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A Panel Data Analysis of the Determinants of Tourism Destination Competitiveness: Kenya and Comparator Countries in Africa

Jackline Sagwe

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A Panel Data Analysis of the Determinants of Tourism Destination Competitiveness: Kenya and Comparator Countries in Africa

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Productive Sector Division
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Bishops Garden Towers, Bishops Road
P.O. Box 56445, Nairobi, Kenya
tel: +254 20 2719933/4; fax: +254 20 2719951
email: **admin@kippra.or.ke**
website: http://www.kippra.org

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Abstract

This study analyzes the determinants of tourism destination competitiveness using panel data for the period 1980 to 2008, based on an augmented version of an empirical model by Craigwell (2007). The analysis is based on secondary data for six countries: Kenya, Egypt, Morocco, South Africa, Tanzania and Tunisia. The data was transformed into logarithms before estimation. The results indicate that the elasticities of per capita income, technological advancement and tourism openness are positive and significantly affect destination competitiveness. The study finds evidence that tourism competitiveness can be enhanced through policy measures that favour tourism openness, such as visa fee waivers and technological advancement.

Abbreviations and Acronyms

WTTC	World Travel and Tourism Council
WEC	World Economic Forum
UNWTO	United Nations World Tourism Organization
WTTC	World Travel and Tourism Council
KER	Kenya Economic Report
KIPPRA	Kenya Institute for Public Policy Research and Analysis

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1. Introduction

1.1 Background

In the 21st century, tourism has become the most important economic activity on a worldwide scale. To succeed in the international tourism market place, any destination must ensure that its overall attractiveness and the integrity of the experiences it delivers to visitors, must be equal or surpass that of the many alternative destinations open to potential visitors. In Kenya, tourism contributes about 5 per cent of GDP and 4 per cent of total employment (KIPPRA, 2009). The sector also contributes 23 per cent in foreign exchange earnings (World Travel and Tourism Council, 2007). Tourism is also one of the key sectors to spur economic growth as envisaged in Kenya's Vision 2030.

The World Travel and Tourism Council (WTTC, 2008) which measures travel and tourism competitiveness of nations around the world ranked Kenya as 101 in 2008 and 97 in 2007 out of 130 tourism destinations. Tunisia, South Africa, Egypt, Morocco and Tanzania, who are Kenya's competitors, were ranked 40, 61, 75 and 98 in 2009, respectively (Table 1.1).

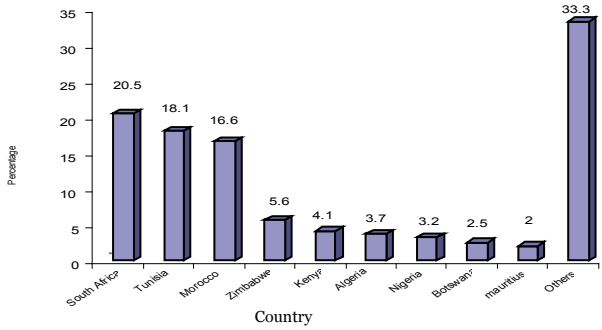
In Africa, South Africa has the largest market share (20.5%) followed by Tunisia, Morocco, Zimbabwe and Kenya with 18 per cent, 16.6 per cent, 5.6 per cent and 4.1 per cent market share, respectively (Figure 1.1).

Table 1.1: The travel and tourism competitiveness index-African countries

Overall index		
Country	**Rank**	**Score**
Tunisia	44	4.43
South Africa	61	4.37
Egypt	64	4.09
Morocco	75	3.86
Botswana	79	3.81
Kenya	97	3.60
Tanzania	98	3.59
Zambia	100	3.53
Uganda	111	3.38

Source: World Economic Forum (2009)

Figure 1.1: Market share of top 10 tourist destinations in Africa compared to the rest of Africa



Source: Government of Kenya (2006)

Globally, Kenya accounts for approximately 0.2 per cent of global tourism and approximately 4 per cent in Africa. Kenya does not perform as well as comparator countries such as South Africa with regard to tourism earnings, marketing expenditure, tourism arrivals and market share. In terms of spending on marketing per tourist for instance, Kenya ranks the lowest at US$ 3.7, while South Africa ranks the highest with US$ 9.3 ahead of Tunisia (US$ 6.8), Egypt (US$ 5.8) and Tanzania (US$ 5.2) (KIPPRA, 2009). While Tunisia and Morocco are short haul destinations, Kenya, Tanzania and South Africa are long haul destinations. Tunisia and Egypt are closer to Europe, which is the major source of tourists to Africa. South Africa recognizes tourism as a key sector and commits considerable resources for its development and promotion. Though Tanzania and Kenya have similar tourist products and lie on the same climate zone, Tanzania has a limited tourism product, largely based on wildlife, which is not diversified.

1.2 Problem Statement

Competitiveness is a key target under Vision 2030. In the same blueprint, Kenya aims to be among the top ten long haul tourist destination globally (Government of Kenya, 2007). China, Mexico and Malaysia are the leading destinations for long haul tourists worldwide. In Africa, Egypt (known for its pyramids) and South Africa are the leading long

haul destinations. Given Kenya's tourism past performance, this is an ambitious target. For Kenya to achieve its dream, it must expand her global and regional market share. Although Kenya has shown impressive performance since 2002, increasing the total number of annual tourists from 1 million in 2002 to 1.6 million in 2006, South Africa and Egypt attracted four to five times more tourists than Kenya (8.2 million in Egypt and 7.5 million in South Africa). This is despite the fact that Kenya, Tunisia, South Africa and Tanzania share similar tourism products: coastal beaches. Tanzania and Kenya for instance, have similar products and climate zones. In addition, Kenya has an edge over South Africa as it enjoys sunshine throughout the year.

Despite enormous potential for increasing tourism arrivals, Kenya's relative performance has been low as compared to Tunisia, Egypt, South Africa and Morocco. This study, therefore, seeks an understanding of factors that influence Kenya's competitiveness and subsequently assess factors that can enhance Kenya's tourism competitiveness against leading African destinations (Egypt, Tunisia, Morocco, Tanzania and South Africa).

1.3 Objectives

This study investigates both the nature and determinants of tourism competitiveness in Kenya. Specifically, the objectives of the study are:

(i) Determine factors that influence Kenya's tourism competitiveness; and,

(ii) Identify and evaluate the factors that can enhance Kenya's tourism competitiveness.

1.4 Rationale of the Study

Tourism is of central importance to the success of economic development in many countries. A cross-country analysis of the drivers of competitiveness in tourism would provide useful comparative information to take business decisions and provide additional value to public authorities to improve their tourism environment.

The findings of this analysis will inform stakeholders on strategies of increasing tourist numbers, expenditure and thus enhance socio-economic prosperity.

The development of a model of destination competitiveness and an associated set of indicators will allow identification of the relative strengths and weaknesses of Kenya's tourism competitiveness. This information can be used by industry and Government to design appropriate policies and strategies to enhance tourism competitiveness. The information can also be used by the Kenya Tourism Board to enhance their marketing strategies to enhance tourist arrivals and expenditure.

The paper is organized as follows, Section 2 gives a description of the literature review on theoretical and empirical literature. Section 3 describes the methodology used in the study whereas section 4 gives a discussion of results. Section 5 concludes the study and provides recommendations and areas of further research.

2. Literature Review

2.1 Tourism Industry Performance in Kenya

Tourist arrivals in Africa nearly doubled between 1995 and 2005, rising from 22.5 million to more than 44 million (UNCTAD, 2008). The World Travel and Tourism Council-WTTC (2008) predicted that personal travel and tourism expenditure would grow by 5.7 per cent in Africa in 2008, and 5.9 per cent in Africa South of the Sahara. This compares favourably with the 3.0 per cent growth attained worldwide. The top four tourist destinations in Africa, South Africa (26.73%)Egypt (24.96%), Morocco (16.80%), and Tunisia (7.74%) comprised 76.23 per cent of the measured tourist expenditure in Africa in 2005. A second group of seven countries, namely Mauritius (3.17%), Tanzania (3%, Ghana (2.90%), Kenya (2.11%), Botswana (2.05%), Uganda (1.39%)and Namibia (1.27%) comprised 15.89 per cent. Added to the top four, more than 92 per cent of African tourist arrivals are limited to these eleven countries. This highlights the fact that the distribution of tourists to Africa is highly skewed.

Kenya's tourist earnings rose steadily from Ksh 25.5 billion in 2003 to Ksh 65.4 billion in 2007, while tourists' arrivals increased by an average of 15 per cent within the same period. The four year trend, however, reversed in 2008 with arrivals dropping to 1.2 million and earnings hitting a low of Ksh 52.7 billion following the post-election violence and, to a lesser extent, the global financial crisis, which make the year stand out as the most challenging for the tourism sector in Kenya over the last decade.

Table 2.1: Kenya's tourism performance (2003-2008)

Tourism	2003	2004	2005	2006	2007	2008
Visitors arriving ('000')	1,146.2	1,360.7	1,479.0	1,600.5	1,817	1,203.2
Visitors to parks ('000')	1,540.5	1,820.2	2,132.9	2,363.7	2,495.1	1,633.9
Visitors to museum and historic sites ('000')	686.3	699	751.6	560	598.6	493
Tourism earnings (Ksh billion)	26.4	38.5	48.9	-	65.2	52.7
Hotel bed nights available ('000')	7,765.7	10,030.7	10,845.6	13,003.5	14,711.6	14,233.6
Hotel bed nights occupied	2,605.9	3,791.5	4,476.5	5,922.1	6,939.4	3,699.0

*** 2005 includes visa fees and domestic tourism earnings.*
Source: Government of Kenya, Economic Survey (various)

Bed night occupancy decreased significantly by 46.7 per cent from 6.9 million in 2007 to 3.7 million in 2008. Similarly, the number of visitors to game parks and reserves dropped from 2.5 million in 2007 to 1.6 million in 2008, representing a 34.5 per cent drop. On average, bed nights occupancy rate went down from 47.2 per cent in 2007 to 26.0 per cent in 2008. Similarly, the level of rooms occupied compared to rooms available contracted by 36.6 per cent in 2007 to 32.2 per cent in 2008.

Kenya's tourism resource is diversified. The country's tourism products consist of wildlife, varied impressive scenery, unspoiled areas, diverse cultures and sunny climate. Tourism, however, has become a fierce competitive business for tourism destinations the world over. Competitive advantage is no longer natural but increasingly man-made, driven by science, technology and innovation. As such, it is not stock of natural resources of Kenya that will determine her share in the tourism market, but rather how these resources are managed and integrated with other competencies to create a competitive advantage.

2.2 Theoretical Literature

The concepts of comparative and competitive advantage provide a theoretically sound basis for the development of a model of destination competitiveness (Ritchie and Crouch, 2003). Tourism research scholars have developed models of competitiveness tailored to the peculiarities of tourism destinations. Several studies have been done addressing the competitive positions in several countries: United States (Crompton and Botha, 2000), South Africa (Crompton and Botha, 2000) and Australia (Dwyer, Livaic and Mellor, 2003).

Tourism competitiveness is a relative, multidimensional, complex concept when applied to economies and destinations, determined by a range of comparable economic, ecological, social, cultural and political factors determine it (Craigwell, 2007). As a result, many measures of tourism competitiveness, most of which are related but each taking a different viewpoint on the subject and emphasizing several of the aforementioned factors in the process, can be found in the literature. Models that integrate all of the factors include Ritchie and Crouch (2003) and Dwyer and Kim (2003). In these studies, tourism competitiveness is seen as facts and policies that shape the ability of a country to create and maintain an environment that sustains more value creation for its enterprises and more prosperity for its people. This full integration however, has limited practical applicability to Kenya, primarily because

of the paucity of appropriate proxies for some of the factors.

While the discussions on competitiveness in the general literature are useful in highlighting the various determinants of 'firm' or 'national' competitiveness, they do not address the special considerations relevant to determining tourism 'destination' competitiveness (Dywer and Kim, 2003). For example, the discussion of competitiveness in the general economics and business literature stresses on competitive advantage, while de-emphasizing comparative advantage as a source of competitiveness. When viewed in a tourism destination context, comparative advantage relates to inherited resources such as climate, scenery, flora and fauna, while competitive advantage relates to created items such as the tourism superstructure, the quality of management, skills of workers, government policy among others (Dywer and Kim, 2003). Extant literature clearly appreciates the importance of both comparative advantage and competitive advantage within the tourism industry and, as such, the importance of understanding the factors that determine the ability of a tourism destination to compete is being increasingly recognized from both a theoretical and managerial perspective (Chon and Mayer, 1995; Evans, Fox and Johnson, 1995; Faulkner, Oppermann and Fredline, 1999; d'Hauteserre, 2000; Hassan, 2000; Ritchie, Crouch and Hudson, 2001).

The WTTC in 2006 developed a multifaceted framework that includes relatively accessible factors.

Table 2.2: WTTC tourism competitive component indices

Main indices	Component indices
Price competitiveness	Hotel prices, indirect taxes, purchasing power parities and payment forms
Human tourism	Volume and value of inbound and outbound tourism
Infrastructure	Roads, railways, energy, water, sanitation, hospitals and security
Environment	Population density, CO2 emissions, ratification of international treaties on the environment
Technology	Internet access, telephones, mobile phones and high-tech exports
Human resources	Life expectancy, literacy, enrolment in primary, secondary and tertiary level education, employment in travel and tourism, unemployment, population and gender indicators
Openness	Visa requirements, trade openness, taxes on trade, tourism openness
Social development	Human development index, TVs, personal computers, newspapers and crime

Source: WTTC (2006)

2.3 Definition of Variables

Dependent variable

Destination competitiveness: This is measured by a country's share of tourism annual arrivals, where arrivals are annual inflows of international tourists according to the WTO database.

Independent variables

Infrastructural development: This is measured by percentage of paved roads in a country. The expectations are tourism competitiveness with higher levels of infrastructural development.

Per capita income: This is used to measure a destination country's welfare.

Tourism openness: This measures the extent to which a country's economy is open to international tourism. It is calculated as a ratio of the sum of international tourism expenditure and receipts to GDP.

Environmental index: This is measured by the percentage of CO2 emissions. It is expected to reduce competitiveness to the extent that it is associated with factors such as overcrowding, pollution or environmental degradation that may reduce attractiveness of a destination.

Tourism participation index: This measures people's involvement in tourism activities and is estimated as the sum of tourist arrivals and departures as a ratio of the population of the destination country.

Education index: It measures the quality of labour force in the destination country in terms of education and related criteria, since quality labour can provide better tourism services. Education or training in travel and tourism sectors would be a good proxy. However, such data is difficult to obtain across countries and consequently, the general educational index from UNDP is used.

Technological advancement: The technology indicator indicates the advances of a country in its acquisition of modern technological systems represented by the use of Internet. The Internet index shows the ratio (per 10,000 people) of the number of computers with active Internet protocol addresses connected. This is expected to increase tourism attractiveness of the destination as a comfortable destination to high-end tourists.

Measures of tourism competitiveness in the literature include visitor numbers, market share, tourist expenditure, employment, valued added by the tourist industry and subjectively measured variables such as 'richness of culture and heritage' and 'quality of the tourism experience which have been identified as having the potential to affect the competitive standing of a destination. Dwyer, Forsyth and Rao (2000) construct tourism price competitiveness indices for various destinations that account for the travel costs to and from, as well as costs accumulated within these countries. As such, these indices can be used to assess a country's price competitiveness from the point of view that visitors originate from different source markets and travel for different purposes. In addition, they can be decomposed into components that reflect relative or absolute influence of the exchange rate changes and domestic inflation rates on destination price competitiveness.

The principal factors contributing to competitiveness vary amongst destinations and, as such, destinations must take a more tailored approach to enhance and develop tourism competitiveness, rather than adopt a single, universal policy or strategy (Enright and Newton, 2005). Of particular interest is the applicability of destination competitiveness models, and the relevance or importance of key competitiveness variables to destinations at different stages of development or evolution.

Different approaches for measuring competitiveness of tourist destinations can be distinguished from the literature. Kozak and Remmington (1999) measure competitiveness using survey data of tourist perception and opinions about their experience of different destinations. Other studies such as Dwyer *et al.* (2000) use published data to measure competitiveness of tourist destinations by using WTTC indicators: human tourism, price, infrastructure, environment, technology, human resource, openness and social indicators.

2.4 Empirical Literature

A considerable amount of research has concentrated on predicting the international demand for tourism by means of causal relationships with other variables. Such studies normally select, as independent variables, those variables related to market volume, the price rates of destinations, the travel cost, income levels of the countries supplying the tourists and, to a lesser extent, certain characteristics offered by the destinations (Bruges, 1980; Buisa´n, 1997; Crouch, 1994 and 1995;

Garin-Mun˜oz and Pe´rez Amaral, 2000; and Smeral, Witt and Witt, 1992 and 1995). These papers explain demand for a particular country or region as a whole, or its major market segments (such as pleasure tourism and business tourism), offering explanations of a general nature (Crouch, 1994). Therefore, it is difficult to determine the competitive potential of a specific form of tourism in a destination considering only those factors. As Crouch (1994) points out, the factors determining demand are to a great extent connected with motives for traveling. On the other hand, several research works have recently been carried out from the discipline of strategic management, with the objective of formulating strategies for boosting tourism in particular countries or regions (Aguilo,´1994 and Fletcher and Cooper, 1996) rather than to evaluate their possibilities of gaining competitive advantage or of being successful in a given type of tourism.

Nevertheless, the success of a particular form of tourism in a destination depends, to a great extent, on the resources which it possesses (Bull, 1991; Gray, 1982 and Smith, 1994). In his explanation of the asset theory, Gray states that success in tourism in a particular destination depends mainly on the existence of immobile and scarce resources. Further, he emphasizes that destinations that are in possession of these resources compete among themselves. These prescriptions link up directly with the resource and capability-based approach, which indicate that competitive advantage is based on the control of assets that are valuable, rare, difficult to imitate and substitute and imperfectly mobile. In this way, the theoretical model provides an appropriate framework for predicting whether or not it is likely that a particular destination will succeed in developing a specific type of tourism, satisfying, as indicated by Eadington and Redman (1991), one of the main contributions economics can make towards the industry.

In recent past, tourism researchers have introduced concepts and relevant models about tourism competitiveness (for example Ritchie and Crouch, 2000; Hassan, 2000; Thomas and Long, 2000; Kozak, 2001; Dwyer, 2001 and Yoon, 2002). Most of these studies have focused on how effectively and efficiently destination competitiveness can be improved to respond to escalating market competition. By far, the most comprehensive destination planning models that have been developed are those of Crouch and Ritchie (2000) and Dwyer (2001).

Therefore, frameworks and models investigating the competitiveness of tourism destinations must recognize a wide array of key success

drivers and vital linkages involved. Murphy, Pritchard and Smith's (2000) model includes attributes such as quality and value to reflect the comparisons visitors make between competitive destinations. Hassan (2000) introduced another model providing a framework of environmentally sustainable competitiveness factors. Dwyer and Mellor (2003) in their model of destination competitiveness brought together the main elements of the wider competitiveness literature (Porter, 1990; Moon and Peery, 1995; Narashima, 2000, and Waheeduzzan and Ryans, 1996), while incorporating elements of destination competitiveness as defined by other researchers (Buhalis, 2000; Hassan, 2000; and Mihalic, 2000). Their research aimed firstly to develop a model of destination competitiveness, and secondly to set out the results of a survey, based on indicators associated with the model, to determine the competitiveness of Australia as a tourist destination.

A destination can be said to be competitive if its market share measured by visitor numbers and financial returns is increasing (Hassan, 2000). This approach supports the view that competitiveness should be linked to high visitor numbers and increasing destination income. Destination competitiveness can also be associated with the ability to deliver an experience that is more satisfying than that offered by other destinations. Market share was used as an indicator to measure competitiveness on SIDS (Small Island Developing States), a study done by Craigwell (2007). However, as Craigwell, Worrell and Smith (2006) point out, evaluating competitiveness through the use of market share indicators is relatively rare in tourism economics, even though a rise in market share is usually associated with a competitive gain. The authors attribute this to the relatively small share of the global market for most tourism destinations. However, this has no impact on the conceptual validity of the measure. Market share indicators are commonly used at the firm level for signs of change in the competitive landscape. It allows one to evaluate how well a firm is doing relative to its competitors. Losses in market share can signal serious long-term problems that require strategic adjustment.

Allen and Yap (2009) used a panel data approach to model Australian domestic tourism demand. The panel data models that were used in the literature are pooled logit regression, the generalized method of moments (GMM) procedure of Arellano and Bond (1991), generalized least squares (GLS) panel data regressions, and ordinary least square (OLS) panel data regressions (which comprise of fixed and random effects models). Using a panel data approach has several advantages as

it allows a combination of cross-sectional and time-series data (Song and Witt, 2000). In addition, panel data gives more informative data, more variability, less collinearity among the variables, more degrees of freedom and more efficiency (Baltagi, 2001).

3. Methodology

Tourism is now widely accepted as being of central importance to the success of economic development in many countries. For this reason, a cross country analysis of the drivers of competitiveness in tourism provides useful comparative information to take business decisions and provides additional value to public authorities wishing to improve their tourism environments. Besides, knowing which competitiveness factors are more effective in determining a country's competitive position is beneficial in identifying their strengths and weaknesses, increasing tourist numbers and tourism revenues and also in enhancing the tourism development of the country (Bahar and Kozak, 2005).

3.1 Conceptual Model of Destination Competitiveness

The general conceptual model of destination competitiveness developed by Crouch and Ritchie (1999) and further refined (Ritchie and Crouch, 2003) and later improved by Craigwell (2007) was used as the basis for this research. This model has been widely reported in literature and has been the basis of a number of other studies in destination competitiveness. The model was developed on the theoretical basis of the concepts of comparative and competitive advantage. Destination competitiveness is a function of endowed resources, destination management, situational conditions and demand. The study will consider infrastructural development, tourism prices, per capita income, tourism openness, and technology and tourism participation as the main determinants of tourism competitiveness of a destination.

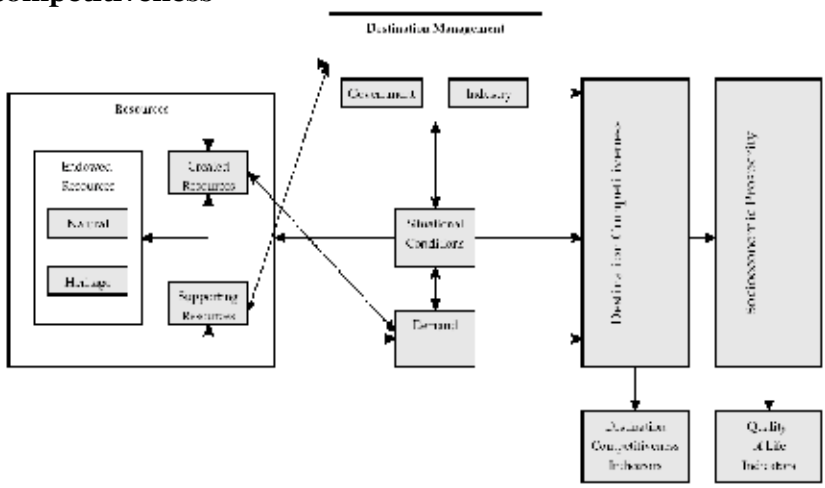
The framework is based on two cornerstones of competitiveness; comparative advantage and competitive advantage. The main part of the model illustrates how these two cornerstones are operated with respect to destination competitiveness. The macro environment is global and implies that events in one part of the world affect tourist destinations in entirely different regions. The micro environment lies within the destinations immediate arena of tourism activities and competition. Destinations operate within an environment and are thus affected by both the macro and micro environment. The macro environment consists of those phenomena that impact on human activities and are not specific to the tourism industry, whereas micro environment consists of those activities that impact on the tourism system.

A destination's core resources and attractors describe the primary elements of destination appeal as factors that are key motivators for visitation to a destination. The supporting factors and resources provide a foundation upon which a successful tourism industry can be established. Careful planning and management enhances a balance between tourism growth and development of infrastructure and other facilitating resources. Destination policy, planning and development provide a framework for the planning and development of the destination results from vision, monitoring and evaluation, competitive analysis, branding and development. Such a framework can help ensure that tourism development promotes a competitive and sustainable destination while meeting the quality of life aspirations of those who reside in the destination. Destination management focuses on those activities that implement the policy and planning framework.

3.2 Empirical Model of Tourism Competitiveness

Due to the nature of tourism, a model that explains variations in tourism market share predicated on the assumption of perfect competition would be inappropriate. This is because tourist destinations are mostly asymmetric as tourist tastes are not well understood by countries offering tourist attractions. As a result of taste variation among tourists, there is considerable differentiation in products offered at various tourist destinations. According to Sultan (1992), firms compete

Figure 3.1: Conceptual framework of destination competitiveness



Source: Adopted from Ritchie and Crouch (2003)

primarily via prices. In the analysis of trade competitiveness, the value of trade is used for comparison, but for tourism, the value of tourism expenditure by markets cannot be readily and accurately determined. Therefore, the number of tourists or market share is used in this study as an indicator of attractiveness of a destination. Craigwell (2007) assumes that a country's international tourist arrivals (V) are assumed to depend on technological advantage (TechA), industrial organizational advantage (IndOA), and price advantage (P) of a destination. In this study, the framework used by Craigwell is refined and augmented by borrowing from the model of destination competitiveness of Dwyer and Kim (2003). The relationship between V and its determinants is then expressed as:

$$V=\Phi(TechA, IndOA, TOPE, INFRAST, p....) \quad \text{..... (1)}$$

where *TOPE* means tourism openness and INFRAST means infrastructural advantage.

The author also argues that a change in a country's tourist arrivals from period *t-1* to *t* results from competitiveness conditions in the home country's tourist industry relative to competing industries abroad:

$$V_i(t) - V_i(t-1) = f\{[E_i(t-1) - E_i^*(t-1)] / E_i^*(t-1) \quad \text{..... (2)}$$

where E_i is a vector of variables that influence the competitiveness of the tourist industry in country i and E_i^* is a weighted average of the competitive conditions in rival countries.

Building on this framework, we specify a panel regression equation of the form

$$\frac{V_{it}}{V} = \mu + K_{it} + \beta_1 PerKY_{it} + \beta_2 TOpe_{it} + \beta_3 EInd_{it} + B_4 HTI_{it} + \beta_5 TPaI_{it} \quad \text{... (3)}$$
$$+ \beta_6 Infrast_{it} + \varepsilon_{it}$$

3.3 Model Estimation

A panel data approach was used to estimate destination competitiveness. The estimation of panel data models assumes either fixed effects or random effects specifications. The fixed effects model posits that the ηi, which captures differences in technological progress across countries, are *N* fixed unknown parameters. In contrast, the random effects model treats the ηi as random draws from a distribution with mean μ and variance σ_n^2 . Intuitively, the fixed effects model is more appropriate if the individuals cannot be viewed as a random draw from some underlying population such as countries and industries (Verbeek, 2000).

A fixed effects model is appropriate when estimating the model between a country and predetermined selection of trading partners (Egger, 2000). Statistically, fixed effects are preferred with panel data as they give consistent results, but this may not be the most efficient model to run. Random effects give better P-values as they are more efficient estimators. The Hausman (1978) test has become the standard approach for assessing the appropriateness of the fixed-effects versus random effects model. The test is based on the assumption that under the hypothesis, there is no correlation between the unobserved case-specific random effects and the explanatory variables. If this correlation is significant, the random effects model is inappropriate and the fixed model is supported. On the other hand, insignificant correlation between the specific random effects and the regressors implies that the more efficient random effects coefficient estimators trump the consistent fixed effects estimators.

Statistically, selection of either fixed or random effects is done by running Hausman test. Let δ_{RE} denote the vector of RE estimates without the coefficients on time-constant variables or aggregate time variables and let δ_{FE} denote the vector of FE estimates. The Hausman test statistic is given by:

$$H=(\delta_{Re} - \delta_{Fe})'[var(\delta_{Fe}) - var(\delta_{Re})]^{-1}(\delta_{Re} - \delta_{Fe})$$

It has a chi-squared with M degrees of freedom asymptotic distribution, where M is the number of coefficients. The Hausman test tests the null hypothesis that the coefficients estimated by the efficient

Table 3.1: Definition of variables

Variable	**Symbol**
Country's share of world tourist arrivals	$\frac{V_{it}}{V_t}$
Country-specific effects	μ
The remainder error term of country i in time t	K_{it}
Per capital income	$PerKY_{it}$
Tourism openness	$TOpe_{it}$
Education index	$EInd_{it}$
Technological advancement	HTI_{it}
Tourism participation index	$TPaI_{it}$
Infrastructural development	$Infrast_{it}$

random effects estimator are the same as the ones estimated by the consistent fixed effects estimator. If the chi-square statistic p value <0.05, reject the Hausman null hypothesis and do not use random effects, use fixed effects.

3.4 Data Source and Definition

The study uses annual data for the period 1980 to 2008 sourced from World Development Indicators, UNWTO, UNDP and annual reports of individual countries under study. The sample size was determined by the data availability and country's ranking internationally in relation to tourism performance, which dictated the number of variables to include in the study. Before estimating equation (3), univariate characteristics of the data are analyzed and this involves panel data unit root tests in order to establish whether the series data are stationary. This is because estimation process that uses non-stationary data can lead to spurious results. Testing for unit root is the first step in determining a potentially co-integrated relationship between variables. If all variables do not contain a unit root, the traditional estimation methods can be used to estimate the relationship between variables. If variables are non-stationary, a test for co-integration is required.

3.5 Data Limitations

Data used in this study had limitations in terms of data gaps in some years. In such a scenario, interpolation, extrapolation and average was used to fill the gaps. In addition, the statistical information on tourism is based mainly on data on arrivals, which does not completely capture the economic phenomenon of tourism or give governments, businesses, and citizens the information needed for effective public policies and efficient business operations. Credible data is needed on the scale and significance of tourism. Information on the role tourism plays in national economies throughout the world is particularly deficient. Although the World Tourism Organization reports that progress has been made in harmonizing definitions and measurement units, differences in national practices still prevent full international comparability.

Panel unit root test

Levin and Lin test (LLC) and Im perasan-shin test are used to test for stationarity.

Levin and lin test

Levin and Lin test is based on analysis of the equation:

$$\Delta y_{i,t} = \alpha_i + \delta_i t + \theta_t + \rho_i y_{i,t-1} + \varsigma_{i,t}, \quad i=1, 2,\ldots\ldots\ldots,N, \quad t=1,2,\ldots..T$$

This model allows for two-way fixed effects (α and θ) and unit–specific time trends. The unit–specific fixed effects are an important source of heterogeneity, since the coefficient of the lagged dependent variable is restricted to be homogeneous across all units of the panel. The test involves the null hypothesis

H_o: $\rho_i=0$ for all i against the alternative H_A: $\rho_i=\rho<0$ for all i with auxiliary assumptions under the null also being required about the coefficients relating to the deterministic components. Like most of the unit root tests in the literature, LLC assume that the individual processes are cross–sectionally independent. Given this assumption, we derive the correlation factors under which pooled OLS estimate of will have a standard normal distribution under the null hypothesis.

The Im- Pesaran-Shin Test

The Im–Pesaran–Shin (IPS, 1997) test extends the LLC framework to allow for heterogeneity in the value under the alternative hypothesis. Given the same equation:

$$\Delta y_{i,t} = \alpha_i + \delta_i t + \theta_t + \rho_i y_{i,t-1} + \varsigma_{i,t}, \quad i=1,2\ldots N, \; t=1,2,\ldots.T$$

The null and alternative hypotheses are defined as:

H_o: $\rho_i=0 \; \forall_i$

H_A: $\rho_i<0$, $i=1, 2\ldots.Ni$; $\rho_i=0$, $i=N_1+1, N_1+2,\ldots\ldots N$

Thus, under the null hypothesis, all series in the panel are non-stationary processes; under the alternative, a fraction of the series in the panel is assumed to be stationary. This is in contrast to the LLC test, which presumes that all series are stationary under the alternative hypothesis. The errors are assumed to be serially auto-correlated, with different serial correlation properties and differing variances across units.

4. Results and Discussion of Results

4.1 Descriptive Statistics

The descriptive statistics for the study variables are presented in Table 4.1. In terms of tourism arrivals, South Africa recorded the highest means of arrivals, while Egypt recorded the highest means for infrastructure. In terms of tourism openness, Tanzania has the highest mean. South Africa has a better per capita income as compared to Egypt, Kenya, Morocco, Tanzania and Tunisia.

4.2 Diagnostic Tests

To evaluate the determinants of tourism competitiveness, we used the country share of world tourist arrivals. Before estimating Equation (3) with panel techniques, preliminary tests were carried out. Table 4.2 shows the correlation matrix of the study variables. The correlation between per capita income and environmental index is quite high, 0.83. This means that a 10 per cent increase in per capita income is associated with 8.3 per cent increase in the environmental index. Similarly, a 10 per cent increase in environmental index is associated with a 8.3 per cent rise in per capita income. Tourism arrivals are correlated with per capita income by 65 per cent, and with level of technological advancement by 54 per cent. Similarly, infrastructural index is correlated with tourism participation index by 50 per cent. Other variables do not indicate significant correlations.

Panel unit root test

Table 4.3 shows the panel unit root test of the variables under study. The Levin, Lin Chu tests reject the null hypothesis at I(0), an indication that all the variables are stationary at levels. In contrast, the Levin, Lin and Chu and the Im, Pesaran and Shin tests indicate that only infrastructural development, per capita income, tourism participation index and technological advancement are stationary at classical levels of testing. Given the conflicting results of the tests, the authors analyze the correlogram for each country, showing that all the variables are indeed stationary in levels.

Most of the time series analysis methods for panel data assume that there is no cross-unit correlation present in the panel data. When

Table 4.1: Means for determinants of destination competitiveness (1980-2008)

Country	Egypt	Kenya	Morocco	South Africa	Tanzania	Tunisia
Infrastructure	73.71	12.43	53.89	23.65	12.77	70.22
Education index	57.29	85.06	54.03	89.41	68.01	87.27
Environment index	1.61	0.27	1.09	9.04	0.10	1.85
Tourism arrivals ('000')	4,010,373.23	903,697.98	3,720,754.35	4,305,961.26	666,459.58	4,240,095.90
International expenditure ('000')	2,902.96	321.52	1,759.02	3,025.26	395.50	1,089.45
High technology index	3.37	1.89	6.93	4.33	0.49	6.33
Tourism receipts ('000')	1,918.24	315.69	1,576.76	2,180.39	2,148.78	288.94
Per capital income	963.84	419.52	1,223.68	3,531.11	255.47	1,938.40
Tourism openness	3.14	1.24	1.85	1.30	5.50	0.57
Tourism participation index	0.08	0.03	0.18	0.14	0.02	0.59

Table 4.2: Correlation matrix

	Infrast	Eind	Enviro	Tarr	HTI	Perky	Tope	Tpai
Infrast	1							
Eind	-0.256	1						
Enviro	-0.098	0.362	1					
Tarr	0.469	0.305	0.360	1				
Hti	0.296	0.251	0.112	0.547	1			
PerKy	0.108	0.439	0.836	0.659	0.395	1		
Tope	-0.193	-0.133	-0.228	-0.049	-0.146	-0.257	1	
Tpai	0.537	0.292	0.074	0.509	0.335	0.408	-0.306	1

We drop the environmental index and retest the correlation coefficients.

	Infrast	Eind	Tarr	HTI	Perky	Tope	Tpai
Infrast	1						
Eind	-0.2561	1					
Tarr	0.4695	0.3054	1				
Hti	0.2965	0.2519	0.5480	1			
PerKy	0.1090	0.4393	0.6598	0.3951	1		
Tope	-0.1932	-0.1333	-0.0491	-0.1466	-0.2578	1	
Tpai	0.5376	0.2926	0.5097	0.3351	0.4082	-0.3065	1

The environmental index is also dropped from the regression analysis.

dealing with economic variables, this restriction is quite uncomfortable due to the fact that business cycles do transfer to neigbouring countries quite easily in modern open countries. To account for the obvious cross-sectional correlation present in the data, the results of Pesaran's (2007) panel unit root test allowing for cross-sectional dependence are also reported at 5 per cent level of significance.

Table 4.3: Panel unit root tests

Variable	Levin, Lin and Chu t*	Im, Pesaran and Shin-Wstat
	t- Statistic	t- Statistic
INFRAST	-5.597	-2.613
EIND	-1.835	1.1312
ENVIRO	2.618	-1.2794
PERKY	5.212	6.458
TARR	-1.760	1.4800
TOPE	-3.021	-1.3724
TPAI	-3.924	1.720
HTI	2.798	7.171

4.3 Hausman Test

Table 4.4 shows the results of Hausman test to aid in choosing either fixed or random effects model. A significant p-value, Prob >chi^2=0.0000, justifies the use of fixed effects model in our estimation.

4.4 Results of the Model Estimation

Based on a significant Hausman test (Table 4.4), equation 3 can now be estimated by the method of fixed effects model. Table 4.2 shows the results of the model using tourism arrivals as the dependent variable. The results of pooled OLS and random effects model are also reported. The variables were all transformed into logarithms before estimation. It is worth noting the moderate goodness of fit of regression as revealed by an R-square value of 79 per cent, 78 per cent and 83 per cent of OLS, FE and RE estimations, respectively. These results imply a rejection of the null hypothesis that all explanatory variables taken together are statistically insignificant in affecting the behaviour of tourism

Table 4.4: Hausman Test

Variable	FEM	REM	DIFFERENCE	S.E
Lneind	0.09139	-0.11111	0.2025	
lnInfrast	0.08907	0.1051	-0.01604	0.05777
Lnhti	0.0422	0.445	-0.00227	
Lnperky	0.5545	0.3498	0.2046	0.0893
Lntope	0.0753	0.2830	-0.2076	0.0067
Lntpai	0.9233	0.5859	0.3373	0.0159
Chi^2 (6) =130.10, Prob>chi^2=0.0000				

competitiveness, except for education index variable. The elasticities of independent variables are all positive except the education index. The estimated coefficient on this variable had the correct priori sign, but was statistically insignificant. This does not imply that greater human capital investment does not aid in increasing competitiveness. It could *inter alia* imply that the short run gains are small. However, in the long run, the benefit of having a well trained labour force could be larger in determining destination competitiveness.

The per capita income, an indicator of the welfare of citizens of a destination, is positive and statistically significant. This implies that better per capita income improves the welfare of the people, making the destination more competitive. When per capita income is low, the destination is less competitive. Higher per capita income could also lead to higher Health and Hygiene index for the country, which improves competitiveness of the tourist destination country. Technological advancement is positive and statistically significant. Tourism businesses need to enhance their competitiveness by employing the emerging tools and re-engineering all processes. Tourism businesses need to become more flexible, more efficient and quicker in responding to consumer requests. Technological advancement offers a variety of tools and mechanisms that allow innovative and dynamic players to take advantage and strengthen their competitiveness. Destinations that gather and use technology effectively can improve their competitive position.

Access to good technology not only raises tourism competitiveness by increasing attractiveness of the destination as a comfortable destination to high-end tourists, but also raises the attractiveness of the destination as an investment location for tourism investors, whose capital finances supply expansion in the tourism sector. Taking advantage of new technologies and the Internet, such as the current fibre optic connections, can also enable destinations to enhance their competitiveness. Technology can improve the efficiency of all local suppliers and also provide tools for the development and delivery of differentiated tourism products. The provision of differentiated and tailor-made products becomes much easier as consumers can assemble specialized products and construct their own itinerary. The availability of information on local resources and services reduces the cost of individual travel and enables destinations to offer mass-customized services.

Table 4.5: Estimation results

Variable	Panel least squares	FEM	REM
LOGPERKY	0.426722 (6.096151)*	0.5689 (5.25)*	0.3769 (6.23)*
LOGHTI	0.04101 (1.9158)***	0.0437 (2.98)**	0.0507 (2.67)***
LOGEIND	-0.309357 (-2.196220)**	0.0795 (0.53)	-0.2430 (-1.94)***
LOGTOPE	0.0847 (4.572082)*	0.7159 (2.16)**	0.2740 (8.49)*
LOGTPAI	0.603075 (13.37882)*	0.9231 19.53	0.6148 (15.37)*
C	14.10035 (18.88570)	12.4442 (16.82)*	14.30 (21.92)*
R-squared	0.793274	0.7812	0.8373
Country cross sectional effects			
Country	Effect	Country	Effect
Egypt	0.734416	South Africa	-0.927294
Kenya	0.947963	Tanzania	0.951193
Morocco	-0.143572	Tunisia	-1.562706

Asterisks denote significance as follows: * 1 per cent, **5 per cent and ***10 per cent. The t statistics are in brackets. R-squared=0.7812, an indication of a model with moderate fit.

Tourism openness is a measure of the extent to which a country is open to international tourism. The elasticity of 0.7159 shows that the more a country is open to international visitors, the more competitive it becomes. Tourism openness involves visa requirements.

The country cross sectional effects indicate that those characteristics that are unique to a country influence destination competitiveness in Egypt by 0.73, Kenya (0.94), Morocco (-0.14), South Africa (-0.92), Tanzania (0.95) and Tunisia (-1.56). The country specific characteristics include natural endowments, religion, security, and distance to source markets.

5. Conclusion and Policy Recommendations

5.1 Conclusion

The immense economic and social value of the tourism industry in Kenya and comparator countries cannot be overstated. Indeed, tourism is viewed as the main engine of economic growth and a significant contributor to foreign exchange earnings and employment. This study sought to investigate the determinants of destination competitiveness with the aim of outlining policy prescriptions for enhancement of Kenya's competitive position. An empirical model that examines the key determinants of tourism market share proxied by the number of tourism arrivals was specified and estimated.

Competitiveness in tourism can be described with the elements that make a destination competitive as defined by Ritchie and Crouch (2003), "…its ability to increase tourism expenditure, to increasingly attract visitors while providing them with satisfying memorable experiences and to do so in a profitable way, while enhancing the well-being of destination residents and preserving the natural capital of the destination for future generations". Thus, competitiveness in tourism has several dimensions: economic, socio-cultural and environmental. Competitiveness has become a central point of tourism policy. As competition increases and tourism activity intensifies, tourism policy focuses on improving competitiveness by creating a statutory framework to monitor, control and enhance quality and efficiency in the industry and to protect resources (Goeldner, Ritchie, and McIntosh, 2000).

The estimated results from the model of tourism competitiveness imply that the determinants of tourism market share depend on per capita income, technological advancement, tourism openness and tourism participation index. Tourism openness, technological advancement and per capita income are found to be key explanatory variables.

5.2 Policy Recommendations

There is need to encourage tourism openness through accessibility, as this creates the overall ease involved in getting to and into the destination.

The destination's accessibility is a function of a variety of factors such as changes in the regulation of the airline industry; entry visas and permits; route connections, airport hubs, and landing slots; airport capacities and curfews; competition among carriers; and the character of other modes of transport. Once at a destination, tourists need also to be able to gain easy access to tourist sites and resources. This can be achieved through visa fee waivers.

Development of ICT, such as access to high speed Internet connectivity, is good for online booking services, which also enables transfer of funds through major international credit cards. Taking advantage of new technologies and the Internet, such as the current fibre optic connections, can also enable destinations to enhance their competitiveness. Technology can improve the efficiency of all local suppliers, and provide tools for the development and delivery of differentiated tourism products.

Therefore, this study indicates that there are certain structural and institutional weaknesses that influence tourism in Africa, with factors such as tourism infrastructure, the level of development and Internet usage (marketing and information) being significant for tourists. The political and social instability is also a serious deterrent to growth in tourism arrivals. The tourism products involve both the hotel facilities and the infrastructural development to the hotel facilities. Kenya can improve on this through high tourism participation of the locals, especially taking care of the environment surrounding the tourism product such as hotel facilities, including the environment of hotel facilities at the North Coast of Kenya.

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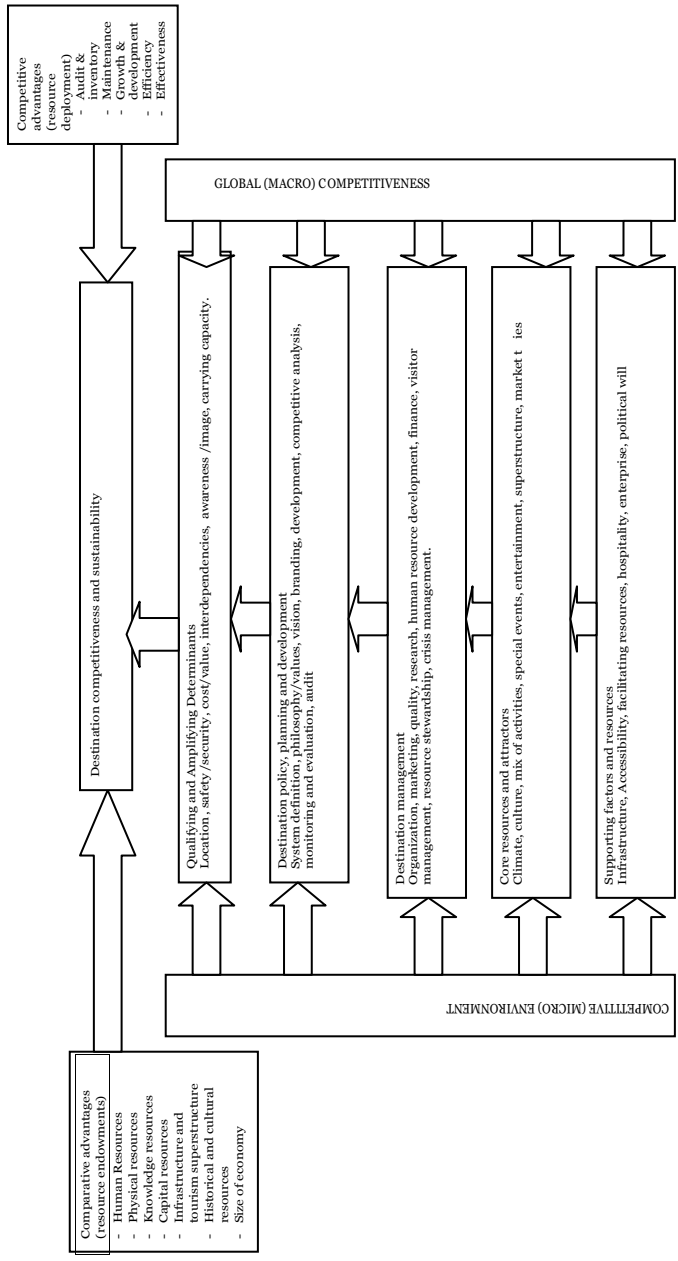
Appendix

Appendix 1: General conceptual model of destination competitiveness



Appendix 2: Pooled OLS

Dependent Variable: LOGTARR				
No. of observations: 174				
Variable	**Coefficient**	**Std. error**	**t-statistic**	**Prob**
LOG-PERKY	0.426722	0.069999	6.096151	0.0000
LOGHTI	0.041098	0.021452	1.915766	0.0571
LOGEIND	-0.309357	0.140859	-2.196220	0.0294
LOGTOPE	0.084718	0.018529	4.572082	0.0000
LOGTPAI	0.603075	0.045077	13.37882	0.0000
C	14.10035	0.746615	18.88570	0.0000
R-squared	0.793274	Adjusted R-squared	0.787121	
F-statistic	128.9339	Durbin-Watson stat	0.552298	
Prob(F-statistic)	0.000000			

Appendix 3: Fixed effects model

Dependent Variable: LOGTARR				
No. of observations: 174				
Variable	**Coefficient**	**Std. error**	**T**	**P**
LOGPERKY	0.5689	0.1083	5.25	0.000
LOGHTI	0.0437066	0.1465	2.98	0.003
LOGEIND	0.0795	0.1507	0.53	0.599
LOGTOPE	0.7159	0.0332	2.16	0.033
LOGTPAI	0.9231	0.0472	19.53	0.000
C	12.4442	0.7399	16.82	0.000
R-Squared	0.7812			
F(5,163)	30.50	Prob>F=0.0000		

Appendix 4: Random effects model

Dependent Variable: LOGTARR				
No. of observations: 174				
Variable	**Coefficient**	**Std. error**	**T**	**P**
LOGPERKY	0.3769	0.0650	6.23	0.00
LOGHTI	0.0507	0.0190	2.67	0.008
LOGEIND	-0.2430	0.1250	-1.94	0.052
LOGTOPE	0.2740	0.0322	8.49	0.000
LOGTPAI	0.6148	0.0400	15.37	0.000
C	14.30	0.652	21.92	0.000
R-Squared	0.8373	Wald $Chi^2(5)$	864.88	
F(5,163)		Prob>Chi^2	0.000	

Kenya Institute for Public Policy Research and Analysis
Bishops Garden Towers, Bishops Road
PO Box 56445-00200, Nairobi, Kenya
tel: +254 20 4936000; 2719933/4, 2714714/5, 2721654, 2721110
fax: +254 20 2719951
email: admin@kippra.or.ke
website: http://www.kippra.org

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