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# THE ECONOMIC POTENTIAL OF TOURISM IN TANZANIA

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**Abstract:** For sub-Saharan African countries with few evident opportunities to diversify export earnings away from primary commodities, tourism has emerged as an option to contribute to economic growth. This study uses input–output analysis to estimate the economic impact of tourism and assesses its potential contribution for the Tanzanian economy. The results show that tourism has a significant impact on output and incomes, especially taking into account the strong inter-sector linkage effects, although this has not been translated into corresponding employment gains. The tourism sector also contributes to tax revenue and foreign exchange earnings. Overall, tourism is shown to make a significant economic contribution. Copyright © 2003 John Wiley & Sons, Ltd.

## 1 INTRODUCTION

It has long been argued that sub-Saharan African (SSA) countries need to diversify their sources of export earnings away from over-reliance on primary commodities. Very few SSA countries have been successful in exporting manufactures, and this sector offers limited potential for most SSA countries. Given their natural and wildlife resources, tourism is a sector with growth potential; the foreign exchange earnings and increased demand for local goods associated with foreign tourists can contribute to economic growth. In Tanzania, tourism has become a major sector in the economy during the 1990s. Economic policies and government efforts to support tourism have been emphasized for several reasons. First, Tanzania is endowed with various natural resources that form a mainstay of tourist attractions; almost a third of the land area is allocated to natural parks. Second, tourism offers a diversified source of foreign exchange earnings for an economy traditionally dependent on a few agricultural exports. Third, tourism generates many other economic benefits, including incomes, employment and tax revenue, both within the

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sector and through linkages with other sectors. Despite its increasing importance in the Tanzanian economy, there has been no recent quantitative study of its potential economic impact.[1] We aim to rectify that deficiency by quantifying the impact of the tourism sector on the Tanzanian economy. Although one cannot generalise, the results will be indicative of the potential of tourism in other similarly endowed developing countries.

In a destination country such as Tanzania, tourism can be broadly defined to include the provision of goods and services necessary to maintain tourists—internal transport, accommodation and restaurants catering specifically for tourists, and certain retail goods such as arts and crafts. The tourism sector also demands inputs, such as food and services, from other sectors of the economy. These sector linkages, and the associated effect on aggregate demand, add an important dimension to the analysis of the economic impact of tourism. Thus, we aim to quantify not only the direct economic benefits of expansion of the tourism sector itself, but also the indirect effects on the output of other (linked) sectors. There are also costs of tourism, notably the foreign exchange leakage (through imports demanded by the sector) and the opportunity costs of the resources involved in its expansion. We will incorporate leakage costs, but do not have the data to assess opportunity costs (however, as the economy is operating below capacity, these costs may not be great). In addition, growth in tourism can have adverse environmental (depletion and degradation of resources) and social (erosion of local culture and traditions) impacts. Such concerns are acknowledged, and discussed briefly in the concluding section, but are beyond the scope of this paper.

The economic impact of tourism can be examined by analysing its impact on the growth of production, use of the factors of production or on the country's balance of payments (Mikić, 1988, p. 302). In tourism economics, examination of the economic impact has usually been based on multipliers derived from Input–Output (IO) analysis (Archer and Fletcher, 1990; Sinclair, 1998; Wagner, 1997). These multipliers measure the effect of a unit increase in tourism expenditure (demand) on economic activity in a country, usually concentrating on output, incomes and employment. Multipliers account for the effect on other sectors, for example, an increase in tourism spending on restaurants can increase demand for locally produced food. However, they do not allow fully for the substantial inter-sector linkages (Dieke, 1993, p. 278); for example, derived demand for food from tourism can further stimulate food crop production. If tourism expands, from which sectors will demand for inputs increase and can these sectors grow with tourism? Our analysis will account for these linkage effects.

In this paper, we use IO analysis to examine the significance of tourism to the economy of Tanzania, concentrating on two related issues. First, we use multiplier analysis to assess the relative significance of tourism in terms of its impact on output, incomes, employment and government revenue, distinguishing the impact occurring within the sector and that spreading to other sectors. Second, we carry out linkage analysis to examine the interdependence between tourism and other sectors; in a sense, this allows us to assess the dynamic potential (compared with the essentially static multiplier analysis).

In Section 2 we describe the salient features of the economy and recent trends of international tourism in Tanzania. The IO model used in impact estimation is outlined in Section 3, and the various multiplier concepts are defined. The results for Tanzania

[1]Previous studies date back to the 1980s (Curry, 1986). The recent study on Tanzania by Wade *et al.* (2001) focused on tourism market demand analysis rather than economic impact.

 

are presented and discussed in Section 4, before concluding with some policy implications in Section 5.

## 2 GROWTH OF TOURISM IN TANZANIA

Tanzania's economy is characterized by a large traditional rural sector and a small modern urban sector. Agriculture is the primary economic activity, accounting for about 50 per cent of GDP and about 80 per cent of export earnings. As such, it is typical of SSA countries dependent on primary commodity exports. The manufacturing sector is still small, once dominated by textile industries, now by consumables and beverages. Infrastructure, particularly the transport sector, is underdeveloped. The Tanzanian tourism industry is based mainly on wildlife attractions. Tourism activities are largely concentrated in the Northern Wildlife Area (NWA), the city of Dar es Salaam and the historic isle of Zanzibar. International tourism expanded rapidly in the early 1970s, particularly due to the significant expansion of the (state owned) hotel programme.[2] This growth was brought to a halt in 1977 when the border with Kenya was closed (Curry, 1986, p. 55), and only recovered from the late 1980s. The sector has expanded in the 1990s, partly as a response to government initiatives to promote the sector. Government control of the industry was high until the early 1990s, when major institutional changes were implemented that allowed for significant participation by the private sector. Current policy is to promote low-density, high quality and high-priced tourism.

Most tourists to Tanzania come from Europe and North America (Wade *et al.*, 2001, provide an historic and market analysis). Information on recent trends for tourism in Tanzania is provided in Tables 1 and 2. Nominal earnings from foreign tourism increased from US$95 m in 1991 to over US$500 m in 1998, compared with tourist arrivals of about 190 000 and 480 000 respectively. Although earnings from international tourism have grown more rapidly than arrivals in nominal terms (due to policy measures to attract high

Table 1. Growth of international tourism in Tanzania (1970–98)

| | | | Index (1991 = 100) | |
|---|---|---|---|---|
| Year(s) | Arrivals | Nominal earnings (US$) | Arrivals | Earnings |
| 1970–79 | 131 117 | 14.7 | 70 | 16 |
| 1980–85 | 74 522 | 14.8 | 40 | 16 |
| 1986–90 | 131 089 | 43.3 | 70 | 46 |
| 1991 | 186 800 | 94.7 | 100 | 100 |
| 1992 | 201 744 | 120.0 | 108 | 127 |
| 1993 | 230 166 | 146.8 | 123 | 155 |
| 1994 | 261 595 | 192.1 | 140 | 203 |
| 1995 | 295 312 | 259.4 | 158 | 274 |
| 1996 | 326 188 | 322.4 | 175 | 340 |
| 1997 | 359 096 | 392.4 | 192 | 414 |
| 1998 | 482 331 | 570.0 | 258 | 602 |

*Source*: National Bureau of Statistics, and Tourism Department.

[2]Expansion of the hotel sub-sector in most developing countries occurred in the late 1960s motivated by the potential foreign exchange earnings from tourism (Carey, 1989, p. 59).

 

Table 2. Indicators of macroeconomic impact of tourism in Tanzania

| Year | Real earnings | Real GDP | Earnings/ GDP | Earnings/ total exports | Tourism employment | Beds available |
|---|---|---|---|---|---|---|
| 1991 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1992 | 163 | 103 | 158 | 127 | 111 | 111 |
| 1993 | 227 | 104 | 219 | 120 | 147 | 110 |
| 1994 | 241 | 104 | 232 | 110 | 191 | 115 |
| 1995 | 283 | 105 | 269 | 109 | 213 | 123 |
| 1996 | 292 | 110 | 266 | 129 | 222 | 125 |
| 1997 | 305 | 108 | 283 | 161 | 244 | 134 |
| 1998 | 429 | 115 | 372 | 180 | 293 | 136 |

*Source*: All values given as index values (1991 = 1000). Calculated using data from National Bureau of Statistics/Tourism Department and Economic Surveys (various years).

spending tourists), real earnings have grown less significantly reflecting a general increase in price levels. Expenditure per tourist is high in Tanzania, increasing from US$425 in 1990 to over US$1000 in 1998, compared with the averages of US$338 to about US$400 respectively for Africa (World Tourism Organisation, various years). Furthermore, employment in the tourism sector, although small, has grown rapidly in the 1990s.

Tourism earnings as a share of GDP increased significantly, from about one per cent in the 1986–92 period to over six per cent in the 1993–98 period. Comparable data for the East Africa region and African countries on average show that tourism earnings as a share of GDP increased marginally from 1.5 per cent to about two per cent over the same period (World Tourism Organization, various years). As a share of total exports, tourism earnings increased from about 15 per cent in the 1980s to over 40 per cent in the 1990s, becoming the second largest foreign exchange earner after agriculture. The numbers of hotels and beds available has increased more slowly than the growth of arrivals and revenue, suggesting a rise in capacity utilisation of accommodation (although room occupancy rates only increased slightly from 55 per cent in 1990 to about 60 per cent in 1998). From this brief sketch, it is evident that tourism is an increasingly important sector in Tanzania.

## 3 INPUT–OUTPUT MULTIPLIERS AND LINKAGE MEASURES

Input–Output analysis is especially well suited to assessing how changes in one or more sectors of the economy will impact on the total economy. The basic idea is quite simple. The structure of an economy can be represented by the value of transactions between sectors (primary, manufacturing and services) in an IO matrix. The rows of this matrix are the sectors that a given sector sells its output to (as intermediate inputs to those sectors), and down the columns are the sectors a given sector purchases its intermediate inputs from. This IO matrix is completed by adding final demand (including from consumers and exports), the destination of sales that do not go to other sectors, and primary inputs (labour, land, capital and imports), the inputs that are not purchased from other sectors. Full treatments of IO theory and applications can be found in many texts (e.g. Bulmer-Thomas, 1982; Miller and Blair, 1985; Sadoulet and de Janvry, 1995), and we only outline briefly the basic structure of the model used.

 

The output of each sector $i$ sold to sector $j$ is termed the inter-industry transaction (denoted as $z_{ij}$; clearly, $z_{ij}$ is also the (intermediate) inputs to sector $j$ purchased from sector $i$. The structure of the IO table implies that the total value of inputs (primary and intermediate) purchased by sector $j$ ($q_j$) is equal to the total value of output (final demand and intermediate) of that sector. For IO analysis, we use the technical or input–output coefficient ($a_{ij}$), which represents the share of inputs from sector $i$ in total output of sector $j$. For a given output (demand) for sector $j$, this shows the demand for output from each other sector. This coefficient is defined as:

$$a_{ij} = \frac{z_{ij}}{q_j}. \tag{1}$$

The IO structure of the economy can be described in matrix form as:

$$\boldsymbol{q} = \boldsymbol{A}\boldsymbol{q} + \boldsymbol{f} \tag{2}$$

where $\boldsymbol{q}$ and $\boldsymbol{f}$ are ($N$ by 1) vectors of total output and final demands respectively. Each element of $\boldsymbol{A}$ ($a_{ij}$) represents the direct input requirements from sector $i$ per unit of output of sector $j$. Equation (2) can be rearranged as:

$$\boldsymbol{f} = [\boldsymbol{I} - \boldsymbol{A}]\boldsymbol{q} \tag{3}$$

where $\boldsymbol{I}$ is an identity matrix. Assuming that an inverse of $[\boldsymbol{I} - \boldsymbol{A}]$ exists, we can write:

$$\boldsymbol{q} = \boldsymbol{W}\boldsymbol{f} \tag{4}$$

Equation (4) represents the standard IO model, where $\boldsymbol{W} = [\boldsymbol{I} - \boldsymbol{A}]^{-1}$ is the familiar *Leontief inverse* (Leontief, 1986). Each element of $\boldsymbol{W}(w_{ij})$, the inter-dependence coefficient, measures the total stimulus (direct and indirect) to the gross output of sector $i$ when sector $j$s final demand changes by one unit (i.e. $w_{ij} = \delta q_i/\delta f_j$). The output multiplier for sector $j$ is defined as the total change in the output of *all* sectors given a unit change in the demand for output of sector $j$, and is given by the column sum of $w_{ij}$ (denoted by $O_j$):

$$O_j = \sum_i w_{ij}. \tag{5}$$

Note that $O_j$ can be decomposed into the effects occurring within the sector (*intra*-sector effects) and those that spread to all other sectors (*inter*-sector effects). We can express intra-sector and inter-sector effects respectively as $r_j$ and $n_j$, where:

$$r_j = w_{ij} \quad \text{for} \quad i = j \tag{6}$$

$$n_j = O_j - r_j. \tag{7}$$

IO analysis also assumes a constant relationship between primary input requirements per unit of gross output in each sector. If we let $\boldsymbol{V}$ be a ($k$ by $N$) matrix of the shares of $k$

 

primary inputs in total inputs, the total income that accrues to a particular primary input may be expressed generally as:

$$\boldsymbol{Vq} = \boldsymbol{V}[\boldsymbol{I} - \boldsymbol{A}]^{-1}\boldsymbol{f} = \boldsymbol{Kf} \tag{8}$$

where $\boldsymbol{K}$ is a ($k$ by $N$) matrix whose elements $\kappa_{kj}$ show the direct and indirect requirement for the $k$th primary input when $j$s final demand changes by one unit. With equation (8) it is possible to estimate different primary input multipliers. In addition to employment effects, we estimate four primary income multipliers: labour, non-labour, taxes and import multipliers. We will denote the income multiplier by $Y$ and each share of labour, non-labour, indirect tax and imports in total input of sector $i$ as $h_i$ $nh_i$, $t_i$ and $m_i$ respectively (the procedure used to identify labour income is detailed in Appendix B). Thus, the income multiplier allocates the output impact to the different primary inputs (e.g. $Y_{hj} = \Sigma_i h_i w_{ij}$ and $Y_{mj} = \Sigma_i m_i w_{ij}$).

The employment multiplier can be calculated in the same way as the income multiplier, provided we have data on sector employment per unit of output ($l_i$). We define a matrix $\boldsymbol{E}$, corresponding to $\boldsymbol{W}$ in (4), each element of which ($e_{ij} = l_i w_{ij}$) measures the direct and indirect employment effects on sector $i$ when sector $j$s final demand changes by one unit. The total employment multiplier is $E_j(= \Sigma_i e_{ij})$. As in the case of the output multiplier, we distinguish between intra-sector and inter-sector employment impacts, denoted respectively as $Er_j$ and $En_j$. The procedure to separate the two effects is analogous to that of output multipliers.

The above analysis is made using *open* as opposed to *closed* IO static models. The latter incorporate induced effects of increased household consumption (Keynesian multiplier effects). We do not use closed models for several reasons. Calculation of induced effects assumes all household income is spent on consumption but, in practice, income 'leaks' to tax and savings. In addition, closing the model for households imposes the restriction that average propensities to consume the output of sector $i$ are constant and equal the marginal propensities to consume. Moreover, induced effects exaggerate the magnitude of multiplier estimates, but rarely alter the ranking of the multiplier values estimated using open models (Miller and Blair, 1985, p. 109).

Armed with these definitions we are able to calculate a number of static multipliers. These will indicate the effects of a unit increase in demand for the output of a sector (specifically tourism in our case), on total output, incomes, employment, tax revenue and imports. We would also like some means of evaluating the significance of the demand for inputs from other sectors resulting from tourism. For this we can use linkage measures. Sectors with relatively high linkage effects offer the greatest potential to stimulate the economic activity of other sectors and therefore have a greater effect on growth (Jones, 1976, p. 324).

There are two types of linkages: forward and backward. Backward linkages measure the (demand) stimuli given to supplying sectors as a result of increased demand by sector $j$. Forward linkages measure the (supply) stimuli given to user sectors as a result of an increase in the output of the supplying sector. As we are interested in comparing the linkage effects of different sectors, the average stimuli by a particular sector should be normalised and compared with the overall average of all sectors. We denote backward and forward linkage indices as $BL_j$ and $FL_j$ respectively, which we compute using measures suggested by Bulmer-Thomas (1982). Backward linkage is given by the formula:

$$BL_j = \frac{1/N \sum_i w_{ij}}{1/N^2 \sum_i \sum_j w_{ij}}. \tag{9}$$

 

So $BL_j > 1$ implies above average linkage. However, the index assumes linkages are evenly distributed over many sectors. The possibility that linkages are concentrated in a few sectors can be taken into account by using the coefficient of variation formula:

$$BL_{vj} = \sqrt{\frac{1/(N-1)\sum_i \left(w_{ij} - 1/N\sum_i w_{ij}\right)^2}{1/N\sum_i w_{ij}}} \tag{10}$$

The lower the value of $BL_{vj}$ the more even are the stimuli across sectors in the economy.

Forward linkages are computed as:

$$FL_j = \frac{1/N\sum_i b^*_{ij}}{1/N^2\sum_i\sum_j b^*_{ij}} \tag{11}$$

where, $b^*_{ij}$ is the total (direct and indirect) increase in the output of using sectors as a result of a unit increase in the output of the supplying sector, as opposed to $w_{ij}$ which shows the impact due to a change in final demand.[3] A high forward linkage exists if $FL_j > 1$. The coefficient of variation is given as:

$$FL_{vj} = \sqrt{\frac{1/(N-1)\sum_j \left(b^*_{ij} - 1/N\sum_j b^*_{ij}\right)^2}{1/N\sum_j b^*_{ij}}}. \tag{12}$$

## 4 APPLICATION TO TANZANIA

Two sets of data are required for estimating IO multipliers. The first is the inter-industry flow of transactions among the sectors of the economy, for which we use the IO Table of Tanzania for 1992 (the most recent available). The second is the value of tourist expenditures (see Table 1). The original IO Table contained 79 sectors, which we aggregated to 23 sectors (listed in Appendix A).[4] Two remarks are in order regarding this data. First, the sector we term tourism (sector 15) is the 'Hotels and restaurants' sector. Obviously, not all the activity in this sector is due to tourists and not all tourists' activities are in this sector. Nevertheless, it is the sector that most closely corresponds to tourism (Carey, 1989, p. 63) and, especially, the magnitude of multipliers associated with tourism. Furthermore, the major omitted activities of tourists may appear as supplies to this sector from other sectors (e.g. arts and crafts are often sold in hotels, and safari tours may be booked through hotels).

Second, although the IO Table that we use is the most recent one for Tanzania (published in 1999), its data refer to the year 1992. In practice, IO tables take a number of years to be published and construct, especially in developing countries where delays of

[3]This measure is computed using output (as opposed to input) coefficients ($b_{ij}$), which show that a sector's output is distributed to all using sectors in fixed proportions.

[4]In aggregating the original IO sectors, two main criteria were followed. First, grouping the IO sectors according to the main economic classification of industrial activities. Second, the availability of employment data by sectors from Labour Force Survey (LFS) to match with aggregate sectors. Details on how sector employment levels were calculated are available from the authors on request.

 

five to seven years are common (Bulmer-Thomas, 1982, p. 156). It is reasonable to expect that structural coefficients change slowly in developing countries (Leontief, 1986, p. 165). In Tanzania, 1992 was a 'normal' year, in the sense that there were no significant macroeconomic shocks or unusual events (such as floods or droughts), and has been used as the base year for later macroeconomic series. For this reason, it may be considered a suitable year to describe the typical features of the economy. The impacts estimated are certainly indicative of the relative magnitude of the importance of tourism in Tanzania.

For expositional convenience we report results based on a four sector model (agriculture, manufacturing, services and tourism), and the structural coefficients should be reasonably robust at this level. Where appropriate, we report some results from the full model although we do not report full details here (full 23 sector results are available in Kweka *et al.*, 2001, or on request).

Estimates of output multipliers are shown in the first panel of Table 3. The output multiplier for tourism is 1.8, the highest in the four sector model (it is the third highest of the 23 sectors, and ranks second in terms of inter-sector effects). This implies, for example, that a TShs 1 m (where TShs is Tanzanian Shillings) increase in tourism output requires output in the economy to increase by TShs 1.8 m; other sectors expand to service the needs of tourism. A particularly high share of the tourism multiplier requires output

Table 3. Estimated multipliers

Output multipliers

| Sector | Total | Intra-sector | | Inter-sector | |
|---|---|---|---|---|---|
| | $O_j$ | $r_j$ | $(r_j/O_j)\%$ | $n_j$ | $(n_j/O_j)\%$ |
| Agriculture | 1.267 | 1.107 | 87.3 | 0.161 | 12.7 |
| Manufacturing | 1.702 | 1.230 | 72.3 | 0.472 | 27.7 |
| Tourism | 1.827 | 1.023 | 56.0 | 0.804 | 44.0 |
| Other services | 1.532 | 1.321 | 86.3 | 0.211 | 13.7 |

Income, import and tax multipliers

| Sector | $Y_{hj}$ | $Y_{nhj}$ | $Y_{hj} + Y_{nhj}$ | $Y_{mj}$ | $Y_{tj}$ |
|---|---|---|---|---|---|
| Agriculture | 0.385 | 0.517 | 0.902 | 0.067 | 0.025 |
| Manufacturing | 0.413 | 0.282 | 0.694 | 0.211 | 0.057 |
| Tourism | 0.454 | 0.208 | 0.662 | 0.238 | 0.079 |
| Other services | 0.395 | 0.343 | 0.738 | 0.153 | 0.070 |

Employment multipliers

| Sector | Total | Inter-sector | | Intra-sector | |
|---|---|---|---|---|---|
| | $E_j$ | $En_j$ | $(En_j/E_j)\%$ | $Er_j$ | $(Er_j/E_j)\%$ |
| Agriculture | 13.334 | 0.118 | 0.9 | 13.216 | 99.1 |
| Manufacturing | 4.698 | 4.160 | 88.5 | 0.538 | 11.5 |
| Tourism | 5.388 | 4.061 | 75.4 | 1.326 | 24.6 |
| Other services | 2.031 | 0.682 | 33.6 | 1.349 | 66.4 |

*Source*: Authors' calculations as detailed in text.

 

from other sectors ($n_j = 44$ per cent of the output effect), far above the values for other sectors. This reflects the nature of tourism as a 'composite product' of many sectors and highlights the stimulus it can provide for the whole economy.

Income multipliers allocate the impacts of final demand spending to the various primary inputs. Official estimates of household income in developing countries may be underestimated due to the existence of significant informal activities and traditional (non-waged) agricultural labour (equivalent to about one-third of Tanzania's GDP).

Measures of income effects should also include these activities. We use the Tanzanian Labour Force Survey 1991–92 to obtain the estimates of the labour force by sector, and its composition (wage, non-wage and self-employed). We then use this data to adjust the labour income figures in the IO table to derive estimates of the proportion of primary inputs going as income to households for each sector (details of the method are provided in Appendix B).

We provide estimates for labour ($Y_{hj}$), comprising wage, non-wage, and self-employed (implicit wage), and non-labour ($Y_{nhj}$), essentially operating surplus (includes profits and return on land), household income multipliers in the second panel of Table 3. The combined household income multiplier is highest for agriculture, which is expected given the prevalence of household labour in rural Tanzania. The multiplier for non-labour income is also highest in the agriculture sector, reflecting the classification of returns to land as operating surplus (even if in fact this is household income). The tourism sector has the highest value of $Y_{hj}$ indicating the relative prevalence of paid labour; other sectors have broadly similar values.[5] Tourism and manufacturing have the lowest non-labour multipliers, suggesting that profit rates are low (and/or profits are allocated to households rather than operating surplus). The combined income multipliers are lowest for tourism and manufacturing, indicating that other primary inputs (tax and imports) are relatively high in these sectors. In general, our results indicate that labour income multipliers are quite low, reflecting generally low levels of wages and/or employment.

Table 3 also provides estimates of tax and import multipliers, which are both highest for tourism in the four sector model (of the 23 sectors, tourism has the second highest indirect tax multiplier but only the 11th highest import multiplier). Bird (1992) examined the economic case for taxing tourism in developing countries, and noted the inherent problems limiting the ability of tourism to generate sufficient revenue. First, much tourist expenditure goes to international airlines and tourist agencies, not the destination country. Second, the multitude of small (and in some cases informal) businesses in tourism exacerbates the administrative difficulty in extracting revenue from them. Third, the linkage between tourism and the rest of the economy may be weak, limiting the revenue impact of increased tourist spending (our results show that this is not the case, at least for Tanzania). Finally, the generous fiscal incentives (notably in the hotel sub-sector) for investors have eroded the tax revenue base for developing countries. Our results find a relatively high tax multiplier, probably because hotels and restaurants (as the 'core' of the tourist sector) are relatively easy to tax, and to tax at a differential rate. The implication is that the best way to tax tourists is through taxing their expenditure in the country, and that tourism is a relatively strong source of revenue.

Values of the import multipliers ($Y_{mj}$) indicate the extent of import leakage, which in the case of tourism is approximately 0.24. This implies that one shilling of increased output

[5]The significance of tourism non-labour relative to labour income effects has also been observed for Kenya (see Summary, 1987).

 

generates 24 cents of imports. While this multiplier is relatively large, it should be interpreted in the context of the large output multiplier for tourism. The import multiplier is reasonable compared with that of other important sectors (for example 'other manufactures' has an import multiplier of 0.40).[6]

The final panel, Table 3, provides evidence on employment multipliers. The value of the employment multiplier can be interpreted as the (full time equivalent) number of employees for each one million TShs increase in final demand for sector $j$. Overall, as would be expected, agriculture has by far the highest values of $E_j$, and almost all of the effect is within agriculture (the $Er_j$ accounts for almost the entire employment). Tourism has a relatively high employment multiplier, and about three-quarters of the benefit is to other sectors, reflecting the high linkages of tourism. Half the employment impact of tourism is generated in the staple foods sector.

Tourism has high multipliers, and therefore has a significant potential to stimulate the economy. If this stimulus is to be fully realised, the sectors that benefit from induced demand must be able to respond (if they cannot, the growth of tourism and impact on the economy will be constrained). Identification of such sectors is thus valuable for policy purposes. We identify them, using the 23 sector model, by examining elements of the Leontief inverse, $w_{ij}$ (for $j = 15$), where the share of each sector in $O_j$ (for $j = 15$) is computed. The summary in Table 4 shows that while more than half of the impact is within tourism, there are major stimuli to manufacturing and agriculture. The specific sectors that benefit most are food and beverages, fishing, staple foods, and wholesale and retail. This is unsurprising as food and beverages are the major consumption goods demanded by tourists (and, of course, by restaurants); the import multiplier shows that about a quarter leaks to imports.

Given the high output multiplier, one would expect that linkage effects are high; these are shown in Table 5. Tourism has a significant backward linkage ($BL_j = 1.16$), the highest of the four sectors (and the third highest for all 23 sectors). The degree of dispersion shows that tourism's backward linkage is the most evenly distributed of all sectors ($BL_{vj} = 0.57$). Tourism also has the highest forward linkages, and these are quite evenly dispersed, suggesting that as the sector develops it provides services that can be utilised by other sectors. A plausible interpretation is that as the supply of 'hotels and restaurants' increases, other sectors make increasing use of these services. Employment linkage indices are shown in Table 5. Again, agriculture has the highest values but tourism ranks second.

Linkages provide a stimulus to growth only if the interdependence among sectors is causal (Yotopoulos and Nugent, 1976, p. 335), and Jones (1976, p. 325) considered

Table 4. Distribution of tourism output effects by sector

| Sector | $w_{ij}(j = 15)$ | $(w_{ij}/O_j)\%$ for $j = 15$ |
|---|---|---|
| Agriculture | 0.314 | 17 |
| Manufacturing | 0.326 | 18 |
| Tourism | 1.023 | 56 |
| Other services | 0.163 | 9 |

*Source*: Authors' calculations as detailed in text.

[6]The value for Tanzania falls at the lower end of the range of import multipliers for tourism in developing countries, ranging from 0.11 for the Philippines to 0.45 for the Bahamas (Sinclair, 1998, p. 29).

 

Table 5. Backward and forward linkages

Output linkages

| Sector | Backward linkage | | Forward linkage | |
|---|---|---|---|---|
| | $BL_j$ | $BL_{vj}$ | $FL_j$ | $FL_{vj}$ |
| Agriculture | 0.801 | 0.938 | 1.036 | 0.768 |
| Manufacturing | 1.076 | 0.848 | 0.889 | 0.974 |
| Tourism | 1.155 | 0.570 | 1.139 | 0.710 |
| Other services | 0.968 | 1.011 | 0.936 | 1.029 |

Employment linkages

| Sector | Backward linkage | | Forward linkage | |
|---|---|---|---|---|
| | $EBL_j$ | $EBL_{vj}$ | $EFL_j$ | $EFL_{vj}$ |
| Agriculture | 2.096 | 3.609 | 12.373 | 2.653 |
| Manufacturing | 0.738 | 1.762 | 0.389 | 0.644 |
| Tourism | 0.847 | 1.461 | 1.476 | 0.809 |
| Other services | 0.319 | 0.850 | 0.956 | 1.040 |

*Source*: Authors' calculations as detailed in text.

backward linkages as being the more causal. In other words, the output of the sector should generate increased output in linked sectors. This is evident in the case of increased demand (backward linkages), but less obviously so in the case of increased supply (unless this refers to a good to which value can be added). Consequently, greater emphasis should be attached to the backward linkage effects of tourism (by increasing demands for inputs to the sector).

### 4.1 The Impact of International Tourism

An important feature of tourism is that an increase in final demand represents an injection of funds from outside the economy. Consequently, it is appropriate to examine the impact of tourism on the Tanzanian economy *as if* tourism output was an increase in final demand, i.e. what value of output in the economy is supported by tourism expenditures? In measuring the economic impact of tourism, we focus on international tourist expenditure. Expenditure by international tourists in 1992 amounted to US$120 m, or TShs 42 014 m. We simulate (by multiplying the Leontief inverse by the vector of final demand, with all sectors other than tourism entered as zero) the level of economic activity supported by this expenditure, distinguishing between direct and 'direct plus indirect' effects. The output, employment and income impacts are provided in Table 6.

At the direct level, tourism expenditure resulted in output of TShs 21 931 in 1992 (1.7 per cent of total GDP), mainly contributed by the inter-sector impact. When direct and indirect effects are considered, the total impact on output was TShs 74 012 m (5.8 per cent of GDP). Intra-sector impacts increased from almost zero to 3.2 per cent of GDP and inter-sector impacts increased from 1.7 to 2.6 per cent. In the case of employment, tourism expenditure in 1992 directly supported 52 131 jobs (0.5 per cent of total labour; estimated

 

Table 6. Output and employment impact of tourism in Tanzania

| Output impact | | | | |
|---|---|---|---|---|
| Level of effect | Sector effect | Multiplier | Impact | %share GDP |
| Direct | Total | 0.545 | 21 930.5 | 1.7 |
| | Intra | 0.013 | 540.0 | 0.0 |
| | Inter | 0.532 | 21 390.5 | 1.7 |
| Direct + indirect | Total | 1.840 | 74 012.0 | 5.8 |
| | Intra | 1.019 | 40 983.5 | 3.2 |
| | Inter | 0.821 | 33 028.5 | 2.6 |
| Employment impact | | | | |
| Direct | *NA* | 1.296 | 52 131 | 0.5 |
| Direct + indirect | Total | 4.245 | 170 718 | 1.6 |
| | Intra | 1.325 | 53 279 | 0.5 |
| | Inter | 2.920 | 117 440 | 1.1 |
| Income impact | | | | |
| Type of income | Level | Multiplier | Impact | %share |
| Labour income | Direct | 0.236 | 9471.2 | 0.7 |
| | Direct + indirect | 0.404 | 16 247.0 | 1.3 |
| Non labour income | Direct | 0.002 | 85.0 | 0.0 |
| | Direct + indirect | 0.286 | 11 484.8 | 0.9 |
| Tax revenue | Direct | 0.053 | 2126.5 | 2.7 |
| | Direct + indirect | 0.078 | 3149.3 | 4.1 |
| Import leakage | Direct | 0.156 | 6291.0 | 1.6 |
| | Direct + indirect | 0.209 | 8410.2 | 2.1 |

*Notes*: Impact given in million TShs. For panel (c) %shares are of GDP for incomes, of net indirect taxes for tax revenue and of total imports for import leakage. NA—not applicable.
*Source*: Authors' calculations as detailed in text.

to be about 10.9 million people in 1991–92). The direct plus indirect employment impact was 170 718 jobs, some 1.6 per cent of the labour force. The number of jobs within the tourism sector was 53 279 and the remaining 117 440 were supported in other sectors. Our results compare well with the share of tourism employment in other developing countries, with estimates ranging from 0.9 per cent in the Philippines to 1.4 per cent for Sri Lanka and 1.3 per cent for Zimbabwe (Sinclair, 1998, p. 30). In Kenya, it was found that tourism was not particularly effective in creating jobs (Summary, 1987, p. 537).

Tourist spending in 1992 supported direct labour income worth TShs 9471 m. This increased to TShs 16 247 m when the indirect effects were included. However, the impact on non-labour income was not as significant. Tourist spending generated government tax revenue amounting to TShs 2127 m at the direct level (2.7 per cent of net indirect taxes) and, when indirect effects are included, increased to TShs 3149 m or 4.1 per cent of total net indirect taxes. The corresponding impact on imports is Tshs 6291 m (1.6 per cent of total imports) and 8410 m (2.1 per cent of total imports).[7] Given that total tourist expenditure in 1992 was US$120 m (in nominal terms), the direct tourism net foreign exchange earnings would be US$102 m and US$94.8 m when indirect effects are included.

[7]Tourism is argued to have a low direct import content but a high import content when indirect effects are considered (Mikić, 1988, p. 308). This does not appear to be the case for Tanzania.

 

## 5 CONCLUSIONS AND IMPLICATIONS

The value of tourism in the development process has become a matter of substantial debate, given the benefits and costs involved in its development. In Tanzania, the tourism sector is growing fast, and its contribution to growth is significant. As a result, it has attracted investment and policy initiatives to support its development. In this paper we used IO analysis to examine the significance of tourism in generating output, income, employment and government tax revenue, overall and relative to other sectors. We distinguish between intra-sector and inter-sector impacts of tourism. Using linkage analysis, we further examined the interdependence between tourism and other sectors. Finally, we measured the impact of international tourism expenditure in Tanzania for the base year of 1992.

These results reveal two things. First, the tourism sector has an important role, not only as an earner of foreign exchange but also in terms of generating demand for the output of other sectors. This is shown by the significant stimuli tourism offers many other sectors in the economy. Our analysis has shown that tourism has a significant impact on output and this importance lies mainly in its inter-sector effects, i.e. tourism's impact on output is realised through increases in the output of many other sectors relative to that of hotels and restaurants. This is enhanced by its significant backward linkage effects, which are found to be widely and evenly distributed in the economy. The sectors most important for tourism demand impacts are food and beverages, fishing and hunting, staple food and wholesale and retail trade.

Second, the results are consistent with observed characteristics of the economy. The manufacturing sector is small and underdeveloped, and the few manufacturing industries continue to depend on imported inputs. Manufacturing does not have particularly strong linkages with the rest of the economy. The agriculture sector produces traditional exports (with low levels of processing) and subsistence foods, hence also has low linkages. Thus, not only is tourism potentially important in providing demand for the economy, but it is also relatively important. This does not guarantee that the stimulus effects of increased tourism will be realised. Imports are relatively high for the hotels and restaurant sector, implying that domestic suppliers are constrained in their ability to provide the appropriate quality of inputs. Although we would not argue that food and related goods should be directed to the tourist sector at the expense of supplies to local markets, there is nevertheless potential to increase domestic food processing sectors to meet the demand from the tourist sector.

The relatively low income multipliers imply that tourism is not particularly significant in terms of income generation. This may be due to the low level of wages and skills in the sector. Tourism has a relatively low employment impact, but the employment linkages in the economy are generally quite low. In this sense, tourism may not be relatively bad at generating income and employment, at least compared with manufacturing (agriculture is the main sector for employment). Tourism is also found to be an important sector in generating indirect tax revenue, largely because the consumption of tourists in country can be taxed relatively efficiently. The total output impact associated with international tourism in 1992 was equivalent to 5.8 per cent of GDP, and the employment impact was equivalent to 1.6 per cent of the labour force. Tourist spending generated labour income worth TShs 16 247 m (equivalent to 1.3 per cent of GDP), provided 4.1 per cent of indirect tax revenue, and accounted for 2.1 per cent of imports.

The potential impact of tourism on the economy does not appear to have changed much over time. Curry (1986), using data for 1976, estimated the tourism output multiplier in

 

Tanzania as 1.59 and the income multiplier as 0.64. These values were similar to estimates for Kenya in 1976, of 1.81 and 0.64 respectively (Summary, 1987), although Kenya would even then have been considered as having a more developed tourism sector. These compare to our estimates for 1992 of 1.84 and 0.69 respectively. One possibility is that tourism development has not been part of an integrated plan that identifies other sectors that should be expanded to supply the tourism sector. This is consistent with the fact that tourism has only become a focus for government support in the 1990s. One of the tourism policy objectives is to increase the industry's linkage with other sectors. Our analysis identifies the other sectors that should be included in any integrated development strategy. This paper is not concerned with providing a blueprint for developing the tourism sector. Rather, our estimates suggest that expanding the sector offers a potential stimulus to the entire economy, but other sectors need to be enabled to respond to the stimulus.

The Tanzanian government has identified tourism as a potential sector for expansion, availing of the country's natural amenities and wildlife resources and targeting the relatively high end of the market. Although this study identifies the potential economic benefits, the strategy is not without problems. In particular, protecting and developing wildlife reserves is more often seen as a threat than a benefit to local communities that are affected. Songorwa (1999) demonstrates why community-based wildlife management has failed in Tanzania, notably because the communities themselves were not interested; the majority of local people opposed wildlife protection as they derived few if any benefits. Partly this is a policy issue—insufficient effort has been made to involve local communities in planning (rather than management) and to ensure that they derive direct economic benefits. Salafsky and Wollenberg (2000) provide suggestions for how local interests can be linked to conservation, and argue that this is necessary to ensure sustainable development that contributes to livelihoods. It is important that tourism policy in Tanzania recognises that local communities must benefit directly so that they are interested in promoting the amenity.

The problem is also, in part, financial, in the sense that the government is not investing sufficient funds to promote the development of reserves in a way that also benefits local communities. The Wildlife Department had a budget in 1995 of some TShs 554 m (Songorwa, 1999, p. 2063); given our estimates above, this is less than a quarter of the direct tax earnings from tourism. As wildlife reserves are a cornerstone of tourism development, government spending could be increased appreciably to reflect the importance and needs of the sector. Some funds should be available to compensate local communities for losses (e.g. of domestic animals killed). However, certain investments can benefit both communities and reserves. For example, improved transport infrastructure helps the marketing of agricultural commodities and mobility of tourists. The most effective government spending priorities are those that enhance the linked interests of local communities and wildlife conservation (Salafsky and Wollenberg, 2000). Given the potential gains from tourism, in terms of foreign exchange earnings and tax revenue, there is scope for a government investment policy that enhances the linkage effects. Properly managed, tourism expansion offers the potential to contribute significantly to economic growth in Tanzania.

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## APPENDIX A: THE 23 IO SECTORS

| Code | IO Sector | Activity |
|---|---|---|
| 1 | Coffee | Agriculture |
| 2 | Cotton | Agriculture |
| 3 | Staple food | Agriculture |
| 4 | Oil seeds | Agriculture |
| 5 | Other cash crops | Agriculture |
| 6 | Cattle and other animal | Agriculture |
| 7 | Fish, hunting and forestry | Agriculture |
| 8 | Mining and quarrying | Mining |
| 9 | Food and Beverages | Manufacturing |
| 10 | Textile and Leather products | Manufacturing |
| 11 | Wood, pulp and paper products | Manufacturing |
| 12 | Other manufactures | Manufacturing |
| 13 | Water, Electricity and gas | Public Utilities |
| 14 | Construction | Construction |
| **15** | **Tourism** | **Services** |
| 16 | Land Transport | Services |
| 17 | Other transport & communication | Services |
| 18 | Financial and Business services | Services |
| 19 | Public administration | Services |
| 20 | Education services | Services |
| 21 | Health services | Services |
| 22 | Wholesale and retail trade | Services |
| 23 | Other services | Services |

## APPENDIX B: ESTIMATING LABOUR FORCE BY SECTOR

We use the Tanzanian Labour Force Survey (LFS) for 1991–92 to obtain the estimates of the labour force by sector. The LFS data indicate that non-wage labour accounts for 84 per cent of the total labour force, reflecting the fact that over 80 per cent of the Tanzanian labour force is in the rural sector. The public sector represents the largest share of wage employment. Tourism accounts for about 5 per cent of wage employment and over 10 per cent of self-employment. The labour force in the Tourism industry is mostly self-employed (62.3 per cent), and only one-third is in wage employment, demonstrating the prevalence of informal activities in tourism.

In the IO Table, for the economy overall, the share of labour income is only 16.6 per cent of value added compared with the operating surplus (*OS*) share of 73.1 per cent, net indirect taxes (6.6 per cent) and consumption of fixed assets (3.6 per cent). We consider the former to be too low, given the prevalence of non-wage labour in Tanzania, while the *OS* share is unrealistically high and is likely to contain significant non-wage labour income. We adjust the labour income in the IO Table ($H$) to take into account non-wage employment. The total value added for a particular sector and other primary inputs are taken as given, so revised estimates of labour income will involve adjusting the *OS* values. The adjusted household (labour) income ($H^*$) is computed as a sum of waged (*WE*),

 

non-waged (*NW*) and self employed (*SE*) labour income, and each is a product of their respectively estimated average wage rates and the numbers of people employed:

$$H_i^* = \bar{w}_i WE_i + \alpha_i \bar{w} NW_i + \beta_i \bar{w}_i SE_i \tag{B1}$$

where, for each sector $i$, $\bar{w}$ is the average wage of paid labour and $\alpha$ and $\beta$ the ratio of the average wage rate for non-wage and self-employed labour to that of paid labour respectively. We hypothesise that $0 < \alpha \leq 1$, and $1 \leq \beta \leq 2$. The estimated $H^*$ (by a process of iteration) is found to be significantly higher than $H$ and labour's share in value added increases from 16.6 per cent to 47.7 per cent. We use values of $H^*$ for each sector to estimate labour income multipliers.

 