

ECONOMIC CONTRIBUTION OF TOURISM IN KENYA

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As in many other developing countries, tourism is one of the key drivers of Kenya's socioeconomic development. At independence in 1963, Kenya depended mainly on its exports of agricultural products such as coffee and tea for foreign exchange. However, with the decline in world market prices of these primary products, the country has turned to tourism as an alternative. In spite of the growing importance of tourism as a key industry, little information is available on the holistic economic impacts and the pathways through which these impacts are affected in the Kenyan economy. Without information on how tourism as a complex industry is linked to the other sectors of the economy, policy makers will be at a loss on how to effectively stimulate its growth, develop capacity, and enhance its positive impacts. This research proposes to use data from the Kenya Social Accounting Matrix (SAM) 2001 to examine the impact of tourism on production, value added, and employment. From the complete SAM model, whose exogenous components include government, international trade, and saving-investment accounts, you need 9.63% of total production, 6.70% of employment, and 10.57% of value added to satisfy the export for other private services. These results indicate that the private services sector in general and tourism in particular is an important economic activity with potential to play an even bigger role in spurring output, incomes, and creating employment. The enhancement of the tourism sector's backward linkages with the extractive sectors, equipping manpower with skills required for better employment positions, increasing the share of local ownership in the service sector, and the diversification of tourism attractions would be helpful policies to leverage tourism's potential.

Key words: Social accounting models; Tourism contribution

Introduction

Statistics published by the United Nations World Tourism Organization (UNWTO) are eloquent in demonstrating the significance and share of tourism in the global economy. UNWTO reports that 806 million people traveled to a foreign

country in 2005 spending some US\$680 billion in transactions related to the consumption of goods and services in destination countries. If receipts from international passenger transport contracted from companies outside the travelers' country of residence are included, the export value of tourism in 2005 exceeded US\$800 billion. In other words,

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more than US\$2 billion a day is earned by international tourism. As an export category, it represents around 6% of the total value of worldwide exports of goods and services and ranks fourth after fuels, chemicals, and automotive products (United Nations World Tourism Organization [UNWTO], 2006a, 2006b).

The significant role of the tourism sector in the economic development of many countries is well documented in tourism literature,¹ the merits of which are essentially in terms of increased foreign exchange receipts, balance of payments, government revenues, employment, and increased economic activity in general.

It is, therefore, no mystery that many countries, particularly those classified as developing, have turned to tourism as a viable alternative to achieve their economic development goals, and Kenya is such a country. At independence in 1963, Kenya depended mainly on its exports of agricultural products, including coffee and tea, for foreign exchange. However, with the decline in world market prices of these primary products, the country has turned to tourism as an alternative (Akama, 2000).

For Kenya, it has been argued that tourism represents a cheaper alternative for diversification of the economy, particularly considering the country's competitive advantage in terms of environmental attraction suitable for nature tourism, together with an abundance of labor. Nevertheless, the lack of financial resources due to low levels of domestic savings and the lack of skilled manpower represent real obstacles in the development of the tourism sector in Kenya.

The Kenyan government's Economic Recovery Strategy for Wealth and Employment Creation 2003–2007 (Government of Kenya [GOK], 2002) places emphasis on tourism, identifying it together with manufacturing and trade as the main drivers of the economy in the planned period. Tourism is expected to create employment opportunities and an increase in foreign direct investment through the development of tourism facilities. To make tourism pro-poor, the strategy explicitly aims to strengthen tourism linkages with the rest of the economy through community-based ecotourism ventures, particularly in the northern and western areas of the country, to promote local investment by improving access to credit, to give incentives

to small and medium-sized enterprises, and to spread the economic benefits through tourism to less-visited parks (GOK, 2005).

In spite of this emphasis on tourism, little has been done to understand its integration with other sectors of the local economy, measure the magnitude of its contribution and compare its potential to attain economic development goals against other sectors. Macroeconomic policy makers have tended to formulate and implement policies without taking account of their predicted effects in the context of tourism growth. Apart from pioneering work done by Summary (1987) on the contribution of tourism to the economy of Kenya in the period 1963–1980, there are no other attempts that quantitatively examine the pathways through which tourism is contributing to the economy.

The current study attempts to examine the role of tourism in Kenya's economy, particularly focusing attention on understanding its potential for poverty eradication, foreign exchange earnings, employment generation, and economic growth. To do this, a social accounting matrix model is used. This approach has the advantage of taking account of the interrelationships between tourism and other sectors of the economy.

Dwyer, Forsyth, and Spurr (2004), have rightly pointed out that input–output and SAM models do not take into account resource constraints and ignore price adjustments that clear up factor markets after a shock. They argue that applied general equilibrium (AGE) or Computable General Equilibrium (CGE) models should be used instead. Since Adams and Parmenter (1995) modeled the impact of tourism on the Australian economy using a multiregional AGE model, the technique has been used to provide quantitative estimates of tourism impacts in Australia (Madden & Thapa, 2000; Woollett, Townsend, & Watts, 2001), the United States (Blake, Durbarray, Sinclair, & Sugiyarto, 2001), Spain (Blake, 2000), the UK (Blake, Sinclair, & Sugiyarto, 2003), and Indonesia (Sugiyarto, Blake, & Sinclair, 2003).

In recent years, despite the fact that social accounting techniques have some disadvantages, they have been applied to analyze impacts of tourism on economies. Following this long-standing tradition, a social accounting matrix is used to estimate the weight of tourism in the Kenyan economy.

The Economy of Kenya and Growth of Tourism

The Economy of Kenya

Kenya's economy appears to be on an upward trend. In 2004, real gross domestic product (GDP) grew by 4.3% up from 2.8% in 2003.

The population of Kenya was estimated at about 30 million growing at an annual rate of 1.9% according to the 1999 population census. Although the people of Kenya are predominantly a rural population, urbanization is on the increase, as people migrate from the rural areas to upcoming urban areas and cities in search of job opportunities and better social amenities. By 2000, 31% of the population lived in the urban areas as compared to 24% in the previous 10 years, and 56% of the population could be classified as living below the poverty line. However, poverty incidence varies across the country according to natural resource endowment patterns and climatic conditions.

Agriculture remains the backbone of the economy in spite of its declining performance in terms of contribution to gross value added.

The manufacturing sectors of the Kenyan economy have the potential to deliver more employment, absorb the increasing influx of rural immigrants, and contribute to foreign exchange and the diversification of the economy from single-sector dependence. To achieve these goals, the government has put in place several programs and policies, but at the same time local conditions such as lack of domestic savings to finance acquisition of capital, inappropriate technology, high costs of establishing businesses, and the like clearly cause manufacturing to lag behind in the contribution to the national gross value added and employment.

The share of the service sector in Kenya's GDP has been rising from 46% in 1980 to 60% in 2004. The sector includes government-provided services, social and private services, insurance and financial services, banking, and the increasingly important restaurant, hotel, and safari industries, which have grown in response to the increasing number of tourists visiting Kenya (see Table 1).

Tourism in Kenya

According to UNWTO, African destinations received only a paltry 4.6% of international tourist

Table 1

Structure of Kenya's Economy, 1960–2000

Main Sector	Contribution to Current GDP at Factor Cost (in percent)				
	1960	1970	1980	1990	2000
Agriculture	38	33	33	29	20
Industry	18	20	21	19	18
Services	44	47	46	52	62

Note. From GoK (Government of Kenya). Economic survey: various issues in Odunga (2002).

arrivals and 3.2% of international receipts in the world in 2005.

Nevertheless, particular destinations in Sub-Saharan Africa (SSA) such as Kenya² have recorded impressive performance. According to the World Tourism Organization, Kenya's share of world international tourist arrivals rose from 0.17% in 1985 to 0.19% in 1990, but this dropped to 0.12% in 2001. Kenya's share of Africa's tourism followed a similar pattern and rose from 4.7% between 1985 and 1990 but declined to 3.2% by 2000. By 2000, Kenya was the sixth most important tourist destination in Africa led by South Africa, Tunisia, Morocco, Zimbabwe, and Botswana in that order. In 2001, Algeria and Nigeria had overtaken Kenya.

Kenya's major tourism activities are safari and beach holidays, which are spatially restricted to key tourism destination areas including the coast (Mombassa, South Coast, and Malindi coastal areas) and around a few key national parks and reserves (Masai Mara National Reserve, Tsavo National Parks, and Amboseli National Park) (Akama, 1999; Ondicho, 2000). Recently, other forms of tourism such as sports, adventure, cultural, and business tourism have been promoted in an effort to diversify the destination's product. As observed by Akama (1999) and Odunga and Folmer (2004), Kenya's comparative advantage in the international tourism scene is based on its endowment of unique natural resources such as pristine beaches, diverse wildlife, scenic landscape, ideal weather conditions, and unique indigenous cultural heritage.

Odunga and Folmer (2004) reviewed the role of tourism as regards its contribution to gross

value added from 1995 to 2001. They found that tourism, estimated in the national accounts as trade, hotels, and restaurants, contributed an average of 12% of GDP in this period. They also report that in this period, a 7% real growth (using 1982 constant prices) in tourism could stimulate a 1% growth in real GDP as compared to agriculture, which required above 9.6% real growth to stimulate a percentage growth in real GDP.

Tourism revenues have tended to increase at a faster rate than earnings from the traditional export sectors. For instance, total tourism earnings rose from 540 million Kenyan shillings³ (Ksh) in 1970 to over Ksh 20 billion in 1987 overtaking tea and coffee (Akama, 1999; Weaver, 1999). At its peak in 1994, tourism accounted for over 24% of the country's total exports receipts (Odunga & Folmer, 2004). However, starting in 1997, tourism receipts as a percentage of exports were overtaken by tea. In 1998, the sector's contribution to exports had dropped to 14.4% to recover marginally to 17.5% in 1999.

Finally, in the period from 1995 to 2001, tourism accounted for an average of 9% of modern private and public sector direct employment in Kenya. It should be pointed out here that this figure does not represent the total share of tourism in employment, as indirect employment, particularly in the informal sector, may have a higher importance.

SAM Kenya Model

A social accounting matrix (SAM) is a square ordered matrix where the rows define receipts (resources) while the columns define expenditures (uses) (Wagner, 1996). The SAM provides a comprehensive representation of the income flow in production, distribution, and allocation, and includes financial transactions not captured within the input-output framework. In the 2001 SAM for Kenya by P. Wobst and B. Schraven (2003) for the International Food Policy Research Institute (IFPRI) the rows and columns are grouped into 33 main account headings: 33 activities, 33 commodities, primary factors of production (wage payments and indirect business taxes), institutions (households and governments), accumulation, imports/exports.

The activity account is divided into 33 subaccounts,⁴ which can be aggregated into four major accounts: agriculture, manufacturing, trade, and transport sector and services. Total intermediate consumption and demand was Ksh 984,668.95 million. Manufacturing accounted for the greater proportion of this consumption at 44.6% and demands followed by services at 23.1% and agriculture at 21.6%, while the trade and transport sector accounted for 10.71% of the intermediate consumption.

The factor account is divided into agricultural capital, nonagricultural capital, agricultural labor, and nonagricultural labor. The total for the factor column gives the value added at factor cost of Ksh 772,678.93 million.

By sectoral importance, agriculture accounted for 29.0%, manufacturing 24.7%, trade and transport sector 22.9%, and services 23.4% of gross value added. Table 2 below depicts the sectoral shares of employee wages and gross operating surplus.

In the Kenya SAM 2001, households were disaggregated according to location, rural or urban, gender of head of household, and poverty status (ultrapoor, poor or nonpoor) from the 1997 Kenya Welfare Monitoring Survey. Table 3 describes the constituent 12 household categories and their particular share of total households. In all, 30.7% of households were classified as ultrapoor, the majority of which were rural and headed by a female, while 49.7% were nonpoor and consisted of largely urban male-headed households. The majority of households (79%) were located in rural areas, while 21% were in urban areas. Of all the households, 71% were headed by males and 28% by females.

The 2001 SAM for Kenya distinguishes between its own production/consumption or subsistence production and consumption of marketed commodities. In the 2001 SAM for Kenya, Ksh 135,930 million worth of agriculture was produced and consumed by households, 18.9% of which was maize, the staple food, 14.4% garden vegetables, and 13.5% and 15.8% milk and livestock, respectively. Households consumed Ksh 555,657 million worth of marketed commodities, the bulk of which was food at Ksh 95,508 million.

At the same time, households paid Ksh 102,856

Table 2
Sectoral Shares in Wages of Employees and Operating Surplus

Sectors	Employees Wages and Salaries	% Share of Employee Wages and Salaries	Gross Operating Surplus	% Share of Gross Operating Surplus
Agriculture	91,092	29.24%	132,995	28.84%
Manufacturing	68,180	21.89%	122,636	26.59%
Trade and transport sector	58,365	18.74%	118,914	25.78%
Services	93,858	30.13%	86,638	18.79%
Total	311,495	100.00%	461,184	100.00%

million to the government as direct taxes on institutions, 46% of which came from rural nonpoor households headed by a male and 34% from urban nonpoor households headed by a male. The households saved Ksh 14,831 million, with rural households saving more, Ksh 8,502 million compared to the urban homes that saved Ksh 6,330 millions.

Household consumption (market and nonmarket), taxes, and savings were financed by household incomes from factors they own (labor and capital) and transfers from institutions (government and other households).

Factor incomes to households were Ksh 772,679 million, 40.3% of which was received from labor and 59.7% from capital as gross mixed incomes. Ksh 36,598 million was received from government as transfers. Nonpoor households headed by

a male both in rural and in urban areas received most of the factor incomes, whereas nonpoor male-headed rural households received 40% of all household incomes and the urban counterparts received 34.2%. The SAM does not record intra-household transfers or foreign remittances to households.

Government expenditures amounted to Ksh 210,314 million, the bulk of which was allocated as follows: public administration 37.6%, education 19.5%, 7.6% health, and 6.9% agricultural services. The government transfers to households amounted to Ksh 36,598 million and government savings amounted to Ksh 23,222 million. On the other hand, tax collection amounted to Ksh 210,314 million, of which 37.4% corresponded to indirect taxes, 13.7% to tariffs, and 48.9% to direct taxes from domestic institutions.

The accumulation account gives the investment expenditure in the economy, comprised of private sector investment in the intersections with commodities accounts amounting to Ksh 144,356 million in 2001. Accumulation was financed with household savings (Ksh 14,831 million) and government savings (Ksh 23,222 million), the deficit, Ksh 76,311 million, from the rest of the world.

In the SAM 2001, the rest of the world absorbed Ksh 233,068 million worth of domestic production. In terms of contributions to exports, other services accounted for 22.1% of total exports followed by transport and tea at 14.4% and 13%, respectively. Ksh 309,378 million worth of goods was imported.

According to SAM 2001, Kenya's GDP was Ksh 772,680 million (see Table 4) computed using

Table 3
Household Classification

Household Category	Number	Percentage
Rural, female-headed, ultrapoor	411,741	9.7
Rural, female-headed, poor	145,988	3.4
Rural, female-headed, nonpoor	486,917	11.4
Rural, male-headed, ultrapoor	826,700	19.4
Rural, male-headed, poor	351,992	8.3
Rural, male-headed, nonpoor	1,140,313	26.8
Urban, female-headed, ultrapoor	19,812	0.5
Urban, female-headed, poor	81,401	1.9
Urban, female-headed, nonpoor	85,630	2.0
Urban, male-headed, ultrapoor	49,440	1.2
Urban, male-headed, poor	254,958	6.0
Urban, male-headed, nonpoor	403,517	9.5
Total households	4,258,409	100.0

Note. Adapted from Wobst and Schraven (2003). Calculations from the 1997 KMWS.

Table 4
GDP Expenditure Approach and GDP
Income Approach

GDP Expenditure Approach	Ksh 000,000
GDP Expenditure Approach	
Households expenditure (market and subsistence)	691,587
+Government expenditure	150,496
+Investment and savings	114,365
+Exports	233,068
-Imports	309,378
-Import duties and indirect taxes on commodities	107,458
GDP at factor cost	772,680
GDP Income Approach	
Gross employee compensation	311,495
+Gross operating surplus	461,184
GDP at factor cost	772,680

two approaches to measuring GDP: the expenditure measure and the income measure in accordance with the accounting identities inherent in the economy.

Table 5 presents a tabulation of the ten most important activities ranked by their contribution to GDP in the SAM of Kenya 2001. Other services, including hotels, restaurants, and financial services, accounted for 13.0% of GDP in 2001, coming second only to production of foods. Coffee and tea accounted for 1.4% and 2.2% of gross domestic product, respectively.

Methodology

A SAM is not a model but it is an efficient and simple representation of a set of data on the

Table 5
Activities Ranked by Their Contribution to GDP

Activity	Contribution as Percentage of GDP 2001
1. Food	16.54
2. Other services	13.04
3. Transport	11.69
4. Trade	11.25
5. Owned housing	3.50
6. Maize	3.37
7. Vegetables	3.14
8. Other cereals	2.99
9. Public admin	2.90
10. Pulses	2.82

economy from which a linear extended model can be built. The SAM approach to economic modeling was developed by Pyatt and Thorbecke (1976) and Pyatt and Round (1977, 1979). The basic approach of the SAM model is similar to the input-output (IO) models in so far as it is rooted in a definition of endogenous activities, which map impacts originating from exogenous activities. However, as opposed to IO analysis, which captures only interindustry effects, SAM-based multipliers have an added advantage as they account not only for direct and indirect effects but also induced effects on factor and household incomes as well as activity outputs due to income-expenditure multipliers (Round, 2001). Wagner (1997) also recognized that household consumption through spending of wage incomes and household subsistence consumption/production generates substantial economic impacts that are captured in the SAM model's multipliers. This point is important for our case where household auto-production is included in the SAM.

The definition of endogenous and exogenous activities in IO model is fairly straightforward, guided by which activities form intermediate demand and final demand, respectively. In the SAM framework, exogenous activities are determined arbitrarily. However, it is customary to include government activity as exogenous because government expenditure is determined through a political process distinct from the economy. The saving-investment/capital formation account is regarded as exogenous because the model is static and foreign consumption is obviously determined outside the economy (Round, 2001). Endogenous activities are restricted to production activities, value added,⁵ and household activities. The main advantage of this classification is that it captures the circular flow of income generation and distribution.

An important assumption of the SAM model is that all income flows from the i th activity to the j th account proportional to the j th activity's income, such that a social accounting matrix X has cell entries X_{ij} that are read as the income from activity i to j . As noted earlier, development of a SAM model starts with division of the X matrix and assignment of subsets 1, 2, . . . M as endogenous activities with complementary exogenous ac-

tivities represented as $M + 1, M + 2 \dots N$, a presentation that yields a subdivided matrix X^0 :

$$X^0 = \begin{bmatrix} x_{11} & \dots & x_{1M} & x_{1M+1} & \dots & x_{1N} \\ \vdots & & \vdots & \vdots & & \vdots \\ x_{M1} & \dots & x_{MM} & x_{MM+1} & \dots & x_{MN} \\ \vdots & & \vdots & \vdots & & \vdots \\ x_{N1} & \dots & x_{NM} & x_{NM+1} & \dots & x_{NN} \end{bmatrix}$$

By assumption that total resources in the economy are always equal to total uses, an identity for the i th activity is therefore defined as

$$\sum_{j=1}^n \tilde{X}_{ij} \equiv \tilde{Y}_i \equiv \sum_{j=1}^n \tilde{X}_{ji} \quad (1)$$

And in the spirit of IO models with respect to technical coefficients, unit income requirements coefficients (\tilde{a}_{ij}) are defined for each cell as the share of income flows from account i to the total income for j , where the unit requirement coefficient is given by

$$\tilde{a}_{ij} = \frac{\tilde{x}_{ij}}{\tilde{y}_j} \quad (2)$$

Substitution of Equation 2 into identity 1 yields a trivial identity $\tilde{Y}_i \equiv \sum_{j=1}^n \tilde{a}_{ij} \tilde{y}_j$. Proceeding with the assumptions that expenditure and distribution coefficients (a_{ij}) are independent of income flows and that income levels in the exogenous accounts are given \tilde{Y}_j , we can determine the level of income in the endogenous accounts. Thus we have Equation 3, which breaks the above trivial identity into two parts and expresses incomes for the i th account.

$$Y_i \equiv \sum_{j=1}^M \tilde{a}_{ij} Y_j + \sum_{j=M+1}^N \tilde{a}_{ij} Y_j \quad i = 1, 2, \dots, M, \quad (3)$$

$$j = 1, 2, \dots, M + 1 \dots N$$

where the first term on the right-hand side of Equation 3 shows the effect of the endogenous accounts and the second term relates to the exogenous account.

Expenditure and distribution coefficients (a_{ij}) (Equation 2) can be found for all elements of the partitioned matrix X^0 to yield a partitioned matrix of expenditure coefficients:

$$A = \begin{bmatrix} A_{mm} & A_{mn} \\ A_{nm} & A_{nn} \end{bmatrix}$$

In matrix notation we write the income vector for the series of endogenous row accounts found by solution of the Equation 3 as follows:

$$Y^m = (I - A_{mm})^{-1} A_{mn} \bar{y}^n \quad (4)$$

In Equation 4, $(I - A_{mm})^{-1}$ is the generalized multiplier matrix (GMM), also denoted as M_m and it is the nucleus of SAM models multiplier analysis, which is used to estimate the economy's response to an exogenous shock, such as an increase in demand for private services' exports (Wagner, 1997). And $x = A_{mn} \bar{y}^n$ is the vector of exogenous incomes which consists of the exogenously determined shock to the system.

Elements of the GMM are interpreted in a similar manner to the Leontief inverse elements, as a quantification of changes in incomes of endogenous accounts as a consequence of a unitary shock in the exogenous accounts, whereas the column totals of the elements represent the total impact on the different endogenous components of the model, given a unit exogenous inflow toward the particular activity (Rocchi, Romano, & Stefani 2005).

The column sum of the GMM can be normalized to obtain Rasmussen forward and backward indices (Rasmussen, 1975)

$$B_j^B = \frac{\frac{1}{n} \sum_{i=1}^n w_{ij}}{\frac{1}{n^2} \sum_{i=1}^n \sum_{j=1}^n w_{ij}} \quad (5)$$

$$B_j^F = \frac{\frac{1}{n} \sum_{j=1}^n w_{ij}}{\frac{1}{n^2} \sum_{i=1}^n \sum_{j=1}^n w_{ij}} \quad (6)$$

where B_j^B is the backward linkage index for sector j , and B_j^F is the forward linkage index for sector j .

In the next section, we analyze the results using three different SAM models. The first model takes interindustry transactions as endogenous accounts, as in the traditional input–output model. In the second model, we consider interindustry transactions, household consumption and self-consumption, and labor wages. The third model includes capital payments, too.⁶

Finally, apart from analyzing the absolute impact of income changes on endogenous accounts from a shock in the exogenous income, as in the multiplier analysis discussed above, the SAM model provides a framework for the analysis of relative income changes of endogenous accounts after the exogenous shock, and thus forms a basis for studying how the total effect is redistributed to sectors (Polo, Roland-Holst, & F. Sancho, 1990). An exogenous impact on the economy such as an increase in the demand for a country's tourist product, may have an effect in changing the relative positions of endogenous accounts.

Results

This section reports the results of the application of the SAM models discussed in the fourth section on the Kenya social accounting matrix data.

Models developed from SAMs can be used to investigate interrelationships among structural features of an economy and to assist policy makers to systematically analyze the impacts of a given policy and identify actions needed today in order to achieve long-term goals. Through the models, one can quantify economic results such as number of jobs created, value added, impact of activities such as tourism, and the like.

Linkage Analysis

According to the Rasmussen backward and forward linkages indices, the activities were grouped into key sectors, drag sectors, strategic sectors, and the rest of the sectors to give an indication of technological interdependence among productive activities of the economy. The key activities have strong backward and forward linkages, push activ-

ities have strong backward linkages, while strategic activities have strong forward linkages.

In the first SAM model, where only interactivity and commodities transactions are considered endogenous, key activities included petroleum, nonmetallic products, and electricity and water. We categorized mining, textiles, other chemicals, public administration, and education as drag activities. Finally, other private services (where tourism is included) were classified as strategic activity. Other activities in this strategic category included food, trade, and transport.

The picture is similar in the second SAM model, where the interindustry transactions are closed with respect to household consumption, self-consumption, and labor wages, and it changes when we considered the third model, where capital payments is an endogenous account, too. In this last model, other private services, food, trade, and transport, are classified as key sectors (see Table 6).

Employment and Income Multipliers

Having constructed the employment requirements of each sector for the Kenya SAM 2001 with data from Kenya Public and Private Activities Employment by Industry (GOK, 2001), it was possible to estimate sector employment to output coefficients.

The direct, indirect, and induced tourism employment multiplier was computed for each of the models by multiplying the respective sector production required to satisfy a unit exogenous demand for other private services sector by the respective employment coefficients and then adding the product.

Moreover, we focused on establishing wage income effects of other private services' exports across other sectors and computed income multiplier for other private services sectors resulting from an exogenous unitary injection. We report below direct, indirect, and induced impacts of a shilling increase in demand for exports of the other private services sector, which is assumed to represent tourism demand.

We can observe the results obtained in the first SAM model, where only interactivity and commodities transactions are considered endogenous. As the other private services sector adjusts its out-

Table 6
Rasmussen Indices Applied to a SAM Where
Interactivity and Commodities Transactions,
Households, Labor, and Capital Payments
Are Considered Endogenous

	Backward	Forward
Key sectors		
Food	1.0385	3.8022
Trade	1.0021	2.6751
Other private services	1.0108	1.8898
Drag sectors		
Other cereals	1.0799	0.6079
Roots and tubers	1.0019	0.6242
Sugar cane	1.0227	0.2706
Cutflowers	1.0275	0.1705
Tea	1.0088	0.2814
Coffee, green	1.0168	0.1756
Beef & veal	1.0020	0.6156
Fishing	1.0872	0.3407
Forestry & logging	1.0930	0.1886
Owned housing	1.0315	0.4665
Health	1.0163	0.3610
Agr services	1.0277	0.1765
Strategic sectors		
Maize	0.9494	1.2429
Vegetables	0.9820	1.0523
Petroleum	0.8209	2.0738
Transport & communication	0.9789	1.1096
Rest of the sectors		
Pulses	0.9849	0.9350
Fruits	0.9964	0.6347
Milk & dairy	0.9978	0.7775
Other livestock	0.9877	0.7041
Mining	0.9158	0.1978
Textiles, leather & footwear	0.8821	0.5146
Wood & paper	0.8838	0.3908
Other chemicals	0.9169	0.3826
Nonmetallic	0.9264	0.6312
Metal products (incl. mach & equ)	0.5919	0.4152
Electricity, gas & water	0.8989	0.5704
Construction	0.9207	0.2644
Public admin	0.9726	0.1757
Education	0.9712	0.8046

put because of a unitary Kenya shilling injection in final demand, direct and indirect employment generated in the economy is estimated at 0.700 jobs, where 0.026 jobs are created in the transport and communication sector and 0.025 in the food production sector, as the highest beneficiaries. Sugar is the sole agricultural activity with a significant employment impact—0.024 jobs are created, representing 3.4% of the total direct and indirect employment multiplier.

Direct and indirect income effects are highest in food processing (Ksh 0.076, 11.2%), transport

(Ksh 0.029, 4.3%), trade (Ksh 0.0068, 1.0%), and petroleum products (Ksh 0.0026, 0.4%) from a shilling change in exogenous demand for other private services. Sugar is the only agricultural sector that has significant direct and indirect income impacts on income from the other private services activity, at Ksh 0.0022 or 0.3% of the income multiplier.

In the second SAM model, as a result of secondary or induced consumption, we find that a higher employment multiplier of 0.94 jobs is attained from a shilling shock in the export of other private services output. Moreover, distribution of the effect among activities maintains the same order as in the previous model, with food production, transport, and metal products benefiting highly from an increase in export demand of other private services, as in the direct and indirect impacts. Furthermore, sugar maintains its significance among agricultural activities albeit with a higher proportion in the employment multiplier at 3.8%.

Finally, the third SAM model was estimated to examine employment effects after the full cycle of income flows through the economy. Again, a higher employment multiplier of 2.054 is found from a shilling increase in the export of the other private services sector. We note from the results in Table 7 that beneficiaries of jobs are other private services, education, and trade, which collectively account for 59.2% of the SAM employment multiplier effect. Trade, a traditional benefactor of expansion in services, maintained favorable gains in employment, accounting for 11.9% of the total effect, while others like nonmetallic and petroleum returned a gain of less than 1.5% of the total effect.

When income generation due to successive rounds of re-spending were considered in the context of a complete SAM model, for a unitary increase in other private services exports, we find relatively higher direct, indirect, and induced income multipliers for food (Ksh 0.2308, 14.5%), trade (Ksh 0.131, 8.3%), and transport (Ksh 0.0876, 5.5%). Due to the inclusion of subsistence production by households, significant SAM income multipliers are found for staple agricultural commodities produced by households: maize (Ksh 0.0495, 3.1%), cereals (Ksh 0.0446, 2.8%), and vegetables (Ksh 0.044, 2.8%).

Table 7

Multipliers Applied to a SAM Where Interactivity and Commodities Transactions, Households, Labor, and Capital Payments Are Considered Endogenous

Employment Multipliers	Multiplier	%	Income Multipliers	Multiplier	%
29 Other Private Services	0.67116	32.68	29 Other Private Services	0.64314	40.51
31 Education	0.30005	14.61	17 Food	0.23079	14.54
26 Trade	0.24448	11.90	26 Trade	0.13132	8.27
18 Textiles, Leather & Footwear	0.09052	4.41	27 Transport & Communication	0.08760	5.52
32 Health	0.08269	4.03	1 Maize	0.04946	3.12
5 Sugar Cane	0.08068	3.93	2 Other Cereals	0.04456	2.81
27 Transport & Communication	0.07884	3.84	7 Vegetables	0.04404	2.77
17 Food	0.07487	3.65	4 Pulses	0.04146	2.61
6 Fruits	0.07149	3.48	28 Owned Housing	0.03900	2.46
23 Metal Products (incl. Mach & Equ)	0.05265	2.56	12 Milk & Dairy	0.03487	2.20
13 Other Livestock	0.03571	1.74	13 Other Livestock	0.03284	2.07
24 Electricity, Gas & Water	0.03376	1.64	11 Beef & Veal	0.02934	1.85
9 Tea	0.02880	1.40	6 Fruits	0.02932	1.85
19 Wood & Paper	0.02531	1.23	3 Roots and Tubers	0.02860	1.80
15 Forestry & Logging	0.02375	1.16	14 Fishing	0.01585	1.00
25 Construction	0.02370	1.15	22 Nonmetallic	0.01461	0.92
22 Nonmetallic	0.01980	0.96	32 Health	0.01243	0.78
21 Other Chemicals	0.01865	0.91	20 Petroleum	0.01176	0.74
11 Beef & Veal	0.01504	0.73	24 Electricity, Gas & Water	0.00901	0.57
3 Roots and Tubers	0.01318	0.64	19 Wood & Paper	0.00878	0.55
4 Pulses	0.01301	0.63	5 Sugar Cane	0.00761	0.48
1 Maize	0.01179	0.57	31 Education	0.00723	0.46
7 Vegetables	0.00988	0.48	21 Other Chemicals	0.00661	0.42
12 Milk & Dairy	0.00861	0.42	8 Cutflowers	0.00612	0.39
20 Petroleum	0.00664	0.32	23 Metal Products (incl. Mach & Equ)	0.00558	0.35
2 Other Chemicals	0.00530	0.26	18 Textiles, Leather & Footwear	0.00534	0.34
28 Owned Housing	0.00483	0.24	15 Forestry & Logging	0.00473	0.30
16 Mining	0.00432	0.21	25 Construction	0.00375	0.24
10 Coffee, Green	0.00304	0.15	16 Mining	0.00118	0.07
14 Fishing	0.00102	0.05	10 Coffee, Green	0.00054	0.03
33 Agr Services	0.00023	0.01	33 Agr Services	0.00007	0.00
30 Public Admin	0.00020	0.01	30 Public Admin	0.00003	0.00
8 Cutflowers	0.00000	0.00	9 Tea	0.00000	0.00
	2.05403	100.00		1.58757	100.00

Tourism Contribution

We recognize that results of the contribution of tourism would have been improved if they had been computed recognizing tourism expenditure patterns. However, due to inconsistencies and discordance between the data on tourism expenditure patterns and the structure of the SAM database used, it was impossible to accurately allocate international tourism expenditure through SAM activities' accounts. The demand for other private services export was used to calculate the contribution of tourism in Kenya.

We estimated the gross output of all activities to satisfy the export demand for other private services including hotels, restaurants, and financial

services. First of all, direct and indirect output was computed for the SAM model that only takes account of interactivities transactions. You need 3.7% of total production, 2.3% of employment, and 4.5% of value added to satisfy the export demand for other private services.

From the second SAM model, whose endogenous accounts include household consumption/auto-production, and labor wages, you need 4.8% of total production, 3.1% of employment, and 5.6% of value added to satisfy the export for other private services.

From the complete SAM model whose exogenous components included government, international trade, and saving-investment accounts, you need 9.6% of total production, 6.7% of employ-

ment, and 10.6% of value added to satisfy the export for other private services (see Table 8).

Relative Income Redistribution

The matrix of redistribution shows the impacts and direction of changes in the relative income position of the endogenous accounts considered caused by unitary changes in the exogenous accounts.⁷ The sum of columns in the matrix of redistribution

is zero, showing that the distribution process between endogenous accounts can be interpreted as a game of winners and losers.

The sum of positive elements of the *j*th column shows the extent of income redistribution in the sector and the sign of each element indicates the direction of change. An increase of demand in the other private services sector of one unit spread 0.9557 units of income over the rest of the sectors, 0.9419 units of income remain in the other private

Table 8
SAM Impact if Interactivity and Commodities Transactions, Households, Labor, and Capital Payments Are Considered Endogenous

	Production	Tourism	%	Employ	Tourism Employ	%	Value Added	Tourism Value Added	%
1 Maize	64,382	6,290.012	3.72	6,205	606.218	0.57	26,036	2,543.673	3.12
2 Other Cereals	27,967	2,773.053	1.64	2,749	272.576	0.26	23,114	2,291.856	2.81
3 Roots and Tubers	27,938	2,771.417	1.64	6,836	678.074	0.64	14,827	1,470.821	1.80
4 Pulses	47,435	4,642.187	2.74	6,836	668.951	0.63	21,789	2,132.362	2.61
5 Sugar Cane	7,412	691.437	0.41	44,480	4,149.367	3.93	4,196	391.429	0.48
6 Fruits	29,793	2,807.856	1.66	39,013	3,676.799	3.48	16,002	1,508.116	1.85
7 Vegetables	57,360	5,357.007	3.16	5,442	508.243	0.48	24,252	2,264.960	2.77
8 Cutflowers	5,398	0.000	0.00	9,114	0.000	0.00	3,065	0.000	0.00
9 Tea	35,294	646.140	0.38	80,915	1,481.341	1.40	17,196	314.814	0.39
10 Coffee, Green	19,877	51.272	0.03	60,584	156.275	0.15	10,786	27.822	0.03
11 Beef & Veal	27,921	2,830.662	1.67	7,630	773.538	0.73	14,882	1,508.753	1.85
12 Milk & Dairy	36,745	3,651.815	2.16	4,458	443.048	0.42	18,045	1,793.360	2.20
13 Other Livestock	34,791	3,366.604	1.99	18,982	1,836.822	1.74	17,456	1,689.157	2.07
14 Fishing	10,222	926.981	0.55	581	52.688	0.05	8,987	814.985	1.00
15 Forestry & Logging	3,868	272.518	0.16	17,339	1,221.611	1.16	3,452	243.209	0.30
16 Mining	5,602	236.880	0.14	5,259	222.376	0.21	1,434	60.636	0.07
17 Food	291,519	27,074.986	16.00	41,460	3,850.620	3.65	127,802	11,869.680	14.54
18 Textiles, Leather & Footwear	26,194	2,112.114	1.25	57,739	4,655.699	4.41	3,407	274.718	0.34
19 Wood & Paper	23,687	1,316.620	0.78	23,417	1,301.612	1.23	8,127	451.732	0.55
20 Petroleum	135,299	10,059.071	5.94	4,594	341.550	0.32	8,136	604.887	0.74
21 Other Chemicals	22,084	1,392.557	0.82	15,209	959.038	0.91	5,389	339.816	0.42
22 Non metallic	35,901	2,256.188	1.33	16,208	1,018.587	0.96	11,957	751.434	0.92
23 Metal Products (incl. Mach & Equ)	25,362	1,849.178	1.09	37,141	2,708.001	2.56	3,934	286.833	0.35
24 Electricity, Gas & Water	34,937	2,468.652	1.46	24,576	1,736.543	1.64	6,561	463.601	0.57
25 Construction	29,702	406.858	0.24	88,994	1,219.039	1.15	14,069	192.717	0.24
26 Trade	153,488	11,925.574	7.05	161,834	12,574.034	11.90	86,925	6,753.821	8.27
27 Transport & Communication	129,272	6,445.669	3.81	81,317	4,054.571	3.84	90,355	4,505.217	5.52
28 Owned Housing	28,489	2,110.986	1.25	3,353	248.452	0.24	27,070	2,005.840	2.46
29 Other Private Services	174,326	57,222.228	33.81	105,159	34,518.272	32.68	100,770	33,077.590	40.51
30 Public Admin	79,815	4.994	0.00	162,801	10.186	0.01	22,393	1.401	0.00
31 Education	81,709	3,991.226	2.36	315,921	15,431.742	14.61	7,614	371.920	0.46
32 Health	28,823	1,310.565	0.77	93,533	4,252.892	4.03	14,055	639.073	0.78
33 Agr Services	14,732	6.557	0.00	26,759	11.909	0.01	8,594	3.825	0.00
	1,757,344	169,269.864	100.00	1,576,437	105,640.674	100.00	772,677	81,650.058	100.00
		9.63			6.70			10.57	

services sector, 0.0033 units of income go to the beef and veal sector, 0.0026 to the milk sector, 0.0021 to the maize sector, 0.0019 to the roots and tubers sector, 0.0018 to the other cereals sector, 0.0017 to the pulses sector, and 0.0004 to the other livestock sector. The rest of the sectors are losers.

Conclusions

The other private services sector is assuming an important role in Kenya's economy and is closely competing with agriculture, the traditional mainstay for dominance. Tourism is a key export-oriented activity and, encouraged by the prospects of tourism, Kenya is focusing on developing and promoting it. In order to understand the role of the service sector and tourism in particular in the economy, this article employed the Kenya social accounting matrix 2001 to investigate the impact of other private services in creating output, income, and employment.

By measuring the contribution to GDP, primary or extractive activities, including agricultural production, are collectively found to be the mainstay of Kenya's economy, contributing 47.2% of GDP in 2001. However, when considered individually, activities within this category (with the exception of food production) contribute dismally to GDP, averaging about 3%. Secondary or manufacturing and industrial activities are relatively underdeveloped in the economy and account for a dismal 6.5% of GDP. The tertiary sectors, including public and private services together, account for 46.3% of GDP. In this group, private services production accounts for 13% of GDP. The importance of tourism (included in other private services exports) as a foreign exchange earner is emphasized by its higher contribution to the total export at over 22.1% of exports. It is instructive that transport and food activities follow at 14.4% and 9.7%, respectively. Coffee and tea, the other traditionally important foreign exchange earners for the economy, follow in importance at 9% and 13% of total exports, respectively.

Our results establish that the other private services sector makes a significant contribution to the country's gross domestic product and can be relied on to spur a big increase in the output of the economy through output multiplier. In particular, we

establish that other private services is a strategic sector but we also found that other private services has weak and uneven backward linkages with extractive activities, which a disproportionately large proportion of the population depends on. Lack of strong backward linkages between other private services and agricultural production is symptomatic of the importance of subsistence production in the economy. Thus, the potential of other private services exports (where tourism is included) to stimulate structural changes in the economy remains underdeveloped due to the relatively weaker demand stimuli it exerts on the other activities of the economy and therefore acts less as a push activity. If you use the model whose exogenous components included government, international trade, and saving-investment accounts, other private services is considered as a key sector.

We have studied the impact of an exogenous increase of one shilling in demand for other private services on incomes of the other activities in the economy using the different SAM models. When direct, indirect, and induced impacts were calculated on the income multiplier, we observed a significant multiplier at 1.59 for a unitary increase in private service exports.

Data on the proportion of expatriates and nationals employed in the tourism or service sector was unavailable for the study period (2001), however, in developing countries, it is commonplace to find a high number of foreign employees in the industry, particularly populating the lucrative managerial positions. At the same time, private national ownership of hotels and tour firms in the country is still at the development stage. Thus, it is reasonable to posit that a significant proportion of direct labor incomes and capital income due to the activity leave the economy through repatriations, reducing the effectiveness of the direct income multiplier component in improving households' incomes. (Kweka, Morrissey, & Blake, 2002; Summary, 1987).

The other private services sector accounts for 6.7% of total formal employment in 2001. We found that in 2001, exogenous export demand for other private services (Ksh 51,431 million) resulted in 105,641 jobs or 6.7% of formal jobs in the economy due to direct, indirect, and induced effects. The total contribution (direct, indirect, and

induced) of this sector to employment was comparable in magnitude to its direct contribution, thus indirect and induced effects were insignificant. This characteristic is indicative of a sector with weak and uneven backward linkages (Valadkhani, 2003) and an economy with a high weight of self-consumption.

The current research attempted to investigate the role of tourism in the economy by inferences from the impact of exogenous shock directed at private services exports. Overall, our results indicate that the private services sector in general and tourism in particular is an important economic activity with the potential to play an even bigger role in spurring output, incomes, and creating employment. To exploit this potential, we suggest the following policies.

First, enhance the sector's backward linkages with the extractive sectors by streamlining or developing marketing avenues to integrate households' subsistence production (particularly production of agricultural staples) into the market economy and strengthen their supply to the service sector. Second, equip workers with the skills required for better employment positions in the private services sector and tourism in particular in order to enhance direct incomes from exports of private services. Third, increase the share of local ownership in the services sector, particularly tourism services, through financing schemes that would promote local investment in the sectors and set up community ecotourism projects to facilitate local communities' ownership and participation in order to capture factor incomes, particularly from natural resources on which Kenya's tourism depends. And finally, diversify tourism attractions and activities to spread income and employment opportunities to rural and marginalized areas.

Endnotes

¹See Copeland (1991), Diamond (1975), Adams and Parmenter (1995), Sinclair (1998), and Sinclair and Stabler (1997).

²According to Weaver (1999), Kenya has one of the longest established tourism industries in the Sub-Saharan African region.

³100 Kenyan shillings are equal to US\$1.50.

⁴The subaccounts are maize, other cereals, roots pulses and tubers, sugar cane, fruits, vegetables, cut flowers, tea, coffee, green, beef and veal, milk, other livestock, fishing,

forestry, mining, food, textiles, wood, petroleum, other chemicals, nonmetals, metals, electricity and water, construction, trade, transport, service, own housing, public administration, education, and health.

⁵Value added includes wage payment for the supply of labor by households and capital rent payments to households for ownership of capital. Wagner (1997) argues that inclusion of capital payments in the endogenous accounts is particularly important if households receive a large proportion of their incomes from capital payment.

⁶This article includes tables with results obtained using the third model. Readers interested in discussing the rest of results are encouraged to send an e-mail to the authors.

⁷Readers interested in discussing the matrix of redistribution are encouraged to send an e-mail to the authors.

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