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The Employment Effects of International Tourism in South Africa

by

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List of Abbreviations

CGE	Computable General Equilibrium
CTC	Canadian Tourism Commission
IFPRI	International Food Policy Research Institute
RAS	Is not an abbreviation, but comes from the names of the matrices used in the method: $A^1 = \widetilde{R} \cdot A^0 \cdot \widetilde{S}$
SAM	Social Accounting Matrix
TSA	Tourism Satellite Account
WTO	World Tourism Organisation
WTTC	World Travel and Tourism Council

Abstract

Tourism as an industry has taken on a key role in the South African economy over the past ten years. With an average annual growth rate of 8% between 1994 and 2000, much hope is placed in the industry to help reach economic growth goals and boost employment, especially of previously disadvantaged groups of the population. Nonetheless, no detailed study on the employment effects of tourism to South Africa has been published. This thesis aims to calculate in detail not only how much employment tourism is creating in the economy but what kind of employment and in which sectors. Further analysis aims at pinpointing differences between groups of tourists and at establishing how the results vary using alternative models. Building on the results, this paper then highlights how policy can target job creation through tourism.

The social accounting matrix used in this study gives a detailed account of flows between and across sectors for the whole South African economy and thus enables an analysis of impacts of tourism on employment across all sectors. In order to calculate precisely what impact tourists have on the economy, this study adapts expenditure data of tourists to South Africa to form a shock vector. In the light of South African development policy, it is particularly interesting to see the results achieved: while a 5% increase in tourism does create around 88 000 jobs, employment creation is skills biased. This means that tourism is not, as the government would like, a major engine of (unskilled) job creation in South Africa. Nonetheless, many of the sectors benefiting from tourism to South Africa employ large numbers of unskilled workers, meaning that an increase in tourism will indeed boost employment of unskilled labourers also. Furthermore, the more detailed look at expenditure patterns for different types of tourists undertaken in this study shows that the economic and employment impacts of a tourist from a high income country are twice as high as the impact of a tourist coming from a neighbouring African country. More studies are needed on the characteristics of tourists from neighbouring countries before policy implications can be deducted from these results, but focussing on skills improvement would lead to overcoming the shortage of skilled labour to fill positions created by additional tourism.

1. Introduction

1.1. Background: Tourism in South Africa

South Africa is richly endowed with attractions for tourists: natural beauty, a temperate climate, diverse flora and fauna including exotic wildlife. Moreover, it is politically stable, relatively wealthy in comparison to its competitor destinations in Africa, and easily accessible by air.

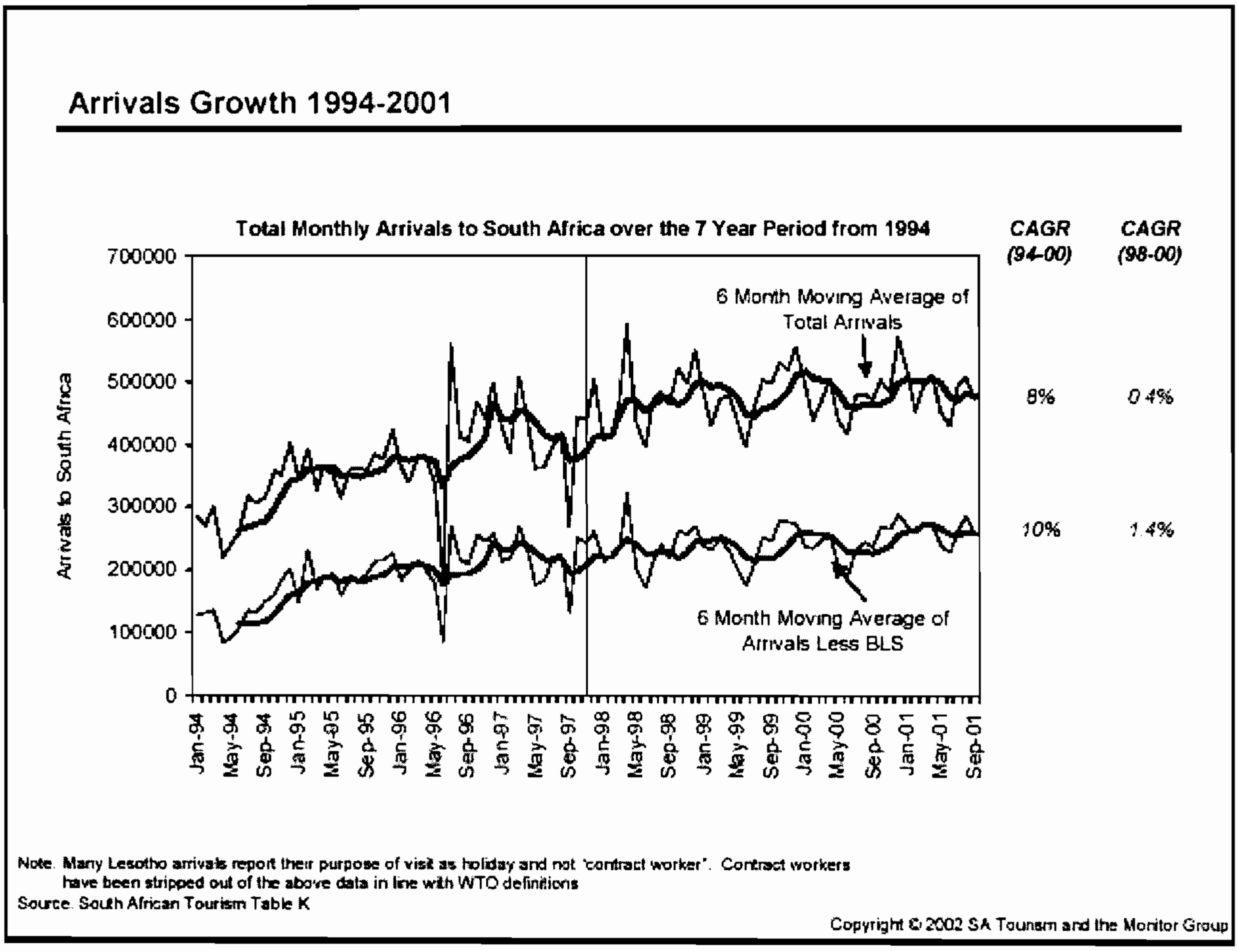

Diagram 1: Arrivals growth 1994 – 2001 (South African Tourism 2002, p. 7)

After the end of apartheid in the early 1990s and the subsequent integration of South Africa into the world economy, tourism[1] to South Africa increased at impressive rates averaging 8% over the period 1994 to 2000 (see Diagram 1). This can be attributed both to catching-up ef-

[1] Definitions of *tourism* are manifold. The most widely cited definition is by the World Tourism Organization (WTO): Foreign tourist arrivals are all foreign arrivals less those who stayed for less than one day and more than 365 days and those who were remunerated from within the place they travelled to (United Nations & World Tourism Organization 1994). This definition is the basis for this study's use of the term *tourism*.

fects, and to the general growth trend in global tourism. In the five years 2000 – 2005 growth rates slowed down to approximately 5% per annum.

The tourism market in South Africa has further benefited from increased capacity in its tourism infrastructure (accommodation, transport and airlinks), and improved its coordination with neighbouring countries to maximise benefits of regional tourism. South Africa has also established a positive international image of democracy and peace (WTTC 1998).

A key characteristic of tourism to South Africa is the large proportion of visitors coming from its neighbours Lesotho, Swaziland, and Botswana: 41.8% of all foreign tourist arrivals to South Africa (equalling 236 179 arrivals) were from these three countries alone in the third quarter of 2003 (South African Tourism 2004b). On the other hand, Australia, Canada, France, Germany, Italy, the Netherlands, United Kingdom and the United States together account for just 18% of arrivals but 40% of tourism revenue to South Africa (South African Tourism 2002). Diagram 2 illustrates these characteristics of different tourism source markets.

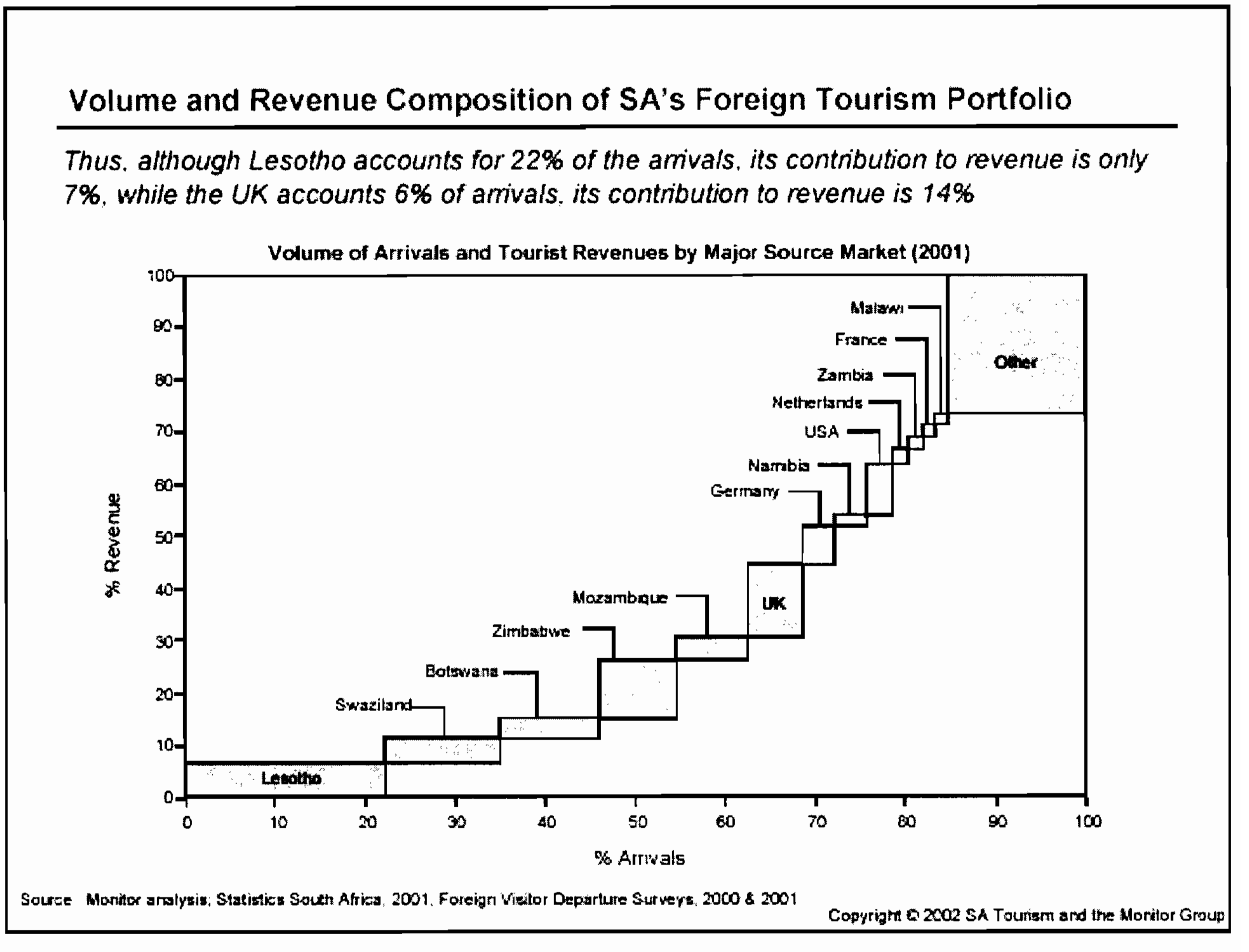

Diagram 2: Volume and revenue composition of South Africa's foreign tourism portfolio (South African Tourism 2002, p. 9)

It seems that foreign visitors have been increasing their share of the tourism market: as air arrivals grew by 6.8% between 1998 and 2000, whereas land arrivals (which constitute most arrivals from neighbouring countries) stagnated at a negative growth rate of -0.2% (South African Tourism 2002).

Experts disagree over scenarios on the future of South Africa's tourism market. Much depends on international developments such as oil prices and growth rates of the global economy. This makes it difficult to investigate the future of tourism, but under the assumption of average future growth rates, it seems manageable. This study therefore assumes that tourism will continue to grow to investigate the impact of tourism on the South African economy and job market.

1.2. Background: Economic Impact Multipliers

To study how and to what degree an industry impacts on the entire economy, economists calculate multipliers. These show to what degree a change in the demand for a good impacts on other sectors. The particularly important feature of impact analysis is that a sector affected by an increase in demand in turn impacts on further sectors, which in turn impact on others and may even link back to the original one, causing a whole chain of reactions throughout the economic system.

Withdrawals from the circular flow mean that effects peter out as they travel through the economy, while the length of this chain is dependent on the extent of inter-industrial linkages. A certain proportion of the added value will be lost from the circular flow through leakages, for example due to imports. These are lower in economies where businesses supply each other rather than import a high proportion of their inputs. Consequently, smaller economies will often have low linkages and high leakages because the variety of goods produced is smaller than in larger, more diversified economies.

In the end, the original impact on one sector will have caused some level of change in the economy as a whole. The final effect, expressed as a scalar, is usually termed an impact multiplier. In this section, the major modelling techniques developed for its measurement are introduced.

For many decades, multipliers were calculated using base theory and Keynesian multiplier models, both based on partial equilibrium approaches (Cooper et al. 1998). Input-output analysis is the classic, more complex tool presenting a general equilibrium model for analysing the economic repercussions of impacts on specific sectors. It is still widely used today. During the 1980's, input-output tables were incorporated into a more flexible model, the social accounting matrix (SAM), which takes relationships between the different accounts into consideration. Finally, in the last few years, dynamic and comprehensive models using modern computer technology have been developed for more and more countries, the so-called computable general equilibrium (CGE) models.

Due to the nature of the problem studied here, a SAM will be the basis for further study. The following subsection introduces models currently in use and shows how they are related to each other.

- Keynesian Multiplier

In the classical Keynesian model of the economy, it is assumed that ex-post aggregate demand is equal to total output. A rise in spending, for example, needs to be met by a corresponding rise in output, which in turn is equal to income, which therefore also rises. This increase in income will partly be spent on consumption and partly be saved, the proportions of which depend on the propensity to consume. This increased spending finishes the cycle, which continues on, albeit at a lower level than in the round before. Thus, in a very simple, two-sector economy, the total increase in output induced by the original change in spending is:

$$\Delta AD = \frac{1}{1-c}\Delta\overline{A} = \Delta Y_0 \qquad (1)$$

where ΔAD denotes the change in aggregate demand, $\Delta\overline{A}$ is the change in spending, and ΔY_0 the change in output. The propensity to consume is c (which is less than one, meaning some part of income is always saved and not spent on consumption). $1/(1-c)$ is the multiplier and defines the amount by which equilibrium output changes when demand increases by one unit. The multiplier is greater than one, so that output always changes by more than the original change in demand (Dornbusch & Fischer 1987).

Problems of the basic Keynesian multiplier model lie mainly in its static nature and the fact that it does not consider changes in price levels.

- Input-output Model

The input-output model provides a very detailed picture of the structure of an economy at a particular point in time. All productive activities in the economy are disaggregated into the different industrial sectors, and the input-output table documents all transactions that occur between these sectors during one year. It thus shows in detail the extent and nature of intersectoral relationships within the economy. The following equation describes the classical input-output model:

$$X = AX + Y \qquad (2)$$

where X is the vector of sectoral gross outputs, A is the matrix of intermediate inputs or technical coefficients, and Y is the vector of total final demands by each sector. The coefficients a_{ij} of A are defined as the amount purchased by sector j from sector i per unit of output of sector j. AX thus defines intermediate demand (sales) to other industries which this sector meets. By rearranging and converting to differences, equation (2) becomes

$$\Delta X = (I - A)^{-1} \Delta Y \qquad (3)$$

which lets us calculate changes ΔX – multiplier effects – in industry production levels as a result of changes in industry final demands ΔY. The matrix $(I - A)^{-1}$ is generally known as the multiplier matrix or the Leontief inverse. By summing down each column of the Leontief inverse, output multipliers for each sector can be obtained showing the direct and indirect changes in sectoral output needed to increase output of this sector by one unit.

There are three principal assumptions underlying the working of the input-output model. Firstly, each sector is assumed to follow linear and homogeneous production functions with zero elasticities of substitution. Secondly, it is assumed that the economy operates with spare capacity, which means that any increase in final demand can be met by an increase in sectoral output. Finally and linked to the second assumption, it is assumed that there is unemployment in the economy so that increases in labour demand can always be met (Miller & Blair 1985).

Using input-output tables to estimate economic impact has some disadvantages and risks. At a fundamental level, it must be kept in mind that all incremental changes calculated using input-output tables are assumed to be average changes, in contrast to the assumptions of the neoclassical framework which works with marginal changes. Zhou et al. (1997) cite a number of other drawbacks from using input-output tables for economic impact analysis. Although input-output tables work well for problems of material balancing in the production sectors (i.e., that intermediate demand plus final demand equals total output), they are poor with policy instrument variables such as taxes. Also, the input-output model does not consider the flows from production sectors to factors of production (value added) and then through the system to households or the government and in turn back to consumption demand. Next is the limited role that prices play in production decisions and the lack of input substitution in production technology since technology is assumed completely constant. This leads to what might be termed the major drawback of input-output analysis at least for this study, which is its lack of consideration of supply constraints. The model automatically assumes that any induced rises in demand can be met by rises in production, which entails increasing inputs. If all inputs can be acquired on the markets, then there is no problem, but as soon as supply constraints for inputs appear which lead input prices to rise (because more expensive imported inputs must be used, for example), the effect might be overstated by the calculated multiplier (Miller & Blair 1985).

A problem that haunts all models using economy-wide data is the age of the data used in the model. Depending on availability, input-output tables will normally be a number of years old, or may be updated versions of older originals. This poses problems especially if the economy has changed in structure, factor availabilities have changed, etc.. Updating techniques are varied and sensitive but using updated data requires trust in these techniques and will always be a compromise.

- The Social Accounting Matrix

The social accounting matrix (SAM) is a simple yet efficient framework for organising economic data, taking all transactions among sectors and institutions into account. A SAM comprises input-output tables, national income statistics and often household survey data (World Bank 2003). Whereas the input-output table only captures relationships between production accounts and other accounts such as (roughly) factors of production, institutions, capital accounts and rest of the world, the SAM can also account for interrelationships among these accounts (King 1985). "The SAM is designed to capture, in addition to product flows, the income and expenditure flows of the economic actors/units" (Zhou et al. 1997, p. 78) and was developed as an option for modelling impact analysis due to advances in computer technology and expanded data availability. Table 1 shows the simplified structure of a SAM and illustrates the symmetry of the model.

	Expenditures							
Incomes	**Activities**	**Commodities**	**Factors**		**Institutions**			**Capital Account**
			Labour	**Capital**	**Households**	**Firms**	**Government**	
Activities		Domestic sales					Export subsidies	
Commodities	Intermediate demand				Household consumption		Government consumption	Investment
Labour	Wages							
Capital	Rent							
Households			Labour income	Distributed profits	Intrahousehold transfers	Transfers	Transfers	
Firms				Nondistributed profits	Transfers		Transfers	
Government	Value-added taxes	Tariffs, indirect taxes	Taxes, Social security	Taxes on profits	Direct taxes	Taxes		
Capital Account					Households savings	Firms savings	Government savings	
Rest of World		Imports	Factor payments			Current transfers abroad		
Total	Production	Domestic supply	Factor outlay		Household expenditure	Firm expenditure	Government expenditure	Total investment

Table 1: Simplified structure of SAM (Sadoulet & de Janvry 1995, p. 275)

SAMs can also be used, like their homologue input-output tables, to analyse the economy-wide effects of impacts on a certain sector by means of multiplier analysis. In the context of

SAMs, $(I-A)^{-1}$ does not refer to the Leontief inverse, it is only a part of it. Instead, $(I-A)^{-1}$ is a multiplier matrix linking all endogenous income levels in the SAM with the exogenous injections (Pyatt & Round 1985). The matrix multiplier can be "decomposed into multiplicative components each of which relates to a particular kind of connection in the system as a whole" (Stone 1985, p. 156). Firstly, the injection may move around within the subsystem, leading to the impacts which the Leontief inverse traditionally measures. Secondly, it may move around the whole system before returning to the subsystem which it originated from. Thirdly, it may move around and finally end up in a different subsystem. These results have been called direct effects, indirect effects, and cross effects (Pyatt & Round 1985), or, to avoid confusion with similarly termed effects from input-output analysis, intragroup, intergroup, and extragroup effects (Stone 1985). A main result of this additional information is that impacts on the distribution of income can be better analysed than with input-output analysis, say to draw policy conclusions of effects on different socio-economic groups. Round (2003b) also points out that a SAM-based multiplier analysis can easily be decomposed, making it more transparent in showing linkages and effects of shocks on distribution and poverty. SAM models have two major drawbacks as tools for impact analysis. Firstly, prices are fixed and so cannot reflect changes in real activity. This means supply is taken to be either perfectly elastic for an endogenous account, entirely driven by demand, or perfectly inelastic in which case supply is assumed constant. As with input-output tables, the increments of impacts calculated by SAM multipliers are assumed to be average rather than marginal, a fact which might lead to flawed conclusions if effects are not constant.

The second risk of using SAMs is that the results depend heavily on the assumptions made on the model, especially which accounts are assumed endogenous and exogenous (World Bank 2003).

Again, the age of data is often an issue when working with such models. With SAMs, this is even trickier, as data from different sources is used to compile it. Researchers must be careful to balance the data coherently to avoid skewing results because of different basis years or assumptions behind each set of data incorporated. This has lead to a number of data reconciliation methods to smooth out discrepancies in the data of a SAM. Round (2003a) covers the main methods used: the RAS method, the Stone-Byron method, and the cross-entropy method.

- Computable General Equilibrium (CGE)

A problem with multiplier and input-output analysis is that their estimates of the overall impact on activity in the economy make no allowance for the situation of the economy at the time; they assume that all (direct and indirect) effects represent additional output. CGE models, however, allow for feedback effects which negatively impact on other sectors and which, in turn, may rebound upon the original sector (Dwyer & Forsyth 1998). This is made possible by the incorporation of general equilibrium links between production structure, incomes of various groups, and demand patterns (Zhou et al. 1997). CGE models, in contrast to the inflexible input-output models, enable researchers to model complex interdependencies unrestricted by the constraint of linearity or by problems of modelling different markets separately from one another. Furthermore, because they are supply and demand driven, CGE models can include flexible (endogenous) price determination (Zhou et al. 1997).

The SAM (which includes the elements of the input-output table) is the main data requirement of the CGE model. As the name implies, CGE models solve for a set of prices and levels of production which clear all markets. Assumptions include utility maximisation in consumption, cost minimisation in production, zero profits, and clearing markets. As, incidentally, also assumed for the before-mentioned models, CGE models assume the economy under scrutiny is small enough not to influence world commodity prices. Another basic assumption for the modelling procedure using CGE methodology is that the economy is in equilibrium in the base year used for the study (Zhou et al. 1997).

Thurlow (2003) finds that one problem with using CGE models is the fact that they are more closely linked to theory than models based on input-output tables or SAMs, which often makes abstractions from the real workings of the economy necessary. This also means that the results of CGE models are driven by the choice of macro model underlying it. They are, in particular, closely tied to the concept of Walrasian equilibrium, even though the institutional and structural rigidities present in nearly all economies mean there is little equilibrium present, ever.

1.3. Background: Economic Impact of Tourism

Now it might seem obvious that measuring the economic impact of tourism entails nothing more than applying the theory introduced above by focussing on the tourism sector parts of input-output tables or SAMs. In many cases, tourism impact research has in fact focussed on applying the Keynesian multiplier or study-specific *ad-hoc* multipliers (Cooper et al. 1998). Applying the more advanced methods such as input-output analysis for tourism related research is difficult because, unfortunately, international tourism is not an industry that can be immediately identified, as it is not separately classified in national accounts or input-output tables. Instead, it must be constructed by aggregating a number of different economic sectors which serve it directly. It is in general quite difficult to measure the extent to which tourist consumption of local goods and services support domestic activities. Each activity must be measured as the tourists' share of total consumption of each good and service (United Nations 1999). Expenditure by international tourists is an export in the sense that it brings foreign currency into the local economy. This inflow of revenue creates additional values such as business turnover, household incomes and government revenue.

Introduced simply, the multiplier effect of tourist spending works in the following way: Initial spending has direct revenue effects for the hotel owner, the taxi-driver or other services used by tourists. Some of the services used by the tourists, however, might be owned by people or companies from outside the economy, so that the direct revenue leaks to these outsiders and does not benefit the local economy. In tourism, one of the major sources for leakage from the South African economy is airline transport. Especially tourists using foreign airlines to come to South Africa spend nearly all their airfare outside of the country. Some benefit reaches South Africa in the form of landing and handling fees, taxes, fuel costs incurred while in the country, etc., but most of the revenue stays in the home country of the airline (Raguraman 1997).

The money that remains in the area will be used to cover costs such as material inputs, wages to staff, taxes etc. and represents the primary, or direct effect of tourism. The increase in labour demand will increase employment levels and/or wages to the benefit of the local labour force. The increase in demand for manufactured goods leads to increased revenue for local wholesalers and manufacturers who will expand their capacities, again increasing employment and income levels. These local businesses which form the secondary recipients of tourist spending therefore also respend their money, and so on. Goeldner and Ritchie (2003) call this the ripple effect of tourism expenditure, but more generally it is the multiplier effect.

Cooper et al. (1998) list four major techniques which have been employed to measure the value of the multiplier effect in tourism (often referred to as the tourist multiplier): base theory, the Keynesian multiplier, *ad hoc*, and input-output models.

The most commonly used methodology remains input-output tables. While the first input-output model applications for tourism impact analysis were still carried out on the basis of the assumptions of linearity, homogeneity and elastic factor supplies, several modifications of the model were soon suggested and applied in order to relax some of these assumptions and, hence, obtain more reliable estimates especially relevant to measuring the impacts of tourism. Briassoulis (1991) lists these modifications:

- Homogenous production functions

  Homogeneity might be an issue as tourism impacts on more than one conventional economic sector, interaction effects between sectors are common in tourism, and because technical coefficients do not always remain stable as a region undergoes tourism development.
- Capacity and supply constraints

  In the short-term, increased tourist spending tends to push price levels up, increases demand for imports, and consequently leads to income redistributional effects in the region.
- Consumption patterns

  Tourists are a very heterogeneous grouping with varied consumption patterns. Aggregating these patterns to construct the "average" tourist can yield misleading results.

These developments are of course not restricted to applications of input-output tables to estimate economic impacts of tourism. Similar advances and refinements have been made using SAMs. As Wagner (1997, p. 596) says: "The same criticisms concerning I/O models would also hold for using SAMs to examine the economic impacts of tourism".

The modifications deemed necessary for the purposes of this study are influenced by the fact that this study will focus in particular on the impact of tourism on the labour market.

1.4. Background: Employment in South Africa

Much of the political pressure to develop tourism is based on the assumption that tourism generates many jobs. This is understandable given that employment patterns in South Africa have been strongly influenced by the prevalence of high unemployment rates. Since the end of apartheid, unemployment in South Africa has risen further, as an increase in labour demand was outstripped by a parallel increase in labour supply (Poswell 2002). Unemployment is defined by Statistics South Africa as those in the economically active population who are able to work but not working (expanded definition), or those who are in addition currently looking for work (strict definition) (Stats SA 2003a). According to these definitions, unemployment stood at 29.4% (strict definition) or 40.9% (expanded definition) in 2002 (South African Institute of Race Relations 2002). Notable characteristics of the labour market are the fact that (UNDP 2003):

- more males than females are unemployed: 48.1% versus 35.8%,
- large racial differences in unemployment: 47.8% of Africans versus 9.9% of Whites (South African Institute of Race Relations 2002), and
- large regional differences in unemployment.

Informal sector employment and underemployment are both rising (UNDP 2003), and these are two urgent challenges for policy makers. Bhorat (2000) notes that informal sector employment is largely one of survivalist activities which are viewed as second best options to formal sector employment. The South African Human Development Report 2003 suggests addressing underemployment through sustainable high growth rates and an inclusive reorientation of the economy to escape the legacy of apartheid-era labour market structures (UNDP 2003).

A distribution of employment by industries shows how important the service sector is in South Africa (see Diagram 3): it accounts for more employment than the agricultural, manufacturing and mining sectors combined.

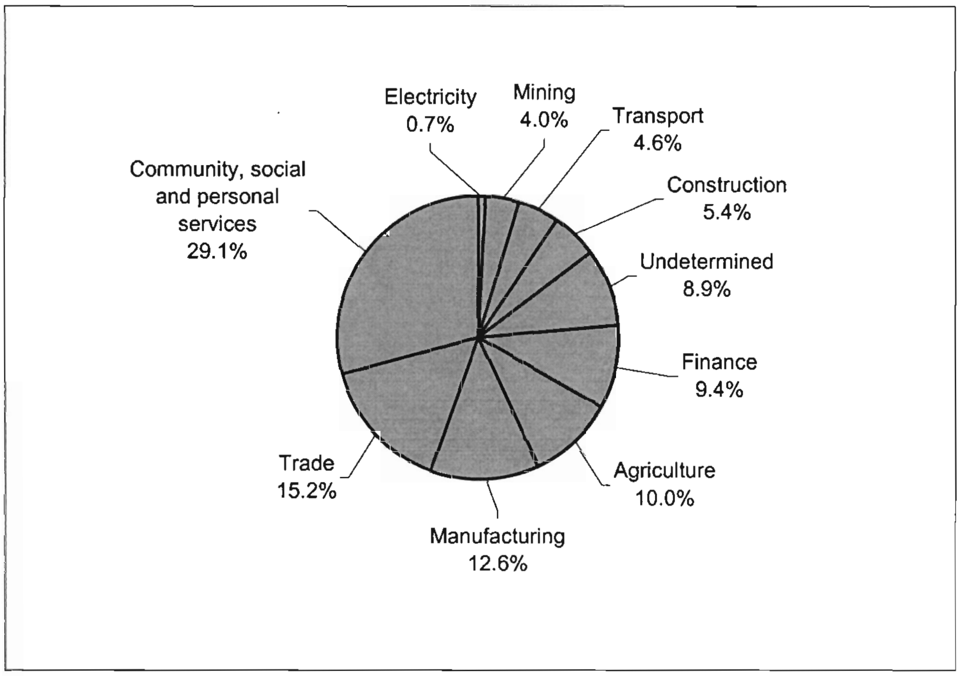

Diagram 3: Distribution of the employed aged 15 – 65 by industry (Stats SA 2003a, p. 63)

The developments in the employment structure of South Africa also reflect a growing importance of the tertiary sector. While agriculture and mining lost nearly 1.5 million jobs between 1970 and 1995, the service sector increased its workforce: the financial and business service sectors alone accounted for 1.2 million new jobs created over the same time period (Bhorat 2000).

It is commonly believed that demand in the tourism sector is mainly for low-skilled workers. It is thus interesting to see that, in fact, skilled labour accounts for two thirds of total employment in the catering and accommodation service sector in South Africa – for all years since 1994 (see Diagram 4).

Employment in the entire economy has dropped from 1994 to 2003 by nearly 30%, but it is noteworthy that while highly skilled jobs have dropped by 25%, unskilled labour demand is now 35% lower than in 1994 (TIPS 2004). There has obviously been a skills biased development in the catering and accommodation sector which has caused more unskilled labour to become redundant than skilled labour. This is particularly noteworthy for policy makers aiming to increase unskilled labour employment.

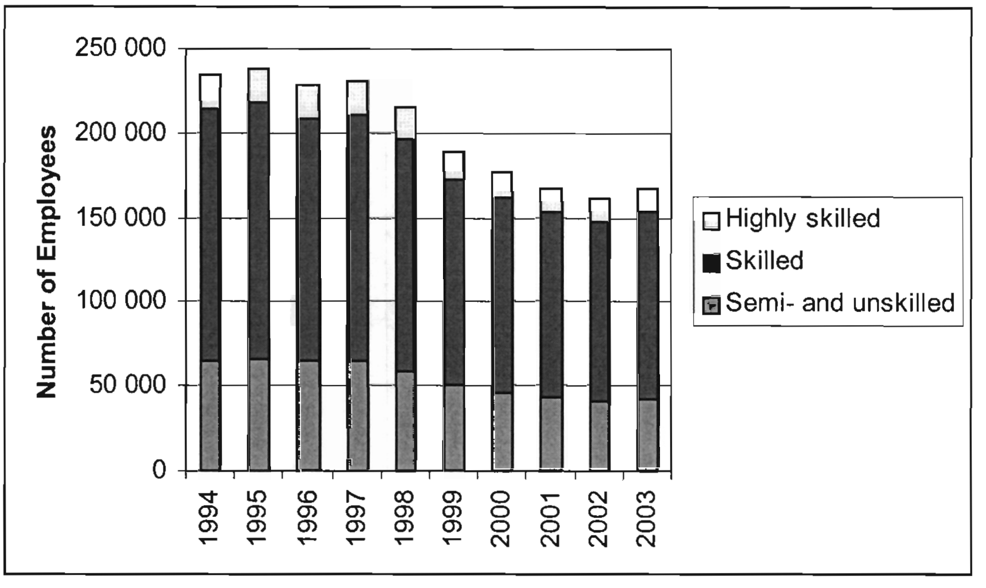

Diagram 4: Number of employees in catering and accommodation service sector 1994 – 2003 by skill level (TIPS 2004)

This analysis of the South African labour market indicates that job creation policy would be greatly supported by additional jobs created in the service sector. Tourism is known to be an amalgamation of many industries, but a great part of those industries are in the service sector, so that employment created by tourism will support the current trends in the general labour market. It will be important to observe which socio-economic groups of labourers will benefit most and whether tourism can be seen as an instrument of poverty alleviation or not, especially in light of the fact that the development of employment in the tourism sector seems to be disadvantaging unskilled labourers.

1.5. Aim and Objectives

Tourism as an industry has taken on a key role in the South African economy over the past ten years. Much hope is placed in the industry's contribution to reaching economic growth goals and boosting employment, especially of previously disadvantaged groups of the population. It thus seems worthwhile to calculate in detail how much employment is created by tourism, especially as little such work has been done in South Africa.

This thesis aims to quantify and qualify just how much employment tourism can be expected to create in the economy. Specific objectives of the study are:

- the estimation of the economic impact of international tourism, including the economic multiplier of tourism,
- the estimation of employment effects within the national economy, including an analysis of the distributional effects,
- to verify the results by means of a sensitivity analysis, and finally
- to derive a number of policy recommendations.

The tourism industry differs from other industries in that, in a model of the economy, it is not a single unit. Rather it is an amalgamation of many sectors: "Accommodation and catering", "Local transport", "Arts", "Retail trade", and many more. This means that a tourism industry must be defined before the SAM used in this study can calculate impact of tourism on the economy in South Africa by showing which sectors are influenced by additional tourist expenditure and to what degree.

The kind of employment created by tourism is also important. This study examines those sections of the labour market involved to see whether the employment effects of tourism are skills biased. In the light of South African development policy, it is particularly interesting to see whether tourism generates primarily unskilled or semiskilled jobs.

A comparison with employment figures calculated using a supply-use table gives additional depth to the results. Given the fact that tourists come to South Africa for different reasons and from very different backgrounds, the sensitivity analysis also looks at different tourist segments to examine differences in expenditure behaviour and how this impacts on employment creation. In particular, tourists from Europe and the USA are compared with tourists coming from South Africa's neighbouring countries.

Lastly, this paper addresses the policy implications of the analysis.

2. Literature Review

2.1. The Beginnings of Multiplier Analysis

In the 1930s, John Maynard Keynes and Michal Kalecki began to popularise the idea of a separate field of macro-economics which traced the effects of spending and saving on the circular flow of income. This idea developed into the desire to model the economy well enough to be able to follow exactly the effects of an injection into one particular sector, say a sudden increase in demand for a particular good, and measure which other sectors of the economy are impacted and to what extent, eg. Lange (1944) and, later, Leontief (1966).

Although the economic impact of tourism is usually measured by calculating multipliers, it seems noteworthy that other approaches have been used. Lindberg, Andersson and Dellaert (2001) used choice modelling to assess (economic) welfare impacts of tourists on local residents. While this method yields less tangible results in the form of a bottom-line figure than multiplier analysis would, the advantages of including attitude changes and other impacts which are difficult to quantify let policy makers decide on strategies rather based on subjective feelings. In some cases, this might be more successful from a policy point of view than acting upon results given by numbers only.
Tourism multiplier models dominate the field of research, however. These were first developed by Brian Archer in the 1970s (Archer 1977) and helped to give the tourism industry a boost in confidence vis-à-vis policymakers and funders by making economic and employment impacts tangible. Egan and Nield (2003), in their critical review of economic impact of the tourism literature, claim that this was the turning point for tourism from a sidelined industry to "the other end of the spectrum where tourism is seen as an important export industry for cities and sub-national areas" (Egan & Nield 2003, p. 171).
Since Archer's seminal work, multiplier methods have been much refined. Before Archer, the common model used to calculate multiplier values was the economic base multiplier method, which became outdated with growing dominance of the service sector, globalisation and inter-industry linkages. Archer – and after him many other tourism researchers – constructed a multiplier that best fit his particular focus of interest: Ad-hoc multipliers that lay somewhere between the classic Keynesian multiplier and the modern input-output multiplier.
Later, awareness increased of the dangers and risks of using wrong models, specifications or assumptions, and the advancement of computer technology made complicated and data-intensive studies more viable. Papers warning of the misuse of multipliers include Egan & Nield (2003) and Briassoulis (1991) among others. While Briassoulis in 1991 still warned that input-output analysis was only viable if much time and money resources were available, faster and larger computer capacities have made this methodology much more efficient. Still, as Cooper et al. (1998) also point out, research on impact analysis is often done in the framework of a contracted study with set time and money limits.
Several types of multiplier models have been used by tourism researchers in the past. These can be divided into four main groups: sales multipliers, output multipliers, income multipliers and employment multipliers. The government revenue multiplier is added to this list by some authors (see for example Cooper et al. 1998). More and more researchers have gone on to apply the more complex impact multiplier methodologies to tourism impacts; input-output

models, SAMs and CGE models. Baseline multiplier, Keynesian multiplier and ad-hoc multiplier models are not treated in more detail here; examples include Archer's work (1977, 1982 and others), Deegan and Dineen (1992), Durbarry (2002) and Huse, Gustavsen and Almedal (1998). Saayman, Saayman and Rhodes (2001) is the only case looking at the South African economy.

2.2. Models Using Input-output Tables

Research analysing the economic impact of tourism has mainly focussed on models using input-output tables. As mentioned above, the assumptions underlying the classic input-output model have been relaxed in many cases to overcome the problems associated with the restrictions such assumptions impose.

The lack of homogeneity particularly in the tourism sector has led to a number of adjustments. West and Gamage (2001) develop a model that allows for substitution between primary factors by replacing the household income row in the A matrix, which depicts average input coefficients, with income elasticities of demand. Capacity constraints in general can be tackled by multiplying the technical coefficient matrix by an appropriate sectoral capacity constraints matrix (Briassoulis 1991). Similarly, labour supply constraints have been simulated by introducing a labour market constraint matrix in the solution of the basic input-output model (Archer & Fletcher 1990). Several studies have taken into account the varied consumption patterns of different types of visitors by disaggregating the final demand vector into subvectors (Fletcher 1989). Crompton, Lee and Shuster (2001) collected their own data to differentiate types of visitors and were thus more able to divide the results of the impact study. A similar approach was taken by Raguraman in his study of the impact of airline services between Bangkok and Singapore (Raguraman 1997).

Turning to South Africa, there is little publicly available work available on the economic impact of tourism at all. In 1992, Hugo quantified the role of foreign tourists to South Africa using the 1988 input-output table available at the time. Hugo concentrated on analysing whether the South African economy was appropriately structured to maximise the benefits of tourism. While the study is comparable in some ways to this one, it was done thirteen years ago when not only the national economy but in particular the structure of tourism to South Africa was very different to today. Saayman, Saayman and Naudé (2000) present a more current example of the use of input-output table analysis to estimate economic impacts of tourism to South Africa. The authors focus on a comparison between domestic and international tour-

ism and look at the regional distribution of impacts. This paper will be referred to later in this study.
To avoid mistakes and wrong conclusions due to inappropriate methodology, Frechtling and Horvath (1999) compared normal multipliers with ratio multipliers and weighed up the reasons for using one or the other before deciding on their analysis conclusions.

2.3. *Models Using SAMs and CGEs*

It is interesting to note that although input-output tables have been so widely used to estimate impacts of tourism on national economies, regions and even particular sectors, the SAM has not found its way into standard tourism related research in this field. It seems that although the input-output tables necessary for the analysis are readily available for regions, the construction of a SAM remains rare. As Thurlow (2003) and Thurlow and van Seventer (2002) point out, SAM analysis depends not only on the availability of a SAM, but also on up-to-date input-output tables (or, in their case, supply and use tables [2]) used as a basis for the SAM. When Hugo (1992) published his input-output analysis of the impact of foreign tourism to South Africa, he felt he could not use the "superior" (Hugo 1992, p. 42) method of SAM analysis due to a lack of a current SAM.
Even if an up-to-date SAM is available for the region under consideration, it remains important to be aware of the restrictions a structural model can impose on results. A paper by Daniels, Norman and Henry (2004) specifically compares the distribution of impacts across income groups of a sport tourism event in South Carolina in 2001 using both the standardised SAM for the region and an adjusted version. Their results highlight how important it is to evaluate critically the model used and that adjustments can make a world of difference.
Another case where a SAM was used for economic impact analysis of tourism is Wagner's 1997 study of the regional economic benefits of tourism for Guaraqueçaba in Brazil. He finds that in his case using a SAM has the advantage (over an input-output table) that it can synthesise and display the regional data gathered by different governmental agencies and stored in different formats and that it can calculate regional economic multipliers to estimate the impacts of tourism on production, income distribution, and demand in the region.
CGE modelling has not really been used in tourism impact analysis at all, a fact that Dwyer, Forsyth and Spurr lament in their recent publication (Dwyer, Forsyth & Spurr 2004). Zhou et al. (1997) examine the economic impact of tourism on the economy of Hawaii both using

[2] Supply and use tables record the supply and use of products by activities plus what income is generated by each activity and the final use of those products by industries (Round 2003a).

input-output tables and a CGE model and this is one of the very few studies in tourism research to use CGE modelling for impact analysis. They compare the results from each of the models and find that – as is to be expected – the input-output model shows larger effects in magnitude relative to the CGE model. This is due to the fact that the CGE model allows for resource reallocation and supply constraints, leading to lower overall effects as the rise in prices will dampen initial output increases. Their work clearly shows that more complex modelling than input-output analysis leads to more exact and realistic results. This conclusion is also the reason Dwyer and Forsyth (1998) recommend using a CGE model for analysing the impacts of cruise ship tourism on the Australian economy.
The World Bank, in its series of informal discussion papers on aspects of the economy of South Africa, published a paper (Lewis 2001) which focuses on growth and employment issues. It includes a section in its annex that uses a CGE model to look at the employment potential of tourism in South Africa which concludes that job creation potentials are quite modest, especially for the unskilled labour market. This work will be referred to in more detail later in this study.

2.4. Comparability of Studies and the Development of World-wide Standards

Although a number of researchers still believe that economic impact studies of different regions can be compared (for example Crompton, Lee & Shuster 2001; Huse, Gustavsen & Almedal 1998), most agree that comparisons are difficult due to the many assumptions, data availability and manipulation requirements, etc. involved in such studies. Baaijens, Nijkamp and van Montfort (1997) specifically looked at comparability and attempted a meta-analysis of tourism impact studies using a statistical regression instead of the standard, in their view subjective, method of a literature review. Their results showed that the main determinants for the size of the tourist income multiplier (besides of course the methodology chosen for calculation) were

- population size, as larger populations can better adapt to maximise benefits from tourist incomes,
- the number of tourists visiting, as very large numbers of tourists will be more difficult for an economy to handle and adapt to,
- the ratio of that number to the population size, and
- the share of tourists coming from the major country of origin.

Another attempt to overcome the problems associated with comparing multipliers across regions has been the development of Tourism Satellite Accounts (TSA)[3]. The World Tourism Organisation (WTO) in collaboration with the World Travel and Tourism Council (WTTC) and the Canadian Tourism Commission (CTC) have introduced a tourism accounting system that is consistent with the national accounts of every country. The TSA can measure all goods and services consumed by tourists according to international standards of concepts, classifications, and definitions, and include the tourism dimension of an economy in the system of national accounts. TSAs are especially useful to policy makers and industry professionals for policy and business strategies and allow for valid comparisons with other industries and between economies. A TSA for South Africa has been planned for some years but has not yet been completed (WTTC 1998 and 2002, Stats SA 2003b). It will enable the measurement of

- tourism's contribution to GDP,
- tourism's ranking compared to other industries,
- employment figures in tourism,
- the volume of investment in tourism,
- consumption by tourism,
- tax revenues generated by tourism, and
- the impact of tourism on the national balance of payments (Stats SA 2003b).

2.5. *Employment and Tourism*

One main advantage the WTO and its collaborators see in TSAs for the country concerned is the belief that they are a powerful instrument for designing economic policies related to tourism development (Goeldner & Ritchie 2003). But while Goeldner and Ritchie (2003) approve of the information TSAs deliver about employment effects of tourism, including numbers of jobs and information on tourism human resource characteristics, others (such as Leiper 1999) see TSAs a needless public expense. Leiper (1999) reasons that although TSAs may provide more details on employment than other methods of impact estimation, the "misleading nature of the data will remain" (p. 611). Another risk cited is that the difficulties generally involved in tourism impact assessment are disguised under an aura of greater authority when included in a satellite of the national accounts system. Dwyer, Forsyth and Spurr (2004) on the other

[3] A satellite account is a system developed by the United Nations to help measure the size of sectors that cannot be defined as industries in national accounts.

hand reason that TSAs are no longer necessary once a CGE model of the economy has been set up, as this essentially includes a TSA.

In the past, it was a widely held view that tourism was a labour-intensive industry, meaning that growth leads to relatively large numbers of new jobs, thereby increasing employment levels of the whole economy (Fletcher & Snee 1989). Both national (government) and international organisations such as the WTTC have been eager to spread the image that tourism is the bearer of inevitable economic growth and creator of many jobs for the local community. While numerous studies, often funded by such organisations (examples include WTTC 1998 and 2002; and the industry-funded South Africa Foundation 1999), support this view, more and more tourism researchers such as Lewis (2001) have raised a warning finger. Leiper (1999) devotes a whole paper to analysing how misconceptions of job creation have arisen and what problems result for the general public, the government and the education industry. His estimate of the number of jobs dependent on tourism in Australia is around 200 000, compared to the 700 000 jobs cited by the WTTC and other groups. Leiper sees the problem as mainly one of defining employment and job creation, "the measuring stick is tourists' spending, from which estimates are calculated about full-time equivalent jobs (EFTJs). This method leads many readers of the reports to misinterpret the estimates, conjuring up exaggerated images about job numbers" (Leiper 1999, p. 607). Instead, one should take into consideration the difficulties in assessing employment impacts of tourism. Oosterhaven and Van Der Knijff (1988) mention the seasonality problem in tourism and the fact that many employed in tourism tend to also hold another job. Moreover, they say, employment is often part-time, and data reliability is a problem. Crompton, Lee and Shuster (2001) also note that the results of studies are often used in a mischievous or strategic way to mislead deliberately and to present large employment impacts.

One study that specifically aims to emphasise the employment potential of the South African tourism industry is the 2002 study of the WTTC using the South African TSA. The study estimates that in that year, 492 700 jobs in South Africa were directly generated by travel and tourism, and 1 148 000 indirectly (for the WTTC, this includes travel company employment, government agency employment, and supplier company employment only). Put differently, and very impressively, the TSA reveals that tourism accounts for 1 in every 14.2 jobs in the national economy. This figure is expected to rise to 1 in every 10.8 jobs by 2010 (WTTC 1998). It is no wonder the report focuses on "policy recommendations which are designed to help government tap the huge potential benefits that Travel & Tourism offers South Africa" (WTTC 1998, p. 3). The WTTC estimates that the sector could generate over half a million jobs by 2010, and informs that "[m]ost of these jobs will be for young people, first time job seekers and women. They will be strongly concentrated in small businesses and local communities throughout the country" (WTTC 1998, p. 5). The study does not give details of the underlying reasons for these assumptions. The study further states that wages in the sector are normally at or above the economic average. Similar figures and conclusions are presented in an informally styled paper by Futter and Wood (1997).

Until 2012, the WTTC expects tourism activities (referred to as Travel and Tourism GDP) to rise by 5.1% annually, leading to the creation of 407 300 jobs in the economy as a whole (WTTC 2002). Lewis (2001) on the other hand reports in his impact study that a doubling of tourism activities, so an increase of 100%, would lead to only 2.4% growth in overall employment, or 215 000 new jobs. Even if we assume the studies use different definitions of "tourism activities", the results still differ enormously, demonstrating how using two models can lead to very diverging results.

Within the South African context, employment creation is also often linked to poverty alleviation. In the Human Development Report for South Africa 2003, Rogerson (2003) summarises both public and private poverty alleviation schemes and programmes linked to tourism in South Africa and distinguishes "sets of interventions" (Rogerson 2003, p. 79) designed to make tourism a vehicle for poverty alleviation. These include the improvement of infrastructure for tourism development in previously underdeveloped areas such as poor rural communities, the search for new market niches and tourism products, training initiatives to improve the skills base of poor communities, and the introduction of new forms of ownership and institutional arrangements for tourism projects. Tourism is often cited as a driver of employment creation due to its labour intensity, but Hugo (1992), in his study devoted to tourism in South Africa, finds that "the production process in the tourism sector is relatively less labour intensive compared to the formal South African economy as a whole" (Hugo 1992, p. 45).

3. Methodology

3.1. Data and Data Sources

In order to measure the economic and employment impacts of tourism in South Africa, this study uses one of the most current SAMs available. The SAM, first set up in 1993 and updated in 1998, 1999 and 2000, was constructed using the supply and use tables developed by Stats SA for 1993 and, for the current SAM, 2000 (International Food Policy Research Institute 2004). The supply and use table for 1998 is an updated one from 1993 using partial updating techniques (Thurlow & van Seventer 2002). It is helpful for this study's purpose that the SAM distinguishes between four factors of production: unskilled, semi-skilled and skilled labour as well as production factor capital. Furthermore, households are disaggregated into ten income groups (income deciles), and the top decile is again split into 5 groups to facilitate analysing impact differences between income groups. Thurlow and van Seventer (2002) and especially Thurlow (2003) explain the framework for the 2000 SAM and how the supply and use tables by Stats SA were adjusted and fitted into the SAM. Thurlow and van Seventer (2002) also describe the income deciles in more detail.

The model has been adjusted slightly for this study; in particular the less relevant manufacturing sectors were aggregated, so that the SAM distinguishes between 18 manufacturing sectors (and agriculture) plus the service sectors instead of the original 43 sectors. On a more general note, as mentioned earlier, using a SAM to calculate impact multipliers involves a number of problems and restrictions. Firstly, this SAM has been compiled for studies not necessarily focussing on the tertiary sector, so there are relatively few services industries (sectors) included – the level of aggregation is quite high. An automatic consequence of this lack of detail is that all results will be more general than what might have been optimal. This fact will influence how results are interpreted and what reservations might be had about their validity and applicability. Direct impacts of tourism affect in particular different service sectors, and if only a few sectors are distinguished, the model automatically assumes homogenous weighting for all subsectors included in these SAM service sectors, meaning that secondary and indirect impacts will be calculated accordingly. For example, some assumptions must be made to the split up of effects on the sector "medical, dental, veterinary and other services". "Other services" here includes arts and cultural services, which in itself is strongly impacted on by tourists. This is taken into consideration but the exact decomposition cannot be calculated.

Secondly, the data underlying the model must be scrutinised and used with appropriate caution. In this case, as mentioned above, the data in the SAM is originally from the South African supply and use table for 1993. This means that the base data is in fact over ten years old, and it is wise to be cautious about the assumptions made and tools applied during updating. The structure of the South African economy has changed dramatically during that time: the political system change of the early nineties meant a complete turnaround especially in industries associated with tourism.

The use of different data sources in a SAM is a third area of problems. The breakdown of the institutional accounts in the SAM was taken from Lewis' World Bank study (Lewis 2001), meaning that data from different sources have been combined in the SAM. While this is a salient feature of SAMs and indeed one of their advantages, using different data sources always also increases the risk of incoherence due to different assumptions and methods underlying each set of data.

A fourth source of problems using SAMs is its assumption of constant marginal effects which means that effects calculated are average rather than marginal. In this case, it equates to assuming that additional tourists will have similar expenditure patterns to all previous tourists. For the results, this implies that employment created is of a similar structure to existing employment. As shall be seen, this assumption does not hold.

While these weaknesses must be considered, they do not change the fact that the results achieved show what impact tourism has on the economy and how employment is created. Caveats of the results as outlined above are addressed and in fact do influence the final conclusions made in this study.

- Employment Data

Employment data and the skill classifications were taken from TIPS (2004) and aggregated to fit the structure of the multiplier inverse of the SAM. The data are average employment data for the sectors of the South African economy for the year 2003, to fit with the expenditure data used for the study. The fact that the employment data are also divided into skills classifications is particularly helpful as it fits into the SAM structure and enables insights into the kind of employment created by tourism.

- Expenditure Patterns of Tourists to South Africa

The data used here are from the departure surveys conducted by South African Tourism at five land-border posts and two international airports during July, August and September 2003 and from monthly foreign tourist arrivals statistics provided by Stats SA. The data are therefore collected via questionnaires and rely on the recall, interest and honesty of the persons questioned. Sample sizes are only an issue for a country by country breakdown. For this survey, a total of 6000 tourists were interviewed, of which 1500 were interviewed at land-border posts, leaving South Africa by road. The majority, 4500 tourists, were interviewed at Cape Town and Johannesburg airports as they were leaving the country.

As mentioned earlier, tourism to South Africa is denoted by the division between tourists from neighbouring countries and tourists from elsewhere. Expenditure data reflect the vast differences in (spending) behaviour between these two groups. While tourists from Lesotho spent an average of R1 760 during their visit to South Africa, British tourists spent R12 417 each on average (South African Tourism 2004a). These figures do not include expenditure on airfares, for example, which is also considerably higher for tourists from Europe and which, to a certain degree, benefits the South African economy[4]. In following with Raguraman's (1997) calculations on benefit to the local economy, it is assumed that 60% of expenditure for flights goes to the South African economy. Figures on prepaid expenses were made available for this study by SA Tourism. The lack of detail in the data on expenditure will distort results, making it necessary to look at the two groups and their influence on the economy separately. More detailed information on what was purchased by tourists, for example (data that are used in the sensitivity analysis below), was made available by SA Tourism. This information, while it is not in a format to enter into the SAM model, does clarify some issues and highlights differences in the results.

- Combination of Data

The model used in this study will be a combination of the SAM from IFPRI and expenditure data created using survey data from SA Tourism and statistical figures from Stats SA. These data, in combination with employment figures from TIPS, are used to compile the shock vector, and need to be adjusted slightly to fit the structure of the multiplier inverse. Further information to help interpret the results is taken from more detailed expenditure data from SA Tourism.

3.2. *Measuring Impacts of Tourism to South Africa*

While detail may be of value for many studies, the size of the SAM must be reasonable in order to facilitate calculation. An aggregation of a number of sectors included in the SAM seemed appropriate both to this end and in order to concentrate better on relevant areas of the economy. Choice and degree of aggregation was determined by the degree of relevance of the sector for tourism expenditure and the information available in the tourism expenditure data. A first step then is to determine which sectors are to be regarded as exogenous. In light of the exporting character of tourism expenditure, the account "Rest of the World" will be taken to be exogenous. Furthermore, "Government" and "Investment" accounts are also exogenous and therefore not included in the sectors directly affected by a shock. This is, however, of no further consequence to the results of this study, especially if it is assumed that a change in tourist expenditure would not lead to a change in government spending or investment behaviour. By taking the "Rest of the World" account to be exogenous, the induced leakages resulting from

[4] Even if tourists arrive on a non South African carrier, levies, taxes and fees are paid for landing rights, service, etc. in South Africa. These benefit the national economy, and a higher degree of expenditure for flights on South African Airways remains within the system.

shocks to the system become apparent, as the induced demand for imports represent leakages to outside the national economy (Sadoulet & de Janvry 1995).

As elaborated above, the SAM multiplier matrix is then calculated by first developing a technical coefficient matrix A, subtracting this from an identity matrix, and inverting the result. This inverse (multiplier) matrix can then be multiplied by a vector of external shocks, in this case a vector of expenditure by additional tourists, to give the vector of impacts throughout the economy. The shock vector developed for this study is included in Table 2.

One of the advantages of using a SAM for this study is that the employment effects of the shock are immediately visible in the table as the change in incomes that flow to labour. In this case, it is possible to distinguish impacts on low- and unskilled labour, skilled labour and high-skilled labour groups. To compare these results and to get more information on a sectoral employment level, the SAM employment results are compared to results achieved by using the more basic input-output multiplier inverse and employment coefficients. In this case, the supply-use table that is incorporated in the SAM is used to calculate

$$\Delta L = l \cdot \Delta X$$

where l is the vector of employment coefficients, that is employment as hours worked per unit of output of each industry (United Nations 1999).

Due to the high degree of disaggregation of the household accounts in the SAM used, it is further possible to distinguish the socio-economic distribution effects resulting from the shock. This is particularly important for policy implications later.

The vector of impacts developed for this study (see table 2) incorporates the following assumptions:

- The number of arrivals of total tourists increases by 5%, in line with the annualised real growth rate of tourism GDP envisaged by the WTTC (2002). This is roughly equal to 321 500 new arrivals, given that 6 429 583 arrivals were registered for 2002 in total (South African Tourism 2005a). Growth for 2002 was, in fact, 11.1%, but decreased to 1.3% in 2003 (South African Tourism 2004c) and 2.7% in 2004 (South African Tourism 2005b). This is, it turns out, on average a growth rate of 5.03% for those three years.
- These new tourists will have the same average expenditure patterns as all previous tourists.

  This may be appropriate given that tourists to South Africa come from many different market segment groups, making for a variety of expenditure patterns. Furthermore, given the size of the global tourism market, a 5% increase in tourism to South Africa is small enough to assume these additional tourists have the same characteristics as their predecessors. To study differences in expenditure patterns, results from different market segments are compared.

- The average tourist to South Africa has a spending pattern of consumer goods comparable to that of a South African in the ninth income decile as characterised in the SAM (tenth being the richest decile).

  While it is known from the data what tourists spend money on and how much, the post "shopping expenses" is large and contains very diverse goods. As no further information is known about the make-up of this post, it is necessary to make assumptions on the sectors affected and the composition of shopping expenditure. These assumptions are tested further in the sensitivity analysis.
- The breakdown of tourism source markets remains the same.

  While tourism from neighbouring countries has declined, volumes from lucrative markets such as Europe have risen, and this development might meaningfully change the structure of tourism in upcoming years. It does, however, seem altogether possible that tourists from neighbouring countries will increase again, due to bilateral relations, economic, social and political conditions in both the source markets and in South Africa, the exchange rate, etc., which all impact on tourist numbers but cannot be forecast with accuracy.
- The general level of prices in the economy does not change due to the shock.

  For example, the influx of tourists using local transport, eating local produce, even buying property will not mean these goods become more expensive, leading to higher costs also for residents. This assumption is necessary due to a lack of accurate forecasting methods, and seems acceptable if the increase in tourism remains moderate. It is assumed that prices are relatively sticky and only marginally determined by demand, meaning that additional demand by new tourists will not affect general price levels.

The shock vector calculated on the basis of these assumptions is depicted in Table 2. The shock vector consists of those posts for which tourists spend money in South Africa: fractions of prepaid expenses (airfare, accommodation, transport), accommodation, local transport, food, recreation and entertainment, medical expenses, and shopping.

This shock vector is the basis for calculating the economic impact of tourism to South Africa. A 5% increase in tourism to South Africa means R138 million additional direct expenditure on items produced by the "Agriculture and mining" sector.

Sector	Shock (Impact on Output in million Rand)
Agriculture and mining	138
Food and beverages	0
Textiles	64.8
Wearing apparel	169.4
Leather and leather products	0
Footwear	63.4
Printing, publishing and recorded media	38.9
Petroleum and chemicals	0
Rubber and plastic	0
Basic metals and non-metal minerals	0
Wood, paper, glass and metal products	32.2
Machinery and electr. machinery	62.9
Television, radio and communication equipment	21.4
Professional and scientific equipment	30.3
Transport equipment	0
Furniture	0
Other manufacturing	46.8
Electricity, gas and steam	0
Water supply	0
Building construction and civil engineering	0
Wholesale and retail trade	63.5
Catering and accommodation services	3 175.5
Transport and storage	2 163.8
Communication	148.0
Finance and insurance	0
Business services	0
Medical, dental, veterinary & other services	1 829.3
Other producers	385.9
General government services	0

Table 2: Impact Vector Assuming 5% Increase in Tourism to South Africa

3.3. Overcoming Model and Data Problems

To underpin the results from the methodology introduced above and to verify the appropriateness of the assumptions, it seems reasonable to undertake the procedure using different data and even different methods. This makes the results more credible, but also highlights interesting characteristics of the data that might otherwise have remained hidden.

In this case, the following alternative scenarios are chosen:

1. Model

   Many other studies use input-output multipliers to model the impact of tourism. A comparison of results from this study to results from an input-output model can highlight differences in calculation and result, which is why this study then uses the SAM's supply-use table to calculate the same economic and employment impact. Differences to Lewis' (2001) results using a CGE model are also introduced.

2. Tourist Market Segmentation

   For the general model, it is assumed that the 5% increase in tourism is evenly spread across all tourist markets. As introduced above, the two main groups of tourists are those coming from low-income African countries, in particular those from neighbouring countries, and those coming from high-income countries in Europe and America. Due to the marked differences between these two groups, it seems vital to repeat the impact analysis for each group separately and compare the results. This study thus creates the appropriate shock vector and uses the multiplier inverse to analyse the impact assuming there is a 5% increase in tourists a) from major European markets, and b) from neighbouring countries while tourist numbers from all other segments remain stable. This enables comparisons in impact of different market segments, expenditure patterns and numbers of tourists.

3. Spending Behaviour

As specified above, the lack of detail on expenditure on consumption goods ("shopping") makes it necessary to use expenditure data of South African residents taken from the SAM and to assume that tourists have similar consumption patterns for those items. While the average tourist to South Africa is assumed to have a spending pattern comparable to that of a South African in the ninth income decile, tourists from Europe are assumed to have that of the second richest quarter in the tenth decile while tourists from neighbouring countries have the same expenditure patterns as South Africans in the fifth income decile. As explained above, these assumptions are necessary but might be invalid, so careful sensitivity analysis is warranted to check how results change if other spending pattern assumptions are made.

Data that are available but not in a format suitable to the model used in this study will be introduced to highlight some characteristics of tourism behaviour. This includes a breakdown by source country of prepaid expenses and items purchased during the trip to South Africa.

4. Impact Analysis and Interpretation

4.1. Economic and Employment Impact

What results would be expected from an impact analysis of tourism to South Africa? Naturally, the nature of the tourism industry implies that all industry sectors across the economy are affected. In the South African context, it is important to remember that, to a large degree, incoming tourism is from (poor) neighbouring countries and that these tourists have characteristics unusual for international tourism. Their incomes are lower, their reasons for travelling to the destination country are different, their modes of travel and spending behaviour are not the same as those of tourists from further afield, whose behaviour is perhaps better comparable to tourists observed in other studies for other regions. In fact, it is not even clear that all those visitors coming from neighbouring countries are tourists as defined by the WTO: some come across the border to sell items in South Africa, for example, but would always claim to be tourists if asked in a survey at the border. Lack of data on this phenomenon and the fact

that such movements also occur out of South Africa into neighbouring countries are reasons to ignore this problem in this study. Certainly more research on such visitors and their impact on both the economy they come from and on South Africa would be interesting.
All in all, an increase in tourists from Europe and/or the U.S.A. is expected to have a stronger impact on the economy than a comparable increase in tourists from neighbouring countries. It is difficult to predict how the distributions of incomes are affected by an increase in either of these two market segments. In general, tourism is said to be labour intensive and biased towards less skilled employment, so an increase in tourism numbers should have a sizeable impact on labour-intensive industries and, in general, benefit low and unskilled labour. This should translate into relatively large income increases for poorer households which include more unskilled and low-skilled labourers.

- Economic Impact

Tourists have a positive impact on the economy of the destination country. The money they spend goes directly and indirectly into a wide variety of sectors. When the shock vector that was calculated and introduced above (Table 2) is injected into the economy, this study achieves the following results (see Table 3). As can be seen, all of the sectors distinguished in this study are positively impacted on by tourism, on average by 1.64%.

Sector	Percentage Change
Agriculture and mining	0.72%
Food and beverages	1.57%
Textiles	1.41%
Wearing apparel	1.65%
Leather and leather products	0.78%
Footwear	1.70%
Printing, publishing and recorded media	1.43%
Petroleum and chemicals	1.17%
Rubber and plastic	1.01%
Basic metals and non-metal minerals	0.44%
Wood, paper, glass and metal products	0.79%
Machinery and electr. machinery	0.52%
Television, radio and communication equipment	0.56%
Professional and scientific equipment	1.34%
Transport equipment	0.67%
Furniture	0.82%

Sector	Percentage Change
Other manufacturing	1.17%
Electricity, gas and steam	1.28%
Water supply	1.62%
Building construction and civil engineering	0.19%
Wholesale and retail trade	1.19%
Catering and accommodation services	11.19%
Transport and storage	2.89%
Communication	1.38%
Finance and insurance	1.04%
Business services	1.22%
Medical, dental, veterinary & other services	6.34%
Other producers	1.47%
General government services	0.04%
AVERAGE	**1.64%**

Table 3: Change in sectoral output due to a 5% increase in tourism to South Africa

Obviously, tourism sectors such as "Catering and accommodation services" and "Transport and storage" are those with the highest increases in output. The "Medical, dental, veterinary & other services" sector has such a high impact because this sector includes not only the medical institutions which many tourists use but also very divergent entertainment and recreational services such as theatre, art and touristic sights. Sectors that are impacted indirectly include above all "Food and beverages", but also manufacturing sectors that probably benefit both from shopping expenditure by tourists and also through linkages to the tourism industry. These include the clothing sector, "Printing, publishing and recorded media", and "Professional and scientific equipment". "Petroleum and chemicals" benefits due to increases in (air-) transport. Service sectors such as "Finance and insurance" benefit from increases in air transport, too. If the prepaid expense for flight is excluded from the shock vector, then the impact on these sectors ("Petroleum and chemicals", "Business services" and "Finance and insurance") is halved.

Surprisingly low output increases can be noted for machinery, hi-fi and communication equipment and, above all, the construction industry. The low impact on government services can be expected, as tourists and tourist related businesses are less likely to need these, so that the only impacts are those via linkages through other sectors.

The impact multiplier for this shock to the economy is 2.42, meaning that output increased by 242% of the original amount the system was shocked with.

Weaknesses of the methodology using a SAM mean that some figures in the table must be considered with caution. The textile industry for example may face supply constraints in terms of labour, skills and technology.

The same is definitely true for the highly aggregated "Medical, dental, veterinary & other services" sector used here. It is unfortunately not possible to disaggregate the results but as 74% of the shock comes from expenditure by tourists on medical and dental services, it seems the constraints around skilled labour and the necessary infrastructure such as high-tech equipment, buildings, etc would lower this figure considerably. On the other hand, tourism entertainment can be low-skilled, quick to set up and flexible, meaning that the impact on some services included in this service sector might be higher in the South African context. The impact on the construction industry is likely to be higher than noted here, but as this tends to be a sector not impacted by each average tourist as such but only by the increase as a whole, it is not included adequately in any shock vector.

- Employment Impact

The change in economic output calculated and discussed above impacts on employment levels through a number of channels: directly as higher production is needed to meet the new, higher demand of additional tourists, and indirectly as the households gain through leakage effects and consume more, again leading to a rise in demand and hence production. As mentioned in previous chapters, leakages take place on all levels, and job creation does take place in several "rounds".

Labour	Employment impact in billion R	Percentage change	Change in employment in jobs	Distribution
low skilled	1.040	1.05%	35 880	40.9%
skilled	1.990	1.16%	38 817	44.3%
high skilled	1.442	0.93%	13 027	14.8%
Total	**4.472**	**1.2%**	**87 724**	**100%**

Table 4: Change in employment due to a 5% increase in tourism to South Africa

According to the SAM model used here, a total of R 4.472 billion flows into labour if tourism to South Africa increased by 5% (Table 4). That translates to a total of around 87 724 new jobs, assuming the structure of new jobs equals the structure of present jobs. In other words, this model implies that one job is created for every 3.7 additional tourists! Real figures will most certainly be lower than this, for reasons that must be discussed in detail.

In general, inflation is due to assumptions made in the model and shortcomings involved with SAM multipliers. The following points must be considered. In addition to overestimation of the economic impact inherent to SAM models, this employment figure assumes that

- new jobs are full time, and
- wages are the same as for already existing jobs in all sectors,
- productivity stays the same in all sectors, and that
- there are no supply constraints: labour of all skill levels is sufficiently and immediately available and will not go missing in other sectors.

This is of course problematic. It is highly probable that new tourists and their additional needs could be handled by the existing workforce by means of higher productivity or altered technology. In other words, capacities are not being used to their maximum at present and may simply be used in a more efficient way. For example, existing staff at the reception of a hotel can handle more guests without needing more colleagues to help out. And even if support staff is taken on for bumper times, they might earn less than their full-time colleagues. And the hotel manager will certainly be able to cope with a slight rise in occupancy without needing a colleague to help him, implying that he was working inefficiently before. This aspect of labour (in-)efficiency was pioneered by Harvey Leibenstein (1980) who coined the term x-inefficiency for the portion of labour that is not utilised to maximum benefit at all times in order to deal more flexibly with demand peaks. This is a form of underemployment, given that in an equilibrium setting, wages are set at the average product of labour which, here, is higher than the marginal product of labour. The overestimation of job creation explained here is caused, again, by the measurement of impact in average rather than marginal units. The fact that the SAM cannot account for labour supply problems means that some new jobs cannot be filled due to a lack of adequately skilled employees available on the labour market. Instead, responsibilities might need to be reallocated to existing staff and (fewer) part-time or un-skilled labour employed to do simpler tasks.

Tourism to South Africa, while not being overly exposed to seasonality, will still have higher labour demand in high season times such as summer and over Christmas holidays, meaning that average tourist figures taken in this model are misleading as actual tourist arrivals are unevenly spread across the year. Employment will thus also fluctuate, at least in the tourism sectors themselves. The model does not account for such phenomena.

It is interesting to note that employment creation is slightly biased towards less skilled labour – 14.8% of new jobs are highly skilled, whereas around 17.1% of jobs in the whole South African economy (in 2003) were highly skilled. And whereas 83% of existing jobs are skilled or unskilled in the country, the share in overall job creation of these parts of the labour market would be around 85.2%, a slightly higher proportion.

- Distributive Effects of Tourism

Any shock to the economy will necessarily impact on households via changes in incomes, etc. The SAM used for this study includes not only one row for households, but a disaggregated group of ten income deciles[5], the richest decile being split again into five subgroups. It is thus possible to see how the shock impacts on different households across the economy, enabling some inferences on socio-economic impacts as well.

If tourism to South Africa were to increase by 5%, a total economic benefit of R7.25 million would accrue to households. What is striking is the distribution of this positive impact across income groups. Diagram 5 shows how unequal the distribution is: While the lowest income decile (i.e. the poorest households) receive less than 1% of the benefits from the shock, benefit distribution increases up to the top decile, which by itself receives nearly half of the total impact going to households.

[5] Decile one being the poorest, decile ten the richest.

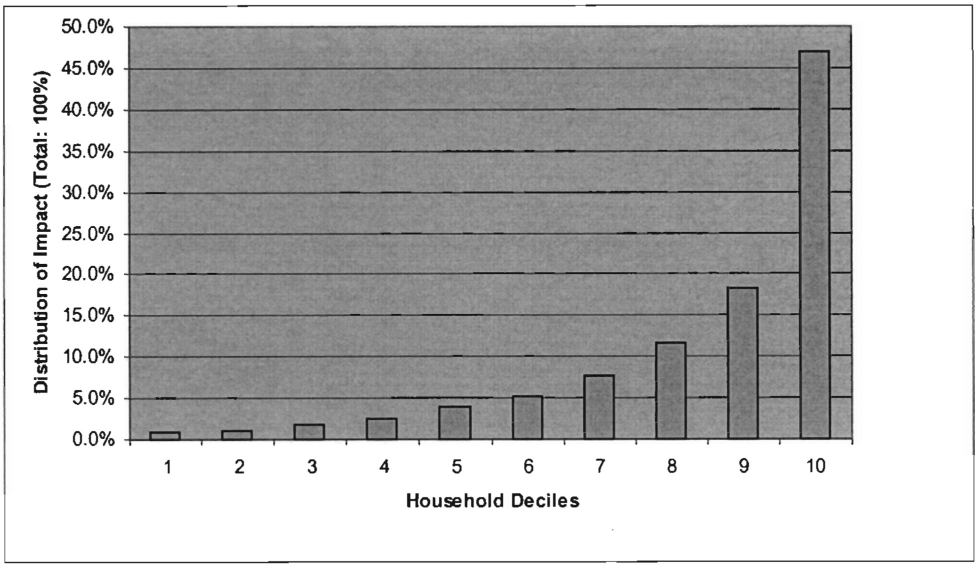

Diagram 5: Distribution of the economic impact due to a 5% increase in tourism to South Africa across household deciles

To appreciate this result, it is possible to compare to the distribution of a 5% impact shock on the agricultural sector. Such a shock would channel R6 890 000 to households, so 5% less than a 5% increase in tourism, but distribution is more in favour of lower income households, as diagram 6 shows. The bottom eight deciles receive slightly more benefits from a rise in agriculture than from a rise in tourism, but the ninth and tenth deciles benefit more from increases in tourism activities than from increases in farming output. As would be expected, most of the employment created (over 90%) is unskilled and low-skilled, and only 9.7% is highly skilled employment. To compare with the manufacturing industry: a shock to the economy by a 5% increase in the vehicle manufacturing industry leads to R 1 747 000 flowing to households, so a lower amount (due to the higher capital-intensity of this sector), but these effects are distributed quite similarly to a shock to agriculture (see diagram 6). It looks as though a 5% shock to any sector of the South African economy has more or less similar distribution effects but that tourism impacts are particularly anti-poor.

Although most of the employment created is in the unskilled and semi-skilled sector, it is the richest households that reap the major part of the benefits. This seems to be a contradiction, but will be linked to the nature of the labour force in South Africa. Most members of the poorest households are unemployed and do not have skills which enable them to benefit from an increase in jobs due to tourism booms. In addition, income inequalities mean that while employment creation may be mainly in unskilled and middle skilled areas, the bulk of income changes will go to the skilled labour force which comes from richer households. If labour supply constraints are considered, this would be even more the case, as highly skilled labour is in short supply. This result is sobering and brings to mind Bhorat's comment on job creation in South Africa:

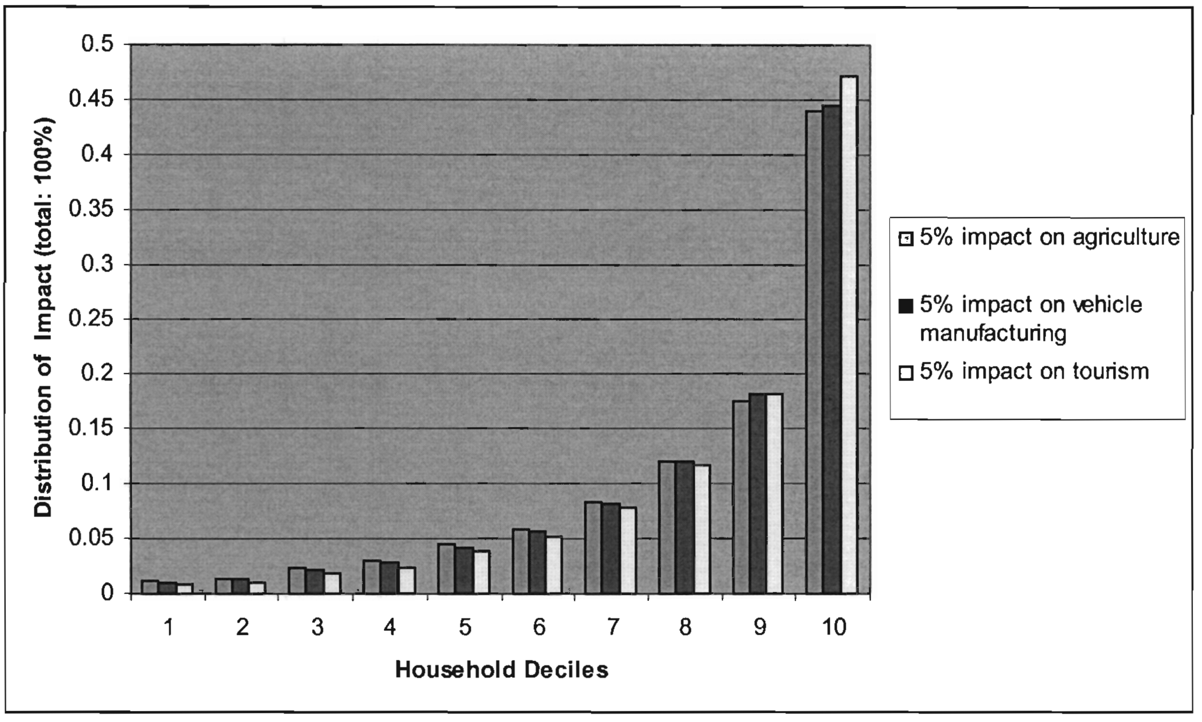

Diagram 6: Comparison of distribution effects of the economic impact due to a 5% increase in tourism, agriculture or vehicle manufacturing sectors

"It should be evident [...] that in general the employment performance of the formal sector over the past 25 years has been dismal. The poor job-creating record of the formal economy is the key reason for the present high levels of unemployment in South Africa society. [...] [T]his poor employment performance has primarily affected unskilled workers in sectors that disproportionately employ these individuals" (Bhorat 2000: 459).

- Constraints

So although much employment is created by tourism, unfair distribution patterns of benefits are not changed. When looking for reasons why tourism does not create much unskilled employment and benefit poorer households in South Africa, it makes sense to look at Eckhaus' (1955) theory on the factor proportions problem. Eckhaus found that unemployment in underdeveloped areas was due not so much to lack of demand but rather to market imperfections, limited opportunities for technical substitution of factors and inappropriate factor endowments. Tourism does suffer from all three of these issues.

The South African labour market is regulated more strongly than those in many other emerging market countries, trade unions are strong and labour legislation comprehensive. This means employers do not or cannot react immediately to rises in demand by employing more people, so that employment creation is smaller than the SAM model indicates.

Because tourism affects mainly service sectors which are labour intensive, a rise in tourism would lead to higher costs for labour, meaning employers would look to substitute labour for capital to counter the change in relative factor costs. This would lead to lower growth rates for employment than the SAM model suggests. But substitution capacities are limited, as most services are already highly labour intensive. It might be more relevant to think of a substitution of skilled labour with unskilled labour instead, but this is only feasible to a limited extent before quality problems arise. For example, using waiters with limited knowledge of English and game park rangers with little education on flora and fauna will lead to dissatisfied tourists and, ultimately, lower numbers of tourists coming to South Africa.

The main reason, however, why employment creation in a booming tourism industry might lag behind is supply constraints in the labour market – because, using Eckaus' terminology, the South African labour market is inappropriately endowed with the factor skilled labour. So while the SAM shows that a rise in tourism would create nearly 40 000 skilled jobs, it is highly unlikely that these positions could be filled with readily available, currently unemployed skilled workers.

Perhaps it is also an issue of relative prices. As a tourist destination, South Africa competes with other middle-income countries in Latin America and Asia and some low-income countries in Africa. In this context, it would be necessary to analyse whether South Africa is relatively expensive. And even if South Africa is price competitive, the effects of an increase in employment in the industry will change price levels. The SAM model cannot account for price changes, but the wage increases that would follow an increase in demand for labour in tourism related industries would be passed on to the consumer, the tourist, meaning that South Africa as a destination would become more expensive. This might lead to a drop in tourism as price conscious tourists go elsewhere. All in all, there would be a crowding-out effect taking place as some of the increase in tourism gets eroded by the effects of price increases, especially as service sectors have only limited choices for replacing labour with capital.

4.2. Sensitivity Analysis

- Model

Many other studies use input-output multipliers to model the impact of tourism. A comparison of results from this study to a model using the supply-use table can highlight differences in calculation and result. As the SAM used in this study contains a supply-use table, it is possible to repeat the shock as before but using this sub-model only. That way, all assumptions that applied to the restructuring of the model remain as before and the comparison is as valid as possible.

As indicated above, results from an impact study using a supply-use table will tend to be lower than those from a SAM multiplier analysis. This stems from the fact that such a model accounts only for inter-industry relations and does not include household activities. On the other hand, the different method of calculation means an employment impact breakdown per industry sector is possible, enabling more detailed results than from the SAM method. The SAM also calculates high multipliers due to the fact that the model has assumed households to be endogenous in the multiplier matrix, an effect that is missing in the model using the supply-use table.

Employment effects using supply-use tables are calculated by

$$\Delta E = \frac{E}{X} \cdot \Delta X$$

where E is employment and X is output. The model using a multiplier matrix taken from the supply-use table instead of the more comprehensive SAM calculates 65 344 as the number of jobs created by an additional 321 500 tourists to South Africa. This is a difference of around 25% to the employment impact calculated using the SAM multiplier matrix – quite significant.

Sector	Employment Creation	Distribution
Agriculture and mining	2 984	4.57%
Food and beverages	561	0.86%
Textiles	373	0.57%
Wearing apparel	873	1.34%
Leather and leather products	29	0.04%
Footwear	135	0.21%
Printing, publishing and recorded media	351	0.54%
Petroleum and chemicals	548	0.84%
Rubber and plastic	268	0.41%
Basic metals and non-metal minerals	210	0.32%
Wood, paper, glass and metal products	742	1.14%
Machinery and electr. machinery	292	0.45%
Television, radio and communication equipment	96	0.15%
Professional and scientific equipment	112	0.17%
Transport equipment	243	0.37%
Furniture	58	0.09%
Other manufacturing	331	0.51%
Electricity, gas and steam	217	0.33%
Water supply	40	0.06%
Building construction and civil engineering	342	0.52%
Wholesale and retail trade	5470	8.37%
Catering and accommodation services	17 448	26.70%
Transport and storage	3 036	4.65%
Communication	488	0.75%
Finance and insurance	1 130	1.73%
Business services	4 084	6.25%
Medical, dental, veterinary & other services	18 053	27.63%
Other producers	6 486	9.93%
General government services	342	0.52%
Total	**65 344.5**	

Table 5: Change in sectoral employment due to a 5% increase in tourism to South Africa using a supply-use multiplier

Table 5 shows how much employment is created in each sector, something that was not possible to discern using the SAM. On the other hand, the supply-use table does not include households or the division of labour into skilled and unskilled, so that a direct comparison is not possible for these results.

Major job creation can be noted for the "Catering and Accommodation Services" sector, as is to be expected. A total of 17 448 new jobs is created by an increase in tourism by 5%. That accounts for a quarter of total employment gains in the economy. Similarly, large increases can be noted for the large sector which includes "Medical, dental, veterinary and other services".

One of the weaknesses of the SAM model is the assumption of marginal effects. It would be more realistic to assume that employment creation has negative growth patterns, i.e. that employment elasticities are less than one. In this case, employment should be calculated by

$$\Delta E = \varepsilon \frac{E}{X} \cdot \Delta X$$

as changes in employment are multiplied by employment elasticity ε. To test how results change if this is done, it is crudely assumed that employment elasticities are 0.5 for natural resource sectors, 0.6 for sectors in basic manufacturing, 0.9 for high-tech manufacturing sectors and 1.0 for service sectors. Employment creation under these assumptions decreases to 59 047, ten percent less than if elasticities of one are assumed throughout. The differences are less severe than anticipated because many of the sectors in which jobs are created through tourism are in fact in service sectors with an elasticity of one. A more comprehensive calculation of appropriate elasticities for each sector may lead to more detailed results. An example for such calculations is Moolman's (2003) econometric analysis of labour demand.

- Tourist Market Segmentation

For the general model, it is assumed that the 5% increase in tourism is evenly spread across all tourist markets. These figures might be misleading in view of the heterogeneity of tourists coming to South Africa. To analyse in more detail the differences between the two main groups of tourists, the shock is repeated assuming that there is a 5% increase in tourists a) from major European markets, and b) from neighbouring countries, while tourist numbers from all other segments remain stable.

<u>The European and US Market</u>

In 2003, a total of 1 149 626 tourists from the UK, France, Germany, the Netherlands and the U.S.A. visited South Africa, of which nearly 40% came from the UK alone (see Table 6). In order to assess the impact of an increase in this group of tourists only, a weighted average for spending behaviour is calculated and expenditure patterns similar to those of the third quarter of the tenth decile of South African households are assumed.

Country	Total	Distribution
UK	456,468	39.71%
France	127,760	11.11%
Germany	257,018	22.36%
Netherlands	120,933	10.52%
USA	187,447	16.31%
Total	**1,149,626**	**100.00%**

Table 6: Tourist arrivals from selected European countries and the U.S.A. in 2003

How different are the results now? Of course, impacts are much lower across the board than they are if there is a 5% increase of all tourists. If tourism from the UK, Netherlands, Germany, France and the U.S.A. increased by 5% while all other tourist numbers stay constant, this would translate to an increase in tourist numbers of 57 481 instead of 321 500, that is 17.9% of the original. The total economic impact multiplier is 2.34, lower than it was for all tourists.

African Market

In 2003, over 4 million tourists came to South Africa from the neighbouring countries Botswana, Lesotho, Mozambique, Namibia, Swaziland and Zimbabwe. See Table 7 for more details.

Country	Arrivals 2003	Distribution
Botswana	791 785	19.41%
Lesotho	1 284 953	31.50%
Mozambique	421 201	10.33%
Namibia	216 313	5.30%
Swaziland	800 686	19.63%
Zimbabwe	563 877	13.82%
Total	**4 078 815**	**100%**

Table 7: Tourist Arrivals from neighbouring countries in 2003

Over 50% of these arrivals came from Swaziland and Lesotho, but expenditure patterns for tourists from the different countries are quite homogenous. The data for Botswana contain some outliers which have simply been omitted from the calculation of weighted averages. The results show that output increases are higher overall than for European tourists because the increase in numbers is so much greater: a 5% increase in tourists means nearly 204 000 more arrivals. An increase in tourists from neighbouring countries would increase economic output by an average of 0.48%, but the sectoral breakdown shows that the spending behaviour patterns make quite a difference to the distribution of the impact on economic sectors. Due to the very different size of the shock by the two tourist groups, a direct comparison of the results is not possible.

Comparison

In order to compare the above results, the impact per 50 000 new tourists is calculated and the results shown in Table 8. Not only is the average economic impact twice as large for the European/US market, but the distribution is also markedly different. The greatest differences occur in the sectors "Catering and accommodation services" and closely linked sectors such as "Food and beverages" and the service sectors.

Sector	Percentage Change African Market	Percentage Change Europe and US Market	Difference African/ European and US
Agriculture and mining	0.07%	0.11%	65%
Food and beverages	0.11%	0.25%	45%
Textiles	0.17%	0.19%	90%
Wearing apparel	0.25%	0.21%	120%
Leather and leather products	0.10%	0.10%	102%
Footwear	0.26%	0.21%	124%
Printing, publishing and recorded media	0.11%	0.21%	53%
Petroleum and chemicals	0.09%	0.17%	53%
Rubber and plastic	0.08%	0.16%	53%
Basic metals and non-metal minerals	0.03%	0.07%	49%
Wood, paper, glass and metal products	0.06%	0.12%	51%
Machinery and electr. machinery	0.04%	0.08%	54%
Television, radio and communication equipment	0.05%	0.08%	66%
Professional and scientific equipment	0.08%	0.19%	44%
Transport equipment	0.05%	0.10%	50%
Furniture	0.06%	0.12%	51%
Other manufacturing	0.08%	0.19%	44%
Electricity, gas and steam	0.09%	0.20%	46%
Water supply	0.11%	0.25%	45%
Building construction and civil engineering	0.01%	0.03%	51%
Wholesale and retail trade	0.11%	0.18%	60%
Catering and accommodation services	0.48%	2.23%	22%
Transport and storage	0.22%	0.50%	44%
Communication	0.15%	0.19%	80%
Finance and insurance	0.08%	0.16%	50%
Business services	0.09%	0.18%	49%
Medical, dental, veterinary & other services	0.41%	0.52%	79%
Other producers	0.13%	0.23%	57%
General government services	0.00%	0.00%	100%
Average	**0.12%**	**0.25%**	**50%**

Table 8: Sectoral output change due to an increase by different groups of tourists by 50 000

Most of the differences can be explained by the differences in spending behaviour: European and US tourists spend much more money on accommodation than do visitors from neighbouring countries (who also tend to visit friends and relatives more than Europeans do) and resort to more expensive modes of transport. The results for clothing sectors are surprising but the fact that both groups of tourists spend the same amounts on these products might be due to the assumptions made about spending behaviour. In general, it must be kept in mind that tourists from neighbouring countries are more likely to come to South Africa in order to purchase goods not available in their home countries. This might include transport, business or scientific equipment, but also clothing and shoes.

High quality private sector medical services are definitely used by visitors from neighbouring countries. The fact that the sector "Medical, dental, veterinary & other services" benefits from both groups of tourists might be due to the fact that the sector includes recreation and entertainment industry – much used by tourists from Europe and the US – and the medical sectors, used by tourists from neighbouring countries. This is not to say that Europeans do not use South African medical services, indeed they do to a large extent, as expenditure data show, but the aggregation of the sectors makes it difficult to compare figures between the two target groups.

That said, it still remains surprising how different the economic impacts of the two groups are. With the exception of the accommodation sector and clothing/textiles/shoes, the economic impact of European and US tourists is double that of Africans. Yet the results must be seen in light of the fact that Africans make up a much higher proportion of total visitors to South Africa, so that their impact will be proportionally higher.

Employment Effects

How different is the impact on employment creation? Table 9 shows that employment impact is also twice as high for tourists from Europe and the U.S.. What is interesting is the distribution of employment creation: tourists from neighbouring countries create more low-skilled jobs than tourists from Europe: 43.6% of employment created by tourists from neighbouring countries is in the low-skilled sector, whereas only 40.4% of new jobs due to European tourist increases require low-skilled labour. Surprisingly, tourists from neighbouring countries are also responsible for a higher proportion of job creation in the high-skilled sector: 14.2% versus 13.7% for tourists from Europe and the US.

Employment	Neighbouring countries		Europe and US	
	Percentage Change	Distribution	Percentage Change	Distribution
low skilled	0.09%	43.6%	0.16%	40.4%
skilled	0.09%	42.3%	0.18%	45.9%
high skilled	0.07%	14.2%	0.13%	13.7%

Table 9: Change in employment due to 50 000 additional tourists from different source markets

The fact that tourists from neighbouring countries create over 3% more jobs in unskilled sectors is important to note, as these visitors make up a large proportion of total tourism to South Africa and therefore have a larger impact overall than tourists from high-income countries. The distribution of gains to households is nearly the same for both groups (see Diagram 7), showing that neither of the two target groups makes a positive impact on the fight against income inequality in South Africa.

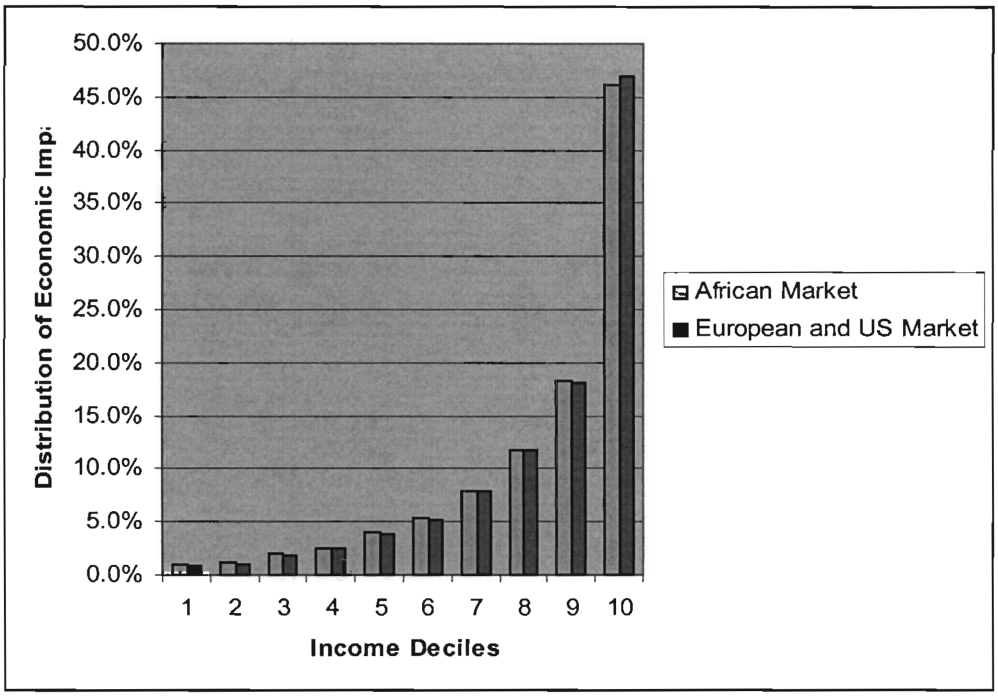

Diagram 7: Comparison of the distribution of economic impact of tourists from neighbouring countries and from Europe and the U.S.A.

- Spending Behaviour

In the first part of the calculations, the average tourist to South Africa was assumed to have a spending pattern comparable to that of a South African in the ninth income decile. In the sensitivity analysis above, it seemed appropriate to consider tourists from Europe to have shopping expenditure patterns of the third quarter in the tenth decile while tourists from neighbouring countries were expected to have the same expenditure patterns as South Africans in the fifth income decile. It seems appropriate to check how results change if other spending pattern assumptions are made in order to assess how serious a misjudgement would be to the robustness of the results.

If we assume that visitors from neighbouring countries have the spending patterns of South Africans from the second income decile instead of the fourth decile as taken above, then results change very little, as can be seen in table 10. Some expenditure in the clothing sectors is lower in the lower decile, moving to the sectors "Other manufacturing" and "Other producers". The fact that the results are so stable is reassuring, as it means that even though the model is weakened slightly by the fact that assumptions must be made about the expenditure patterns of tourists in the post "shopping", it does not greatly affect the final results. Results are similar when comparing results for European and US tourists assuming their shopping expenditure patterns are comparable to those of the third quarter of the tenth decile (as done above) to those of the fourth quarter of the tenth decile.

Sector	Second Decile	Difference to fourth decile
Agriculture and mining	0.30%	111%
Food and beverages	0.44%	100%
Textiles	0.64%	102%
Wearing apparel	0.94%	104%
Leather and leather products	0.40%	103%
Footwear	0.99%	104%
Printing, publishing and recorded media	0.40%	95%
Petroleum and chemicals	0.36%	100%
Rubber and plastic	0.33%	100%
Basic metals and non-metal minerals	0.13%	98%
Wood, paper, glass and metal products	0.24%	99%
Machinery and electr. machinery	0.16%	96%
Television, radio and communication equipment	0.18%	87%
Professional and scientific equipment	0.32%	100%
Transport equipment	0.22%	100%
Furniture	0.25%	99%
Other manufacturing	0.31%	94%
Electricity, gas and steam	0.38%	100%
Water supply	0.45%	100%
Building construction and civil engineering	0.06%	101%
Wholesale and retail trade	0.42%	102%
Catering and accommodation services	1.73%	99%
Transport and storage	1.07%	100%
Communication	0.52%	92%
Finance and insurance	0.32%	100%
Business services	0.35%	99%
Medical, dental, veterinary & other services	1.47%	100%
Other producers	0.44%	89%
General government services	0.01%	100%
Average	**0.48%**	**100%**

Table 10: Comparison of sectoral economic impact of tourists from neighbouring countries assuming different expenditure patterns

Another option for sensitivity analysis is to take a closer look at the expenditure data available. Unfortunately, the more detailed data on tourist expenditure that are available cannot be entered into the model: it is only possible to look at what *type* of good was purchased by tourists from different countries, not the amount spent on these goods. Even though it can thus not be entered into the SAM, it does give a good indication of the kind of purchasing tourists do while in South Africa. Table 11 shows the main categories for the countries this study is focussing on. This table highlights very well the differences in spending between tourists from different countries. While 60.3% of visitors from neighbouring countries buy groceries while in South Africa (93.1% of Mozambicans visiting), only around a third of Europeans do. In contrast, over 60% of tourists from Europe and the US buy curios and crafts in South Africa,

Country of Origin	Groceries	Clothing	Jewellery	Curios/ crafts	Appliances	Hardware	Media	Motor vehicles	Vehicle spares	Gifts/ toys	Wine	Nothing
Botswana	67.5	53.6	8.3	4.0	2.9	3.3	19.4	5.8	4.6	0.0		4.9
Lesotho	31.0	61.7	8.2	13.8	0.7	1.3	15.1	0.1	1.2	0.0		21.6
Mozambique	93.1	61.4	5.2	18.3	20.8	17.8	37.1	1.7	4.5	0.1		0.8
Namibia	71.1	69.4	26.7	10.7	6.2	7.4	36.8	1.7	4.0	3.6	0.2	7.9
Swaziland	59.8	72.1	10.6	10.8	2.9	2.2	24.6	0.8	2.8	0.1		3.5
Zimbabwe	89.3	76.0	9.3	2.6	40.7	19.5	33.2	0.1	23.5	0.6		1.5
Average Neighbours	**60.3**	**64.5**	**9.5**	**10.1**	**9.5**	**6.4**	**23.7**	**1.6**	**5.7**	**0.3**	**0.0**	**9.1**
UK	36.3	54.3	22.8	59.7	1.5	1.3	19.5	0.3	0.1	1.0	1.6	10.8
France	29.9	49.0	26.3	70.3	1.7	0.7	25.3	0.0	0.0	0.9	1.5	9.7
Germany	37.7	53.8	19.6	65.3	1.1	0.9	28.2	1.5	0.4	1.0	1.5	8.6
Netherlands	36.8	44.7	16.7	63.9	1.3	1.4	24.5	0.8	0.0	0.8	1.4	15.2
USA	31.1	48.1	26.8	69.5	1.6	0.8	23.2	0.1	0.2	1.1	0.7	11.6
Average Europe and U.S.	**35.1**	**51.6**	**22.5**	**64.2**	**1.4**	**1.1**	**23.2**	**0.6**	**0.2**	**1.0**	**1.4**	**10.8**

Table 11: Percent of respondents who purchased these goods during their visit to South Africa in 2004 (SA Tourism 2005)

but only 10% of tourists from neighbouring countries spend money on such items. Noticeable is that one in five visitors from Lesotho did not buy anything while in South Africa.

- Comparison to Results of Other Studies

Lewis (2001) uses a CGE model to assess employment impacts of tourism. The approach taken in this study assumes the capital stock devoted to tourism activities doubles, theoretically enabling the contribution of tourism activities to total GDP to double (to 6%). The benefits of the CGE model used are apparent in the result: although the impact on the economy is 100%, growth in tourism activities is not. Due to constraints of technology, demand and labour, these only grow by 78.1%. His results indicate that GDP across all sectors would grow by 1.9%, creating 215 000 new jobs. That is an increase in employment of 2.4%. Table 12 shows his results in detail.

Sector	Value added growth	Employment Growth	Total new jobs (000s)	Skilled new jobs (000s)	Semi- and unskilled new jobs (000s)
Tourism	78.1%	61.5%	137	105	16
Transport and storage	4.6%	-4.2%	-17	-1	-3
Financial & business services	2.5%	2.3%	18	11	1
Social and personal services	2.6%	0.9%	12	3	5
TOTAL (all sectors)	**1.9%**	**2.4%**	**215**	**133**	**57**

Table 12: Impact of 100% increase in capital stock to tourism using a CGE model (Lewis 2001)

Lewis' findings on employment creation are quite different to the ones in this study. As explained earlier, this is due to the fact that CGE models allow for resource reallocation, supply constraints and price changes, and therefore always show lower impact figures than when using a SAM. Although Lewis' shock is a different one and so the employment figures in themselves cannot be compared, the distribution of effects can. He finds that 61.8% of new jobs are skilled jobs and 26.5% are semi- and unskilled jobs. That leaves under 12% for the creation of highly skilled jobs. This contrasts starkly to the results of this study, which found the distribution of job creation was much lower for skilled jobs but much higher for both ends of the scale (see table 13 for more details).

Job Classification	This study	Lewis
unskilled and low-skilled	40.9%	26.5%
skilled	44.2%	61.8%
high-skilled	14.8%	11.7%

Table 13: Comparison of skills distribution of job creation

Again, this is due to the different model used: the CGE probably picked up the supply constraints addressed above. In general, Lewis' results imply slightly larger gains for skilled and unskilled employment, although more of the most destitute job seekers – those with no or little skills – would be embraced in the model used in this study.

Weaknesses of Lewis' study lie in the rather crude assumptions concerning what amounts in what sectors make up his shock vector. Lewis simply assumes that 100% of the accommodation and catering sectors and "parts" (p. 87) of the transport, personal services and financial and business services sectors are directly impacted upon by tourism. This misses expenditure on shopping items completely and ignores the fact extrapolated by this study that tourists spend large amounts on medical costs.

Saayman, Saayman and Naudé published an article in 2000 on the economic impact of tourism in South Africa using an input-output table. They use an impact vector built on the assumption of a 10% increase in tourism expenditure.

Although the authors also use the expenditure data from SA Tourism (then still called SATOUR), the data used is from 1996, making it a little difficult to compare to the results in this study. As was explained above, the tourism industry in SA has changed dramatically since 1994, making comparisons between 1996 and 2003 problematic. Comparison of the results is also difficult because the shock used for the Saayman, Saayman and Naudé study is twice as large as the one used here. In comparison to this study, the measured impacts of international tourism are lower: the multiplier is 1.9 instead of 2.42 as for this study. This is largely due to the use of an input-output model instead of the SAM model, but may also be influenced by their setup of the shock vector or indeed by the older data used.

In their paper, the authors aim at highlighting the differences in impact between international and domestic tourism to South Africa. For a 10% increase in tourism, they calculate an impact multiplier of 1.9 for international tourism and 1.96 for domestic tourism. The study only looks at fairly aggregated sector effects, but results imply that major benefits go to the manufacturing industry, "services" and "transport and communication". Their findings let them conclude that domestic tourism not only has the higher multiplier but also a more favourable impact on the economy in terms of sectoral distribution and employment creation. This study does not look at employment effects in more detail, merely stating that only some of the sectors significantly impacted on are labour-intensive, so that employment effects in general are not very high.

The authors also look at the impacts on the different regions within the country and come to the conclusion that developed regions such as Gauteng, the Western Cape and Kwa-Zulu Natal benefit more strongly from tourism due to increased service availability. This is the case both for tourist activities and supplying industries which tend to be situated in these regions as well.

Their conclusion for policy is that strategies need to be changed to redistribute economic impact to regions that are in more urgent need of development and employment, such as the Eastern Cape, Northern Province, Northern Cape, North West and the Free State.

In conclusion, the study done by Lewis (2000) is more appropriate for comparative studies due to the more current data and more advanced methodology used. Moreover, the emphasis and aim of the study correspond better to the basis of this study, meaning the methodology is more focussed in the same direction.

4.3. Policy Implications

The new Tourism Growth Strategy (South African Tourism 2002) specifically mentions job creation as a focus of tourism policy for the future. To this end, this study shows that tourism does indeed create new jobs in all sectors of the economy and so will benefit the national economy, will help alleviate unemployment and will thus reduce poverty. In order to maximise these effects, it makes sense to look at where most employment is created, which sectors show particularly high rates of low-skilled job creation in order to assist with poverty alleviation, and which tourists support policy goals the most.

This study has revealed that a projected 5% growth of tourism to South Africa would create around 88 000 jobs across all sectors. Of these, 59.1% are in skilled and highly skilled areas, the remaining 40.9% are in low-skilled fields. This corresponds quite closely to the current split up of skills in the labour market of South Africa, meaning that employment creation through tourism is rather skills-biased. A large proportion of tourists to South Africa come from neighbouring African countries, and due to their different expenditure patterns, these visitors create over 3% more unskilled jobs than visitors from Europe, but this difference is not enough to warrant focussing on this group to alleviate poverty in South Africa. In fact, tourists from neighbouring countries are also responsible for a higher proportion of jobs created in high-skilled sectors.

So although employment is created, it does not support pro-poor policy which would necessitate a relatively higher portion of jobs being created in unskilled and low-skilled fields. The results of this study thus contradict Hugo's statement from twelve years ago that "[t]he development of tourism [in South Africa] is also associated with [… the] creation of employment opportunities for the unskilled component of the labour force." (Hugo 1992, p. 49). Given the characteristics of the unemployed labour force in South Africa, this is a pity and obstructs government's aims of alleviating poverty. Industries with unskilled-biased production technology, such as agriculture, the clothing and construction industries have relatively low employment impacts by tourism. The clothing industry does benefit, and according to the model using a supply-use table creates around 1 400 jobs given a 5% increase in tourism, but in general policy should try to maximise the benefits going to these industries more in order to create relatively more unskilled jobs. This might include measures to increase the fraction of local produce used in hotel kitchens or the incentives for the clothing industry to adapt to tourists' tastes. Alternatively, government could support training schemes which increase the skilled labour base from which employers could pick to fill newly created jobs.

In general, this study supports the findings of both Rogerson (2003) and Futter and Wood (1997) that an improvement of infrastructure for tourism development in previously underdeveloped areas such as poor rural communities is necessary. This would improve impact distribution and, for example, could support the construction industry as it diversifies away from city areas, leading to unskilled labour employment in rural areas. Bending current trends in tourism to benefit the poor will not be easy, however, as it is important to remember that, as Futter and Wood state, "the contribution of tourism to development must be considered relative to that of other economic sectors such as agriculture and manufacturing. Problems of effectively distributing benefits face all economic sectors – is the tourism sector any different?" (p. 67).

Certainly the results from this study show that tourists from high-income countries have a much higher impact on the local economy. It thus remains important to push South Africa strongly in these source markets, especially as competition from other middle-income countries is strong. New markets which have not been so thoroughly worked in by the national tourism authorities, such as Italy, may be worth more effort. China is proving to be a strong new market and is certainly one with high growth potential. At the same time, it is important to note that a high number of tourists coming to South Africa come from neighbouring countries, and that their impact on the South African economy and labour market is more suitable for combating poverty and unemployment of unskilled labourers. Their motives for coming are very different and also very diverse, and further studies must be made on this group of visitors before policy implications can be considered.

One issue that needs to be addressed is the unequal distribution of benefits from tourism. It seems that the "old" structures of the South African economy have prevailed and will be hardened by increases in tourism as long as company ownership patterns remain as they were before the advent of democracy. This is an issue government has been tackling on all fronts, also in the tourism industry with creative arrangements being found for indigenous people in rural areas, local communities and black empowerment companies. Perhaps a new SAM based on new data would show different results as such measures take hold.

All in all, the major caveat of the labour market is the apparent lack of skilled labour with which to supply the increased demand created by growth in tourism. The one most important issue to tackle is the level of skills training among the unemployed labourers of South Africa. This is a necessary prerequisite for meaningful employment creation and certainly the only way South Africa can retain its current market position in international tourism, given current growth trends.

5. Summary

Tourism to South Africa is being seen as a driver to higher employment and incomes to the entire economy. Due to the nature of tourism, many different sectors of the economy are affected by rises in demand. A rise in tourism numbers should lead to positive impacts throughout many sectors, and employment should be created in many sectors. While much has been published elsewhere, South Africa has not seen much research on the economic impact of tourism, let alone on the employment effects of the industry. This paper uses a 2003 SAM and 2003 expenditure data of tourists to calculate formally the economic and employment impacts assuming a 5% increase in tourism.

The model calculates that nearly all sectors benefit from a rise in tourism, and that output would increase by an average of 1.64%. The greatest benefits accrue to the sectors 'Catering and accommodation services' with 11.19% increases and 'Medical, dental, veterinary and other services' which includes arts and entertainment industries and which benefits 6.34%. The economic impact multiplier is high at 2.42, highlighting the strength of linkages and showing that the rich structure of the South African economy maximises the benefits of tourism.

In the light of the large number of unskilled and poor people out of work in South Africa, it is particularly important to create jobs in sectors which would employ especially unskilled labourers. The SAM model used in this study calculates impressive employment impacts for tourism. If tourist arrivals grow at 5% per annum as they have done for the past three years, then the SAM model calculates that around 88 000 jobs will be created throughout the economy for that year. Before rejoicing over this high figure, however, the constraints of the model must be taken into account. A SAM does not account for price changes due to the shock, and supply is deemed to be elastic. In reality, the labour-intensity of many of the affected sectors would lead to wage increases. In general, there is a supply constraint in the labour market in South Africa that would hinder employment creation to the extent indicated by the model. Moreover, the SAM model works with average rather than marginal changes, assuming that new jobs would be equal to the average job in that sector previously. In general, this assumption will not hold for any sector, and especially not in the sectors mainly affected by tourism.

The figure calculated by the model must be adjusted downwards, but the fact still remains that tourism can indeed lead to employment creation in South Africa. The model used in this study enables a breakdown of the employment figures according to skill levels, and it is interesting to see that only 41% of the jobs created would be unskilled jobs; the remaining 59% are skilled and highly skilled jobs. This means that the employment impact of tourism to South Africa is skills-biased. In addition, the benefits accruing to households are very unevenly distributed, indicating that tourism does not support pro-poor development but rather fastens the highly unequal income distributions that hamper South Africa.

South African tourism is characterised by a division between tourist segments. Tourists coming from high-income countries have completely different profiles to the visitors South Africa welcomes from across its borders to neighbouring countries. Expenditure patterns thus also vary greatly, and a comparison is in order to assess the differences. In fact, both the economic and employment impacts of tourists from Europe are exactly twice as large as the impacts from tourists from neighbouring countries. The study looks at the expenditure patterns more closely to find that visitors from Botswana, Lesotho, Mozambique, Namibia, Swaziland and Zimbabwe spend their money on vastly different items in very different sectors to visitors from Europe and the USA. This might be partly due to people being wrongly classified as tourists in the survey, but in general it will be true that tourists from high income countries spend more while in South Africa.

For policy, the implications of this study are varied. As has been stated in official papers, tourism is a driver of employment creation for South Africa. It is, however, important to look at how tourism can be used to make the employment created more pro-poor and less skills-biased in order to support development goals. The study implies that it would be difficult to change tourism structures to create more unskilled jobs, but that infrastructure must be improved and ownership structures changed to allow a greater portion of society to benefit from tourism incomes. Certainly increasing the skills base of the national labour force would greatly benefit the employment creation capacities of tourism and this is seen as the major policy recommendation deduced from the results of the study.

Reference List

Archer, B. 1982, 'The value of multipliers and their policy implications', *Tourism Management*, vol. 3, pp. 236 – 241.

Archer, B., Fletcher, J. E. 1990, *Multiplier analysis in tourism*, Cahiers du Tourisme Série C, no. 103, Centre des Hautes Etudes Touristiques, Aix-en-Provence.

Baaijens, S. R., Nijkamp, P., van Montfort, K. 1997, 'Explanatory meta-analysis for the comparison and transfer of regional tourist income multipliers', *Regional Studies*, vol. 32, no. 9, pp. 839 – 849.

Bhorat, H. 2000, 'The impact of trade and structural changes on sectoral employment in South Africa', *Development Southern Africa*, vol. 17, no. 3, pp. 437 – 466.

Briassoulis, H. 1991, 'Methodological issues, tourism input-output analysis', *Annals of Tourism Research*, vol. 18, pp. 485 – 495.

Cooper, C., Fletcher, J., Gilbert, D. & Wanhill, S., 1998, *Tourism principles and practice*, Addison Wesley Longman, New York NY.

Daniels, M. J., Norman, W. C., Henry, M. S. 2004, 'Estimating income effects of a sport tourism event', *Annals of Tourism Research*, vol. 31, no. 1, pp. 180 – 199.

Dornbusch, R., Fischer, S. 1987, *Macroeconomics,* international edition, McGraw-Hill Book Co., Singapore.

Durbarry, R. 2002, 'The economic contribution of tourism in Mauritius', *Annals of Tourism Research*, vol. 29, no. 3, pp. 862 – 865.

Dwyer, L., Forsyth, P. 1998, 'Economic significance of cruise tourism', *Annals of Tourism Research*, vol. 25, no. 2, pp. 393 – 415.

Dwyer, L., Forsyth, P., Spurr, R. 2004, 'Evaluating tourism's economic effects: new and old approaches', *Tourism Management*, vol. 25., pp. 307 – 317.

Eckaus, R. S. 1955, 'The factor proportions problem in underdeveloped areas', *American Economic Review*, vol. 45, no. 4, pp. 539 – 565.

Fletcher, J. E. 1989, 'Input-output analysis and tourism impact studies', *Annals of Tourism Research*, vol. 16, pp. 514 – 529.

Fletcher, J., Snee, H. 1989, 'Impact of tourism', in *Tourism Marketing and Management Handbook*, eds S. F. Witt & L. Moutinho, Prentice-Hall, Inc., Englewood Cliffs NJ, pp. 215 – 217.

Frechtling, D. C., Harvath, E. 1999, 'Estimating the multiplier effects of tourism expenditures on a local economy through a regional input-output model', *Journal of Travel Research*, vol. 37, no. 4, pp. 324 – 333.

Futter M., Wood L. 1997, 'The tourism = employment equation, does it add up?', *Indicator SA*, vol. 14, no. 2, pp. 48 – 53.

Futter M., Wood L. 1997, 'Tourism and development: no short cuts', *Indicator SA*, vol. 14, no. 2, pp. 64 – 67.

Goeldner, C. R., Ritchie, J. R. B. 2003, *Tourism: principles, practices, philosophies*, John Wiley & Sons, Hoboken NJ, 9th edition.

Hirschman, A. O. 1958, *The strategy of economic development*, Yale University Press, New Haven CN.

Hugo M. 1992, 'A quantification of the role of foreign tourism in the South African economy', *Journal for Studies in Economics and Econometrics*, vol. 16, no. 2, pp. 41 – 51.

Huse, M., Gustavsen, T., Almedal, S. 1998, 'Tourism impact comparisons among Norwegian towns', *Annals of Tourism Research*, vol. 25, no. 3, pp. 721 – 738.

International Food Policy Research Institute 2004, *South Africa: Social Accounting Matrix (SAM); 1993, 1998, and 1999* [Online], Available: http://www.ifpri.org [2004, April 5].

King, B. 1985, 'What is a SAM?', in *Social Accounting Matrices, A Basis for Planning*, eds G. Pyatt & J. I. Round, The World Bank, Washington DC., pp. 17 – 51.

Lange, O. R. 1944, *Price flexibility and employment*, Principia Press, Bloomington IN.

Leibenstein, H. 1980, *Inflation, income distribution and X-efficiency theory*, Croom Helm, London.

Leiper, N. 1999, 'A conceptual analysis of tourism-supported employment which reduces the incidence of exaggerated, misleading statistics about jobs', *Tourism Management*, vol. 20, pp. 605 – 613.

Leontief, W. W. 1966, *Input-output economics*, Oxford University Press, Oxford.

Lewis, J. D. 2001, *Policies to promote growth and employment in South Africa*, Discussion Paper 16, Informal discussion papers on aspects of the economy of South Africa, The World Bank Southern Africa Department, Washington DC.

Lindberg, K., Andersson, T. D., Dellaert, B. G. C. 2001, 'Tourism development, assessing social gains and losses', *Annals of Tourism Research*, vol. 28, no. 4, pp. 1010 – 1030.

Miller, R. E., Blair, P. D. 1985, *Input-output analysis, foundations and extensions*, Prentice-Hall, Inc., Englewood Cliffs NJ.

Moolman, E. 2003, *An econometric analysis of labour demand at an industry level in South Africa*, TIPS working paper 5-2003, TIPS, Pretoria.

Oosterhaven, J., Van Der Knijff, E. C. 1988, 'On the economic impacts of recreation and tourism: the input-output approach', *Built Environment*, vol. 13, no. 2, pp. 96 – 108.

Poswell, L. 2002, *The post-apartheid South African labour market: a status report,* Development Policy Research Unit, University of Cape Town, Cape Town.

Pyatt, G., Round, J. I. (eds) 1985, *Social accounting matrices, a basis for planning*, The World Bank, Washington DC.

Raguraman, K. 1997, 'Estimating the net economic impact of air services', *Annals of Tourism Research*, vol. 24, no. 3, pp. 658 – 674.

Rogerson C. M. 2002, Tourism and poverty, in: *South Africa human development report 2003*, United Nations Development Programme of South Africa, Oxford University Press Southern Africa, Cape Town.

Round, J. I. 2003a, *Constructing SAMs for development policy analysis: lessons learned and challenges ahead* [Online], Available: http://132.203.59.36/PEP/Group/mpia-train/yatt_ISS3b.pdf [2004, June 4].

Round, J. I. 2003b, 'Social accounting matrices and SAM-based multiplier analysis', in *Toolkit for evaluating the poverty and distributional impact of economic policies*, The World Bank, Washington DC.

Saayman, M., Saayman, A., Naudé, W. A. 2000, 'Economic and sectoral effects of tourist spending in South Africa: Regional implications', *South African Journal for Economic and Management Sciences*, vol. 3, no. 3.

Saayman, M., Saayman, A., Rhodes, J. A. 2001, 'Domestic tourist spending and economic development: the case of North West Province', *Development Southern Africa*, vol. 18, no. 4, pp. 443 – 455.

Sadoulet, E., de Janvry, A. 1995, *Quantitative development policy analysis*, John Hopkins University Press, Baltimore.

South Africa Foundation 1999, *Tourism in South Africa: An engine for growth?*, South Africa Foundation, Johannesburg.

South African Institute of Race Relations 2003, *South Africa Survey 2002/3*, South African Institute of Race Relations, Johannesburg.

South African Tourism 2002, *Tourism growth strategy*, South African Tourism, Illovo.

South African Tourism 2004a, *South African tourism index quarterly report (Q3 2003) July to September 2003*, South African Tourism, Illovo.

South African Tourism 2004b, *South African tourism index quarterly report (Q4 2003) October to December 2003*, South African Tourism, Illovo.

South African Tourism 2004c, *Monthly report December 2003* [Online], Available: http://www.southafrica.net/satourism/research/viewResearchDetail.cfm?ReportTypeCategoryID=19 [2005, July 26].

South African Tourism 2005a, *Annual tourism report 2002* [Online], Available: http://www.southafrica.net/satourism/research/viewResearchDetail.cfm?ReportTypeCategoryID=20 [2005, July 26].

South African Tourism 2005b, *Monthly report December 2004* [Online], Available: http://www.southafrica.net/satourism/research/viewResearchDetail.cfm?ReportTypeCategoryID=26 [2005, July 26].

Stats SA 2003a, *Census 2001, Census in brief*, Second Edition, Statistics South Africa, Pretoria.

Stats SA 2003b, *Tourism Satellite Accounts*, Leaflet, Statistics South Africa, Pretoria.

Stone, Sir R. 1985, 'The disaggregation of the household sector in the national accounts', in *Social accounting matrices, A basis for planning*, eds G. Pyatt & J. I. Round, The World Bank, Washington, DC., pp. 145 – 185.

The World Bank 2003, *A user's guide to poverty and social impact analysis*, The World Bank, Washington DC.

Thurlow, J., van Seventer, D. E. 2002, *A standard computable general equilibrium model for South Africa*, TMD discussion paper no. 100, Trade and Macroeconomics Division, International Food Policy Research Institute, Washington, DC.

TIPS 2004, Quantec Research Unit, *South Africa standardised industry employment* [Online], Available: http://www.tips.easy/data.co.za/tableviewer [2005, February 9].

UNDP 2003, *South Africa human development report 2003*, United Nations Development Programme of South Africa, Oxford University Press Southern Africa, Cape Town.

United Nations 1999, *Handbook of input-output table compilation and analysis*, Studies in Methods Series F, No. 74, Handbook of National Accounting, Department of Social and National Affairs, Statistics Division, New York NY.

United Nations, World Tourism Organization 1994, *Recommendations on tourism statistics*, United Nations, New York NY.

Wagner, J. E. 1997, 'Estimating the economic impacts of tourism', *Annals of Tourism Research*, vol. 24, no. 3, pp. 592 – 608.

West, G., Gamage, A. 2001, 'Macro effects of tourism in Victoria, Australia: A nonlinear input-output approach', *Journal of Travel Research*, vol. 40, pp. 101 – 109.

WTTC 1998, *South Africa's travel & tourism, economic driver for the 21st century*, World Travel & Tourism Council, London.

WTTC 2002, *South Africa, the impact of travel & tourism on jobs and the economy*, World Travel & Tourism Council, London.

Zhou, D., Yanagida, J. F., Chakravorty, U., Leung, P. 1997, 'Estimating economic impacts from tourism', *Annals of Tourism Research*, vol. 24, no. 1, pp. 76 – 89.