



A Framework/Model to Benchmark Tourism GDP in South Africa

*What is the role of tourism in the economy and what
drives tourism in South Africa?*

Research conducted by Pan African Research & Investment Services

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Executive summary

Tourism contribution to economic activity in South Africa (SA) has registered remarkable growth over the past decade and half. The country's natural endowment, cultural diversity and its unique location in Africa have placed it on a platform that attracts foreign visitors both for leisure and business purposes. However, the relationship between tourism and the other sectors is complex. This report is aimed at providing an understanding of tourism and its relationship to other economic sectors with a view to establish its quantitative importance to our economy.

There are different approaches to the quantification of the impact of tourism on the economy. In the current report, a demand-side approach has been utilised to assess the impact of tourism expenditure on capital and labour demand in the economy. Our analysis reveals that tourism expenditure by either foreign or domestic tourists has a positive impact on fixed capital formation and employment. To illustrate, when foreign tourism expenditure rises by 1%, fixed capital formation on average, increases by 0.04% while employment increases by about 0.07%. These are defined as elasticities of foreign tourism expenditure on fixed capital and employment respectively. Domestic tourism expenditure elasticities are 0.17% and 0.15% for fixed capital formation and employment, respectively.

A "Production Function" was also estimated for the aggregate economy in South Africa and our findings reveal that, for the sample period of 1980-2008, capital accounted for 70% of GDP whilst labour contributed 30% of GDP. These results confirm the findings of our previous studies which asserted that production structure in SA economy is relatively capital intensive despite the country being highly endowed with labour.

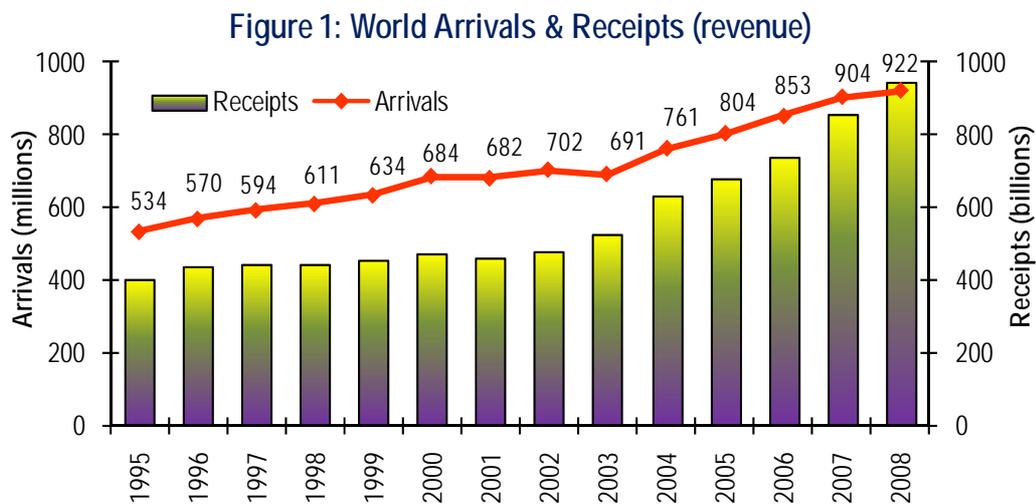
Tourism contribution to employment stood at 5% in 1994 and rose to 7.4% in 2008. Out of this robust growth, direct tourism contribution stood at 3% in 2008, whilst the rest resulted from spill-over or multiplier effects. With regard to tourism contribution to GDP, the total effect grew from 8.5% in 1994 to 10.5% in 2008¹. Direct effect stood at 2.7% in 2008, whilst the remaining 7.8% can be attributed to indirect effects.

¹ Due to data constraint on sectoral level, the study uses Gross Value Added (GVA) as a proxy for GDP.

In addition to the quantification of the relative size of tourism in the economy, the paper identifies some indicators as the key drivers for both foreign and domestic tourism. These may serve as the leading indicators within the tourism sector in South Africa.

1. Introduction

The travel and tourism industry employed over 255 million people around the world and generated approximately 9.6% of world GDP in 2008. Despite the occasional dip in the annual growth curve, the last decade has seen a consistent rise in Travel & Tourism (T&T). Following four years of excessively strong growth, the industry experienced an abrupt shift in the middle of 2008 with the onset of the global recession. According to the United Nations World Tourism Organisation (UNWTO), world tourism in 2008 enjoyed slight growth with international tourism arrivals reaching 922 million, an additional 18 million tourists over the 2007 level (Figure 1).



Source: UNWTO, Tourism Highlights 2009

Globally, foreign visitor arrivals increased by 2.3% in 2008, with Africa's attractiveness as a tourist destination continuing to grow. International travel demand declined by 1% between July and December 2008 compared to the same period in 2007 (UNWTO). This was primarily due to the prevailing financial and economic

crisis of 2007/2008. International tourist receipts, however, rose by 1.7% in real terms to \$944 billion (Figure 1).

Figure 2: Travel & Tourism Economy Aggregates: GDP- Direct & Indirect



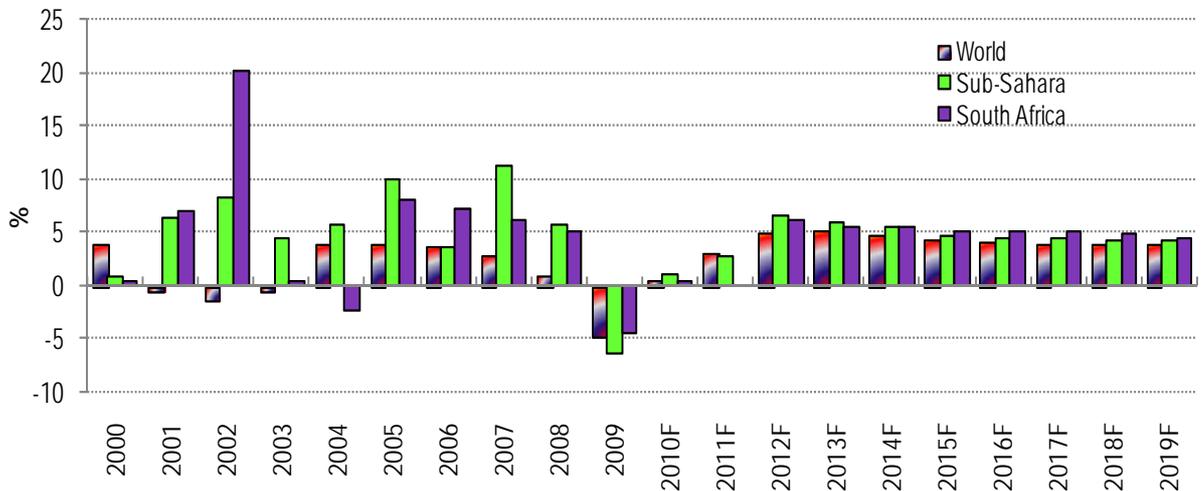
Source: World Travel & Tourism Council (WTTC), 2009

Travel and Tourism is one of the world's most important industries and employers of labour, and has also been a leading growth sector. Emerging economies in particular, are expected to be drivers of growth in tourism, boosting international travel -with China alone being responsible for sending approximately 100 million visitors to other destinations.

The sector's performance through the first half of 2008 was relatively resilient in the face of a deteriorating global economy, contributing approximately 9.6% to GDP in that year (Figure 2). GDP growth slowed by 3.5% in 2009 and remains weak in 2010- given the cyclical nature of the industry. The sector is expected to grow but only in line with an improvement in household disposable income levels. Despite difficult global economic conditions in 2008, the tourism industry created close to 2 million jobs during the year.

Figures 3a & 3b depict the real growth in T&T GDP and employment over time as estimated by the World Travel & Tourism Council (WTTC).

Figure 3a: Travel & Tourism Economy GDP (real growth, %)



Source: World Travel & Tourism Council (WTTC), 2009

Sub-Saharan Africa T&T employment in 2008 grew by 2,2% (real terms), with GDP growing by 5,6%. South Africa's T&T employment in 2008 grew by 4,9%, with GDP growing by 5,1%.

Figure 3b: Travel & Tourism Economy Employment (real growth, %)



Source: World Travel & Tourism Council (WTTC), 2009

However, the tourism industry faces challenges underpinned by the uncertainties around global economic conditions with volatility in oil prices affecting long-haul travellers, particularly middle-income tourists. There are also concerns over carbon emissions that have become real, rising in importance and affecting operations in many industries across many sectors the world over.

2. Background to the Technical Report

Tourism is an industry with growing importance in the economy. Given its size, compared to other industries and sectors in the South African economy, relatively little is known about the tourism industry. The main reason for this is that tourism activities are not captured explicitly in the United Nations' System of National Accounts. As a consumption-based services industry, tourism does not produce an explicit product but rather uses products of other industries that are captured under the various standard sectors within the National Accounts statistics. This results to the contribution of tourism towards the economy being accredited towards other sectors such as transportation, trade, energy, and the like under the current macroeconomic and statistics accounting framework.

When quantifying the impact of tourism on individual sectors, and the domestic economy as a whole, there are sectors that will have direct impacts from tourism activities. These sectors in most cases are obvious and include industries such as accommodation, transportation, and light industries making items of interest to tourists. However, in many cases there are indirect or secondary effects in certain sectors that are induced by tourism. These effects are less obvious and not so easy to quantify. These sectors include entertainment, finance, energy, and food production.

For quantification purposes, in order to establish long-term historical time series, data must be extracted from the National Accounts Statistics using more sophisticated analysis. Certain econometric techniques can be used to estimate some information not readily available.

This report is aimed at quantifying the contribution of tourism in the aggregate economy.

More specifically, the following objectives and outcomes have been set:

1. Estimate the relationship between GDP and tourism activities;
2. Quantify the contribution that tourism makes to the economy as a whole;
3. Disaggregate the relative contribution of domestic as opposed to foreign tourists to SA economic growth;
4. Estimate the impact of tourism on employment; and
5. Provide an econometric analytic perspective for the above estimates..

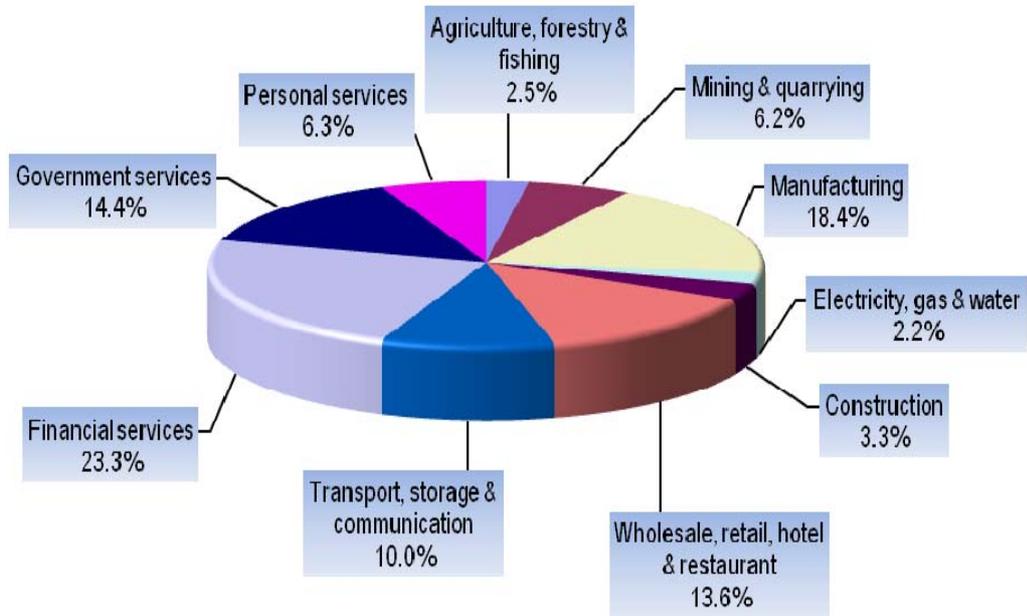
South Africa has a diverse economy with no single sector completely dominating production in the economy. Gross Domestic Product (GDP) growth is derived from production in the following sectors:

1. Agriculture, forestry and fishing;
2. Manufacturing;
3. Electricity, gas and water;
4. Construction;
5. Wholesale & retail trade, hotel and restaurants;
6. Transport, storage and communication;
7. Finance, real estate & business services;
8. General government services
9. Personal services.

These sectors are all captured in the South African National Accounts in line with the globally accepted System of National Accounts statistics. This system of accounts captures the relationships between sectors and classifies production activity accordingly.

Figure 4, below summarizes South Africa's GDP for 2008.

Figure 4: The Real Composition of GDP by Sector during 2008 (%)



Source: Statistics South Africa (StatsSA)

Based on the average quarterly data of 2008, finance, real estate and business services had the largest share of GDP at 23.3% followed by manufacturing with 18.4% and general government services at 14.4%.

Tourism, a potentially important contributor to GDP, is excluded from this traditional accounting system. Tourism is a largely consumption-based sector and cannot be wholly classified under a single code as it uses inputs from various sectors and supplies services to others. Its contribution to GDP is divided and accounted for between the nine sectors of the National Accounts. Mining & Quarrying Sector is excluded from the report because of the relatively weak link with tourism and serious data limitations.

Tourism also plays other critical but indirect roles in the country's economy. At the same time, tourism is affected by economic indicators such as the Rand exchange rate. For instance, a relatively strong currency increases the purchasing power of the citizens (and hence tourism demand) and reduces imported inflationary pressures which in turn keeps interest rates lower than otherwise. Rand strength, meanwhile, adversely affects

demand by foreign tourists. At the same token, an increase in tourism earnings from foreign tourists has a positive impact on the balance of payments; namely that an increase in (foreign) tourism earnings increases foreign reserves, which helps to reduce the trade deficit. Effectively, for macroeconomic purposes, foreign tourism revenues are similar to any other export earnings for the country.

3. Methodology Used in Estimating Tourism's Contribution to GDP

3.1. Definition of Tourism

For the purpose of this research, tourists were defined as follows:

1. **Foreign tourists:** Foreign tourists are defined as total foreign arrivals excluding workers and contract workers in South Africa as reported by the Tourism and Migration Release of StatsSA. This exclusion is made to get to as close an approximation of foreign tourists as the data available allows. SA Tourism has further categorised foreign arrivals into two sub-categories:
 - a. Air markets – those countries where at least 60% of arrivals from the country arrive by air
 - b. Land markets – those countries where at least 60% of arrivals from the country arrive by land. The countries are Botswana, Lesotho, Mozambique, Malawi, Swaziland, Zambia and Zimbabwe.

To conform to official definitions, shuttle trade and capital spending by foreign tourists has been excluded from total expenditure by foreign tourists.

2. **Domestic Tourists:** Domestic tourists are defined as South African residents travelling on a trip within South Africa that lasts more than one night but less than one year and the purpose of the trip is not for an activity that is remunerated. Domestic tourism is measured by the Domestic Tourism Survey of SA Tourism.
3. **Total Tourists:** The sum of domestic and foreign tourists

3.2. Methodology

There are various methods of estimating the economic impact and size of the tourism sector in an economy. Use of time-series data is one approach and an input-output analysis is another. An input-output analysis traces the flow of goods and services, income and employment among the interrelated sectors of the economy. This approach measures **direct, indirect and induced effects** of tourism related transactions in the economy. This impact is a snapshot of the economy during a certain year. Due to the static nature experienced with input/output tables, this type of analysis can only be updated every few years, normally 4 to 5 years.

A time series analysis is another approach, which has been utilized in this report. It is a fact that tourism impacts on some major macroeconomic variables in the economy, namely the GDP, employment, and stock of capital. Therefore, a long-term relationship could be established between tourism and these variables which could give a more robust econometric result than a one year snap shot given by an input – output analysis.

As mentioned earlier, the primary objective of this report is to estimate the impact of tourism expenditure on the South African economy and some of its key macroeconomic aggregates. To this end, we followed four steps in calculating the contribution of tourism to GDP:

1. Estimate the elasticity of capital formation in South Africa with respect to changes in tourism expenditure. This will indicate magnitude of 'derived' demand for investment relative to changes in tourism expenditure.
2. Likewise, the labour elasticity measures how much additional labour is demanded in response to changes in tourism spending overtime.
3. Estimate a production function for South Africa with capital and labour² as production factors. This will allow inferences on how GDP changes via capital and labour when tourism expenditure changes.
4. Calculate the contribution of tourism in South Africa to GDP.

² Capital refers to capital formation and labour to total employment as defined by StatsSA - LFS.

This approach captures both the direct and indirect effect of tourism expenditure on the economy.

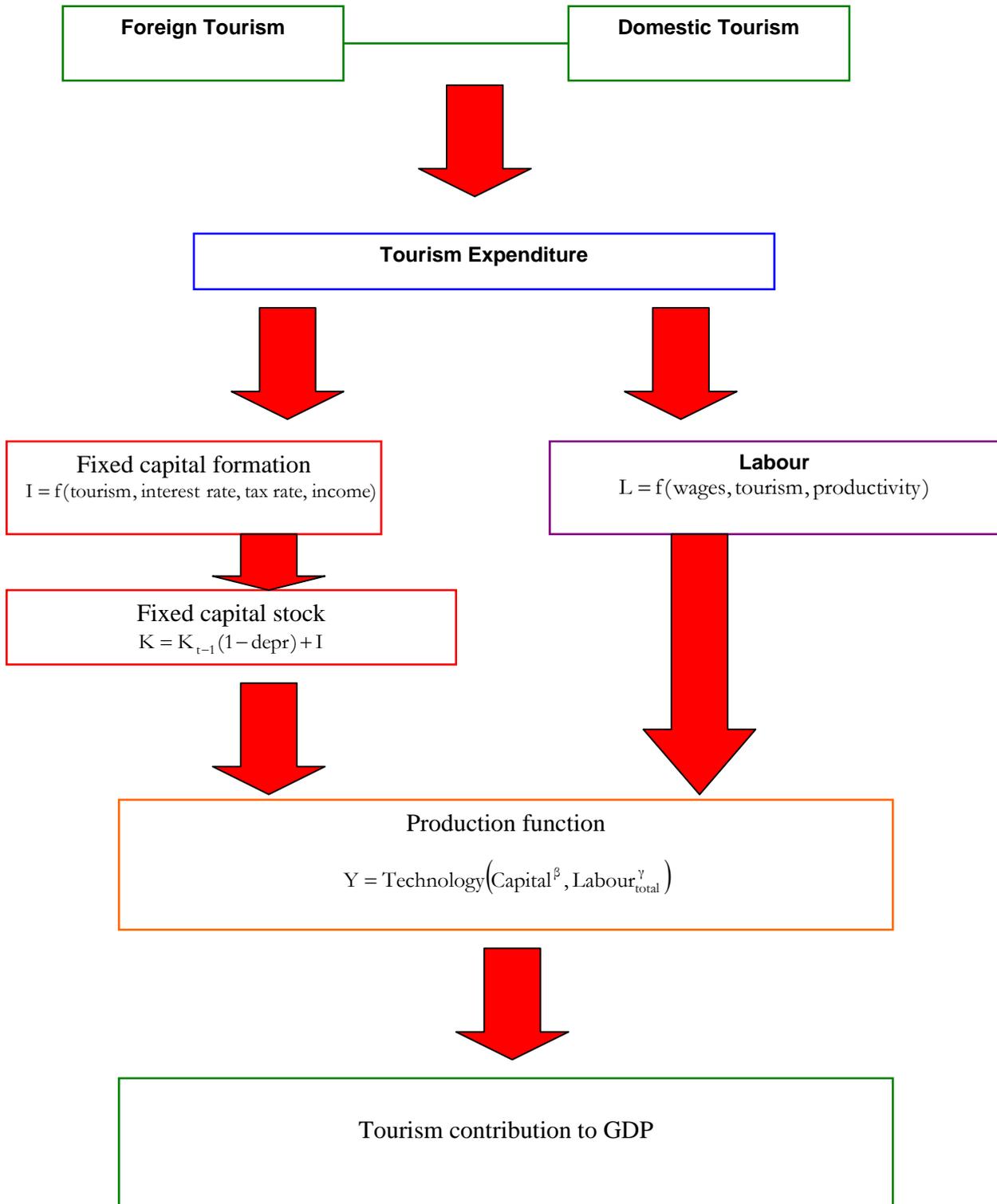
The direct and indirect contribution of the impact of tourism expenditure on the aggregate macro variables (i.e. employment and GDP) in the economy is calculated based on the information derived from the macro (aggregated) model.

This procedure is followed due to the discrepancy that is expected between the sectoral estimations and the aggregated estimations. For instance, in the sectoral estimations different coefficients of labour and capital are found for each of the 9 sectors investigated in the study. The aggregate model will however, tend to average out these coefficients and thereby imposing a strict assumption that all the sectors are homogenous. This eventually leads to a discrepancy between the sectoral contribution and the aggregate contribution of tourism expenditure to GDP.

In order to correct for these discrepancies and arrive at a more accurate splits for the direct and indirect effect of tourism expenditure on the overall economy, the ratio of the direct/indirect contribution to total aggregate contribution estimated from the aggregated model is applied to the total sectoral contributions.

Figure 5 below presents the schematic view of the model adopted in the study.

Figure 5: Schematic illustration of the methodology



3.3. Data Issues, Limitations and Assumptions

Data on tourism has not been compiled and documented over time, making it difficult to do time series analysis without interpolating and extrapolating data to obtain the missing observations.

The monthly schedules on tourism and migration published by StatsSA do not reveal much information regarding direct and indirect expenditure by tourists. This makes it difficult to estimate gross value add of the tourism sector accurately. Tourists in these publications are classified according to a) port of entry and mode of travel, b) overseas or mainland Africa travellers, and, c) purpose of visit. SA Tourism only started compiling regular domestic tourism data from 2005, and improved its methodology in 2007.

Tourists from Africa land markets, although foreign tourists, have been classified as domestic following similar spending patterns with the domestic tourism market. These averages exclude money spent on capital goods and shuttle trade in line with official definitions. Based on the assumption that spending by foreigners is mainly driven by their income, the amount spent was adjusted backwards to 1980 using real GDP growth of Africa, the SADC countries and the G7 countries respectively. This provided the estimated spending pattern of foreign tourists from Africa and the rest of the world earlier than 2002.

Past behaviour of domestic tourism expenditure is a greater unknown than foreign tourism expenditure. For domestic tourism expenditure, the only data available are from 2005 onwards (SA Tourism Domestic Tourism Surveys , and one annual figure for 2003). These observations can hardly be enough as a base for any meaningful inference.

The official data closest to domestic tourism is the national accounts data on recreational, entertainment and culture as well as spending on hotels, cafes and restaurants. To exclude the non-tourism related expenditure from these accounts the portions spent on tourism-based activities was calculated. Using the 2005 Domestic Tourism Survey, it shows that expenditure on tourism was approximately 40% of the total spending on recreational, entertainment and culture plus spending on hotels, cafes

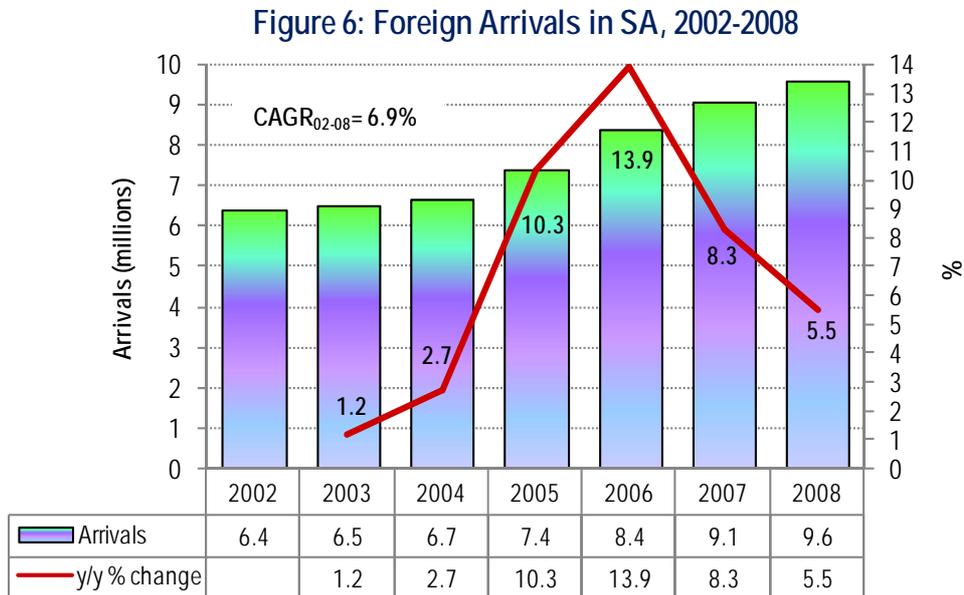
and restaurants. This ratio was applied to the national account data mentioned above retrospectively and deflated using the headline CPI index.

4. Tourism in South Africa

4.1. Tourism Activity

South Africa enjoys popularity as a tourist destination. It attracted over 9,6 million tourists in 2008, a 5.5% increase over 2007 (Figure 6). This performance exceeded the global average of 1,8% and helped the country maintain its 29th position in the global tourism destination rankings.

Foreign arrivals in South Africa are available on a monthly basis since 1976. This data includes the number of arrivals, but excludes the amount spend by individuals. For purposes of estimating tourism's contribution to GDP total amount spend is required.

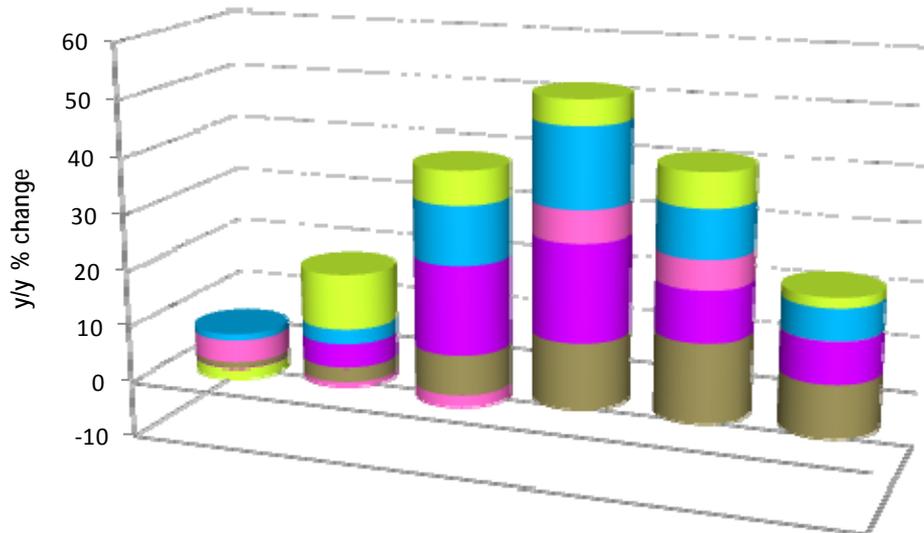


Source: SA Tourism Annual Report, 2008

The growth in arrivals was driven largely by the African Air markets which grew at a faster rate than the other source markets. Growth in Africa Air markets of 9.3% was

stronger than land markets which grew by 7% in 2008 (Figure 7). All Africa Air markets performed well in this period.

Figure 7: Arrivals to South Africa, 2002-2008



| | 02-03 | 03-04 | 04-05 | 05-06 | 06-07 | 07-08 |
|---------------------|-------|-------|-------|-------|-------|-------|
| Global Arrivals | -1.7 | 10 | 6.1 | 4.5 | 6.1 | 1.8 |
| All Markets | 1.2 | 2.7 | 10.3 | 13.9 | 8.3 | 5.5 |
| Long-Haul Markets | 4.1 | -0.8 | -2.1 | 5.8 | 5.2 | 0.1 |
| Africa Land Markets | -0.1 | 4.3 | 16.1 | 17.1 | 9.1 | 7 |
| Africa Air Markets | 1 | 2.4 | 6.9 | 11.4 | 13.7 | 9.3 |

Note: Africa Air Markets are markets where at least 60% arrivals to SA use air transport. Africa Land Markets are markets where at least 60% of arrivals to SA use road transport. Long-haul markets include all countries outside of Africa.
Source: StatsSA-Tourism & Migration Release, UNWTO Tourism Barometer, Jan 2008, SAT calculations

Total foreign direct spend including capital expenditure, increased by 7.8% (R 6,0 billion) to reach a high of R83.4 billion in 2008 (Table 1).

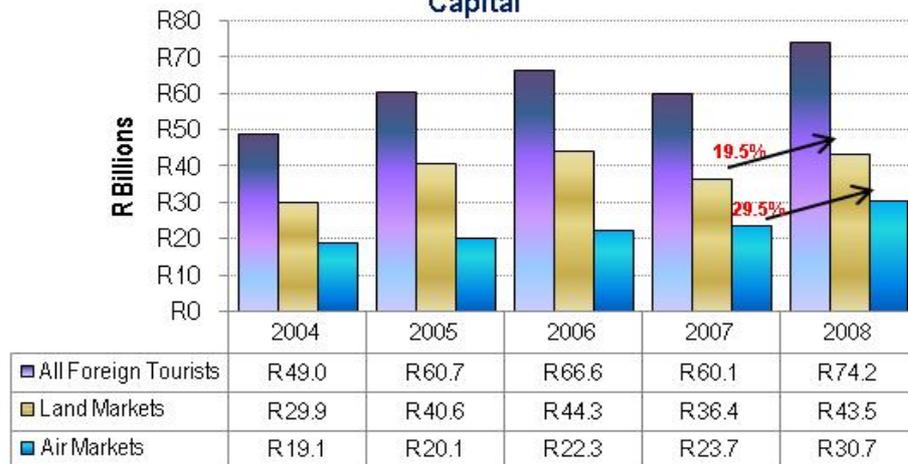
TABLE 1: Total Foreign Direct Spend (TFDS), 2004-2008 (R billions)

| | 2004 | 2005 | 2006 | 2007 | 2008 | TOTAL |
|-------------------|--------|--------|--------|--------|--------|---------|
| TFDS Total | R 53.6 | R 65.4 | R 74.2 | R 77.4 | R 83.4 | R 354.0 |
| TFDS (excl capex) | R 49.0 | R 60.7 | R 66.6 | R 60.1 | R 74.2 | R 310.6 |

Source: SA Tourism Annual Report, 2008

Total foreign direct spend excluding capital expenditure, increased by 23.5% (R 14,1 billion) to R74.2 billion in 2008 (Table 1 & Figure 8). Revenue generated by foreign arrivals increased by 23.4% (R14,1 billion) compared to 2007.

Figure 8: Total Foreign Direct Spend (TFDS) Excluding Capital



Source: SA Tourism Annual Report, 2008

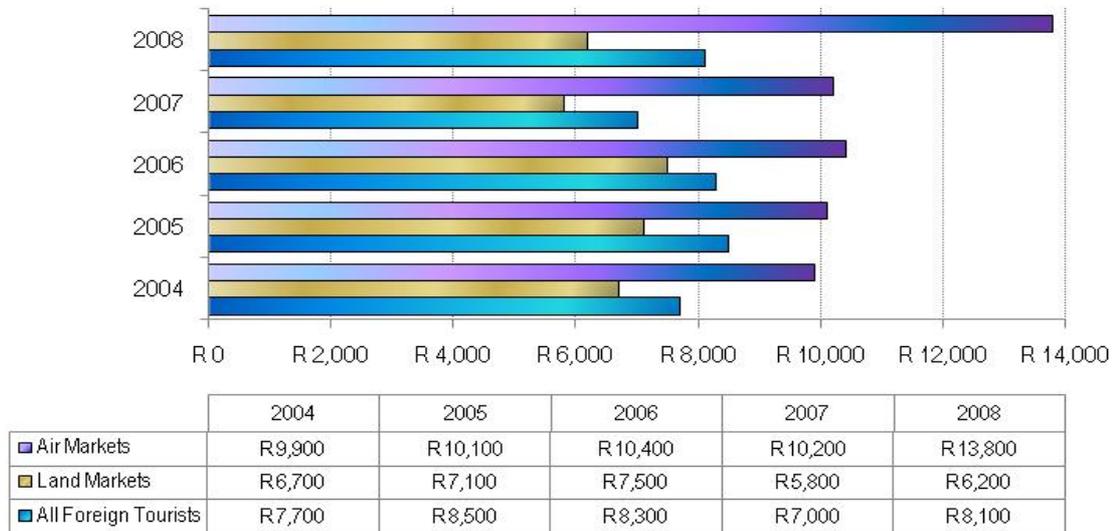
The key drivers to the increase in revenue were increases in foreign arrivals, average spend per day and average length of stay for all tourists. The increase of these two measures, resulted in a gain of R7,9 and R3,6 billion respectively. The increase in length of stay contributed R2.5 billion to TFDS (excl capex).

TFDS (excl capex) generated by Air Markets increased by 29.5% (R7 billion) to R30,7 billion, whilst TFDS generated by Land Markets increased by 19.5% (R7,1 billion) to R43,5 billion in 2008 (Figure 8).

In 2008, the Rand also depreciated against all major currencies and this meant South Africa was better value for money for foreign tourists.

The average TFDS (excl capex) of all tourists increased by 15.7% (R1,100) in 2008 to R8,100, with Air Markets reaching a high of R13,800 and Land Markets achieving R6,200 (Figure 9).

Figure 9: Average Total Foreign Direct Spend (excl capex) in R Billions

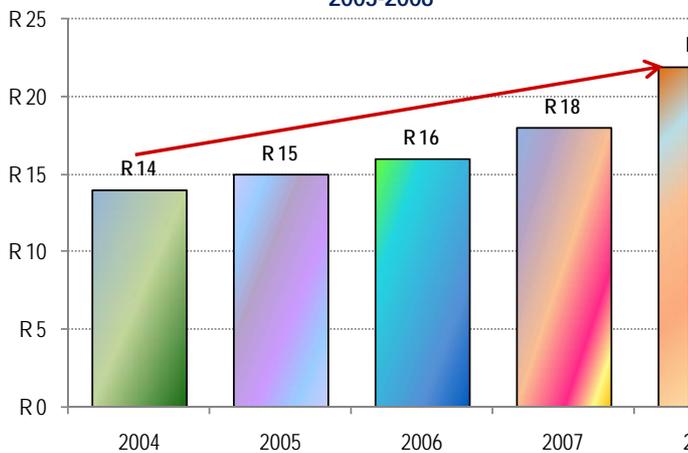


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Source: SA Tourism Annual Report, 2008

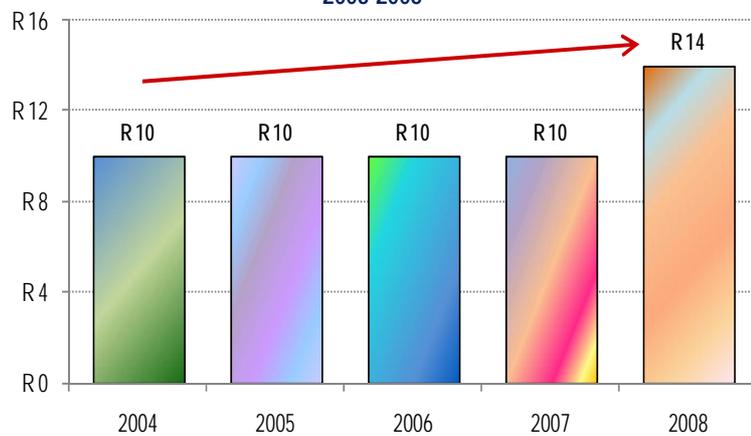
increasing by 35.3% in Rand terms and 14.3% in Dollar terms. The depreciation of the Rand in 2008 contributed to the increase in average TFDS (excl capex) (Figures 10a & 10b).

Figure 10a: Prepaid Spend per Trip by Air Arrivals, 2003-2008



Source: SA Tourism Annual Report, 2008

Figure 10b: TFDS per Trip by Air Arrivals, 2003-2008



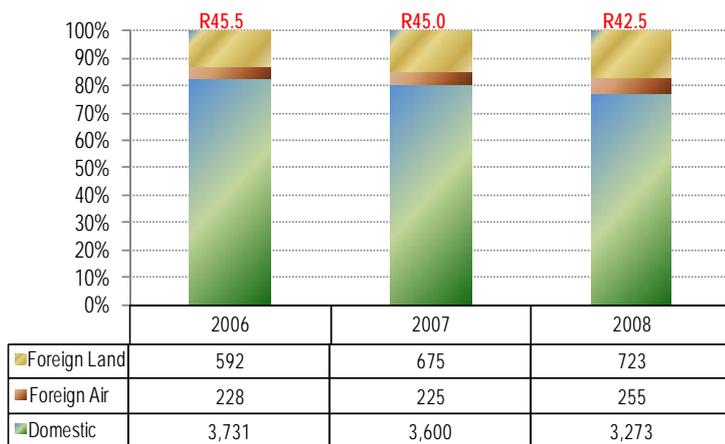
Source: SA Tourism Annual Report, 2008

Leisure continues to be the major reason for travel into South Africa, accounting for 57% of total arrivals in 2008.

Domestic tourism declined by 8% in 2008, with 32,9 million trips taken compared to 35,9 million trips in 2007. Economic constraints remain the major barrier to domestic travel, which could explain the decline in domestic travel in 2008 as the SA consumer faced financial pressures with increased interest rates, fuel and food. Most of the domestic tourism trips taken are for the purposes of visiting friends and relatives (VFR), but these types of trips are typically low spending trips, have limited multiplier effects and therefore do not make as significant a contribution to revenue (receipts).

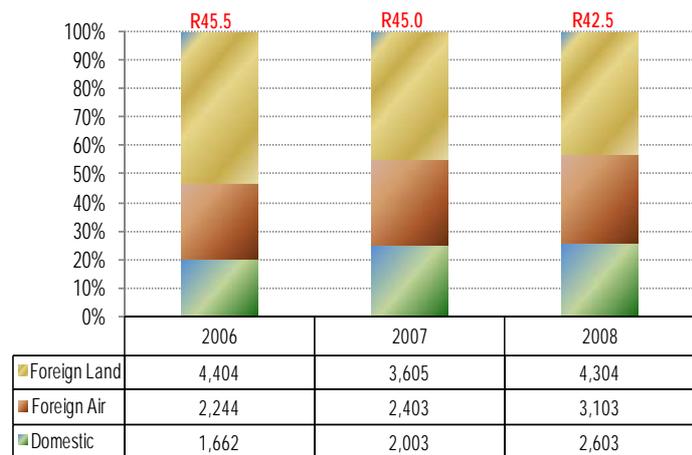
Domestic tourism contributes significantly to the tourism sector, accounting for approximately 77% of the total tourism volume in SA in 2008 but only 26% of tourism receipts, as can be seen in Figures 11 & 12. Holiday trips, accounting for only 16% of total domestic volume, contributed 39% to total domestic tourism revenues in 2008.

Figure 11a: Domestic Trips vs Foreign Tourist Arrivals, 2006-2008 (R millions)



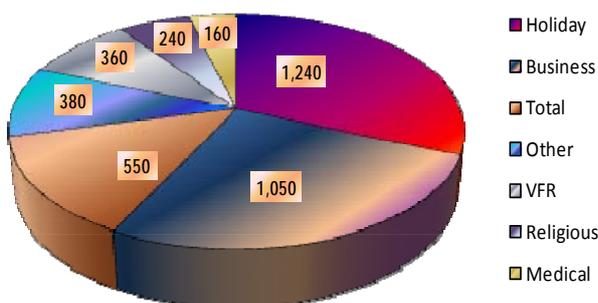
Source: SA Tourism Annual Report, 2008

Figure 11b: Domestic vs Foreign Direct Spend, 2006-2008 (R billions)



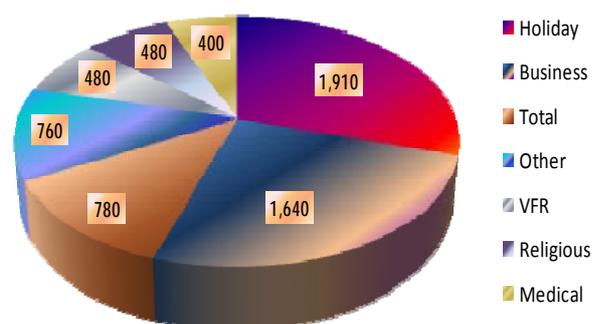
Source: SA Tourism Annual Report, 2008

Figure 12a: Average Spend per Trip by Purpose, 2007



Source: SA Tourism Annual Report, 2008

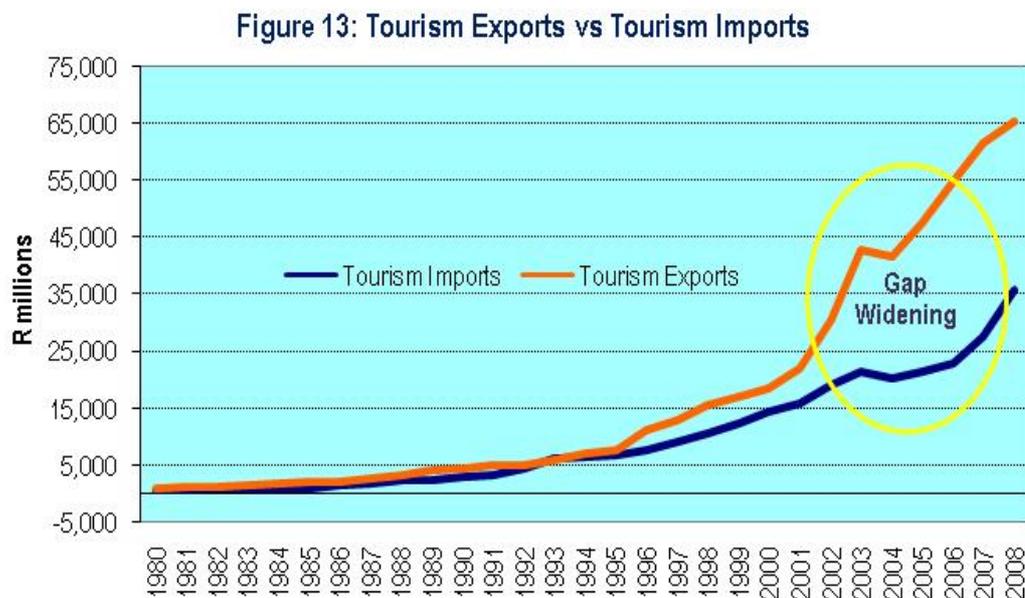
Figure 12b: Average Spend per Trip by Purpose, 2008



Source: SA Tourism Annual Report, 2008

4.2. South Africa a Net Exporter of Tourism Services

Since the early 1990s, South Africa has been an exporter of tourism services (service receipts) and the trend has been increasing since then (Figure 13). In 2008 annual receipts (exports) were R65,4 million and payments (imports) were just over R35,9 million. Because exports have been higher than imports for some time now, this is an indication that tourists from other countries are spending more money in the country compared to what South Africans spend when abroad. This could also be an indication that there are fewer South Africans going abroad than there are international tourists travelling to South Africa.



Source: South African Reserve Bank (SARB)

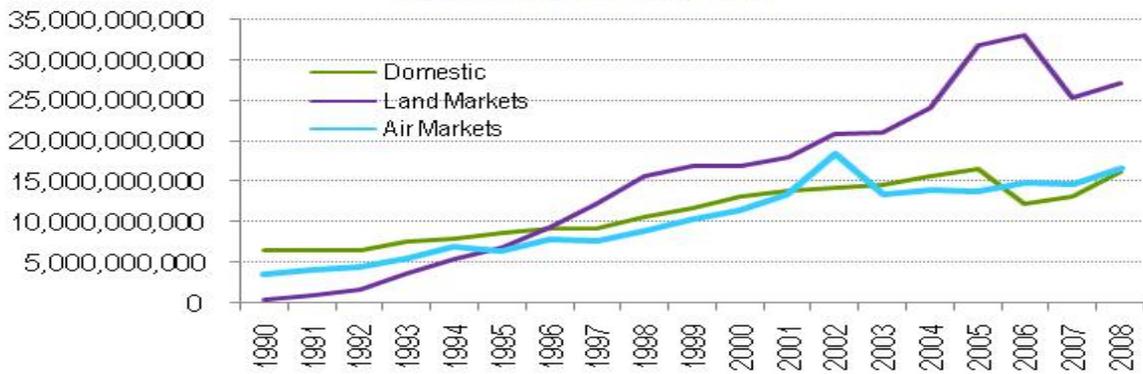
After the first democratic elections, South Africa saw the gap between tourism imports and tourism exports improving, highlighting an ongoing trend towards a flourishing tourism industry.

4.3. Spending Pattern by Tourists

In 2008, air tourists spent about R16.8 billion (R7,666 per person per trip); those from land markets spent R27,2 billion (R3,837 per person per trip) in the same period (Figure 14). Domestic tourists are residents who travel to a place within the country. Domestic

tourists spent about R16,1 billion (R490 per person per trip) in real terms in 2008. However, the averages used in the analysis exclude money spent on capital goods and items bought for resale. This ensures consistency with the global definition of tourism expenditure as defined in the “Recommendation on Tourism Statistics” by the UNWTO.

**Figure 14: Estimated Total Real Spending Patterns
1990-2008, (Year 2000=100)**



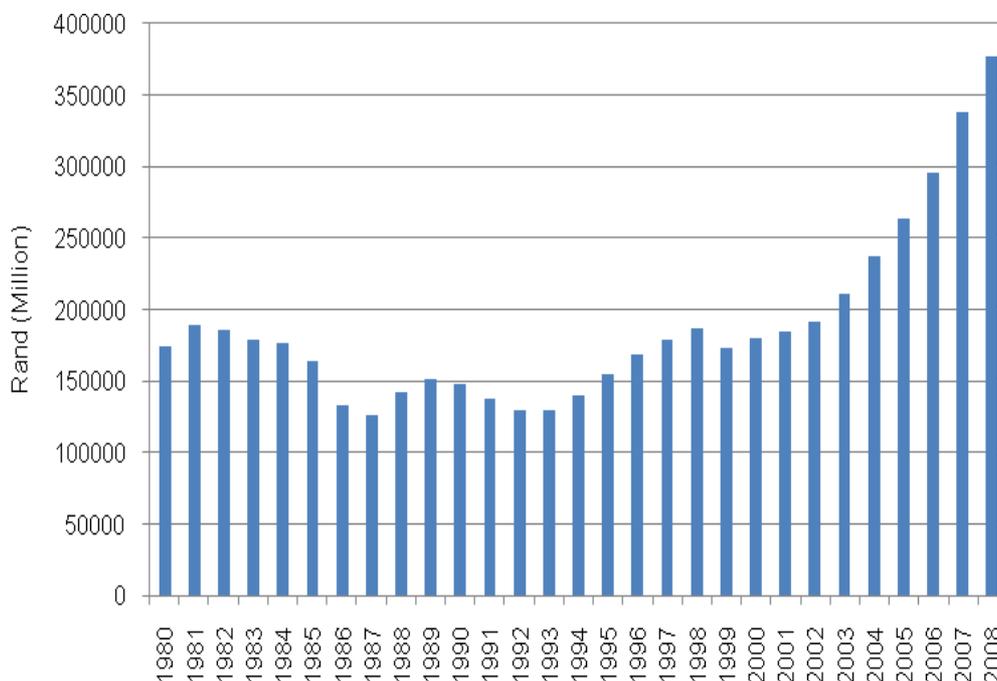
Source: SA Tourism-Domestic Tourism Survey & PAIRS 2010

5. Empirical Analysis

5.1. Background to Fixed Capital Formation

One of the major inputs into the production process is capital. South Africa's fixed capital formation has exhibited a 'U-Shaped' trend over the last three decades, with a falling trend in the 1980s and a rising one post-1990 (Figure 15).

Figure 15: Gross Fixed Capital Formation (2005 Prices)



Source: South African Reserve Bank (SARB)

Economic theory dictates that capital formation in the economy is driven mainly by the following factors, namely:

1. Total economic activity in the country, generally proxied by the level of output (GDP) in the economy. The higher the level of GDP, the higher will be level of capital formation in the economy.

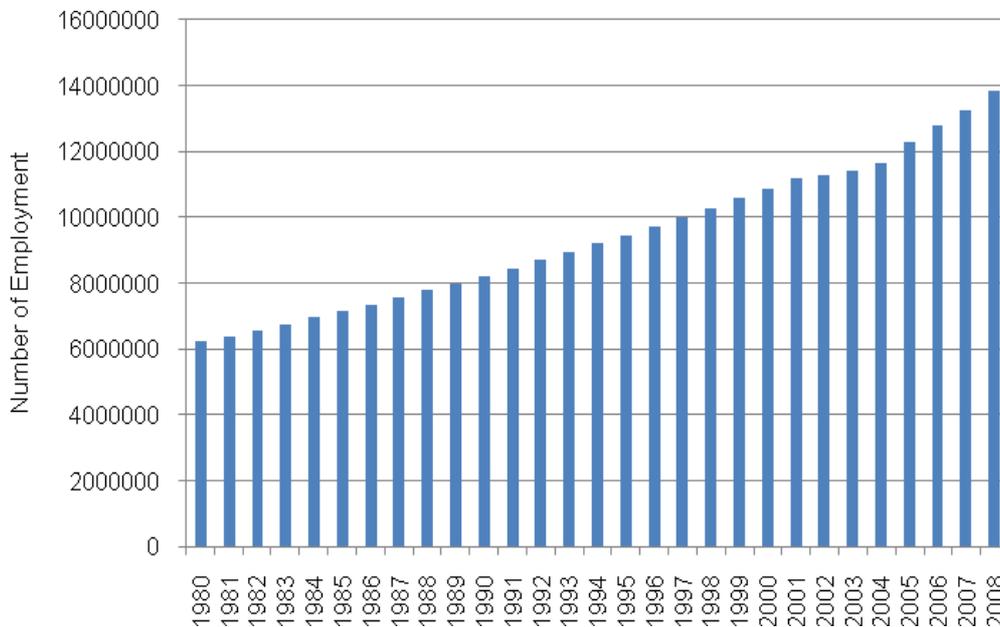
2. The user cost of capital (UCC). The user cost of capital is a combination of the long term interest rate, the corporate tax burden and the rate of depreciation of capital stock. The higher the UCC, the more expensive it is to invest and the lower the fixed capital formation.
3. Prevailing investment conditions or opportunities in the country. These conditions are driven by many factors such as economic, social and political issues. In this case the conditions are proxied by the price/earnings ratio of the Johannesburg Stock Exchange (JSE).

For the purposes of this study we have added a third driver of capital stock, namely total expenditure on tourism. This expenditure captures the causality between tourism expenditure and fixed capital formation while controlling for the other main drivers mentioned above. Examples of fixed capital formation driven by tourism spending are airports, certain extensions to harbours and train stations.

5.2. Background to Employment

Employment series was taken from the labour force survey simply because of its wider coverage compared to other employment surveys. However, this series like other employment series is only available from year 2001 and not long enough for a time series analysis. Hence, extrapolation of data points outside the actual series was done in order to obtain the number of observations long enough to conduct a time series analysis (Figure 16). Therefore, total employment is assumed to grow overtime by the average growth rate from 2001 onwards. Thus, this assumption must be taken into account when analysing the outcome of our results.

Figure 16: Total Employment in the Non-Agricultural Sector



Source: StatsSA – Labour Force Survey & Own calculations (PAIRS)

Derived labour demand is driven mainly by:

1. **Output Gap:** This refers to the difference between the actual GDP and potential GDP. Thus, when the actual GDP is below the potential GDP, there is room for further output growth; hence employment is likely to rise.
2. **Real wages:** Since wages serves as a cost to firms in production process, a rise in real wages will lead to a fall in employment.

In addition to these two factors we have added total tourism expenditure as explanatory variable. Tourism is a labour intensive industry and one can reasonably expect that there exists a positive relationship between tourism expenditure and employment creation.

5.3. Background to the Production Function

In order to estimate a production function for South Africa, a Cobb-Douglas functional equation was adopted. The Cobb-Douglas production function has been the standard

work horse in empirical studies for South Africa (and many other countries). The specification used assumes that capital and labour are the two major production inputs and that constant returns to scale prevails. Although technology is also an input into the production process, it is assumed to be the residual item in this specification.

Traditionally empirical research has found that labour is responsible for two thirds GDP growth and capital for the other third. The role that capital and labour play in South African production has been researched extensively in the past. However, contrary to most countries, due to structural reasons, South African labour contributes less to growth than capital does³.

5.4. Empirical Results

The elasticities of fixed capital formation and labour were estimated after controlling for the main drivers of these two variables⁴. In each case we have distinguished between foreign and domestic spending. The estimated elasticities are presented in Table 2.

Table 2: Elasticities with Respect to Tourism Expenditure

| | Fixed Capital Formation | Labour |
|---------------------------------|-------------------------|--------|
| Foreign Tourism Expenditure | 0.04 | 0.07 |
| Africa Land Tourism Expenditure | 0.02 | 0.06 |
| Africa Air Tourism Expenditure | 0.04 | 0.09 |
| Domestic Tourism Expenditure | 0.17 | 0.15 |

Source: PAIRS 2010

An example of the interpretation of the elasticities is as follows:

- A 1% change in foreign tourism expenditure will, on average, result in a 0.04% change in fixed capital formation
- A 1% change in domestic tourism expenditure will, on average, result in a 0.17% change in fixed capital formation.

³ See for example Fedderke (2002)

⁴ The data range used was 1980 – 2006. For the estimation equations see Appendix B. All equations were estimated using standard residual based cointegration techniques.

- A 1% change in foreign tourism expenditure will, on average, result in a 0.07% change in labour employment
- A 1% change in domestic tourism expenditure will, on average, result in a 0.15% change in labour employment.

From the results outlined above, it is clear that there are some differences in the effect that foreign and domestic tourism expenditure have on the economy. Foreign tourism expenditure tends to have a very minimal impact on both fixed capital formation and labour demand. With regard to domestic tourism spending, a bigger impact is recorded for both fixed capital formation and labour demand. Due to their large number, domestic tourists are likely to generate more jobs and use more capital than foreign tourists especially in the transport sector.

A production function was also estimated to determine the average contribution of capital and labour in the production process. For the sample period of 1980 to 2006, our results show that labour contributes 30% to GDP growth and capital accounts for the remaining 70% (Table 3).

Table 3: Elasticities of Capital and Labour to GDP

| 1980 - 2008 | Capital | Labour |
|--------------------|----------------|---------------|
| Share of GDP | 0.7 | 0.3 |

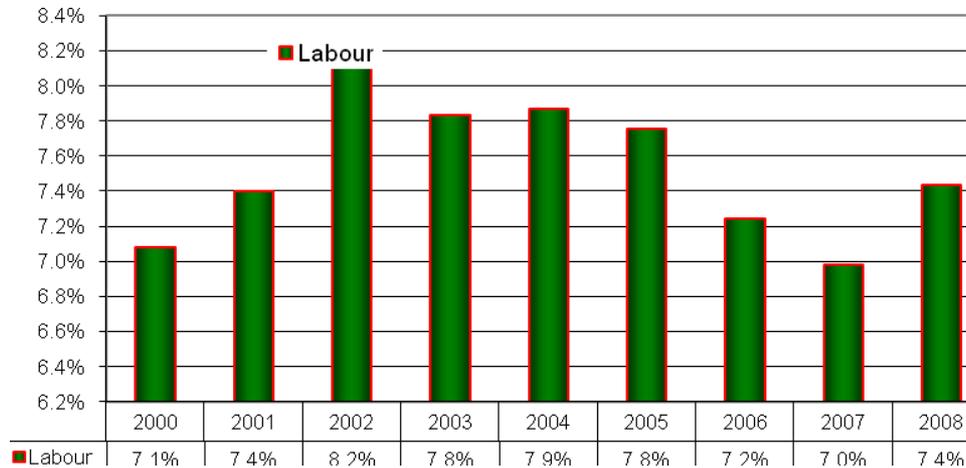
Source: PAIRS

These estimates are in line with previous studies that have found that labour contribution to growth is by far less than that of capital in South Africa's case.

5.5. Calculating Tourism's Contribution to the Economy

Once the elasticities of fixed capital and labour with respect to tourism expenditure as well as the ratios that enter into production process are known, the contribution of tourism to the aggregate economy is calculated.

Figure 17: Contribution of Total Tourism Expenditure to Total Employment

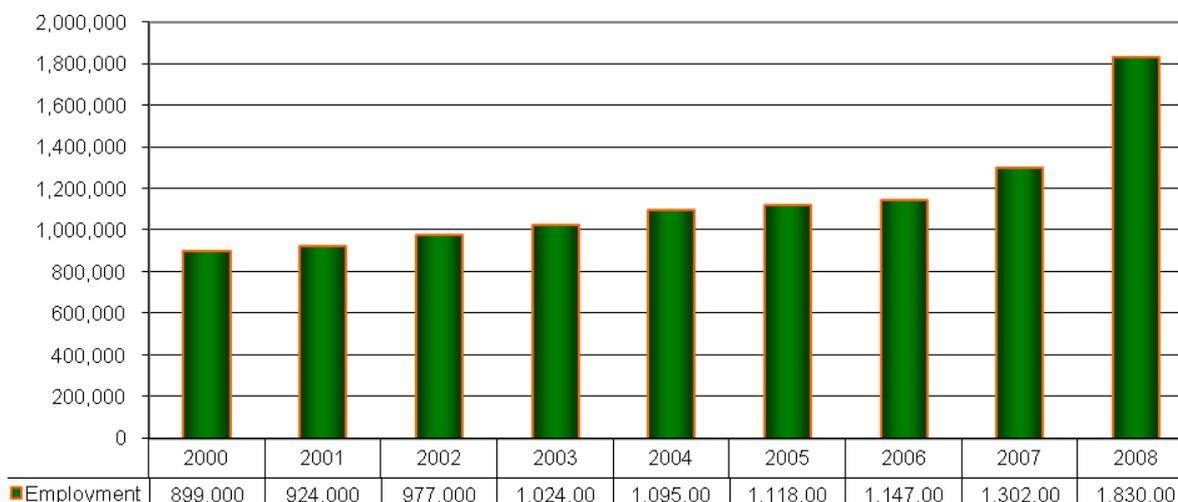


Source: PAIRS 2010

As shown in Figure 17 above, tourism contribution to employment rises significantly between 2000 and 2002 where it reaches a peak before decelerating thereafter. In 2008 tourism contribution to employment returned to its 2001 level. However, the slight moderation in job creation by tourism spending in the recent years does not imply that tourism has been shedding jobs, rather other economic sectors had started creating more job opportunities than before, resulting in tourism's share declining. It is also clear that during the period when most sectors were shedding jobs, the share of tourism's contribution to total employment was as high as 8.2% in 2002 and currently stands at 7.4%. This robust figure represents both direct and indirect tourism impact and the split of this impact is discussed in Section 5.6, where our results reveal that tourism expenditure accounted for about 21% of total direct employment in 2008, with additional indirect effects.

Figure 18 shows the estimated number of people employed as a result of an increase in tourism expenditure. This employment creation represents both direct and indirect effect of tourism spending. The estimated number of jobs has been steadily rising from about 900 000 in 2000 to just over 1.8 million in 2008 with tourism directly responsible for about 383 000 of these jobs.

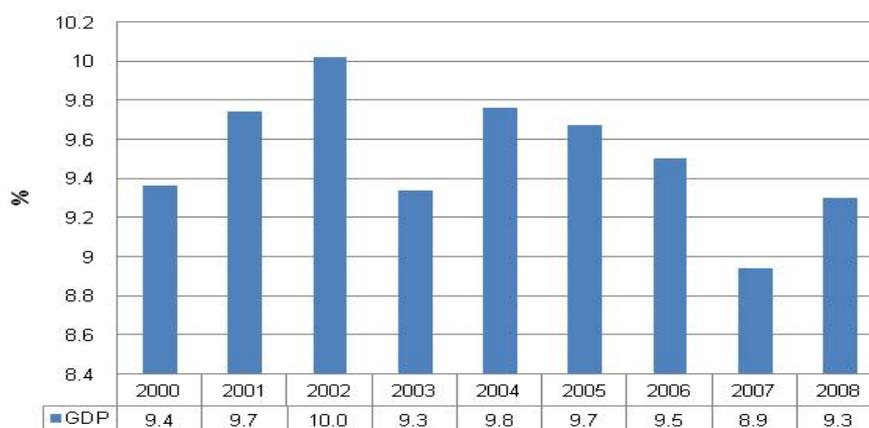
Figure 18: Estimated Number of Jobs due to Tourism Expenditure



Source: PAIRS 2010

As far as tourism's contribution to GDP is concerned, a robust 10% contribution was achieved in 2002, which moderated slightly thereafter, settling at about 9.3% in 2008 (Figure 19). This represents the overall sectoral contribution, which includes both direct and indirect impact (Figure 19). As mentioned earlier, the overall contribution from the aggregated model (at 10.5%) is found to be higher than the sum-total of sectoral contributions totalling 9.3% in 2008.

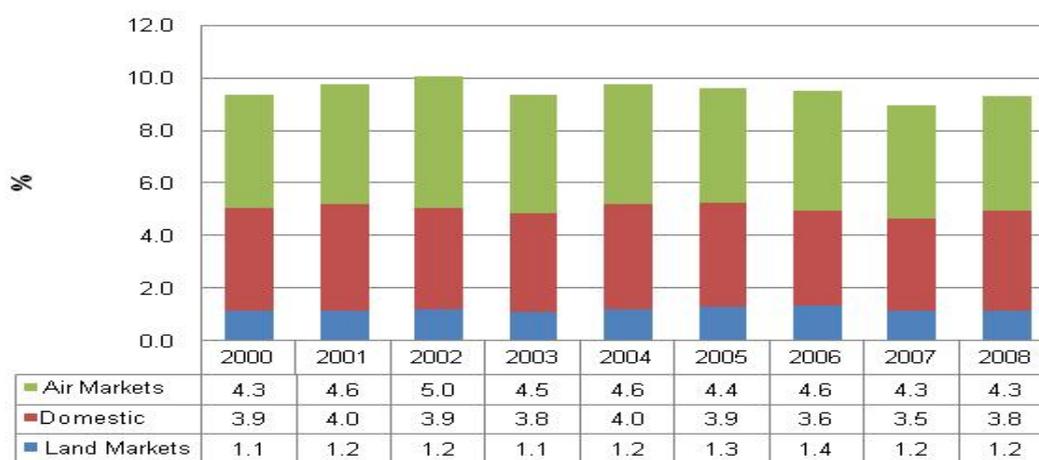
Figure 19: Contribution of Total Tourism Expenditure to GDP



Source: PAIRS

Once again, if one looks at the contribution to GDP per tourist category, an interesting pattern emerges. Figure 20 shows that tourism spending by air markets has been contributing the largest share of GDP since 2000, followed by spending by domestic tourists and lastly tourists from Africa land markets. In 2002, air markets and domestic tourists spending contributed 5% and 3.9% to SA GDP respectively. This contribution moderated in 2008 to 4.3% for air markets and 3.8% for domestic tourists. The average spends per trip and the frequency of these trips can be attributed to the observed pattern.

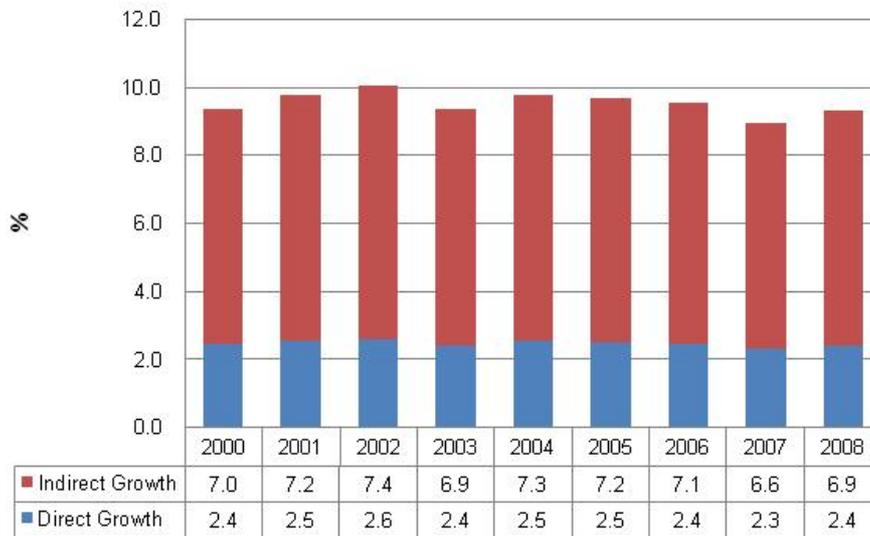
Figure 20: Contribution to GDP per Tourist Category



5.6. Direct and Indirect Contributions

Whilst the above section looked at the impact of tourism expenditure in aggregate terms, the current section distinguishes direct from indirect impact of tourism expenditure in the entire economy. As mentioned in the previous section, the ratio of the estimated direct/indirect contribution to the total aggregate contribution to GDP in the macro model is applied to the sectoral results in Figure 19. Direct contribution is found to have contributed about 25.7% to GDP while the remaining 75% goes to indirect contribution. To illustrate, almost a quarter of SA growth resulted directly from tourism expenditure and the rest can be attributed to the spill-over effects (or indirect effects) of tourism expenditure (See Figure 21).

Figure 21: Growth (in GVA) due to Direct and Indirect Spending from all Tourists

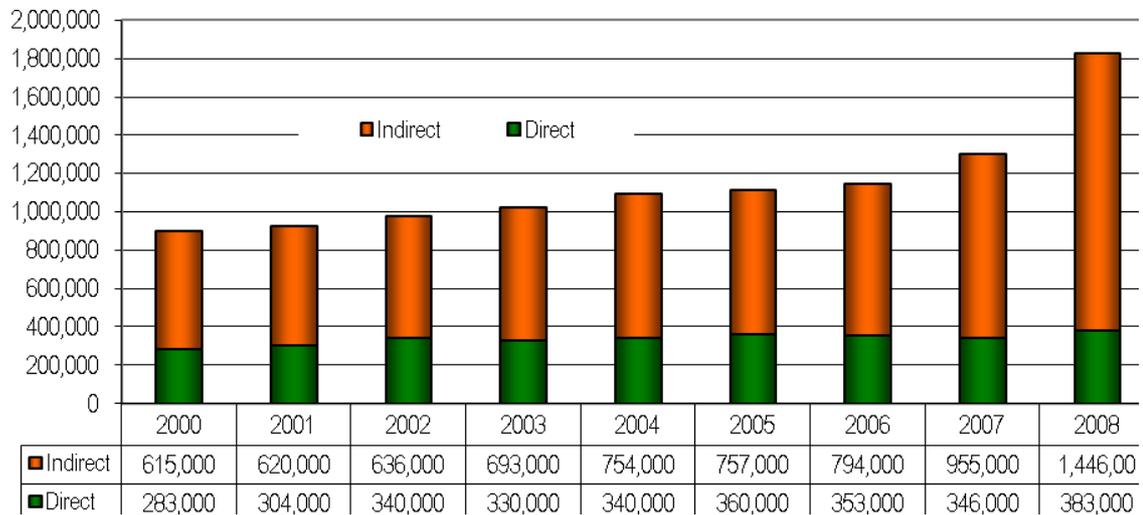


Source: PAIRS 2010

Of the 9.3% growth in GVA, tourism spending accounted for 2.4% **directly** in 2008. The remainder can be attributed to spill-over effects. Tourism direct impact has been relatively stable over time remaining at its 2000 level after reaching its peak of 2.6% in 2002.

With regard to employment creation, about 21% of jobs created due to tourism spending in SA in 2008 are as a result of 'direct effect'. However, since tourism cuts across various economic sectors, it has spill over effects on other sectors, thus elevating the overall impact on job creation (See Figure 22). Out of approximately 1.83 million jobs created in 2008 as a result of tourism spending, about 383 thousand jobs can be attributed directly to tourism spending.

Figure 22: Direct and Indirect Employment due to Tourism Expenditure

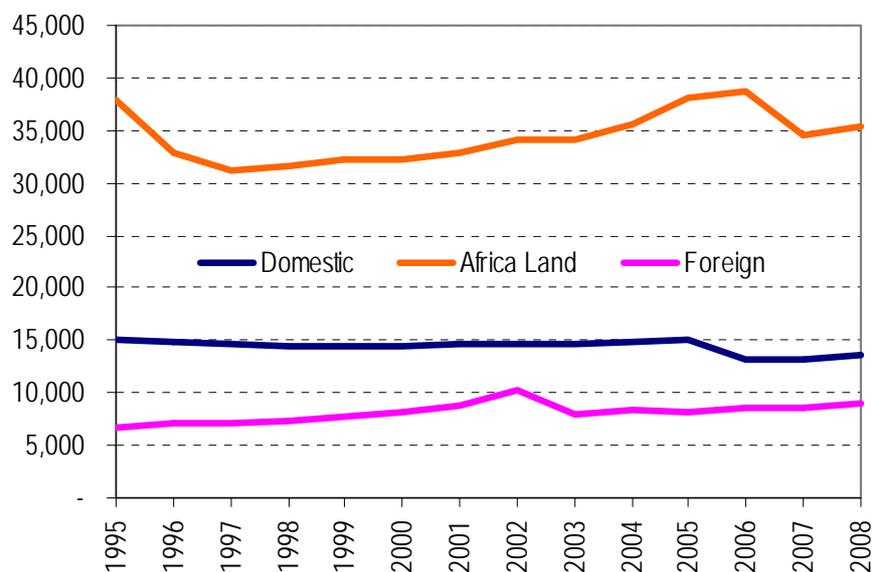


Source: PAIRS 2010

5.7. The Impact of Spending per Tourist on Job Creation

The impact of tourism spending on job creation in SA economy can be determined by calculating the number of jobs created by one rand spent by tourists. This being the total amount of Rand spent on all goods and services by tourists on any item of any sector of the economy.

Figure 23: Rand Spent on all Goods and Services by Tourists to Create One Job in the Economy



Source: PAIRS

In 2008 foreign tourist had to spend R8 988 to create one job (Figure 23). This compares with R8 526 spent by this class of tourists in 2007. Domestic and Africa Land tourists have relatively less impact on job creation as they have to spend more money to create one job in the economy. In 2008 Africa Land tourists spent R35 277 (R34 601 in 2007) while domestic tourists had to spend R13 537 (R13 246 in 2007). What accounts for the higher expenditure among these latter categories is their pattern of expenditure. The fact is that Africa Land and domestic tourists, for example, when on holiday, stay with relatives instead of commercial accommodation, use self-catering instead of restaurants and more often than not spend less on tourist's curios and recreational facilities.

Based on the average amount spend per tourist category in 2006, the number of tourists needed to create one job in the economy is calculated in Table 3 as follows:

Table 4: Number of Tourists in South Africa Required to Create One Job

(Figures in parenthesis indicates 2007 figures)

| Foreign Tourists | Africa Air Tourists | Africa Land Tourists | Domestic Tourists |
|------------------|---------------------|----------------------|-------------------|
| 0.7 (0.4) | 0.5 (0.5) | 5.8 (1.65) | 17.3 (27) |

Source: PAIRS 2010

Domestic tourism has the least impact on job creation since as many as 17 tourists are needed to create one job in the economy, whilst only 0.7 foreign tourists are required to create a job in the economy. The high average spends as well as the composition of expenditure by foreign tourists explains this high impact.

The averages in Table 4 indicate a number of things. First, that the average number of tourist required in creating one job is higher for Domestic and Africa Land categories. This could be an indication of worsening economic conditions in the respective economies (especially in neighbouring countries) which make these categories of tourists to spend less when in South Africa. For Foreign and Africa Air tourists it could also imply the relative weakness of the Rand in 2008 – as the Rand exchange rate was weaker than most trading partners' currencies. Domestic tourists seem to be spending more as seen by the fact that 17 tourist visits now create one job compared to the previous 27. Africa air tourists still spend the same amount of money in order to create a single job in South Africa.

5.8. Benchmarking the Results

Very little is known about tourism's contribution in the global economy. The World Tourism and Travel Council (WTTC) have estimated tourism's contribution for many countries across the global. Some countries and their estimates are given below.

Table 5: WTTC estimates of tourism contribution to growth and employment

| Country | 2008 | | | |
|--------------|---------|----------|------------|-----------------------|
| | GDP | | Employment | |
| | US\$ mn | % of GDP | Number | % of total employment |
| Mauritius | 2,360.5 | 30.2 | 174,000 | 32.4 |
| Kenya | 3,463.6 | 10.8 | 483,000 | 8.7 |
| Botswana | 1,110.0 | 9.4 | 60,000 | 10.7 |
| Namibia | 1,051.7 | 14.5 | 77,000 | 18.2 |
| South Africa | 25,200 | 8.4 | 1,011,000 | 7.6 |
| Tanzania | 1,551.8 | 9.7 | 719,000 | 7.7 |
| India | 73,600 | 6.1 | 30,491,000 | 6.4 |
| Malaysia | 26,500 | 13.2 | 1,257,000 | 11.6 |
| China | 508,600 | 12.2 | 74,498,000 | 9.6 |
| UK | 262,300 | 9.2 | 2,734,000 | 8.6 |
| Australia | 112,900 | 11.0 | 1,140,000 | 10.7 |

Source: WTTC

As indicated in Table 5 above, travel and tourism sector plays an important role in Mauritius in terms of its contribution to GDP. This sector is equally important in Malaysia, China, Namibia and Kenya. In the same way, travel and tourism sector is critical in terms of employment creation. For instance, this sector contributes 30.2% of total employment in Mauritius. Employment creation by tourism sector is equally high in Australia, Malaysia, Namibia and Botswana as shown by the double digit employment creation by tourism sectors in these countries.

The WTTC estimated South Africa's tourism contribution to GDP at 8.4% in 2008. This is somewhat higher than the 8.2% estimated for 2006 for South Africa. A closer analysis shows that if we apply the traditional contribution of labour and capital to GDP growth, i.e. two thirds contributed by labour (as opposed to one third in South Africa's case) and one third by capital (as opposed to two thirds in South Africa's case) similar magnitudes of tourism's contribution to GDP are found. More specifically, if we change the

production function to the “rule of thumb” we find that tourism’s contribution to GDP is estimated at 8.2% for South Africa – more in line with WTTC estimates. However, this assumption is contrary to the broader empirical studies conducted for South Africa.

6. Determining Tourism Indicators

As part of estimating the contribution of tourism to GDP, it is important to have indicators that signal the possible impact tourism might have on the economy. The main indicators identified are:

1. Number of foreign arrivals,
2. Number of domestic trips undertaken,
3. Amount spent per foreign tourist, and
4. Amount spent per domestic tourist.

However, there are other indirect variables that drive tourism expenditure for both foreign and domestic tourism. This section explores the impact of these key economic variables on tourism expenditure. Once again, two separate equations were estimated since the drivers of domestic tourism expenditure are different from those of foreign tourism expenditure.

6.1. Domestic Tourism Expenditure

Factors that affect the disposable income of South Africans continue to have an important impact on tourism expenditure such as the level of interest rates and the exchange rate. Our analysis shows presence of high persistence in domestic tourism demand and of course the influence of disposable income. Thus, the outcome shows that;

- a. A 10% increase in disposable income, on average, results in a 0.9% increase in domestic tourism expenditure.
- b. Repeat visits are largely influenced by the previous period encounters, i.e. about 80% of current period visits are influenced by previous period visits.

6.2. Foreign Tourism Expenditure

As far as foreign tourism is concerned, different factors come into play. Estimation results indicate that the following are key drivers in determining foreign expenditure on tourism:

Foreign income: Changes in foreign income have positive impact on tourism expenditure by foreigners in SA. For instance, a 10% increase in foreign income (proxied by GDP of major advanced economies) increases foreign tourists' spending in SA by 7.9%.

Exchange rate: Rand/US\$ exchange rate has a positive impact on foreign tourism expenditure in SA. To illustrate, a 10% depreciation of the Rand against the US dollar, increases foreign tourism expenditure by 6.4%. Indeed, as the Rand depreciates against major currencies such as the US dollar, foreign tourists find it cheaper to visit SA for holidays.

6. Sector Summary Results

| Sector | High Level impact of tourism on Sector Output & Employment |
|--------------|--|
| Agriculture | <p>Tourism contributed approximately 7.5% to employment in the agricultural sector in 2008 compared to 4.7% in 2007. The agricultural sector is volatile and that is evident in the tourism-induced employment, which fluctuates - for example in 2005 about 299, 000 people were employed due to tourism; 294,000 (2006); 289,000 (2007); and 300,000 (2008). Higher average spend by foreign tourists and the sector's relatively high responsiveness to foreign tourism spending than other tourists' categories, resulted in foreign tourism having a higher impact on the sector's GVA and employment creation than other tourists' categories.</p> |
| Construction | <p>Employment due to tourism in 2008 is estimated at 4.9%, largely driven by foreign tourism contribution. Employment creation in the construction sector was about 254,304 jobs in 2008 from 215,944 in 2007. Foreign tourism expenditure has a higher impact on employment and investment in this sector compared to the other tourism expenditure categories. It also has a higher impact on the sector's GVA.</p> |
| Finance | <p>Tourism contributed 4.8% to employment in the financial sector in 2008 compared to 5% contribution in 2007. Employment creation in this sector was largely driven by foreign tourist contribution as shown by 326,948 jobs created in 2008 as a result of tourism expenditure. GVA in this sector grew steadily from 8% in 1994 reaching a peak of 11% in 2003 and decelerated marginally to 9.6% in 2008. The GVA coefficient indicates that both employment and investment in the financial sector is more responsive to foreign tourism spending compared to domestic tourism spending.</p> |

| Sector | High Level impact of tourism on Sector Output & Employment |
|---------------|---|
| Electricity | Tourism spending contributed significantly to employment creation in the electricity and water sector over time driven largely by foreign tourists with 10.1% contribution in 2008. GVA in this sector has been growing very sharply reaching a peak of 16.5% in 2008. This growth is largely driven by foreign and Africa Land tourists' spending. Investment and employment in this sector are more responsive to foreign than domestic tourism spending. |
| Government | Tourism spending contributed approximately 5.7% or 632,000 to employment creation in the general government services sector in 2008, from 8.3% (541, 649) in 2007. Tourism expenditure related to the government sector contributed about 10.9% to government GVA in 2008, a decline from 13.6% in 2007. |
| Personal | Tourism contribution to employment in this sector has been rising steadily with 2.4% observed in 2002 and a high of 4.1% realized in 2008. About 660,141 jobs were generated in 2008 as a result of tourism expenditure with foreign tourism as the main contributor compared to other tourists' categories. Although employment and investment are more responsive to foreign than domestic, GVA by category indicates that not only foreign tourism spending is the key, but domestic tourism expenditure is also important. For instance, in 2008 foreign tourism contributed 3.8% to the sector's GVA, whilst domestic tourism stood at 2.3%. |

| Sector | High Level impact of tourism on Sector Output & Employment |
|---------------|---|
| Manufacturing | Tourism contributed about 3.2% to employment in the manufacturing sector in 2008. Employment creation in this sector was largely driven by foreign tourism contribution. Tourism spending plays a critical role in employment generation as shown by the 313,277 jobs generated in 2008 as a result of tourism expenditure. The GVA coefficient indicates that both employment and investment in the manufacturing sector are more responsive to domestic tourism spending than foreign tourism spending. |

| | |
|-----------------------|--|
| Trade & accommodation | Tourism contribution to employment in the trade and accommodation sector has been fairly high and stable, rising from 4.7% in 1994 and standing at 8.2% in 2008. Contribution to employment creation by domestic tourists has been relatively low at 2.5% in 2008. Both foreign and domestic tourists spending have been main drivers of the wholesale and retail trade gross value added since 1994. Employment and investment in this sector are more responsive to domestic tourism spending than foreign. |
| Transport | Employment due to tourism in 2008 is estimated at 5.5% largely driven by foreign tourism contribution. The estimated number of people employed in the sector as a result of an increase in tourism expenditure in 2008 was 301,381 compared to 273,633 in 2007. . Tourism contribution to transport GVA of 11% was largely driven by foreign tourists' expenditure. The relatively high contribution indicates that transport system plays a crucial role to foreign tourists. With regard to tourism influence on employment and investment, foreign tourism expenditure has more influence on employment than domestic tourism and domestic tourism spending more influence on investment than foreign tourism spending. |

7. Conclusions

Tourism activity cuts across all sectors and the fact that it is difficult to measure poses a challenge in analysing and quantifying its role in an economy. The World Travel and Tourism together with Cambridge University have developed a Tourism Satellite Accounting (TSA) Methodology, which is still relatively new. Statistics South Africa used the TSA methodology to measure tourism's contribution to the South African economy in 2008.

Data problems remain a challenging issue when measuring tourism's contribution using time-series methodology whose advantage is that it is able to trace historical trends. It is highly challenging to analyse tourism demand and the role that it plays in the South African economy. For example, based on different data sources, and certain simplifying assumptions, the series for domestic and foreign tourism expenditure were constructed.

These series enabled us to do a more detailed analysis of the role of tourism in job creation, investment demand and the overall gross value added over the past decades.

The findings indicate that tourism continues to play an increasingly important role in the growth of SA economy both in terms of capital accumulation and job creation. Moreover, based on the estimation results, tourism could fall among the first five largest sectors in the domestic economy. It is also evident that tourism is directly responsible for about 1.8 million (out of 13.9 million jobs) in 2008.

We also analysed the effect that other key economic indicators are likely to have on tourism expenditure of both local and foreign tourists. The results show that an increase in households' disposable income increases the purchasing power of individuals thus increasing domestic spending on tourism related activities. Changes in interest rates do not seem to have any significant impact on domestic tourism spending. Foreign tourism spending appears to be more responsive to the rise in World GDP (which is a proxy for income) and weakening of the Rand/US\$ exchange rate. In both cases, foreign tourism spending responds positively to changes in these economic indicators. Noteworthy among domestic tourists is that repeat visits are common and this is a function of the experiences from previous visits.

-End-

APPENDIX A

Growth Accounting

In order to obtain the sources of economic growth, a framework called growth accounting is utilized (among others). This framework tells us that the economy's output Y_t at a particular time t is a function of the economy's capital stock K_t , its labour force L_t and total factor productivity A_t . The Cobb-Douglas form of this production function is as follows;

$$Y_t = A_t(K_t)^\alpha (L_t)^{1-\alpha}$$

Meaning that output changes following changes in the economy's capital stock, its labour force, or its level of total factor productivity.

Changes in Capital

In the production function, K is raised to a power α , thus, by applying a rule-of-thumb to the proportional growth rate of a quantity raised to a power, we find that the proportional increase in output as a result of the change in capital stock is;

$$\frac{\Delta Y}{Y_t} = \alpha \frac{\Delta K}{K_t}$$

To illustrate, if the diminishing-returns-to-scale parameter α were equal to 0.4 and the proportional change in capital stock were 4%, then the proportional change in output would be:

$$\frac{\Delta Y}{Y_t} = 0.4 \times 4\% = 1.6\%$$

Changes in Labour

By the same token, an increase in labour stock results in a proportional increase in output as follows;

$$\frac{\Delta Y}{Y_t} = (1 - \alpha) \frac{\Delta L}{L_t}$$

If the value of α were 0.6, and the proportional change in labour force were 2%, then the proportional change in output would be;

$$\frac{\Delta Y}{Y_t} = (1 - 0.6) \times 2\% = 0.8\%$$

Changes in Total Factor Productivity

Another factor that stimulates change in output is total factor productivity. Unlike capital and labour, a proportional increase in total factor productivity results in the same proportional increase in output, namely;

$$\frac{\Delta Y}{Y_t} = \frac{\Delta A}{A_t}$$

Thus, if total factor productivity is 3%, proportional change in output would also be 3%.
i.e.

$$\frac{\Delta Y}{Y_t} = 3\%$$

All together

In real world situation, output changes proportionally to changes in all three as follows;

$$\frac{\Delta Y}{Y_t} = \alpha \frac{\Delta K}{K_t} + (1 - \alpha) \frac{\Delta L}{L_t} + \frac{\Delta A}{A_t}$$

The first term on the right hand side $\alpha \frac{\Delta K}{K_t}$ denotes capital contribution to output growth,

the second term $(1 - \alpha) \frac{\Delta L}{L_t}$ represents the contribution of labour to output growth, whilst

the last term $\frac{\Delta A}{A_t}$ denotes the contribution of total factor productivity to the growth of output.

If we know the value of the parameter α in the production function, and we also know the proportional growth rates of output, capital stock and the labour force, then we can use the growth accounting equation to calculate the rate of growth of total factor productivity A. Furthermore, this framework can be utilized to decompose the growth of total output Y into:

- Contribution from increasing capital stock K,
- Contribution from the increasing labour force L, and
- Contribution from higher total factor productivity A.

There is also a portion of growth that is left unaccounted for by increases in the standard factors of production, namely, the residual factor often referred to as the Solow residual.

The Solow residual can be used to estimate the total factor productivity. I.e.

$$\frac{\Delta A}{A_t} = \frac{\Delta Y}{Y_t} - \alpha \frac{\Delta K}{K_t} - (1 - \alpha) \frac{\Delta L}{L_t}$$

By implication this equation assumes that growth resulting from any other factor except labour and capital can be attributed to technical progress.

Appendix B

Table B2 provides an explanation of the variables used in the estimation model.

Table B1: List of Variables

| Variable | Explanation |
|--------------|---|
| I | Fixed Capital Formation |
| UCC | User Cost of Capital |
| P_E | Price – Earnings Ratio |
| N | Labour |
| TotWage/N | Average Wage Rate (total employment /# of employees) |
| Output gap | Output Gap: Potential output/ Actual output |
| Foreign | Foreign & Africa Air Tourists' Expenditure |
| Domestic | Domestic & SADC Tourists' Expenditure |
| Dum94 | To capture changes brought by the democratic government |
| Dum90 | Dummy created to capture effects of structural changes since 1990 |
| SA Prime | SA Prime Rate |
| RYd | SA Real Disposable income of households |
| Advanced GDP | Gross Domestic Product of major advanced economies |
| R_US\$ | Rand/US\$ exchange rate |
| GVA | Gross Value Added |

All equations were estimated using standard residual based cointegration techniques.

Estimated Equations

It might be argued that the inclusion of tourism expenditure in the investment and employment equations could lead to misspecification. However, the inclusion of irrelevant variables in an equation does not necessarily result in biased estimates (rather inefficiency). Since the main objective in this study is to obtain unbiased estimates, the inclusion of tourism expenditure in the equations is not a major concern. In any event, all equations were tested for misspecification, and indications are that they are not misspecified.

Table B2: Investment Equation – Domestic Tourism

| Dependent variable: $\log(I)$ | Coefficients |
|-------------------------------|--------------|
| Log(I(-1)) | 0.9 (13.2)* |
| Log(domestic) | 0.2 (4.2) |
| Log(Output gap) | 2.5 (3.6) |
| Constant | -2.8 (-4.0) |
| ADF (intercept) | -4.41*** |
| PP (intercept) | -4.39*** |

* represents t-statistics

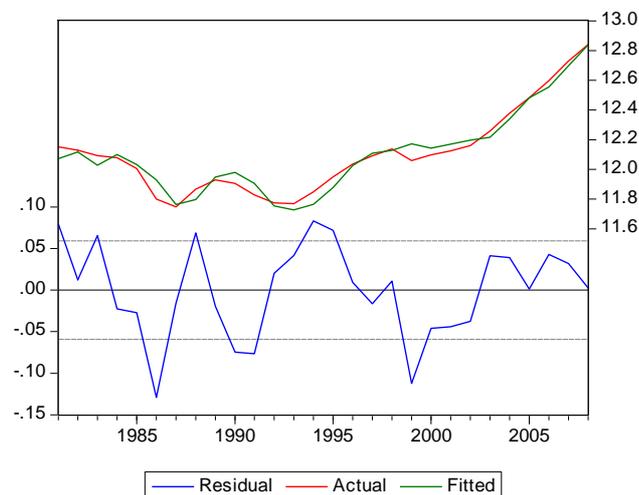


Table B3: Investment Equation - Foreign Tourism

| Dependent variable: $\log(I)$ | Coefficients |
|-------------------------------|--------------|
| Log(I(-1)) | 0.9 (24.0) |
| Log(foreign) | 0.5 (2.4) |
| Log(Output gap) | 2.6 (3.8) |
| Log(CPI) | -0.04 (-2.1) |
| ADF (intercept) | -5.03*** |
| PP (intercept) | -5.03*** |

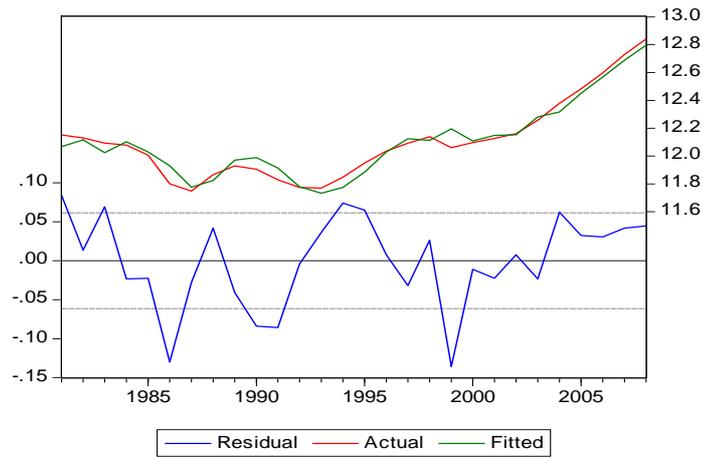


Table B5: Employment Demand – Foreign Tourism

| Dependent variable: $\log(N)$ | Coefficients |
|-------------------------------|--------------|
| Log(World GDP) | 0.14 (2.3) |
| Log(foreign) | 0.15 (12.6) |
| Constant | 5.92 |
| ADF (intercept) | -5.34*** |
| PP (intercept) | -4.50*** |

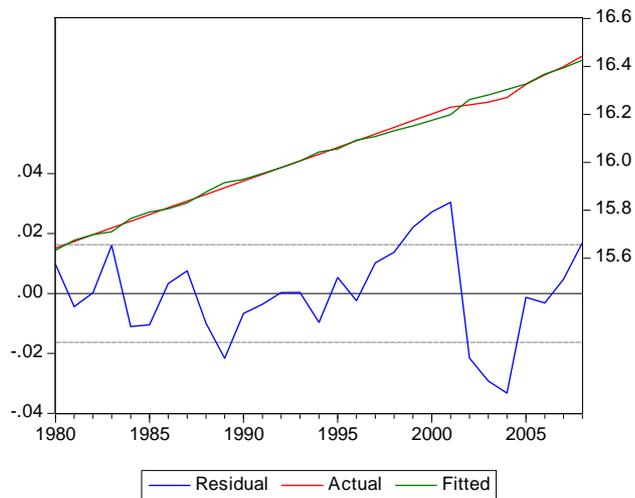


Table B6: Employment Demand – Domestic Tourism

| Dependent variable: log(N) | Coefficients |
|----------------------------|---------------|
| Log(Domestic) | 0.15 (5.5) |
| Log(ULC) | 0.5 (17.4) |
| Log(Labprod) | -0.38 (-1.71) |
| Constant | 11.9 (20.8) |
| ADF (none) | -2.30** |
| PP (none) | -2.26** |

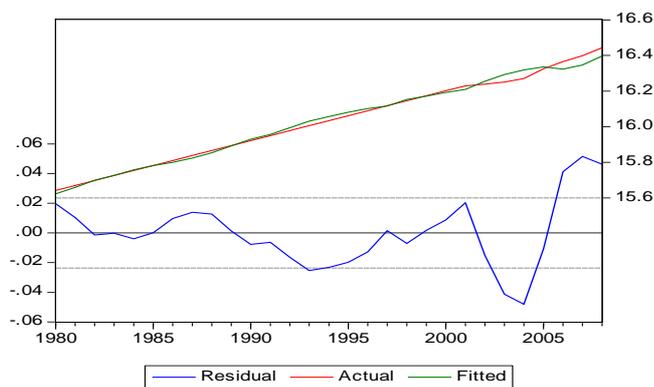


Table B7: Production function
(constant returns to scale)

| Dependent variable: log(GVA) | |
|------------------------------|----------|
| Log(N) | 0.30 |
| Log(K) | 0.70 |
| ADF (no intercept & trend) | -2.88*** |
| PP (no intercept & trend) | -2.92*** |

Table B8: Foreign Tourism Expenditure

| Dependent variable: log(Domestic) | Coefficients |
|-----------------------------------|--------------|
| Log(Advanced GDP) | 0.79 (5.5) |
| Log(R_US\$) | 0.64 (5.3) |
| Constant | 13.9 (10.4) |
| ADF (none) | -2.78*** |
| PP (none) | -2.85*** |

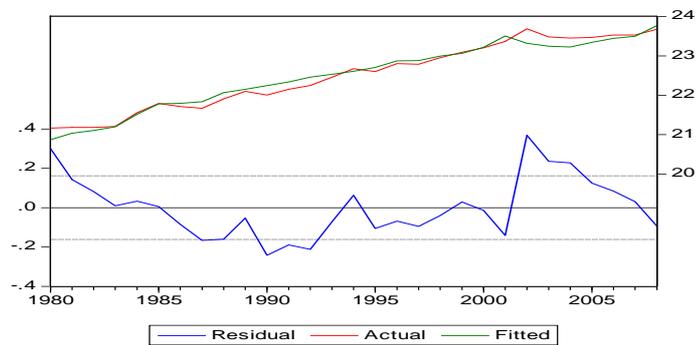
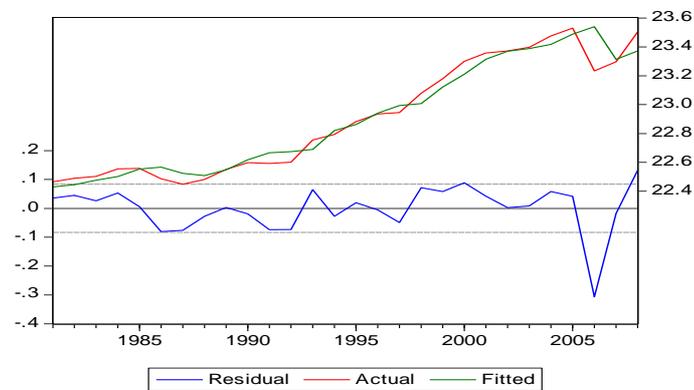


Table B9: Domestic Tourism Expenditure

| Dependent variable: log(Domestic) | Coefficients |
|-----------------------------------|--------------|
| Log(RYd) | 0.08 (2.1) |
| Log(Domestic(-1)) | 0.8 (7.9) |
| Constant | 3.6 (1.9) |
| ADF (intercept) | -3.01** |
| PP (intercept) | -3.09** |



Appendix C

The purpose of this section is to provide a summary of the estimated tourism contribution per sector and the entire economy in 2008.

Table C1: Total Estimated Tourism Contribution (2008)

| Sectors | Real composition of GDP per sector in 2008 (%) | Estimated sectoral GVA for 2008 (%) | Total estimated tourism contribution to GVA (%) |
|--|--|-------------------------------------|---|
| Agriculture | 2.5 | 14.4 | 0.4 |
| Manufacturing | 18.4 | 7.5 | 1.4 |
| Electricity | 2.2 | 16.5 | 0.4 |
| Construction | 3.3 | 9.3 | 0.3 |
| Trade | 13.6 | 11.2 | 1.5 |
| Transport | 10.0 | 11.2 | 1.1 |
| Finance | 23.3 | 9.6 | 2.2 |
| Government | 14.4 | 10.4 | 1.5 |
| Personal | 6.3 | 8.5 | 0.5 |
| Total contribution from sectors | | | 9.3 |
| <i>Direct contribution</i> | | | <i>2.4</i> |
| <i>Indirect contribution</i> | | | <i>6.9</i> |
| Total aggregate contribution | | | 9.30% |

Source: PAIRS 2010

The total estimated contribution of tourism to GVA for 2008 was estimated at 9.3%. The indirect tourism contribution (6.9%) is much higher than the direct contribution (2.4%). This reveals that more sectors in the economy somehow contribute to tourism in one way or the other. At the sectoral level, tourism contributed the most to the finance, trade, government services and manufacturing sectors and the least to the construction sector.

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