



What actions could boost international tourism demand for Tanzania?

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Abstract

Tanzania recognises the potential of international tourism in accelerating socio-economic development, particularly as a supplier of foreign exchange, investment and employment. This paper investigates the factors affecting international tourism demand for Tanzania. The autoregressive distributed lag approach to cointegration is applied. Local tourism prices, tourist preference, tourist income and the 2001 terror attack in the USA had a significant impact on international tourism demand for Tanzania between 1996 and 2006. The government needs to maintain macroeconomic stability, especially low inflation, if the country is to reap full economic benefits from tourism. To reduce sensitivity to local tourism prices, the tourism providers ought to put more effort into diversifying tourism products away from the universally available ones. For example, packaging a game drive in the same basket as Masaa traditional dance would constitute a unique tourism product. There is also a need to improve customer satisfaction to enhance tourist preference for the Tanzanian experience. In this regard, there is a need to train staff in the tourism industry, improve tourism infrastructure such as roads and hotels, and market Tanzanian tourism products aggressively to the world.

1 Introduction

International tourism is one of the fastest-growing activities in the world. The number of international travellers worldwide has grown from 689 million in 2000 to over 846 million in 2006, and is forecast to reach nearly 1.6 billion by 2020. International tourism receipts have increased from US\$484 billion in 2000 to approximately US\$733 billion in 2006. The significance of international tourism is demonstrated further by its contribution to total trade in services of 27 percent in 2006 (WTO, 2007). In fact, international tourism is the principal foreign exchange earner for about 83 percent of developing countries (Roe, Ashley, Page and Meyer, 2004).

The tourism sector is built around natural resources and has labour-intensive characteristics, thereby placing developing countries at a comparative advantage. Africa, in particular, boasts a wealth of history, culture and nature, and has a range of attractions and destinations (WTO, 2004). International tourist arrivals in Africa grew by 58 percent over seven years, to 44.3 million tourist arrivals in 2007. Despite this growth, tourism in Africa has not yet made its mark globally. International tourism earnings in Africa amounted to US\$24 billion in 2007, accounting for only 3.3 percent of total world tourism earnings, while the African share in the world tourism market accounts for only 5.0 percent during the same period. Africa's international tourist arrivals are concentrated in a relatively few destinations. Only South Africa, Tunisia, Morocco and Zimbabwe receive over a million arrivals per year, together attracting about 63 percent of international arrivals

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to the whole Africa region. Only seven other African countries, which include Tanzania, receive between half a million and a million arrivals (WTO, 2007).

In the 1990s, the Tanzanian government put a concerted effort into the search for a more robust sector to widen the country's economic foundation.¹ Tourism was recognised as the industry that potentially could promote and accelerate the socio-economic development of the country, particularly as a supplier of foreign exchange earnings, foreign direct investment and employment. In addition, the sector would contribute to the development of other sectors such as transport and construction. The subsequent promotion of the tourism sector has seen it emerge as one of Tanzania's major economic sectors. The sector has grown to account for approximately 16 percent of GDP and almost 40 percent of total export earnings in 2006, up from nearly 1 percent of GDP and 12 percent of total export earnings in the 1990s. In fact, the earnings from international tourism have increased substantially from US\$258 million in 1995 to US\$862 million in 2006 (Tanzania Tourist Board, 2008) (see Figure 1).

Concurrently with tourist earnings, total tourist arrivals have increased dramatically. Since the mid 1990s, total tourist arrivals grew by an annual average rate of about 10 percent.² The number of international tourist arrivals increased from 293,834 in 1995 to 719,031 in 2007 (see Figure 2), but was reduced in 2001 partly due to the September terror attack in the USA (Tanzania Tourist Board, 2008).

Although both international and domestic tourism is important to the Tanzanian economy, the domestic tourist sector faces a number of short-term growth constraints.³ The ideal approach would be to put in place measures to attract more international tourism, because of its potential to grow the aggregate tourism sector fast.⁴ The Tanzanian national tourism policy sets a target of one million international arrivals by the year 2010, with earnings from the industry estimated to reach US\$1 billion annually.

In order to elevate the tourism sector to a significant contributor to the national economy, as intended by the government, the major factors affecting the level of international tourist flows to the country need to be unravelled. This study sets out to do that. Thus, the main objectives of the study are to use secondary monthly data for 1996 to 2006 to (i) model the international tourism demand for Tanzania using the autoregressive distributed lag (ARDL) approach, (ii) estimate parameters of the international tourism demand function for Tanzania, and (iii) on the basis of the results, draw policy implications for enhancing international tourism demand for Tanzania.

The rest of the paper is arranged as follows: Section 2 reviews the relevant literature. Section 3 outlines the methodology used for investigating the determinants of international tourism demand for Tanzania and section 4 presents the empirical results. Section 5 concludes the paper by drawing policy implications for enhancing international tourism demand for Tanzania.

¹Tanzania's annual GDP growth rate averaged around 6 percent between 2000 and 2006. Agriculture remains one of Tanzania's key economic sectors, accounting for over 50 percent of GDP and employing about 80 percent of the total labour force.

²The top ten international tourist markets for Tanzania are United Kingdom, United States, Italy, Germany, Spain, France, South Africa, Netherlands, Australia and Canada (Tanzania Tourism Survey, 2005).

³The domestic tourism market comprises of three segments, namely Tanzanian residents with high disposable income, expatriate residents employed by foreign firms and agencies, and group travel like clubs and schools (Tanzania Tourist Board, 2006). The majority of Tanzanians cannot afford leisure visits to tourist destinations. Despite special packages for residents, which include cheap flights, airport transfers and hotel accommodation, even those who are in a position to afford these packages view them as expensive. Many residents also believe that holidaying in the various hotels and lodges in the wild and coast is a preserve of affluent international visitors. Thus, attempts to stimulate the tourism sector in the short term cannot rely on domestic tourism.

⁴The rapid growth in Tanzania's tourism sector is built around the country's unique tourist destinations which offer both an abundance of wildlife and variety of other natural attractions. The tourist destinations include the snow-capped Mount Kilimanjaro (the tallest mountain in Africa), the famous Ngorongoro Crater, the Serengeti National Park and the Selous Game reserve, which together form the largest wildlife sanctuaries. Tanzania also boasts shimmering natural beaches and a variety of cultural heritage sites, among them the historical sites of Bagamoyo and the Zanzibar stone town. Being both sun-lust and wonder-lust destination with an observed high trend of tourist arrivals and tourist receipts, Tanzania should be ready for an increase in mass tourism and tourist earnings.

2 Literature Review

International tourism incorporates the activities of persons travelling to and staying in places outside their usual environment, for not more than one consecutive year, for leisure, business or other purposes (WTO, 2007). Thus, the international tourism sector is a dynamic and competitive industry that requires the ability to adapt constantly to customers' changing needs and desires. As a result of this, international tourism businesses necessarily focus on customer satisfaction, safety and enjoyment (WTO, 2007).

International tourism demand is defined as the amount of a set of foreign tourist products that consumers are willing to acquire during a specific period of time, and under certain conditions which are controlled by the explanatory factors used in demand theory (Song and Witt, 2000). In the econometric modelling of international tourism demand, there are no standard measures of international tourism flows which are universally acceptable. A number of studies have used different proxies for international tourism demand, for example, international tourist expenditure/receipts, international tourist arrivals/departures, travel export/import, the number of international tourist-nights spent at tourist accommodation and average length of stay (Crouch, 1994). However, international tourist arrivals/departures is the most frequently used proxy for international tourist demand (Lim, 1997).

International tourism demand tends to follow the law of demand. An increase in tourism prices tends to reduce international tourism demand. Tourism prices include transport costs, the cost of accessing tourism facilities and the cost of commodities consumed by tourists during the tourism experience.

In empirical work, prices of tourist goods can be represented by the tourist price index or consumer price index (CPI). Many scholars support the use of the tourist price index (see for example Lim, 1997 and Crouch, 1994). However, most studies use the CPI since many countries do not compute the tourist price index. Martin and Witt (1988) did not find sufficient differences in the explanatory power of the tourist price index over the CPI. Thus, the tourist price index and CPI can be used interchangeably.

Some models use the tourist price index (or CPI) adjusted for the exchange rate, while others separate the tourist price index (or CPI) and exchange rate. The decision to treat the exchange rate separately is based on the assumption that the international tourist has more up-to-date information about the exchange rate than about prices of commodities in the destination country (Webber, 2001). Thus, the responsiveness of international tourism demand to CPI and the exchange rate is deemed to be different.⁵

Transport costs usually are treated separately from the price of tourist goods and services. The demand for transportation in international travel is a derived demand, as it is the consumer who has to be transported to the destination (Lim 1997). About 58 percent of the studies examined by Crouch (1994) used the cost of transportation as an explanatory variable. Transportation costs are measured by either the airfare for air travel, or fuel prices for surface travel. Ultimately, the price of oil is the main driver for both road and air fares (Lim, 1997), hence oil prices can be used to represent transport costs.

The increase in tourist income is expected to increase international tourism demand. To this end, income for the country of origin is another frequently used variable e.g. 89 percent of the studies examined by Crouch (1994) used income as an explanatory variable. International tourism should be viewed largely as a luxury good, with the estimated income elasticity lying between 1 and 2 (Lim, 1997). The appropriate income variable should be the income remaining after the purchase of necessities. In many cases, the income variable is not precisely measurable, hence most studies

⁵The exchange rate is defined as the number of units of the local currency which can be exchanged for a unit of the foreign currency. The change in the exchange rate affects the relative values of the currencies in question (Lim, 2004), hence changes in the exchange rate will lead to either an appreciation or depreciation of the tourist's currency. Appreciation of the tourist's currency will encourage more tourists to travel while depreciation will discourage them from travelling.

use nominal or real (per capita) personal disposable income, national income or GDP (ibid).

Specific events can lead to either positive or negative shocks on international tourism demand. Dummy variables are included in many international tourism demand models with the objective of measuring the effects of specific events (Salleh, Siong-Hook, Ramachandran, Shuib and Noor, 2008). The dummy variables are usually constructed so as to take the value of 1 when the event occurs and 0 otherwise.

Many studies adopt the log-linear model which proved to be better than the linear models (Crouch, 1994). For example, the results of Vanegas and Croes (2000) on the USA demand for tourism in Aruba, showed that the log-linear models performed much better than linear models. Lim (2004) reviewed 100 published empirical tourism studies looking at data and sample sizes used, the model specifications, the choice of dependent and explanatory variables, and the number of explanatory variables. She concludes that most studies used annual data and estimated log-linear single-equation models.

Single equation models with explanatory variables selected from the theoretical demand theory have been used traditionally for analysis on tourism demand (Kulendran and Witt, 1997). The most popular method of estimation is Ordinary Least Square (OLS), with 73 out of 93 studies on tourism demand examined by Crouch (1994) being based on OLS regression. However, violation of any assumption of the Classical Linear Regression Model (CLRM), results in invalid regression estimation (Salleh *et al.*, 2008). In particular, the data used in regression analysis should be stationary to avoid spurious regression results.

To overcome potential problems from traditional econometric methods, dynamic methodologies have been employed in recent studies on tourism demand (Salleh *et al.*, 2008). The most popular dynamic methodologies are the cointegration methods which describe the dynamic short-run relationship and the long-run equilibrium. The approaches to cointegration analysis are the Engle-Granger (1987) framework, the Johansen and Juselius (1990) multivariate framework and the Pesaran and Shin (1999) ARDL framework. A later reference for the ARDL framework is Pesaran, Shin and Smith (2001).

The main advantages of an ARDL model is its flexibility compared to the other models. The ARDL model does not require *a priori* knowledge about integration properties of the variables, subject to the variables not being integrated of an order higher than 1. The ARDL model also provides the consistent estimates of long-run coefficients that are asymptotically normal for both stationary and non-stationary variables (Pesaran *et al.*, 2001). The ARDL approach provides the valid t-statistics and unbiased estimates of the long-run coefficients even when some of the regressors are endogenous (Harris and Sollis, 2003). It therefore assists in correcting the endogeneity bias in the models. Moreover, a dynamic Error Correction Model (ECM) can be derived from ARDL through simple linear transformation (Banerjee, Dolado, Galbraith and Hendry, 1993). This means the ECM integrates the short-run dynamics with the long-run stability without losing the long-run information.

Kulendran and Witt (2001) looked at the different methodologies applied to international tourism demand. They compared the least squares models with the cointegration models. The forecasts produced using cointegration methods were more accurate than those generated by least squares regression. In the same vein, Li, Song and Witt (2005) reviewed the modelling and forecasting of 84 empirical studies of international tourism demand. They showed that applications of advanced econometric methods improve the understanding of international tourism demand. In the next two paragraphs we report the results from two typical studies which estimated tourism demand using the ARDL approach.

Halicioğlu (2004) examined an aggregate tourism demand function for Turkey using time series data for the period 1960-2002. The results revealed that total tourist arrivals into Turkey were related to world income, relative prices and transportation cost. Income was the most significant variable in explaining total tourist arrivals in Turkey.

Salleh *et al.*, (2008) studied the Asian tourism demand for Malaysia with the objective of identi-

fyng the factors that influence tourist arrivals in Malaysia from Asian countries. The results showed that tourism price, travel costs, prices of tourism substitutes and income were the major determinants of tourism demand for Malaysia. However, in the short term, it was word of mouth effects, world economic crisis (1997-1998) and outbreak of severe acute respiratory syndrome (SARS) which significantly affected tourism demand for Malaysia.

3 Methodology

The standard theory of demand shapes the specification of the international tourism demand function where international tourist demand is negatively correlated with both tourism prices and transportation costs, and positively correlated with tourist income (Lim, 1997). According to Lim (1997), the majority of empirical studies model international tourism demand by specifying a function of the following type.

$$Visits = f(RP_1, RP_2, T, Y, EXR, QF) \quad (1)$$

where

Visits is the tourist demand for the destination country,

RP_1 is a relative price index between the origin and destination country,

RP_2 is a relative price index between the origin and alternative destination countries,

T is the transport costs,

Y is income per capita of the origin country,

EXR is the currency exchange rate, measured as units of destination currency per unit of origin currency,

QF are qualitative factors in the destination country.

This study uses the above model as the basis for specifying the international tourism demand model for Tanzania. The study uses secondary monthly data for 1996 to 2006. The number of international tourist arrivals (a variable named *VISITS*) is adopted as a proxy for international tourism demand for Tanzania. The data on international tourist arrivals are well documented because of the compulsory completion of the arrival cards at ports of entry. Such data were obtained from the Tanzania Tourist Board bulletins.

The main determinants of international tourism demand for Tanzania used in this study are tourist preference, prices of tourist goods in Tanzania, prices of tourist goods in alternative destinations, transport costs, tourist income, the exchange rate and dummy variables (for the 2001 terror attack in the United States and the 1998 United States embassy bombing in Tanzania)⁶

The lagged value of international tourist arrivals to Tanzania (a variable named $VISITS_{t-1}$) is used to proxy tourist preference. This variable is interpreted as tourist preference because it shows the marginal change in the current tourist visits emanating from previous visits. The preference incorporates two categories of tourists, namely those who return to the country, or those who come due to the recommendation of previous visitors.⁷ Other studies also adopt the lagged value to proxy preference. For example, see Naude and Saayman (2005), Nordstrom (2005) and Muchapondwa and Pimhidzai (2008).

The domestic tourism price (a variable named TRP) is proxied by the ratio of the Tanzanian CPI to the United States CPI. The latter is used to represent the world's cost of living, as Tanzania

⁶For an example of an African study which uses the same framework, see Muchapondwa and Pimhidzai (2008).

⁷The other term which has also been used in literature to describe tourists that return to a country for repeat visits or who visit the country due to recommendations from earlier visitors is "taste formation" (for example see Naude and Saayman, (2005)). In other contexts, this phenomenon can be termed "addiction".

attracts tourists from all over the world. Data on both the Tanzanian and United States CPI were obtained from the International Financial Statistics (IFS) database (IMF, 2008).

Kenya is regarded as the closest alternative international tourism destination for Tanzania. As with domestic tourism prices, the prices of tourist goods in alternative destinations (a variable named *KRP*) was proxied by the ratio of the Kenyan CPI to the United States CPI. Data on the Kenyan CPI were obtained from the IFS database (IMF, 2008).

The monthly average of world oil prices was used to proxy transport costs (a variable named *OILPRICE*). The data were obtained from the United States Energy Department (US, 2008).

The United States income would be a good proxy for international tourist income as the trends in global income tend to follow the United States economic activity. However, as the study seeks to use monthly data and, since United States income data (real GDP per capita) are not available on a monthly basis, the study uses the negative value of the United States monthly unemployment rate (a variable named *INCOME*) as a proxy for international tourist income. In a similar study, Muchapondwa and Pimhidzai (2008) adopt the same proxy. The unemployment data were obtained from the IFS database (IMF, 2008).

The exchange rate between the Tanzanian shilling and the United States dollar (a variable named *EXR*) proxies the exchange rate between Tanzania and the world. The data were obtained from the IFS database (IMF, 2008).

A dummy variable each was used for the 1998 United States embassy bombing in Tanzania (a variable named *DUMMY1998*) and the 2001 terror attack in the United States (a variable named *DUMMY2001*). Two different treatments of the two dummy variables are used to capture their possible temporary and permanent effects on international tourism demand. In the treatment that captures permanent effects, the dummy variables take the value of 1 from the period that the associated event occurs onwards. In the treatment that captures temporary effects, the dummy variables take a value of 1 for only a few months following the associated event.

This study adopts the log-linear specification for the international tourism demand model. Thus, the international tourism demand model for Tanzania can be specified as:

$$\ln VISITS_t = f(\ln VISITS_{t-1}, \ln TRP_t, \ln KRP_t, \ln OILPRICE_t, \ln INCOME_t, \ln EXR_t(2) \\ DUMMY1998, DUMMY2001)$$

The study uses the ARDL approach to estimate the international tourism demand model. The ARDL approach is based on the following model:

$$\ln VISITS_t = \beta_0 + \beta_1 \ln VISITS_{t-1} + \sum_{i=0}^{i=q} \beta_2 \ln TRP_{t-i} + \sum_{i=0}^{i=q} \beta_3 \ln KRP_{t-i} + \quad (3) \\ \sum_{i=0}^{i=q} \beta_4 \ln OILPRICE_{t-i} + \sum_{i=0}^{i=q} \beta_5 \ln INCOME_{t-i} + \sum_{i=0}^{i=q} \beta_6 \ln EXR_{t-i} + \\ \delta_1 DUMMY1998 + \delta_2 DUMMY2001 + \varepsilon_t$$

The interested reader is referred to Pesaran *et al.*, (2001) for a detailed explanation of the ARDL approach.

4 Empirical Results

Three conditions should be satisfied in the ARDL approach. Firstly, the variables to be included in the model should not be integrated of an order higher than I(?); secondly, there should be a unique cointegration vector and, thirdly, the most appropriate lag length for each variable should be identified. The study used the traditional unit root tests: the augmented Dickey-Fuller (ADF) and

the Phillips-Perron (PP). The results are reported in Table 1 and indicate that none of the variables to be included in the equation are integrated of an order higher than $I(1)$.

The bounds test for cointegration is used to determine the number of cointegrating vectors and the results are reported in Table 2. It is only the F-statistic of the model that has international tourist arrivals (i.e. VISITS) as the dependent variable which is significant at the 5 percent level. This confirms the existence of a unique cointegration vector among the variables.

The Akaike Information Criterion (AIC) was used to identify the most appropriate lag lengths. Table 3 shows the most appropriate lag length for each variable.

Making use of the above lag lengths, the ARDL model was then estimated based on equation (3), set out earlier.⁸ The dummy variables for the 1998 United States embassy bombing in Tanzania and the 2001 terror attack in the United States were also included. The results of the ARDL(1,4,4,1,4,3) model are reported in Table 4. Model 1 captures the temporary dummy effects while model 2 captures the permanent dummy effects. The LM test for serial correlation shows that the residuals do not suffer from serial correlation.

Both model specifications show that local tourism prices, tourist income, tourist preference and the 2001 terror attack were the main determinants of international tourism demand for Tanzania between 1996 and 2006. The local tourism price elasticity is -3.7, signalling that a 1 percent decrease in tourism prices in Tanzania would lead to an increase in international tourist arrivals to the country of more than 3 percent. Given that the tourism prices of the alternative destination had no significant impact in explaining the international tourism demand in Tanzania, it seems that the volume of international tourist visits to Tanzania are sensitive to local tourism prices only. The implication of this result is that the Tanzanian government must maintain macroeconomic stability, especially low inflation, if the country is to reap the full economic benefits from international tourism.

The above result does not imply that competition from alternative tourist destinations should be ignored. The availability of alternative tourist destinations can serve to reduce the sensitivity of international tourism demand for Tanzania to local tourism prices. Thus, the presence of alternative tourist destinations in the rest of Africa certainly depresses the price sensitivity somewhat. To reduce this sensitivity and reap more returns from policy makers' efforts towards macroeconomic stability, there is a need for the government in Tanzania to diversify the set of tourist products away from those that are available universally. There is a particular opportunity in the South and West circuits, which offer alternatives to wildlife-based products exist. One example of diversifying tourism products away from the typical offering and to offer a unique tourism product, would be to package a game drive in the same basket with Masaaai traditional dance.

Theoretically, the income of the country of origin is positively related to the volume of international tourist arrivals in the destination country. This result holds true in this study. As the tourist income increases, the number of tourist arrivals in Tanzania increases. A 1 percent increase in tourist income leads to approximately 0.7 percent increase in tourist arrivals in Tanzania.

Tourist preference, which is represented by lagged international tourist arrivals, is the most significant variable in the model. A 1 percent increase in the preceding month's visits leads to a 0.27 percent increase in the current month's international tourist arrivals. This implies a small proportion of tourists who return to the country or who recommend the country to others. Since 81 percent of international arrivals to Tanzania are motivated by leisure, there is a need to improve tourism hospitality to enhance preference for the Tanzanian tourism experience. There is also a need to enhance the image of the country's tourist facilities in the minds of visitors so that they can either return or recommend the country to others.

The 1998 United States embassy bombing in Tanzania had neither a temporary nor permanent effect on international tourist arrivals. However, the 2001 terror attack in the United States affected the level of international tourist arrivals in Tanzania. As is shown by the significance of the corresponding dummy variables in Table 4, the terror attack had negative temporary and permanent

⁸Despite using monthly data, our ARDL model does not account for seasonality for fear of adding more variables to a model which is already not parsimonious as a result of inclusion of the recommended number of lags.

effects on international tourism demand for Tanzania. International tourist arrivals declined by about 35 percent temporarily and almost 20 percent permanently.

Empirical results for the long-run relationship of the international tourism demand model for Tanzania are presented in Table 5. The signs of the statistically significant variables are consistent with theory.

In the long run, it is largely the local tourism prices, tourist income, transport cost and the exchange rate which impact on international tourist arrivals in Tanzania. For example, a 1 percent decrease in transport costs increases the number of international tourist arrivals by about 0.3 percent. The international tourism demand elasticity with respect to the exchange rate is almost 3 percent, suggesting that a weaker Tanzanian shilling raises international tourism demand for the country, as the country will be seen as a source of cheaper tourism experiences. Thus, the monetary policy authorities should refrain from the temptation to maintain a highly overvalued exchange rate, as that could hurt the international tourism sector in the long run.

The results for the short-run dynamics of the international tourism demand model for Tanzania are presented in Table 6. The error correction term (ECT) is statistically significant and has the correct sign. This significance confirms the existence of a long-run relationship among the variables in the model. The magnitude of the term indicates that about 78 percent of the deviation from the long-run relationship is corrected in the first month, which is a quick speed of adjustment.

5 Conclusion

Tourism is one of the fastest-growing activities in the world. In Tanzania, it has been recognised as the sector that could promote and accelerate the socio-economic development of the country, particularly as a supplier of foreign exchange earnings, foreign direct investment and employment. International tourism is particularly important as it brings in resources that otherwise do not exist internally. The main objective of the study was to model international tourism demand for Tanzania. Prices of tourist goods in Tanzania, cost of travelling to the country, prices of tourist goods in alternative destinations, exchange rate, tourist income and tourist preference are the possible determinants of international tourism demand for Tanzania. However, local tourism prices, tourist preference, tourist income and the 2001 terror attack in the United States also had significant effects on international tourism demand for Tanzania. Of these four, the government is likely to be able to influence only local tourism prices and tourist preferences.

Local tourism price inflation has a negative effect on international tourism demand. The government needs to maintain macroeconomic stability, especially low inflation, if the country is to reap the full economic benefit from tourism. The government should also put more efforts in diversifying tourism products away from the traditional offerings to attract a steadfast tourism clientele. For example, packaging a game drive in the same basket with Masai traditional dance would constitute a unique tourism product.

Tourist preference also has a significant impact on international tourism demand for Tanzania. The result implies a small proportion of tourists either return to the country or recommend the country to others. Since 81 percent of international arrivals to Tanzania are motivated by leisure, there is a need to improve tourism hospitality (customer service) to enhance tourist preference for the Tanzanian tourism experience. Some of the activities which could be undertaken in this regard would be the training of staff in the tourism industry, the improvement of tourism infrastructure such as roads and hotels, and aggressive marketing of Tanzanian tourism products to the world.

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Table 1: Unit Root Tests for Variables

Variables	ADF	Phillip Peron (PP)	Decision
VISITS	-5.086 **	-42.045 **	I(0)
KRP	0.041	-0.238	I(1)
D.KRP	-6.743 **	-64.106 **	I(0)
TRP	-2.109	-4.609	I(1)
D.TRP	-6.408 **	-67.722 **	I(0)
OILPRICE	-0.853	-1.695	I(1)
D.OILPRICE	-12.105 **	-129.981 **	I(0)
INCOME	2.989 *	10.907	I(0)
EXR	-0.918	-0.705	I(1)
D.EXR	-8.896 **	-88.660 **	I(0)

Note: * significant at the 5% level, ** significant at the 1% level

Table 2: The bounds test for cointegration

Dependant variable	VISITS	TRP	KRP	INCOME	OILPRICE	EXR
F-Statistic	4.63*	2.55	1.52	1.25	1.86	--

Note: * significance at 5% level. The critical values for the case of unrestricted intercept and no trend for k=5 and T=133 are Lower Bound I(0)=2.62 and Upper Bound I(1)= 3.79 (Pesaran *et al.*, 2001).

Table 3: The appropriate lag lengths suggested by the AIC

Explanatory variable	VISITS	TRP	KRP	INCOME	OILPRICE	EXR
Significant lags	1	4	4	4	1	3

Table 4: The results of an ARDL (1,4,4,1,4,3) model

Variable	Model 1 (Temporary dummy)		Model 2 (Permanent dummy)	
	Coefficient	t-statistics	Coefficient	t-statistics
VISITS _{t-1}	0.2713**	3.008151	0.2993**	3.349913
KRP	-0.225886	-0.124764	-0.057321	-0.031530
KRP_1	-4.061319	-1.313054	-4.183466	-1.336688
KRP_2	5.296818	1.629917	5.421520	1.651430
KRP_3	-1.239477	-0.390424	-1.199790	-0.373884
KRP_4	-0.105141	-0.058130	0.005470	0.002982
TRP	-3.72264*	-1.842415	-3.39209*	-1.679393
TRP_1	2.654433	0.853589	2.965648	0.943238
TRP_2	-0.448476	-0.144197	-0.911533	-0.291168
TRP_3	-4.090034	-1.306701	-3.932299	-1.235929
TRP_4	4.14121*	2.132989	3.89564*	1.992069
OILPRICE	-0.016413	-0.070223	0.047063	0.200193
OILPRICE_1	-0.247251	-0.634623	-0.303677	-1.301029
INCOME	0.69451*	1.684458	0.70571*	1.738657
INCOME_1	-0.91841*	-1.906748	-1.07682*	-2.248794
INCOME_2	0.515591	1.107585	0.493681	1.040292
INCOME_3	0.173353	0.367782	0.163886	0.337103
INCOME_4	0.407394	0.988087	0.167290	0.423622
EXR	0.545460	0.361439	0.466041	0.305451
EXR_1	-1.543295	-0.675470	-1.393210	-0.602491
EXR_2	2.742583	1.203098	2.895741	1.254308
EXR_3	0.153015	0.100653	-0.113950	-0.072433
DUMMY2001 _{temporary}	-0.30404*	-1.944412		
DUMMY2001 _{permanent}			-0.18100*	-0.972339
DUMMY1998 _{temporary}	-0.017725	-0.108602		
DUMMY1998 _{permanent}			-0.078860	-0.596043
CONSTANT	-2.763560	-0.659369	-3.405292	-0.693908
F(24, 103)	8.01 [p-value 0.0000]		7.72 [p-value 0.0000]	
Adj R2	0.5699		0.5596	
Serial correlation LM test	1.402 [p-value 0.2363]		1.100 [p-value 0.2943]	
Ramsey test F(3,100)	1.66 [p-value 0.1809]		1.50 [p-value 0.2191]	

Note: * significant at the 5% level, ** significant at the 1% level

Table 5: Long-run elasticities of the international tourism demand for Tanzania

Variable	Coefficient	t-statistics
KRP	-0.795187	-1.264228
OILPRICE	-0.328845 **	-2.460752
TRP	-1.815876 **	-2.584881
INCOME	0.907176 **	3.302905
EXR	2.947903 **	5.055657
DUMMY2001 _{permanent}	-0.142769	-0.857147
DUMMY1998 _{permanent}	-0.255391 *	-1.859458
CONSTANT	-6.711758 *	-1.786188
F(7, 124)	17.56 [p-value 0.0000]	
Adj R2	0.4695	

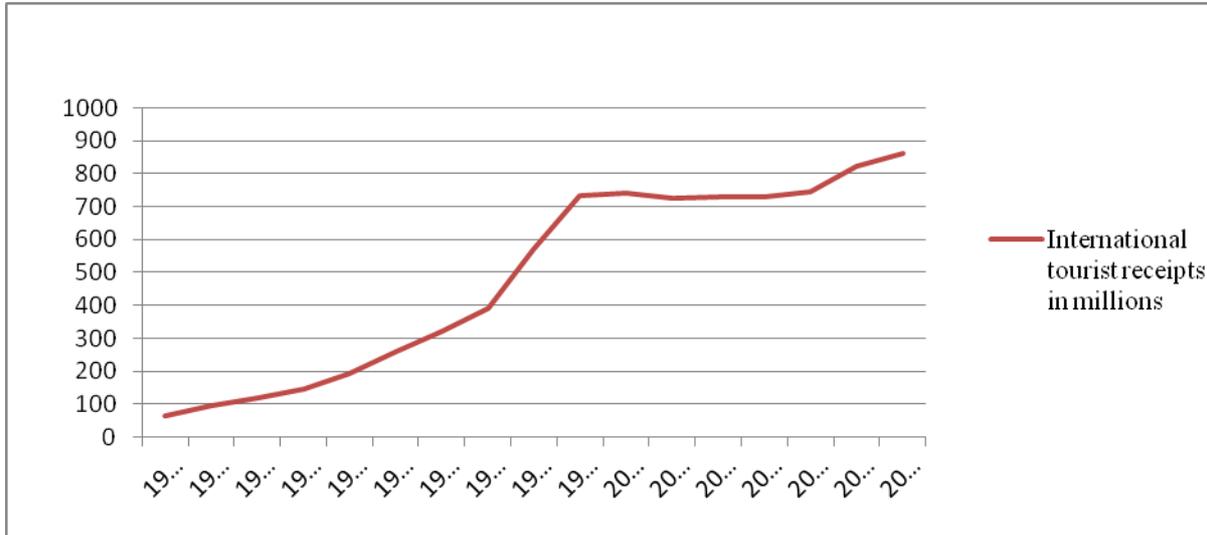
Note: * significant at the 5% level, ** significant at the 1% level

Table 6: Error Correction Representation of the ARDL model

Variables	Coefficient	t-statistics
D. VISITS_1	-0.4199**	-6.020543
D. INCOME	1.0362**	3.042527
D. INCOME_1	0.472464	1.354860
D.INCOME_2	0.467292	1.504840
D.INCOME_3	1.0100**	2.856378
D.INCOME_4	0.895617	2.452133
D.KRP	0.227503	0.149965
D.KRP_1	-0.905222	-0.539191
D.KRP_2.	2.085112	1.244607
D.KRP_3	1.087833	0.634544
D.KRP_4	0.144579	0.093764
D.TRP	-4.5787**	-2.766229
D.TRP_1	-0.065677	-0.037785
D.TRP_2	0.952841	0.549899
D.TTRP_3	-1.140894	-0.690685
D.TRP_4	2.454939	1.539232
D.OILPRICE	-0.240244	-1.239323
D.OILPRICE_1	-0.281038	-1.441805
D.EXR.	1.776246	1.233514
D.EXR_1	2.013391	1.485845
D.EXR_2	2.70557*	2.041187
D.EXR_3	2.107647	1.600689
DUMMY2001 _{temporary}	0.029812	0.216184
DUMMY1998 _{temporary}	0.040031	0.756873
ECT	-0.7878**	-8.827325
CONSTANT	-0.093075	-1.637866
F(25, 101)	7.69 [p-value 0.0000]	
Adj R2	0.5704	

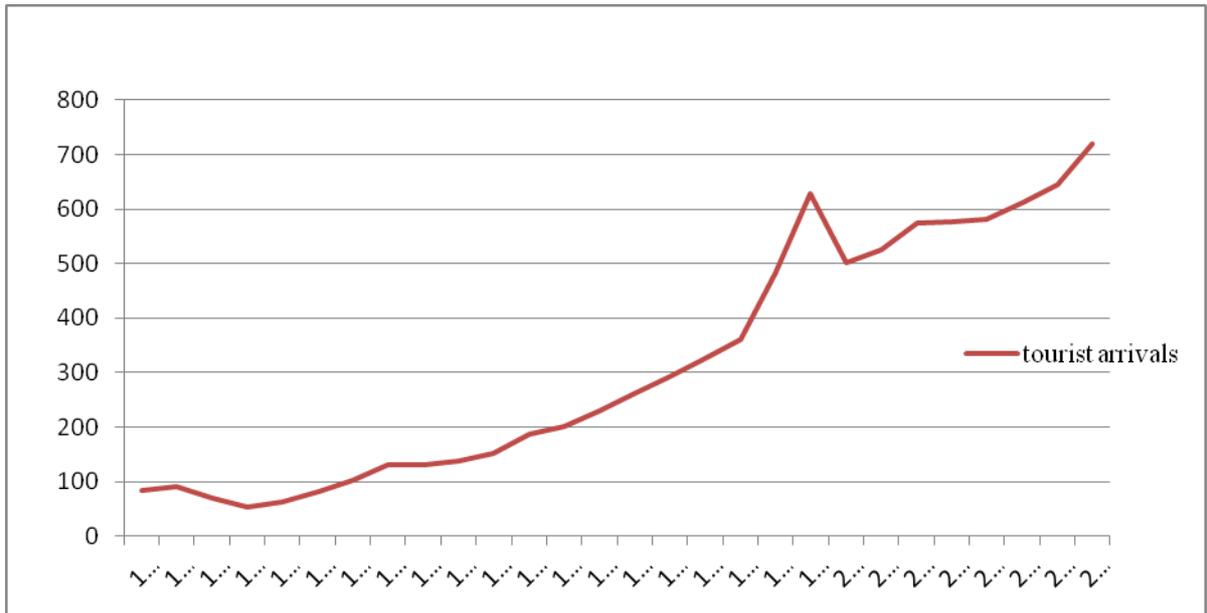
Note: * significant at the 5% level, ** significant at the 1% level

Figure 1: International Tourist Receipts (in US\$ Millions): 1990-2006



Source: Tanzania Tourist Board (2008)

Figure 2: Tourist Arrivals in Tanzania (in Thousands): 1980-2007



Source: Tanzania Tourist Board (2008)