDI is measured as the total FDI inflows into Uganda, in US dollars, expressed as the FDI to GDP ratio. Second, the UBOS definition of poverty is adopted from the World Bank to mean persons living below the poverty line on less than USD 1.25 per day based on the general Head Count Approach. Third, economic growth is defined as the real increase in Uganda's GDP per annum. Finally, employment refers to persons who perform some work for wage or salary, or profit or family gain, in cash or in kind, during a specific period**.** Since Uganda is a nation with no minimum wage, modelling employment is based on the boundaries of labour which depends on the conditions in the rural and urban sector, based on the Harris-Todaro two-sector-model. This is because tourists stay both in the rural and urban areas in country. Also, a developing nation such as Uganda, tourist attractions are mainly located in the remote rural areas of the country. This is the suitability of the Harris-Todaro two-sector-model as it captures employment in both the rural and urban sectors of Uganda. Accordingly, employment in Uganda is comprised of two sectors as rural and urban labour force expressed as the labour force participation (LFP) to total labour force ratio. Based on the ASSM a framework can be employed to explain the media through which tourism can reduced poverty through economic growth and employment of a nation's labour force. Figure 5 illustrates the association.

The conceptual framework explains the theoretical simultaneity association among variables that cause poverty to reduce in a nation. Accordingly, first, the causes of poverty are multidimensional. Second, interdependence among variables indicate that multi-faceted approaches that can cause poverty to reduce in a nation.

Econometric Modelling

This study first conducts unit roots followed by Cointegration analysis of the series. Later, a system's model is developed based on error-correction modelling followed by impulse response and variance decomposition analysis. Finally, we examine the causal relationship between variables under study using VECM Granger causality approach. Unit root testing is necessary to establish whether or not the series are stationary. This is because conducting regression analysis with non-stationary data

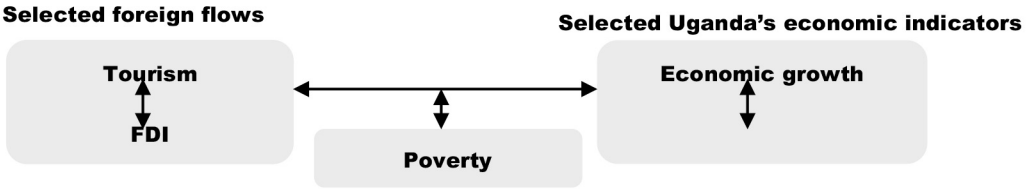

Figure 5: Variables conceptual framework

leads to spurious regression results, where the value of R-square is close to one and significant t-statistics, even when the series are not related. Second, unit root testing is necessary as basis for determining whether to employ unrestricted VAR or VECM in forecasting and model estimation. As a VAR model precondition, VECM is employed when the series are non-stationary at level but stationary at first difference. We conducted unit root tests employing Augmented Dickey-Fuller (ADF) method with a maximum of two lags using the Schwartz Info Criterion, based on the Ender 1995 approach that employs Dickey and Fuller (1979) and Davidson and Mackinnon's (1993). The results are summarized:

The ADF tests are often affected by the choice of the lag length (and lose power while estimating a large sample. As such, the ADF tests results are validated by the PP which takes care of any heteroscedasticity and serial correlation in the errors terms. Also, PP tests do not require lag selection and are based on a serially correlated regression error term but are also based on the null that the series is non-stationary. As such the PP tests is validated by the KPSS tests whose null is that the series is stationary and unlike the ADF and PP tests, this is an LM Test. Table 2 results confirm that the series, are non-stationary at level but stationary at first difference.

Cointegration analysis involves examining the existence of a long-run relationship among variables under investigation, to indicate that data belongs to the same system. By conducting cointegration analysis we can establish that the vector series contains endogenous variables, of which all are integrated to the same order. We employ the Johansen's Maximum Likelihood Method because this study involves a systems model specification that employs the trace Statistic and Maximum Eigenvalue Statistics. Following Hjalmarsson and Österholm (2007),

Table 1: ADF unit root tests

Variable	ADF Test Statistic			
	Constant	Constant and Trend	None	First difference
LNGDP	0.59	-3.43	14.27	-4.88
lnEMP	-1.18	-2.62	0.24	-7.09
lnTOU	-2.97	-2.45	-3.21	-4.4
lnPOV	-0.28	-2.53	1.60	-6.15
lnFDI	-0.85	-2.66	-1.14	-5.63

Notes: Test critical values at 5% (At level: constant = -2.96, Constant and trend = -3.97, none = -1.95 while at First difference = -2.97); P-value= Probability value

Table 2: Summary of the PP and KPSS unit root test statistics results

Variable	PP Test Statistic				KPSS test statistic		
	Constant	Constant and Trend	None	First difference	Constant	Constant and Trend	Constant
lnGDP	0.59	-3.43	14.27	-4.89	0.707	0.111*	0.181
lnEMP	-1.04	-2.53	0.05	-7.07	0.489	0.159	0.143
lnTOU	-6.53	-3.02	-3.89	-3.95	0.557	0.165	0.329
lnPOV	-0.03	-2.61	1.84	-6.1	0.669	0.085*	0.088
lnFDI	-0.83	-2.75	-1.14	-5.71	0.616	0.095*	0.078

Notes: KPSS: Test critical values at 5% (At constant =0.463, constant and trend=0.146; first difference=0.463)

Johansen's Method takes its starting point in VAR order expressed:

Before conducting the simulations, this study determines the lag lengths using he unrestricted

$$y_t = \mu + A_1 y_{t-1} + \cdots + A_\rho y_{t-\rho} + \varepsilon_t \quad (4)$$

$$\textbf{Where}: y_t \; is \; an \; n{\times}1 \; vector \; of \; variables \; that \; are \; cointegrated \; to \; order \; one \; [I(1)]; \; \varepsilon_t is \; an \; n{\times}1 \; vector \; of \; innovations$$

The trace statistic null of cointegrating relations among the endogenous variables:

$$J_{trace} = -T \sum_{i=r+1}^{n} Log\left(1 - \hat{\lambda}_i\right) \quad (5)$$

$$\textbf{Where}: r = 0 \; to \; r = n-1, \ldots until \; fail \; to \; reject \; H_0 \; such \; that 0 = No \; integrating \; (\text{None}) \; equations \; while \; 1, 2 \ldots = \; 1 \; or \; more \; integratingequations; k = Number \; of \; endogenousvariables; T = sample \; size; \hat{\lambda}_i = i^{th} \; largest \; Eigen \; value \; of \; longrun \; coefficient \; matrix$$

Trace statistics are based on the hypothesis until it fails to reject the null:

Hypothesis 1, 2…..: $\boldsymbol{H_0}: Trace \; stastic < Critical \; value = Integrating \; equation$

$\boldsymbol{H_1}: Trace \; stastic > Critical \; value = At \; least \; integrating \; equation$

The Maximum Eigenvalue statistic null of cointegrating relations, based on the equation:

$$J_{max} = -TLog\left(1 - \hat{\lambda}_{r+1}\right) \quad (6)$$

$$\textbf{Where}: r = 0, 1, \ldots, n-1 \; until \; fail \; to \; reject \; \boldsymbol{H_0}$$

The Maximum Eigenvalue statistic is based on the hypothesis until it fails to reject the null, specified as follows:

Hypothesis 1, 2…..: $\boldsymbol{H_0}: Eigenvalue < Critical \; value = No \; Integrating \; equation$

$\boldsymbol{H_1}: Eigenvalue > Critical \; value = At \; least \; integrating \; equation$

VAR lag order selection criteria is employed; where the AIC is to be employed but SIC can also be used.

Simultaneous Equation Specification

In systems model, Johnston and DiNardo (1997) indicate that equations are stacked in a general form as:

$$y_i = X_i \beta_i + u_i, Such \; that \; i = 1, \ldots \ldots, m \quad (7)$$

$$\textbf{Where}: y_i \; is \; an \; n \; \text{x} \; 1 \; vector \; obervation \; on \; the \; i^{th}; X_i \; is \; an \; n \; \text{x} \; k_i \; matrix \; of \; the \; observations \; on \; the \; explanatory \; variables; \beta_i \; is \; a \; k_i \; \text{x} \; 1 \; vector \; of \; coefficients; u_i \; is \; an \; nx1 \; vector \; of \; disturbances$$

Based VAR general Equation 4, the theoretical VECM procedure for estimating the systems equation as a basis for testing the short and long-run relationship among variables is explained as:

$$Y_t = \sum_{i=1}^{p-1} \emptyset_i \Delta Y_{t-i} + \emptyset Y_{t-p} + U_t \; = \boldsymbol{VECM} \quad (8)$$

$$\textbf{Where}: \emptyset_i = -(1 - \beta_1 - \beta_2 - \cdots \beta_i); \; \emptyset = -\left(1 - \beta_1 - \beta_2 - \cdots \beta_p\right); \emptyset Y_{t-p} = Error \; correction \; term; \; \emptyset_i and \; \emptyset = Short \; and \; long \; run \; adjustments \; to \; changes \; in \; Y_t$$

The linear relationship first indicates the relationship between the dependent and explanatory variables. Second, the coefficients in the linear model can be estimated indicating the sensitivity of the explanatory variables' changes to the independent variables. Following Equation 8, for estimation and hypothesis testing, VECM is expressed as:

$$\Delta Y_t = \alpha B' Y_{t-1} \sum_{i=1}^{p-1} \Gamma_i \Delta Y_{t-i} + \cdots BX_t + \varepsilon_t \qquad (9)$$

$$\textbf{\textit{Where}}: \beta = Long - run\ measure\ among\ variables; \Gamma_i = Coefficient\ measure\ for\ short - run\ effects\ of\ shock\ on\ \Delta Y_t$$

The advantage with VECM, unlike the standard Granger causality tests, opens up a new channel through which causality indicates error correction term statistical significance by a separate t-test. Second, the new channel indicates the lags for each explanatory variable by F-/Wald Chi-square test as a joint significance. In this way, the long-run relationship among the variables can enable forecasting the impact of the variables. The easiest way to demonstrate how VECM estimates the simultaneous equation is to adopt the Engle and Granger (1987) causality approach. Following Wickremasinghe (2011) the approach is demonstrated assuming two variables:

$$\Delta x_t = \alpha_1 + b_1 ect_{t-1} + \sum_{i-1}^{m} c_1 \Delta x_{t-i} + \sum_{i=1}^{n} d_1 \Delta y_{t-i} + \varepsilon_{1t} \qquad (10)$$

$$\Delta y_t = \alpha_2 + b_2 ect_{t-1} + \sum_{i-1}^{m} c_2 \Delta y_{t-i} + \sum_{i=1}^{n} d_2 \Delta x_{t-i} + \varepsilon_{2t} \qquad (11)$$

$$\textbf{\textit{Where}}: x_t, y_t = Variables;\ \Delta = Operator\ difference; m, n = variable\ lag\ lengths; ect_t = Cointegrating\ equations\ residuals;\ \varepsilon_1, \varepsilon_2 = White\ noise\ residuals$$

Based on Equations 10 and 11, the model is then extended a multivariate system where the number of error correction terms equals the number of cointegrating relations. This explains the basis for VECM approach.

Results

The cointegration output results are summarised in Table 3.

According to trace test statistics, the null hypothesis is rejected because the trace statistic value is greater than the critical value (while the probability value is less than 5% (P-value = 0.000). This means that there is at least one cointegrating vector. A further review indicates that we reject the null hypothesis for asterisks ranking one to five, as well as seven the trace statistic values are greater than the critical values. The corresponding probability values are less than 5%. In sum, there is at least one cointegrating vector and results indicate that at least six equations are cointegrated to order one at 0.05 critical level. Considering the Max-Eigen results, the null hypothesis indicating no cointegrating equations is also rejected. This is because the Max-Eigen Statistic is greater than the critical value (while the probability value is less than 5% (P-value = 0.000). Also, there exists a long-run relationship among the series.

Ex-ante Forecasting

Poverty Reduction Impulse Response Function Interpretation

Forecasts indicate that poverty will be a concern for the nation, and that it will increase. A one standard deviation negative own shock leads poverty to increase by 0.034 in the short-run, and by 0.057 in the long-run. This can partly be attributed to high proportion of INR people who comprise 43.3 % of the population. As such a large number of people is vulnerable to sliding into poverty means that poverty can easily

Table 3: Summary of the Johansen Cointegration test output

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.974527	274.5778	159.5297	0.0000	102.7639	52.36261	0.0000
At most 1 *	0.854984	171.8138	125.6154	0.0000	54.06548	46.23142	0.0061*
At most 2 *	0.721965	117.7484	95.75366	0.0007	35.84023	40.07757	0.1391
At most 3 *	0.623744	81.90814	69.81889	0.0040	27.36956	33.87687	0.2441
At most 4 *	0.570159	54.53858	47.85613	0.0104	23.64149	27.58434	0.1477
At most 5 *	0.448781	30.89709	29.79707	0.0372	16.67744	21.13162	0.1878
At most 6	0.293715	14.21964	15.49471	0.0771	9.736627	14.26460	0.2298
At most 7 *	0.147948	4.483017	3.841466	0.0342	4.483017	3.841466	0.0342*

Notes: * denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values; Trace test indicates 6 cointegrating eqn(s); Max-eigenvalue test indicates 2 cointegrating eqn(s)

increase in the future. However, innovations from economic growth, employment, FDI and tourism can cause poverty to decline. In the short run, a one positive standard deviation shock to economic growth causes poverty to decline by -0.019; to employment causes a decline of -0.549; to FDI causes a decline of -0.060; and to tourism causes a decline of -0.046. According to the results, in the long run a one positive standard deviation shock to economic growth causes a -0.048 decline in poverty; employment causes a decline of -0.099, FDI causes a decline of -0.094; and tourism causes a decline of -0.009. However, the impact of tourism on poverty reduction declines to deminimis (-0.009) in the long run causing policy implications. Also, in impulse response indicates that poverty is likely to increase. This can be attributed to high vulnerability as explained by the high proportion of INRs.

Poverty Reduction Variance Decomposition Interpretation

In the short-run, innovations to poverty reduction own shock account for 9.9% of fluctuations in poverty in the country, but fluctuations increase in the long-run to 12.5%. Innovations to economic growth account for 38.8% of fluctuations in poverty in the short run. However, shocks to economic growth cause fluctuations to decline continuously to 22.63%. Meanwhile, in the short-run, shocks to tourism account for 19.85%, FDI accounts for 17.41% and employment 14% of fluctuations in poverty in the short-run. In the long-run, shocks to employment cause 29.62% fluctuations in poverty in Uganda, FDI accounts for 26.4% and tourism causes an 8.8% fluctuation. Shocks to employment account for the highest fluctuations in poverty, followed by FDI. A further review indicates FDI, and tourism cause the least fluctuations in economic growth, employment and poverty reduction. Also, policy implications arise since tourism impact on poverty declines in due to decreasing fluctuations of tourism effects on poverty reduction from 19.85 percent to 8.8 percent.

Results of the Simultaneous Equation VECM Granger Causality and Analysis

The results of the error correction term and lagged values for each variable summarised under Table 4.

According our findings, there exists a short-run relationship from the explanatory variables to the independent variable, as indicated by the Chi-square joint statistics probability values. Also, all endogenous variables at 5% and 10% (tourism, FDI, economic growth and employment) do Granger cause poverty reduction in Uganda but there is only feedback relationship between FDI and poverty reduction. Finally, tourism, FDI, and employment do

Table 4: Variables diagnostic F-/Wald tests and short-run test

Dependent Variable: Economic growth			Dependent Variable: Employment		
Lags Excluded	Chi-sq	Prob.	Excluded	Chi-sq	Prob.
D(LNEMP)	7.059490	0.0293*	D(LNGDP)	0.503183	0.7776
D(LNFDI)	6.629189	0.0363*	D(LNFDI)	9.457332	0.0088*
D(LNTOU)	18.54285	0.0001*	D(LNTOU)	1.603451	0.4486
D(LNPOV)	2.735801	0.2546	D(LNPOV)	1.603605	0.4485
All	22.43267	0.0042*	All	15.11046	0.0570**
Dependent variable: Poverty			Dependent variable: FDI		
Excluded	Chi-sq	Prob.	Excluded	Chi-sq	Prob.
D(LNGDP)	21.99375	0.0000*	D(LNGDP)	4.383085	0.1117
D(LNEMP)	4.850873	0.0884**	D(LNEMP)	3.619835	0.1637
D(LNFDI)	15.31259	0.0005*	D(LNTOU)	4.453877	0.1079
D(LNTOU)	33.10402	0.0000*	D(LNPOV)	11.11288	0.0039*
All	38.99861	0.0000*	All	34.63925	0.0000*
Dependent variable: Tourism					
Excluded	Chi-sq	Prob.			
D(LNGDP)	2.362333	0.3069			
D(LNEMP)	13.34969	0.0013*			
D(LNFDI)	1.267921	0.5305			
D(LNPOV)	1.928449	0.3813			
All	18.40043	0.0184*			

Notes: *Significant at critical level= 5%, **10%; Degrees of freedom for each = 2 while joint=10

Granger cause economic growth while only FDI does Granger cause employment. Also only employment of Uganda's labour force does Granger cause tourism. These findings cause policy concerns for the nation. First, since economic growth does Granger cause poverty reduction in Uganda, we should expect a feedback relationship. Second, though employment does Granger cause economic growth there is no feedback relationship as would be expected. This is worrisome for the country as it could imply that Uganda's is not proportional to annual rate of the population entering the labour force meaning many people remain unemployed. Third, a key indicator for a growing economy can be based on the extent to which declining poverty translates into increasing economic growth. In the case of Uganda, poverty reduction does not support the nation's economic growth meaning that poverty is still a concern for the nation. Though tourism is a base for FDI in host nation, our findings indicate that FDI has no influence on tourism partly meaning that Uganda's tourism industry is underdeveloped.

Conclusions

The objective of this study was to establish whether tourism can reduce poverty in Uganda. Findings indicate that tourism can reduce poverty in Uganda as explained by the results of VECM Granger causality simulation, impulse response and variance decomposition forecasts, but some

policy concerns arise from the study. First, reducing poverty in Uganda has no influence on economic growth, employment and increasing tourism. Theory explains that as poverty reduces in a nation more people get employed and the economy grows. Second, theory explains that as economic growth increases in a nation, so does employment but findings, indicate that economic growth does not Ganger cause employment in Uganda. Third, FDI has no influence on tourism.

A further review indicates that though response and variance decomposition account for poverty reduction in Uganda, the impact is high in the short-run but declines in the long-run. Findings indicate that tourism will account for poverty reduction in the short-run, but the impact reduces drastically to *de minimis* rate in the long-run. Similarly, variance decomposition also indicates that tourism will account high poverty reduction variations in the short-run, but the fluctuations decline in the long-run. Since tourism is the single largest export commodity for Uganda, measures that increase tourists in the country need to be put in place for the nation to benefit from the sector. There is need to increase resources that target developing Uganda's tourism industry since FDI as the key investors in large tourism demand infrastructure development does not Granger cause tourism in the country. There is need for more economic stimulus packages to enable the country breakthrough the current vicious circle of poverty as indicated by high proportion of INRs that partly explains why reducing poverty have no influence of economic growth. In-turn economic growth does not influence tourism, FDI and employment.

Acknowledgements

Authors acknowledgement with gratitude the feedback from Global Tourism Conference (GTC) 2017 to which this paper was awarded a Best Paper Award.

References

Ardahaey, F. T. (2011). 'Economic impacts of tourism industry', *International Journal of Business and Management*, 6(8): 206.

Ashley, C., De Brine, P., Lehr, A., & Wilde, H. (2007). *The role of the tourism sector in expanding economic opportunity*. Cambridge: John F. Kennedy School of Government, Harvard University.

Bolwell, & Weinz, W. (2008). *Reducing poverty through tourism*, International Labour Organization.

Candela, & Figini, P. (2012). 'The economics of tourism destinations', in *The Economics of Tourism Destinations*, Springer, pp. 73-130.

Davidson R., & MacKinnon G. J. (1993). *Estimation and Inference in Econometrics*, by, New York, Oxford University Press. ISBN 0-19-506011-3.

Dickey, D. A., & Fuller, W. A. (1979). 'Distribution of the estimators for autoregressive time series with a unit root', *Journal of the American statistical association*, vol. 74, no. 366a, pp. 427-31.

Encontre, P., 2001. Tourism Development and the Perspective of Graduation from the LDC Category. *Tourism in the Least Developed Countries*, pp.105-22.

Engle, R., & Granger, CW 1987, 'Co-integration and error correction: representation, estimation, and testing', *Econometrica: Journal of the Econometric Society*, pp. 251-76.

Gerosa, V., & Gauci, A. (2003). *Pro-poor Growth Strategies in Africa: Tourism, a Viable Option for Pro-poor Growth in Africa?*

Hjalmarsson, E., & Österholm, P. (2007). *Testing for cointegration using the Johansen methodology when variables are near-integrated*, International Monetary Fund.

Johnston, J., & DiNardo, J. (1997). *Econometric methods*, Fourth Edition edn, New York: McGraw Hill.

Lepp, A. P. (2004). *Tourism in A Rural Ugandan Village: Impacts, Local Meaning and Implications for Development*. University of Florida.

Ministry of Finance, Planning and Economic Development (MFPED) (2014). Poverty Status Report 2014.

Mitchell, J., & Faal, J., (2008). *The Gambian tourist value chain and prospects for pro-poor tourism*. London: Overseas Development Institute.

Mwaura, F., & Ssekitoleko, S. (2012). *Reviewing Uganda's tourism sector for economic and social upgrading*, vol. No. 91, Economic Policy Research Centre, Kampala, Uganda.

Pratt Stephen (2015). 'The economic impact of tourism in SIDS', *Annals of Tourism Research, vol. 52, pp.148-160.*

Rolfes, M. (2010). Poverty Tourism: Theoretical Reflections and Empirical Findings Regarding an Extraordinary Form of Tourism. GeoJournal 75(5): 421–442.

Sinclair, M. T. (1998). Tourism and economic development: A survey. *The journal of development studies*, 34(5): 1–51.

Ssewanyana, S., & Kasirye, I. (2013). *The Dynamics Of Income Poverty In Uganda: Insights from the Uganda National Panel Surveys of 2009/10 and 2010/11,* Economic Policy Research Center

2016, *Statistical abstract 2016*, by UBOS, <http://www.ubos.org/publications/statistical-abstract/>.

2008, *Uganda Tourist Board Act*

Tang, C. F., & Tan, E. C. (2015). 'Does tourism effectively stimulate Malaysia's economic growth?', *Tourism Management*, vol. 46, pp. 158-63.

Wickremasinghe, G. (2011). The Sri Lankan stock market and the macroeconomy: an empirical investigation, *Studies in Economics and Finance*, vol. 28, no. 3, pp. 179-95.

World Bank (2009). 'World Bank Development Indicators', in *Cornors 2011, Regularizing and Augmenting the World Bank Poverty Rates*, Wake Forest University, vol. Working Paper no. 14.

2016, *World Development Indicators*, viewed January 5 2016,

<http://databank.worldbank.org/data/reports.aspx?Code=NY.GDP.MKTP.KD.ZG&id=af3ce82b&report_name=Popular_indicators&populartype=series&ispopular=y>.

World Bank Institute (2005). *Introduction to poverty analysis: poverty manual*, New York

World Travel and Tourism Council (2015). *Travel and Tourism Economic Impact 2015: Uganda*, World Travel and Tourism Council.