DATA CHALLENGES IN CONSTRUCTING A REGIONAL TOURISM SATELLITE ACCOUNT IN AN EMERGING DESTINATION CONTEXT

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ABSTRACT

In the context of South Africa, there is an increasing interest in the provision of a TSA to be made available at a region level (Ragab, 2014). The satellite accounting approach and its regional extension are likely to be the most appropriate tools to estimate the economic contribution of the tourism sector (Jean-Pierre & Perrain, 2016). Nonetheless, due to the complexity and limitations of the methodology (Jones & Munday, 2010) the researcher had to define the boundaries of the data available in South Africa at a regional level in terms of the RTSA requirements (United Nations, 2013). The construction of an RTSA can be done through a top-down or bottom-up approach (Jean-Pierre & Perrain, 2016; Song et al., 2012; Pham et al., 2008; Fletching, 2008). The top-down approach is the more common method used in literature since it is more cost effective, utilises existing resources and allows for national level and inter-regional comparisons. Taking this into consideration, the researcher applied a top-down approach in order to determine the appropriateness of the secondary data available in South Africa in the context of constructing an RTSA for a region.

The data challenges in constructing an RTSA for the Western Cape region, in South Africa, related to the lack of a regional account, the inadequate tourism surveys at a regional level, and the unbalanced reconciliation of supply and demand. As in most emerging destinations, the study area did not have an available regional account detailed enough to satisfy the structural requirements of an RTSA. The location quotient technique was used to regionalise the national production table made it less accurate. The tourism data available at a regional level did not report on the necessary expenditure indicators to regionalise the national tourism expenditure; further, the international and domestic tourism data varied in indicators reported at granular level. This created inconsistencies in the estimated regional expenditure distribution between international and domestic tourism. Finally, these data challenges resulted in the regional supply and tourism demand ratio to be unbalanced. The aforementioned needs to first be addressed for an accurate and reliable RTSA to be constructed for a region. Therefore, as in many emerging destinations, the lack of adequate tourism supply and demand data is a critical limitation in estimating the value of tourism as an economic activity at a regional level. In conclusion, emerging tourism destinations would need to use alternative methods to construct an RTSA that would be deemed less accurate but still adequate for policymakers decision-making processes.

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CHAPTER 1: OUTLINE OF THE STUDY

1.1 INTRODUCTION

Tourism is an economic activity that stimulates global economic growth by contributing to the gross domestic product (GDP) of a country or region. The importance of tourism is dependent on the impact it has on promoting economic prosperity, cultural progress and improvement of wealth for a country's residents (Cárdenas-García, Rivero & Pulido-Fernández, 2013). This sector has a considerable role to play in driving economic development in many countries due to the anticipated impact of tourism on economic growth. As such, determining the economic contribution of tourism forms a key consideration in the development strategies of a country, region or community (Pham, Dwyer & Spurr, 2008; Jean-Pierre & Perrain, 2016). Nonetheless, the economic significance of tourism is difficult to determine and has been underestimated in the past both at a national and regional level (Smeral, 2015A). This stems from the analytical problems in estimating the contribution of tourism to the economy since it forms part of the final demand in the structure of the economy and not a specific industry, as defined by statistical agencies (Jones & Munday, 2010).

According to Seetanah, Nunkoo, Sannassee, Moraghen and Jaffur (2017), "there has also been an increase in the number of studies focusing on tourism and economic growth nexus." Some of the first studies used Input-Output (IO) modelling to determine the direct and indirect impact of the tourism sector (Dwyer, Forsyth & Spurr, 2004, Pham *et al.,* 2008). This method can be further expanded to include the use of the Social Accounting Matrix (SAM) that applies a similar principle as the IO model. More recent studies determined the use of the Computable General Equilibrium (CGE) model (Song, Dwyer, Li & Cao, 2012; Rossouw & Saayman, 2011). The most prominent technique that experts propose is the Tourism

Satellite Account (TSA) (United Nations, 2010B; Smeral, 2015B). The TSA "has gained legitimacy as a means of better understanding the significance of tourism activity in a manner consistent with conventional systems of national accounting" (Jones & Munday, 2010: 342). Over 60 countries have established TSAs. A TSA estimates the tourism consumption expenditure in a national economy (Frent & Frechtling, 2015).

The TSA is defined as a means of "measuring the relative weight of the tourism sector within a national and sub-national economy through a reliable and systematic approach as well as leading the process of developing a national system of tourism statistics which is considered as a challenging practice so far" (Ragab, 2014). The TSA is an internationally methodology endorsed by the World Tourism Organisation (UNWTO) to determine the value added, output and employment contribution of tourism activities as compared to other industries (United Nations, 2010B). Tourism expenditure data is used to assess the success of destination marketing strategies, to inform business decisions and to determine the economic impact of tourism at the regional, national, and global level (Aroca, Brida & Volo, 2017). Recent studies have also endorsed the use of a TSA as a method to measure the economic contribution of the tourism sector at a regional level (Dwyer, Forsyth, Spurr, & Van Ho, 2007; Song *et al.*, 2012; Ragab, 2014). "A Regional Tourism Satellite Account (RTSA) offers the statistical base for theoretical as well as practical users to support their evaluations and analyses" (Smeral, 2015B: 289).

Consequentially, policymakers need to be able to measure the changes and effect tourism has on the economy in order to determine its developmental impact. They need to do this by using a reliable and accurate base to assess the economic impact of tourists in local communities or geographical areas (Rogerson, 2015; Middleton, 2002). Unfortunately, the statistical information to support the regional economic impact of tourism is limited and inconsistent in most countries (Aroca et al., 2017). These inconsistencies at a regional level relate to methodology, survey data and resource availability issues (Jean-Pierre & Perrain, 2016; Jones & Munday, 2010). These limitations are even more prominent in emerging destinations, such as South Africa (Rogerson, 2015; Visser & Hoogendoorn, 2011).

1.2 PROBLEM STATEMENT

Currently, statistical information on tourism at the regional level is collected and reported on a descriptive level from national and regional surveys and covers data such as the number of tourist arrivals, the average spend per bednight and length of stay. Such descriptive data is not sufficient to inform policy statements where targets are set since monitoring progress on these targets is based on demand-driven surveys and does not show the full impact of the sector from a supply or holistic economic perspective (Fernando, Bandara, Smith & Pham, 2015).

Policymakers encounter a general lack of information and some confusion concerning best-practice in measuring the regional economic contribution of tourism (Chida & Garten, 2011), and "there is often an on-going battle to establish credibility for tourism as an economic activity and generator of income in the economy" (Fernando *et al*., 2015:2). The lack of resources, knowledge and research prioritisation at a regional level impairs the ability of policymakers to develop, extract, measure and interpret relevant decision-making information on the economic contribution of the tourism sector (Frechtling, 1994; Jean-Pierre & Perrain, 2016).

Many regions below national level have become progressively interested in developing models to assess the economic contribution of tourism within their local boundary (Pham *et al.*, 2008). The satellite accounting approach is an appropriate method to measure the economic contribution of the tourism sector at both the national and regional level. Nonetheless, the existence of a national TSA cannot determine the importance of tourism in different geographical regions, since tourism activities are unequally distributed. A regional system of tourism statistics and an RTSA needs to be developed for this purpose (United Nations, 2013).

Researchers have experienced methodology challenges and data limitations in developing an RTSA. Some of the main constraints are that the available regional accounts have limited products and industries, in which tourism is not defined (Jones, Munday & Roberts, 2003; Laimer, 2012; Zhang, 2018). This further extends to the issue of tourism expenditure not being reported separate from household expenditure in national or regional accounts (Dwyer

et al., 2007; Frechtling, 2012). Some countries do not have regional accounts, which then requires the research to regionalise the national account. This poses other problems as assumptions would have to be applied to the national account to determine the inter-regional trade and the treatment of cross-regional production activities (NathPandey & Singh, 2013; De Maesschalck & Weekers, 2014). Another challenge is the availability of tourism surveys at a regional level. In most cases the provision of this information is not in line with the national accounts, and the sampling sizes are not appropriate to estimate regional tourism statistics at a disaggregated level (Frechtling, 2012; Desjardins, 2018). A final challenge experienced in developing an RTSA is the reconciliation of supply and demand, since the treatment of transport, tour operators and food consumption poses an issue in terms of allocation. This relates to double counting of costs and the usage of these products in and outside the regional (Zhang, 2018; NathPandey & Singh, 2013).

In recent years, South African policymakers have expressed their need for an analysis and understanding of tourism policies (Rossouw & Saayman, 2011: 753). The country has considered establishing an ad hoc extension of their national TSA with a separate RTSA for each of the nine provinces (regions) (Ragab, 2014). Statistics South Africa (StatsSA) has not yet embarked on developing an RTSA for the country due to the lack of relevant, sample representative data at the regional level. Another significant constraint is the availability of funding, resources and skills at a regional level (Grobler, 2016).

Given these constraints the question thus arises:

'Can an RTSA be constructed for a region in South Africa through existing data?'

1.3 PURPOSE STATEMENT

This study tested the current state of data in constructing an RTSA for a region in South Africa by applying an internationally recognised methodology as endorsed by the UNWTO (United Nations, 2013). For this study, the researcher refers to 'regional' within the context of provincial boundaries in South Africa since the international and academic literature refers to regional models when studying a geographical area lower than the national level.

The satellite accounting approach is likely to be the most appropriate tool to estimate the economic contribution of the tourism sector (Jean-Pierre & Perrain, 2016). Nonetheless, due to the complexity and limitations of the methodology and data availability (Jones & Munday, 2010) experienced by experts in the field, the researcher had to define the boundaries of the data available in South Africa at a regional level in terms of the RTSA requirements (United Nations, 2013).

1.4 RESEARCH OBJECTIVES

The purpose of the study was to construct an RTSA for a region in South Africa. The study used the methodology for the application of an RTSA based on the existing data. The following research objectives were stated:

- to describe tourism as an economic activity;
- to understand the contribution of tourism to GDP through applied economic techniques;
- to interpret the methods used to develop an RTSA;
- to determine the data requirements for an RTSA;
- to determine gaps in the data, given the requirements to ensure the development of a reliable RTSA for a case study area;
- to construct the RTSA for the study area;
- to identify the limitations and assumptions required to construct the RTSA for the study area; and
- to provide recommendations for the construction of an RTSA for regions in South Africa.

1.5 STUDY DELIMITATIONS

The literature emphasises that an RTSA needs to follow the principles, coverage and methodologies of the country's national TSA (Pham *et al.,* 2008; Fletching, 2008; Ragab, 2014; Jean-Pierre & Perrain, 2016). The researcher selected an interregional approach that requires an existing national TSA and the availability of uniform tourism information in each

region, by using a top-down method to collect and aggregate the data. This method is more cost-effective and less time-consuming or resource demanding (UNWTO, 2013). An RTSA does not have to consist of the comprehensive national TSA tables but can be aggregated into five specified tourism-characteristic products per table. Furthermore, the number of tables has been reduced to the following (UNWTO, 2013):

- the internal tourism consumption;
- the gross value added of the tourism industries; and
- the tourism direct gross value added.

The researcher aggregated the South African TSA to a simplified form, which reduced the input requirement of the RTSA (Jean-Pierre & Perrain, 2016). For this study, the researcher determined the direct economic value of the tourism sector and did not focus on other elements such as indirect value, induced value and employment. The study has not focused on local or district municipal boundaries due to limitations in data availability, sample size, accuracy and standardisation, which will restrict the use of an RTSA (Grobler, 2016).

1.6 ACADEMIC VALUE AND CONTRIBUTION OF THE STUDY

Every destination is unique in the data that it can provide at a national and regional level, depending on the resources, skills and interest in tourism statistics; these variations and the misuse of tourism data is considerable, negatively affecting the perception of regional tourism as a contributor to the economy at regional level (Aroca *et al.*, 2017: 109). The development of a TSA for the regional level will provide more accurate answers on the real value of tourism (United Nations, 2010B; Jean-Pierre & Perrain, 2016). The study aimed to establish the plausibility of constructing an RTSA for a region in South Africa by determining the limitations and assumption requirements for the existing data based on international literature (UNWTO, 2013). This study substantiates the value of an RTSA in an emerging destination context by applying a top-down approach through the use of existing data, and shows the constraints for these destinations due to the availability of inadequate data at a regional level from a demand and supply perspective.

1.7 DEFINITION OF TERMS

Domestic tourism

Tourism involving residents of one country travelling only within that country (StatsSA, 2017).

Domestic tourism consumption/ expenditure

The tourism consumption of a resident visitor within the economy of reference (United Nations, 2010B).

Economic model

Economic models are built to describe a relationship between economic variables and further predict the effects of changes in these variables (Tribe, 2015).

Economy

Is the total system of economic activities in a particular country or area, with specific reference to all the production, labour, trade and consumption that take place (Tribe, 2015; Cambridge Dictionary, 2013).

International tourism consumption/ expenditure

The tourism consumption of a non-resident visitor within the economy of reference (United Nations, 2010B).

Industry

The companies and activities involved in the process of producing goods for sale, especially in a factory or special area (Tribe, 2015; Cambridge Dictionary, 2013).

Internal tourism consumption/ expenditure

The tourism consumption of both resident and non-resident visitors within the economy of reference. It is the sum of domestic tourism consumption and inbound tourism consumption (United Nations, 2010B).

International

Between or involving different countries (Cambridge Dictionary, 2013).

International tourism

The number of tourists who travel to a country other than that in which they have their usual residence, but outside their usual environment, for a period not exceeding 12 months and whose main purpose in visiting is other than an activity remunerated from within the country visited (StatsSA, 2017).

Local

Administrative boundaries of local government (local and district municipalities) (Municipal Demarcation Board, 2019).

National

Whole of a country or nation (Cambridge Dictionary, 2013).

Outbound tourism consumption/ expenditure

The tourism consumption of a resident visitor outside the economy of reference (United Nations, 2010B).

Place

A town or locality (Cambridge Dictionary, 2013).

Regional

Related to a particular area of a country that represents collective of administrative boundaries (Cambridge Dictionary, 2013).

Satellite Account

Refers to an additional account system, which is used in conjunction with the Systems of National Accounts (SNA) to measure the size and significance of a sector that is not adequately defined in the SNA (Pham *et al.*, 2008:5).

Sector

A sector is an area of the economy in which businesses share the same or a related product or service. It can also be thought of as an industry or market that shares common operating characteristics (Tribe, 2015; Cambridge Dictionary, 2013).

Standard Industrial Classification

The Standard Industrial Classification of All Economic Activities (SIC) consists of a coherent and consistent classification structure of economic activities based on a set of agreed concepts, definitions, principles and classification rules. It is derived from International Standard Industrial Classification (ISIC) (StatsSA, 2012).

Tourism consumption/ expenditure

The amount paid for the acquisition of consumption goods and services, as well as valuables for own use or to give away, for and during tourism trips, which corresponds to monetary transactions (the focus of tourism expenditure), it also includes services associated with vacation accommodation on own account, tourism social transfers in kind and other imputed consumption (United Nations, 2010B).

Tourism direct gross domestic product

Tourism direct gross domestic product (TDGDP) is the sum of the part of gross value added (at basic prices) generated by all industries in response to internal tourism consumption plus the amount of net taxes on products and imports included within the value of this expenditure at purchasers' prices (StatsSA, 2017).

Tourism direct gross value added

Tourism direct gross value added (TDGVA) is the part of gross value added which is generated by tourism industries and other industries of the economy that directly serve visitors in response to internal tourism consumption (StatsSA, 2017).

Tourist

Any visitor travelling to a place other than that of his/her usual environment for more than 1 night but less than 12 months, and whose main purpose of the trip is other than the exercise of an activity remunerated from within the place visited (StatsSA, 2017).

1.8 LIST OF ABBREVIATION

CEM	Coarsened Exact Matching
CGE	Computable General Equilibrium
DEDAT	Western Cape Provincial Department of Economic Development and Tourism
GDP	Gross Domestic Product
GDPR	Gross Domestic Product of Region
GVA	Gross Value Added
IO	Input-Output Model
LQ	Location quotient
LSS	Large sample survey
NDP	National Development Plan
OAG	Official Airline Guide
RTSA	Regional Tourism Satellite Account
SA	South Africa
SAM	Social Accounting Matrix
SAT	South African Tourism
SIC	Standard Industrial Classification
SMME	Small, micro and medium enterprise
SNA	System of National Account

StatsSA	Statistics South Africa
SUT	Supply and Use Tables
TDGDP	Tourism direct gross domestic product
TDGVA	Tourism direct gross value added
TSA	Tourism Satellite Account
TSA:RMF	Tourism Satellite Account: Recommended Methodological Framework
TSR	Tourism Statistical Research
UNWTO	World Tourism Organisation
WC	Western Cape
WEF	World Economic Forum
Wesgro	Western Cape Tourism, Trade and Investment Promotion Agency
WTTC	World Travel and Tourism Council

1.9 STRUCTURE OF DISSERTATION

The study consists of five chapters; covering the introduction to the study, the literature to support the research, the methodology, and the study results and findings. The first chapter provides the background to the study and introduces the research objectives. It is followed by the literature review, which outlines the context of tourism in the economy and the need for determining its economic impact. Insight is also provided on tourism statistics and how these relates to economic impact studies. This is followed by an assessment of the types of economic impact studies that have been conducted and why the RTSA is a prominent method. Finally, the components and construction of the RTSA are defined in more detail.

The third chapter describes the methodology and evaluates the available data on a regional level. The available data is then mapped and aggregated into the national TSA components to identify the correct information as per the RTSA requirements and its limitations. The following chapter provides the results for the construction of the RTSA, with comparisons made regarding the outcome of the study compared to what was specified in the literature. The final chapter describes the limitations of the study and provides recommendations for the practical implementation of an RTSA in South Africa.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

Tourism as a research field is viewed as a scientific object that forms a “specific dimension of society” (Darbellay & Stock, 2012: 455). Tribe (2004) suggests that the study of tourism consists of several theories relating to demand, perception, economics and development studies. Tourism is defined in different ways due to its undefined construct of consumption activities, which demand goods and services from various industries in the economy (Zaei & Zaei, 2013). It is thus “a set of socioeconomic activities carried out either by or for tourists. Those carried out by tourists correspond to what tourists do, while those carried out for tourists correspond to what other socio-economic institutions do to support the needs of tourists” (Zaei & Zaei, 2013: 13).

The growth and development of tourism is regarded as a positive contribution to the economy of a country and its regions (Garrigós- Simón, Galdón-Salvador & Gil-Pechuán, 2015). According to Jones, Munday and Roche (2014), tourism activities are effectively managed at a regional level, as the spatial layout and linkages are higher than place level but lower than national level. Therefore, to allocate resources and to focus policies and economic priorities on tourism, regional policymakers require indicators that state the relevance and impact of a sector (Rogerson, 2015).

According to Li, Jin and Shin (2018), a multitude of research has been conducted across the globe to determine the potential contribution tourism makes towards economic growth, with 69% of papers supporting the notion of positive economic impact, 9% suggesting negative impact and 11% illustrating an unclear impact. Visser and Hoogendoorn (2011) have observed the current path of tourism research in South Africa and found most of the research is focused on responsible tourism, pro-poor tourism development, national or local economic development initiatives or small, micro and medium enterprise (SMME) development. Their study indicates that there is a lack of research reflecting the true dynamics and impact of the tourism sector.

2.2 TOURISM AS AN ECONOMIC ACTIVITY

The tourism sector is a demand-driven set of activities that generates income for multiple sector industries such as aviation and transport, food and beverage, accommodation, financial services. health care, entertainment, recreation and retail (Phiri, 2016). To determine tourism's importance to the economy and job creation at a global, national, regional and even local level poses a challenge as the sector is not physically defined within the economy through the supply structures (Van de Steeg, 2009). The ability to provide these indicators for the tourism sector will assist policy and decision makers in their planning to ensure a balance between the economic benefits of tourism and the costs thereof (Volchek, Liu, Song & Buhalis, 2018).

2.2.1 **Tourism as a sector in the economy**

The world functions as a global economy, with a relative decline in employment in the agricultural, industrial and, services sectors due to the introduction of technology and globalised trading. Over the last few decades, tourism has increasingly been regarded as an employment and income generating opportunity for local or sub-national scale development. The global population has more disposable income, moving around and travelling is easier and consumer trends focus more on experiential activities rather than material goods (Ferrari, Jimenez & Secondi, 2018). Visitor spending on goods and services at a tourist destination has a multitude of economic impacts through job creation, the inflow of foreign currency and higher government revenues. Tourism's extended impact can be seen through the related growth of subsidiary industries, infrastructure development and social activities (Garrigós- Simón *et al*., 2015). According to the UNWTO (2011), there are several features in the economic impact of tourism:

- Tourism consumption happens at the production point, as tourists need to travel to the destination to spend their money. This means that there is 'new' money injected into a tourist region or country.
- The tourism sector interlinks various industries, contributing to temporary and permanent job creation, and generating income in a complex and integrated value-chain.

- The sector is labour intensive and creates opportunities for highly skilled to unskilled people with a particular focus on women and youth employment.
- Many small and micro entrepreneurs thrive in the tourism sector.
- Tourism promotes investment into other sectors such as transport, water and electricity, information and communication technology, and other government services.
- The sector does not only promote economic benefits but also socio-culture and conservation benefits for communities.

An increase in tourism activities not only generates a positive economic impact but could also influence the economy in a negative way. Tourism may generate fiscal costs such as funding for infrastructure or higher security and health cost. It may also reduce access to resources as demand increase. If tourism is not managed in a sustainable way, it can also increase income inequality in communities in a tourist destination (Lindberg, 2002). The importance of managing the positive and negative effects of tourism has received a lot of attention in the literature and in practice (Garrigós-Simón *et al.*, 2015), although the economic value and multiplier effects of the tourism sector are often unmeasured.

The monetary aspect of the tourist impact has beneficial effects on the forward and backward linkages in the economy. A tourist's expenditure in a destination includes accommodation, food and beverages, business and support services, passenger transport services, as well as cultural, sports and recreational activities, which directly affect the income of tourism-related businesses. This economic impact translates directly into the wages and taxes generated (Phiri, 2016). As tourism demand increases, the tourist businesses will increase their expenses, indirectly boosting job creation and expenditure on goods and services for other local businesses (Surugiu, 2009). Tourism does not only impact the tertiary sector (including health services, transportation, education, entertainment, tourism services, finance, sales and retail) but promotes growth in the secondary (including manufacturing, construction, and utilities) and primary (including agriculture, fisheries, forestry, mining and quarrying) sectors (Miles, 2008).

According to the various classifications of economic activity, including South Africa's Standard Industrial Classification (SIC) (StatsSA, 2012), tourism is not a single economic

activity but a relationship within and between numerous activities. It plays a role in passenger transport, restaurants, hotels, cultural and recreational services, retail and so forth (United Nations, 2013). The focus and capability of the economic activity is not necessarily driven by tourism but rather tourism generates a portion of its demand, where the rest of the demand is generated by residents (Darbellay & Stock, 2012). Being able to determine the economic impact of the tourism sector at a national and regional level provides knowledge for policymakers, and this serves to prioritise the sector and understand the impact is has on the local economy. This knowledge also informs strategies at both a national level and local or place level (Lundie, Dwyer & Forsyth, 2007).

2.2.2 **Importance of estimating the economic contribution of tourism**

Tourism policy and developments needs to be approached in a systematic way (Van de Steeg, 2009), with sector players and policymakers seeking accurate and affordable statistics and information to improve the planning and management processes of an area (Garrigós-Simón *et al.*, 2015). Measurement of these influencing factors assists policymakers, who are responsible for ensuring a balance between the economic benefits of tourism and the costs thereof (Volchek *et al.*, 2018).

According to Klytchnikova and Dorosh (2012), tourism-related statistics and policies are linked and interconnected, with the statistics providing evidence for policy decision-making purposes. “A quantitative approach is definitely advisable as a strategic support for the socio-economic analysis of tourism” (Ferrari *et al.*, 2018:1437). The available statistics do not adequately reflect the tourism sector as an economic activity as a whole. Most tourism-related statistics provide data on tourist arrivals and trips, tourist travel behaviour, length of stay, purpose of visit, accommodation type, accommodation occupancy rate, points of interest, and so forth. According to Van de Steeg (2009), these statistics are insufficient to determine the economic impact of tourism. Policymakers at national and regional level should use statistics that can be benchmarked against the economic aspects of tourism activities. In recent years, data-based analyses have been undertaken to understand the socio-economic implications of tourism on a global and regional scale by explaining its complexities and interlinkages with the economy and forecasting its potential future and

multiplier effects (Ferrari *et al.*, 2018). As a result, the availability of this knowledge allows for benchmarking exercises and key performance indicators for decision-making processes.

2.2.2.1 Global and Country Level Benchmarking

The globalisation of tourism has seen the development of tourist destinations worldwide with tourism becoming a formal economic sector both in developing and developed countries (Darbellay & Stock, 2012). The tourism sector "has become one of the largest global economic sectors and a significant contributor to many national and local economies" (Rutty, Gossling, Scott & Hall, 2015), and is one of the top three performing economic sectors in most countries (Bojanic & Lo, 2016). This further extends to developing countries (UNWTO, 2011), where the tourism sector holds potential to alleviate poverty, since it's one of the few products that these countries can export due to low production and technological advancements (Bojanic & Lo, 2016).

Tourism plays a critical role in national competitiveness by creating wealth and socio-economic prosperity for a country's residents. It is important to measure the impact of the tourism sector to determine its contribution to a country's competitiveness and growth (Cvelbar, Dwyer, Koman & Mihalič, 2016). By determining tourism's performance, policy and decision-makers are able to draft better strategies, manage risks and track the performance of global competitors (Algieri, Aquino & Succurro, 2018).

The main measurement to determine the contribution of a sector to the economic prosperity and competitiveness of a country is the gross domestic product (GDP) or gross national product (GNP) generated by the sector (Bojanic & Lo, 2016). This follows an output-focused approach (Cvelbar *et al.*, 2016) using values such as tourism product consumption or value added as a global benchmark that assists in determining the effect of the sector's industries through the global tourism system (Rutty *et al.*, 2015). This emphasises the role that tourism can play in achieving economic objectives and the importance of recognising tourism as a strategic sector in a national economy (UNWTO, 2008).

Two tools are currently used internationally to compare the performance of tourism between countries, namely the TSA and WTTC (World Travel and Tourism Council). As per the

UNWTO recommended framework, the TSA is seen as the more creditable source as it is linked to the national accounts of a country, whereas the WTTC approach cannot be verified because its aggregates and data is not linked to any products or industries but provides comparable data for multiple countries with tourism interests (UNWTO, 2008). As tourism is not specified in the SIC, it is interpreted differently at international and national levels. (Hall & Coles 2008; Hall & Lew 2009).

This extends to regional and local levels, because the impact of tourism is often difficult to determine at a sub-national level. Even though the tourist's experience subjectively shows substantial direct benefits at a local level, the leakage of benefits from the local or regional area increases due to the origin of certain products such as hotel groups, airlines, travel agents, tour operators and agricultural products because these products' capital flow might not originate in the region itself (Klytchnikova & Dorosh, 2012).

2.2.2.2 Regional Development

Tourism acts as an income generating activity for local residents and firms within a regional economy, especially in developing countries (Incera & Fernandez, 2015). According to Rogerson (2015), tourism is increasingly being scrutinised as an instrument for economic growth and employment creation in regions' peripheral areas. International papers, research articles and practitioners increasingly view tourism as a tool for regional development. Tourism is used to direct economic development to less developed areas in an effort to narrow the regional gaps. This prompt potential economic structural changes and diversification of development in such areas (Li, Chen, Li & Goh, 2016). Sustainable regional development through tourism activities needs to consider the triple bottom-line (sustainable principles): production activities, resource allocation and spatial linkages. Tourism can be both an opportunity and a negative influence for regional development. The economic impact of tourism may yield a higher level of employment but generate low added value for a destination due to economic leakages relating to imports, lack of local production and suppliers and commercial linkages (Romao & Neuts, 2018).

Regional tourism development is asymmetric in its distribution and growth. A tourism-driven policy or initiative may therefore not be appropriate for each region as some will have

alternative sectors that are more beneficial to their success. Economic leakages are the main reason why tourism does not generate the desired economic development in a region, especially in its peripheral areas. These leakages relate to the structure of the economy and visitor consumption patterns, making it important to consider the effect tourism consumption has on labour, revenue and other socio-economic attributes (Incera & Fernandez, 2015). Tourism destinations need to have higher multiplier effects and increased linkages to ensure that economic activities relating to tourism remain in the region to foster economic development and growth. Understanding the linkages between the tourism sector and the regional economy will assist policymakers and other interested parties determine where leakages and higher multiplier effects are generated by tourism. In turn, by understanding the linkages and leakages, regions can increase the connections between tourism and other local businesses and reduce imported goods and services (Lacher & Nepal, 2010; Nunkoo, 2015).

It is important to demonstrate the significance of tourism within the regional economy to understand the competitiveness of the sector compared to other sectors or regions (Romao & Neuts, 2018). Tourism remains a poorly understood activity in the regional planning and policy sphere (Visser & Hoogendroon, 2011). The desired outcomes of regional development might not align with the priorities of the government regarding the tourism sector (Rogerson, 2015; Wang & Bramwell, 2012). Regional development and growth through tourism is difficult to determine due to the limited data available on employment, tourist flows and the direct impact of tourism on the regional economy (Rutty *et al*., 2015).

There is a barrier to establishing good regional tourism policies. To address this issue, some nations have undertaken efforts to regionalise national programmes in order to provide economic indicators for tourism at a regional level (Jones *et al.,* 2014). By modelling the economic significance of the tourism sector, policy and decision-makers can determine where tourism demand will have the largest economic contribution, and promote interregional comparisons and balanced growth (Carrillo & Jorge, 2017; Pratt, 2015). “The assumption is that the more contribution to community development policymakers of local development organisations attribute to tourism, the more they will support additional tourism development” (Panyik, 2015: 50).

2.2.3 **Regional tourism in the South African context**

South Africa is a developmental state, with the aim to achieve a more inclusive and innovative economy by facilitating and regulating economic development in order to promote the inclusion of previously disadvantaged individuals in the economy, sustain long-term productive capabilities and attract investment into emerging business (South African National Planning Commission, 2012). General characteristic of a development state is the decentralisation of government and economic functions by regionalising or localising skills, labour markets, supply chains, production and consumer markets in the interest of promoting economic interaction, spatial policies and internally driven development (Turok, 2010). This approach is used in the effort to eliminate poverty and unemployment in the country. In South Africa, the unemployment rate is mostly due to low economic growth, diminishing resources and sectors (e.g. mining and manufacturing), low skillsets or mismatch of skills, and so forth (Strydom, Mangope & Henama, 2019). The South African National Development Plan (NDP) has identified tourism as a key driver for inclusive growth and development (South African National Planning Commission, 2012). "Tourism is increasingly applied as a potential vehicle for regional development in South Africa" (Rogerson, 2015:6). Tourism has a positive economic impact for the country, as it is labour-intensive and has forward and backward linkages in the economy. The sector contributes 2.9% to the GDP of South Africa and created over 40 000 additional jobs in the past five years (StatsSA, 2018D). The value add of the sector occurs mainly within the local tourism supply chain (Strydom *et al.*, 2019). As a result, regions and/or local authorities have undertaken interventions to develop, improve and expand tourism activities as a leading economic sector (Hoogendoom & Visser, 2010).

South Africa is consistently ranked as the most competitive country in Sub-Saharan Africa according to the Travel and Tourism Competitiveness Report 2017 (World Economic Forum, 2017). The top four Sub-Saharan African destinations, namely South Africa (53rd), Mauritius (55th), Kenya (80th) and Namibia (82nd) rank only in the top 100 out of 136 countries. When comparing South Africa to its global competitors in terms of the economic contribution of tourism (see Table 2-1), it is evident that countries such as Australia, Brazil and Thailand enjoy a much higher value contribution from tourism to GDP than South Africa. From a contribution per capita perspective, South Africa has a higher employment ratio that most of

its competitors, and employs more people per unit of monetary value (Department of Tourism, 2017).

Table 2-1: South African performance compared to competitors, 2017

Indicator	Australia	Brazil	Kenya	Thailand	South Africa
Tourism direct contribution to GDP	US$41.7bn	US$59.6bn	US$2.8bn	US$42.2bn	US$10.2bn
Tourism direct % contribution to GDP	3.0%	2.9%	3.7%	9.4%	2.9%
Direct employment	531 697	2 337 010	429 376	2 336 580	726 589
Direct employment % of total	4.3%	2.6%	3.4%	6.2%	4.5%

Source: WTTC (2017)

According to the TSA of South Africa (StatsSA, 2018D), tourism contributes R130,250 million to GDP at country level, with a lower growth rate for 2017 compared to other years as shown in Table 2-2.

Table 2-2: South Africa tourism contribution to GVA and GDP, 2013-2017

Tourism Contribution	2013	2014	2015	2016	2017
TDGVA (R'million)	95,469	104,000	100,137	114,634	120,040
%Contribution	3.0%	3.0%	2.8%	3.0%	2.9%
%Growth		8.9%	-3.7%	14.5%	4.7%
TDGDP (R'million)	103,349	112,571	109,503	124,963	130,250
%Contribution	2.9%	3.0%	2.7%	2.9%	2.8%
%Growth		8.9%	-2.7%	14.1%	4.2%

Source: StatsSA (2018D)

In 2015, it was evident that the tourism sector was hard hit by external factors, despite the new visa regulations implemented during that time and the Ebola scare just before (Department of Tourism, 2017). It seems that the sector recovered well as actions were undertaken by the government and sector players to manage the situation. The lower growth rate in 2017 is a result of the economic recession experienced in South Africa. Nonetheless, the tourism sector still showed phenomenal growth at 4.2% versus the growth in the national economy at 1.2% (StatsSA, 2018D). This supports the view that tourism is an economic driver for the country (Rogerson, 2014), and can be used to grow the economy and alleviate

poverty (Strydom *et al.*, 2019). The question remains: to what extent tourism impacts the economy at a regional level or lower in South Africa?

All regions aim to attract investment and promote export outside their boundary, with many preferring a sectoral approach to achieve their national priorities. Historically, the main sectors targeted in this approach are tourism, agro-processing, automotive production and minerals extraction (Turok, 2010). Of the nine regions in South Africa, the Western Cape is the foremost in international (long-haul) tourism (Booyens & Rogerson, 2016), with Cape Town (main city of the Western Cape region) positioned in the top 15 most competitive cities in the world (United Nations, 2018). This region cultivates finance and business services, logistics and tourism sectors. According to Booyens (2015), the services and tourism sectors significantly impact the regional economy from an employment and income generating perspective. The main tourism destinations within the Western Cape are Cape Town, the West Coast, the Cape Winelands, Overberg, Eden and Central Karoo. Income generated by these areas increased by 11.5% between 2016 and 2017 for the region as a whole (Potgieter, Berman & Verity, 2019). Most regions in South Africa are more reliant on domestic tourism as their main form of income (Rogerson, 2015), while the Western Cape (particularly the Cape Town area) has a disproportionate share of international tourism (Rogerson, 2018). To maintain its competitive edge as a global destination, the Western Cape should ensure that its sectoral and geographical planning, policies and linkages are well coordinated (Booyens & Rogerson, 2016).

“Learning from international experience, one useful starting point for tourism and regional development planning in South Africa is nurturing greater interaction and networking between the tourism industry and other sectors in any regional economy” (Rogerson, 2015:12). One avenue to assist with the interaction and planning of the tourism sector within the greater economy is the use of data and indicators. The tourism economy “has remained so far unrecorded mainly because of the absence of any official data which is differentiated on a geographical basis other than the country’s nine provinces” (Rogerson, 2014:2). Tourism-related research has increased on the following topics within the South African context: conservation and biodiversity, innovation in tourism, entrepreneurship, non-leisure forms of tourism, gentrification around urban tourism nodes, and the ramifications of environmental or climate change. There is still a major gap in research that disaggregates

tourism performance and value per geographical landscape of South Africa's tourism sector (Hoogendoorn & Rogerson, 2015).

2.3 TOURISM STATISTICS

Tourism is a multifaceted phenomenon based on the movement of people and the demand which they create in places or countries over a short period of time. To the contrary, the industries that drive tourism are not defined as purely tourism-related output, because these industries also service residents. Therefore, the question remains: can tourism be viewed as an economic sector and to what extent can it be measured (Baggio, 2018)? Much research has been done on the measurements and indicators which can be used to determine the trends and impacts of the tourism sector (Cvelbar *et al*., 2016; Wober, 2000). In addition, the UNWTO has established a core rationale to develop a tourism statistical framework at national and regional levels (Ferrari *et al.*, 2018).

2.3.1 **Tourism statistical methods**

It is critical that statistics are accurate and reliable (Aroca *et al.*, 2016), but the tourism statistics that are available can be of low quality with high variable levels (Lindberg, 2000). The International Recommendations on Tourism Statistics 2008 (United Nations, 2010A) aim to address these issues by providing a methodology, which countries can used to develop their tourism statistical framework (Frechtling & Hara, 2016). The following should be considered: measurement indicators for tourism, questionnaire design and sampling, statistical analysis methods and the output requirement of the data (Murillo, 2019).

Taking the above into consideration, the output for tourism statistics is usually expressed in terms of demand and supply (Baggio, 2018) through qualitative or quantitative data (Lopesa, Muñozb & Alarcón-Urbistondoc, 2018).

The demand side of tourism is based on the concept of a person travelling to a place. It measures demographic and travel behaviour, money spent, duration of the stay and spaces used by the person. The collection of the data differs from country to country, or area to

area; some measurement systems use the entry points to the country as the collection point, while others might use accommodation establishments or visitor information centres (Baggio, 2018). The following are some of the qualitative elements measured through tourism demand surveys (Theobald, 2005):

- duration of stay or trip;
- origin and destination of trip;
- area of residence or destination within countries;
- means of transportation; and
- tourism accommodation.

The data is analysed mostly through descriptive analysis. There are more advanced approaches such as time series analysis and econometric techniques that have been used to test the relationship of the tourism statistics and scenario forecasts (Baggio, 2018; Lopesa *et al.*, 2018).

To measure the supply-side of tourism is even more complex., Since tourism is consumption driven and not based on specific industry outputs, supply is measured in relation to the demand (Baggio, 2018). Tourism consumption is used to measure the expenditure allocations in supply through requesting information on the following elements (Theobald, 2005):

- packaged travel (holidays and prepaid tour arrangements);
- accommodation (hotels, motels, resorts, campgrounds, etc.);
- food and drinking establishments (restaurants, cafes, taverns, etc.);
- transport (airplane, rail, ship, bus, auto, taxi, etc.);
- recreation, culture, and sporting activities;
- shopping; and
- other.

From an industry supply perspective, some countries or areas do provide administrative data (registration, transactions, and record keeping) for accommodation and/or catering establishments, or also conduct industry surveys to determine sales and usage of the industry (Baggio, 2018). The provision of tourism expenditure data plays a critical role in determining the economic impact of the tourism sector, as will be discussed later in the study

(Jones *et al.*, 2014). The information provided is not always comparable and data at a sub-regional level is still an issue (Jones *et al.*, 2014).

2.3.2 Statistical issues with tourism data

Many countries experience inconsistencies with their tourism statistics, and data collection biases exist and data is misused (Aroca *et al.,* 2016). Some of the major issues in tourism data relate to data collection and sampling methods and data errors s subsequently explained.

2.3.2.1 Data collection and bias errors

The definition of tourism varies and is complex in nature, which make it difficult to design a valid and credible database for the sector at global, national, regional and local levels (Theobald, 2005). This relates to the issue of defining tourism from a demand or supply perspective (Baggio, 2018) and in turn influences the structure of the questionnaire and who is targeted during the data collection period. Word biases in the questionnaire could determine how the respondent answers the question and if they are answering as an individual or a collective (Chida & Gartner, 2011). Data collection happens at a local level and is then aggregated to a national or regional level, where issues might arise from data capturing errors or missing items (Baggio, 2018). The issue with regional tourism statistics is that regions cannot be define by a single attraction or destination. Different dynamics therefore affect the potential reporting of statistics from a local level. The statistics detailed at national level are not provided at a similar degree of quality for a region, while data is more aggregated due to small samples that cannot be justified (Jones *et al.,* 2014).

Some of the main problem issues experienced in data compilation for tourism are missing data, the causality effects, subjective weighting and robustness and sensitivity testing limitations (Mendola & Volo, 2017). In addition, the data is influenced by respondent recall biases, the proxy error (an individual answering a question for others or a group) or the time gap between the event and the completion of the questionnaire (Chida & Gartner, 2011). These errors extend to the tourism expenditure surveys, where in some cases the survey

measures the expenditure amount of a travel group through an individual response. Thereafter, the individual expenditure is calculated by dividing the estimated total expenditure by the number of people in the group. The issue with this method is that travel groups no longer consist of the typical family structure, which means that the data misrepresents the expenditure patterns of travellers due to the bias of the questionnaire and sampling (Chida & Gartner, 2011).

Similarly, the databases used for the supply side of tourism statistics are unreliable. For example, monthly surveys such as the tourist accommodation facilities survey are only based on a sample but are then extrapolated to represent the population. In addition, the databases used are not regularly updated nor do they reflect the business cycle of businesses in the sector. The use of this and other data could lead to an inaccurate representation of tourism by over or underestimating the contribution and performance of the sector. This negatively influences the perception of tourism activities, particularly at a regional level (Aroca *et al*., 2016).

"In summary, the overall reliability, consistency, and comparability of the demand measurements, at least at a basic level, is relatively poor, and this raises a number of challenges when parallels and comparisons are made between different areas or countries, or, more importantly, when forecasts are required for making decisions or preparing plans" (Baggio, 2018:4).

2.3.2.2 Solution to data gaps

The more timely, reliable, comparable, comprehensive and accurate the tourism data, the better the quality of indicators drawn for decision makers will be (Mendola & Volo, 2017). Arcoca *et al.* (2016) suggested the following three steps in improving tourism-related databases: first correct the tourism enterprise directories, then apply sample weights (such as Coarsened Exact Matching (CEM)) and finally use the sample survey to re-estimate the sector impact from the supply side. From a demand perspective, a new research trend suggests the use of big data sources by merging them with conventional statistic. This could assist in improving the granularity of spatial and time-based data (Batista e Silva, Herrera, Rosina, Barranco, Freire & Schiavina, 2018).

Big data is sourced from users, devices and operations generated via sources such as social media, booking systems, web-searches, GPS tracking, and so forth (Li, Xu, Tang, Wang & Li, 2018A). Most of this personal information about people and travels is shared voluntary. Unfortunately, the traditional data management approaches cannot manage such diverse and large volumes of data (Miah, Vu, Gammack, & McGrath, 2017). The challenge with big data relates to data quality and cost, and consumer privacy. By approaching this data as a collective effort between the sector and academia (Li *et al.,* 2018A) tourism could advance using a data-driven business model, which in turn could provide insight into cross-industry trends, regional flows, innovation levels, and so forth (Vecchio, Mele, Ndou & Secundo, 2018).

Tourism research is advancing in data rich countries in particular, but not all countries have access to the same amount of data, resources or knowledge. The International Recommendations on Tourism Statistics 2008 (United Nations, 2010A) suggests that all countries and regions should aim to conform to the standards for tourism statistics but should work within their limitations and resource base.

2.3.3 **Status of tourism data in South Africa**

The importance of tourism as an economic contributor for South Africa is quite substantial; therefore, it is startling that so little academic research has been done on the impact of tourism on the country and particularly its regions from an economic perspective (Phiri, 2016). As stated by Rogerson and Rogerson (2019:179), “a key reason behind the lack of prior research on the geographies of borderlands tourism in South Africa relates to data inadequacies. Below that of the country’s nine provinces no official sub-national data exists for tourism in South Africa.” The challenge relates to data availability, which limits the ability of researchers to compare purchases by tourists to the supply of goods and services at a locality level (Karuaihe, Tsoanamatsie, Molokomme & Nhemachena, 2015).

Most studies done within this field in South Africa use both secondary and primary data. A study by Meyer (2018) determined the impact of economic growth on tourism growth by using data sourced from Global Insight and StatsSA through applied logarithms and

correlation tests. At a regional level, a study was conducted to determine the economic impact of domestic tourism in the North West Province, where questionnaires were used to compile the profile of domestic tourists and their spending patterns in the region, which was then applied to an IO model (Saayman, Saayman & Rhodes, 2001). In Limpopo Province (Karuaihe *et al.*, 2015), a primary survey was conducted with managers and owners of tourism establishments and tourist attractions, government officials and policy experts classified as key informants. The survey was used to supplement the secondary data (from Global Insight) to determine and substantiate the economic contribution, tourist spending and job creation for the tourism sector in the regional economy. The Western Cape is one of the few regions that maintain sub-regional statistics to determine tourist trends, behaviour and spending patterns, and the province also determines the overall gross value added (GVA) contribution to the regional economy through the use of a SAM model (Western Cape Government Provincial Treasury, 2018).

Evidently, the research conducted regarding tourism statistics and tourisms related economic value at a regional level requires the use of both secondary data, such as StatsSA, and primary research or data mining services, for example Global Insight. It is also important to select the correct analysis tool, e.g. regression analysis, IO modelling, SAM modelling, and so forth, as each of the listed studies use a different method to calculate their results. “It is therefore necessary for a study like this one to take note of the gap in current statistics on tourism at the national level, and find means to close such the gap…” (Karuaihe *et al.*, 2015:7) to assist regions with their planning in the tourism space.

2.4 ECONOMIC CONTRIBUTION AND IMPACT ANALYSIS METHODS

The economic studies use analytical techniques for dealing with the problem of estimating the impact of the tourism sector (Torre & Scarborough, 2017). There are different techniques that could determine either the direct, indirect or induced impact of the sector by quantifying the role the sector plays in capital creation, poverty alleviation and socio-economic contribution and the effect the sector has on other sectors and how it performs in comparison (Li, Jin & Shin, 2018B; Turner & Sears, 2013).

2.4.1 **Types of method**

“What is the contribution of tourism activity to the economy of the region?” (Stynes, 1999:1) is the question answered through the use of economic impact analysis. Many of the techniques used to determine the economic impact calculate the direct, indirect and induced effects (Kido-Cruz, Kido-Cruz & Killough, 2015). Stynes (1999) suggests that focusing on the direct effect of tourism is more important, where reporting on other multiplier effects might confuse users who are not familiar with interpreting such results. The method depends on the purpose of the study and the required outcomes. Sources further suggest that researchers should primarily report on the income or value added results generated by the impact study, as sales and job impact estimate could be misleading; e.g. the job estimates could be distorted as they might be part time positions or wage rates could differ, or the larger part of sales is to buy material.

The estimation of the economic impact of tourism acts as a benchmark for regional tourism policies success, determines the economic value added and employment create by tourism, expresses the impact of specific tourism-related sub-sectors on the economy, proves that the tourism share increases, and justifies subsides in tourism (Klytchnikova & Dorosh, 2012). Various methods are used to determine the economic impact of the tourism sector, such as regression and time series analysis, IO, SAM, CGE models and the TSA (Kido-Cruz, *et al.*, 2015; Ferrari *et al.*, 2018).

In the past and to this day, the IO model has been used to determine the value of tourism within the economy of an area (Dwyer *et al.*, 2004). Examples of this are Washington, D.C. (Horváth & Frechtling, 1999); Romania (Surugiu, 2009); China (Zengwen, 2007); Iran (Pratt, 2017) and Zeeland, Netherlands (Klijs, Peerlings & Heijman, 2015). The IO determines the relationship between consumers and producers by assuming the output is equal to input and that the demand and supply of an economy is balanced (Baggio, 2018). A problem with measuring the economic impact of tourism is that tourism industries do not exist independently in the industries or commodities tables in the IO model (Pham *et al.*, 2008). The IO model also determines the secondary impact of the sector industries relating to households and production of suppliers (Kumar & Hussain, 2014). This model can be further expanded by the use of SAM; which observes both production impacts such as the IO model

and further extends to the effect that income has on labour (Incera & Fernandez, 2015). SAM represents the flow of economic transaction in an economy (Baggio, 2018).

Recent studies have employed the CGE model to estimate the economic impact of various changes within sectors such as tourism (Dwyer *et al.*, 2004). “CGE are simulation models that use actual economic data to estimate how changes in policy, technology, production or even external factors might impact the general behaviour of an economy” (Baggio, 2018:7). These types of studies have been undertaken in Fiji (Narayan, 2004); Scotland (Blake, Durbarry, Eugenio-Martin, Gooroochurn, Hay, Lennon, Sinclair, Sugiyarto & Yeoman, 2004); Beijing 2008 Olympics (Li, Blake & Cooper, 2011); USA (Dixon & Rimmer, 2009) and Singapore (Menga, Siriwardana & Pham, 2013). The CGE model often has a theoretical foundation in neoclassical microeconomics which mathematically indicates the significant relationships within the economy (Song *et al.*, 2012). This model does lack empirical validation, however, as it requires a number of assumptions and estimates, has a comparatively static nature, and gives inadequate treatment to the foreign sector (Rossouw & Saayman, 2011). This statement also applies to IO and SAM models.

According to Klijs, Peerlings and Heijman (2015), the IO model is still used by consultants and academics alike but has its limitations with fixed pricing and no input substitution, whereas the CGE model can be applied to smaller regions but requires additional data and explicit modelling which might not be applicable in data limited regions.

The official and internationally standardised statistics available on tourism expenditure and economic contribution are contained in the TSA (Baggio, 2018). The TSA is a standard statistical framework and is the primary source used for the economic measurement of tourism at a national level (United Nations, 2008; Dwyer *et al.,* 2004). National or regional TSA are used by a variety of public and private stakeholders (national and regional policymakers, tourism organisations and authorities, central banks and academics or research institutions (Dupeyras, 2009)). Use of the TSA ensures a largely standardised approach to determine the economic importance of tourism which is comparable on local to national and international levels (Klytchnikova & Dorosh, 2012). The TSA is not just used to create public awareness but to bring confidence and recognition for tourism as an economic sector (Rutty *et al.*, 2015).

The foundation of the TSA is based on transactions in the economy between industries, imports and exports, household income and final demand directly impacted by the tourism sector. The main issue with the TSA relates to it methodology, which is very data-hungry with an approach that views tourism in a simplified manner in terms of its relationship to other activities (Baggio,2018).

“Furthermore, in order to overcome the already mentioned limitations of IO models, the implementation of more complex CGE methodologies is strongly suggested, together with the development of tourist satellite accounts (TSA) to better quantify the contribution of tourism” (Comerio & Strozzi, 2019: 125). According to Baggio (2018), all the above-mentioned models will yield the intended result, but they all are static exercises, which provide a snapshot of the situation in a certain region for a specified period and are not ideal in dynamic scenarios. Nonetheless, most recent studies would suggest the use of a TSA to determine the contribution of the tourism sector at national or regional level (Rutty *et al.*, 2015; Klytchnikova & Dorosh, 2012) due to its international recognition and recommended methodology (United Nations, 2010B). Other economic impact analysis methods could be used to determine the wider impact (indirect and induced) by expanding the TSA and combining it with other techniques such as the CGE model (Rossouw & Saayman, 2011). Dynamic CGR model can further be applied to determine the impact tourism has on tax, poverty and other socio-economic indicators (Ponjan & Thirawat, 2016; Njoya & Seetaram, 2018).

2.4.2 **Application of an RTSA**

The construction of an RTSA has received increased attention over the past few years, with a few countries having conducted similar initiatives. There is a lack of a standardised framework for the development of an RTSA with multiple studies using a wide variety of approaches, information sources and result outcomes (United Nations, 2013).

2.4.2.1 RTSA approach

There are two methods in the construction of an RTSA (Fletching, 2008; Pham *et al*., 2008; Song *et al.* 2012; Jean-Pierre & Perrain, 2016):

a) The “top-down” method, which relies on the regionalisation of national data by disaggregating the national output of tourism consumption and the tourism industries to a regional level. This method only produces a basic set of TSA indicators, which do not faithfully reflect the tourism economic activities in a region.
b) The “bottom-up” method which develops a fully quantified TSA for a region by using the regional statistical information. Only a few regions in the world follow a “bottom-up” TSA approach, which requires detailed research and accurate data from both the supply and demand-side of the tourism sector at a regional level. This method is complicated, costly and time-consuming.

The type of approach used is influence by whether the RTSA follows an interregional or regional method (United Nations, 2013). Table 2-3 summarises several RTSA studies and shows the method used, data requirements and limitations experiences within their regional context.

Table 2-3: RTSA practices

Author	Year	Study Area	Method	Study description	Limitation
Jones, Munday and Roberts	2003	United Kingdom	Top-down approach Regional	• Uses regional IO Tables • Business surveys of core tourism sector sampling frame was used to disaggregate the IO Tables	• Spend of foreign visitors is detailed as a separate vector of final demand in IO Table • Tourism-related expenditures of UK households are not separated from overall household expenditure within the UK statistics • Issue in the construction of an accurate account of tourist-related economic activity is labour use.
Braendvong, Dybedal, Johansen and Sorenson	2001	Norway	Top-down approach Interregional	• Allocates the output of the tourism industries to the 19 regions as per the regionalised National Accounts	• Regional accounts have limited products and industries • Tourism products are not well defined in regional accounts • Transport industries are calculated by using regional activity indicators and not monetary flows • Issues with tour operators and sea transport estimates
Dwyer, Forstyh, Spurr and Van Ho	2007	Australia	Hybrid approach Interregional	• Tourism regional shares data • Regionalised IO Tables	• Data limitations • Interstate trade • Subsidies • Reconciliation with National TSA • Indirect effects of tourism • Economic impact only determined for direct
Pham, Dwyer and Spurr	2008	Australia	Top-down approach Interregional	• Uses the national TSA • Tourism regional shares data • Regional IO Tables	• Regional IO Tables for Queensland • Regional data on domestic day travellers, domestic overnight travellers and overseas visitors • Modified regional data with derived calculations

Author	Year	Study Area	Method	Study description	Limitation
					• Aggregated national TSA with regional data • Updated regional IO Tables critical
Laimer	2012	Austria	Bottom-up approach Regional	• Regional data such as Structural Business Statistics, Accommodation Statistics, Tourism Monitor quantitative data • Regional National Account available at 1-digit level • SUT on national level broken down to regional level	• Methodology challenges regarding characteristic of tourism demand and supply that differ per region • Treatment of transport, tour operators, food consumption between households and tourists • TSA requests 2 or 3-digit level
Frechtling	2012	United States of America	Top-down approach Interregional	Developed the following tables for the RTSA from the TSA: • Table 4: Internal Tourism Consumption by Product • Table 5: Production Accounts of Tourism Industries and Other Industries • Table 6: Total Domestic Supply and Internal Tourism Consumption • Table 7: Employment in the Tourism Industries • Table 10: Non-monetary Indicators	• Lack of appropriate sampling frames for visitors to regional area • SNA does not define a framework for regional accounts • Some production activities cannot be regionalised
NathPandey and Singh	2013	India	Top-down approach Interregional	• Relevant statistics on visitor expenditures for different products within the regional boundaries • Statistics on supplies from the domestic production relating to tourist purchase activities • Confrontation between the National Account and the regional statistics relating to the SUTs • Estimate for the value added to the domestic production by tourist purchases	• Issues of data availability relating to general statistics and the SUTs • The use of vacation houses by tourist difficult to estimate, research used the basis of market rent to determine the unit • Double counting of costs attributed to travel agents/ tour operators, where the value paid to the travel agency and the service provider needs to be balanced • Treatment of retail versus goods and services in general

Author	Year	Study Area	Method	Study description	Limitation
De Maesschalck and Weekers	2014	Belgium	Bottom-up approach Interregional	• Demand surveys used: - Tourism Flanders-Brussels - Travel behaviour of Belgians - Provincial enterprise for tourism in West Flanders - Flemish project on seaside tourism indicators and statistics - Same-day tourism at the seaside - Use of second homes - Statistics on Inbound Tourism • Uses regional IO Tables and regional SUTs supplied by the national bureau • Tourism product ratio calculated to determine the share of tourism in supply data	• Could not determine the origin of expenditure by second-home owners • No information on Flemish visitors travelling for business outside the regional borders • Issues with travel agent / tour operator expenditure • The 2010 regional IO Tables needed to be converted to 2014 • Had to apply Location Quotients to the regional IO Tables as the digit level was too basic, a five-digit level is required. • Reliance on the decentralised National Office for Social Security statistics for employment statistics
Zhang	2018	Denmark	Top-down approach Regional	• Production data at regional level with sector details for 117 classified industries, represented for each municipality, yearly data for 1996-2016, and fixed and constant prices • Regionalisation of make-use tables from National Accounts	• Tourism surveys are not consistent with the National Account • Aggregates tourism relevant sectors in accordance with the standard industrial codes
Desjardins	2018	Canada	Hybrid approach Interregional	Data Sources: • Travel surveys - International travel survey - Travel survey of residents of Canada • Regional supply and use tables • Industry surveys • Productivity accounts	• Uses short-term private accommodation services • Uses travel surveys on international visitors' credit and/or debit cards • Extension on RTSA with regional government revenue attributable to tourism • Link to regional culture satellite account

It is evident from this overview that most RTSAs constructed in other countries follow a top-down approach, using the same data type and experiencing the same issues. The advantages of a top-down method are that it standardises the RTSA structure across regions, it has a minimal cost implication if good quality demand and supply data is available and it is easily integrated into a national framework. Nonetheless, the use of this method can limit the adequate accounting of regions and the tourism-related structure since the lack of a full regional account will require that additional data sources be identified and national ratios are adapted for regional differences (Dwyer *et al.*, 2007). This method does not necessarily require planning or new primary statistical surveys to be introduced into the tourism statistical system, as it uses available secondary data sources (Laimer, 2012).

The top-down method requires two datasets, namely the national TSA and regional tourism statistics, which are disaggregated to determine the regional tourism expenditure. The expenditure determined is applied as a ratio to the Regional Supply and Use Tables (if available). From this step, the researcher can determine the value added by the tourism sector to the economy of a region, all together representing the RTSA Tables. The regionalisation of the TSA does not come without its challenges, as illustrated in the previous sections. The reconciliation of regional tourism demand and supply has major limitations (Jones *et al.*, 2014) due to several factors.

2.4.2.2 RTSA demand-side challenges

The data collection and bias errors for regional tourism statistics come into play here as the use of this data to either regionalise the internal tourism consumption from a national level or to determine the tourism expenditure at a regional level does not necessarily follow the same definitions and parameters as the TSA. These regional tourism statistics do not account for the economic leakage experience with tourism expenditure relating to money spent within the region but distributed elsewhere or money spent on the trip but not within the locality boundaries (Garrigós-Simón *et al.,* 2015).

The expenditure estimates on accommodation can also be distorted as many tourists use alternative accommodation (AirBnB, secondary homes, stay with friends or family), instead of the traditional tourist accommodation (hotels, guest houses, lodges, campsites). These

can be seen as unpaid or informal accommodation expenditure, which might not be derived from the demand survey estimates (Hoogendoom & Visser, 2010). Another issue relates to the use of reservation services (e.g. travel agents), which are not always specified within tourism demand survey expenditure breakdown or do not specify the percentage of the money spent through the reservation services that actually entered the region (e.g. 5% of reservation service sales is commission). When it comes to determining the amount spent on transport using the tourism demand survey, some of the expenditure will be on private transport which does not count as passenger transport within the TSA definition. Private transport expenditure contributes directly to fuel consumption and not the transport industry. The problem further extends to the first statement regarding identifying what is spent within the locality boundaries (United Nations, 2013).

2.4.2.3 RTSA supply-side challenges

Table 2-3 makes quite clear that the main challenge for the RTSA from a supply-side is the inadequate provision of a regional supply and use tables (SUT) or IO with a suitable level of disaggregation (digit-level of 3 or higher). This required the researchers to either regionalise the national SUT/IO or to disaggregate the existing regional SUT/IO to a more granular level. In addition, the more accurate RTSA examples have access to tourism business surveys or databases at a regional level, which assisted in estimating the supply-side of tourism-related industries and its contribution to the economy.

The use of an RTSA does have its benefits but also a considerable number of limitations, particularly in data-poor regions. Therefore, the aforementioned should be taken into consideration when embarking on the construction of an RTSA for a specific region or country as a whole. The UNWTO (2013) does caution against the use of the RTSA, because it is critical that an RTSA maintains its integrity as per the TSA framework.

2.5 CONSTRUCTION OF AN RTSA

The construction of an RTSA should follow a phased approach, where the more straightforward elements are incorporated first into the suggested account framework. Therefore, UNWTO and other studies emphasise that the following four tables be constructed for an RTSA (Frechtling, 2012, United Nations, 2013, Jean-Pierre & Perrain, 2016):

Table 1: Internal tourism consumption
Table 2: Production accounts of characteristic industries
Table 3: Supply and internal tourism consumption
Table 4: Employment in the tourism industries

2.5.1 **Table 1: Internal tourism consumption**

The internal tourism consumption table is the demand side of the RTSA, which presents the tourism expenditure for both domestic and international tourism. The following two datasets are required to construct this table using a top-down approach: the national TSA and the regional tourism statistical data, which will be used to aggregate the national TSA down to a regional level.

2.5.1.1 National TSA

The Tourism Satellite Account: Recommended Methodological Framework 2008 (TSA:RMF 2008) (United Nations, 2010B), is the starting point for the methodology of a national TSA. The construction of a TSA is a “process of extracting the hidden components of tourism expenditure data from the supply and demand side in the IO system and presenting them in a format compatible with other conventional industries” (Pham *et al.*, 2008). The TSA consists of 10 aggregated tables that represent internationally comparable tourism economic information (United Nations, 2010B):

Table 1: Inbound tourism consumption (by products and categories of visitors)
Table 2: Domestic tourism consumption (the tourism activity of residents within their country of residence by products and categories of visitors)

Table 3: Outbound tourism consumption (by products and categories of visitors)

Table 4: Internal tourism consumption (by products and categories of visitors)

Table 5: Production accounts of tourism industries and other industries (tourism-related supply to visitors)

Table 6: Domestic supply and internal tourism consumption (by products) providing information on GDP and value added associated with tourism

Table 7: Employment in the tourism industries

Table 8: Gross fixed capital formation

Table 9: Collective consumption

Table 10: Non-monetary indicators

These tables should be developed in two or more stages, dependent on the source data of a country. The first stage recommended is the development of tables 1 to 7 and table 10. These tables use the following classifications (United Nations, 2010B):

Table 2-4: TSA tourism product and industry categories

Tourism products	**Tourism industries**
1. Tourism characteristic products a. Accommodation services for visitors i. Accommodation services for visitors other than; ii. Accommodation services associated with all types of vacation home ownership b. Food- and beverage-serving Services c. Railway passenger transport services d. Road passenger transport services e. Water passenger transport services f. Air passenger transport services g. Transport equipment rental services h. Travel agencies and other reservation services i. Cultural services j. Sports and recreational services k. Country-specific tourism characteristic goods l. Country-specific tourism characteristic services 2. Tourism connected products 3. Non-tourism related consumption products 4. Non-consumption products 5. Valuables 6. Other non-consumption products	1. Accommodation for visitors a. Accommodation for visitors other than; b. Accommodation associated with all types of vacation home ownership. 2. Food- and beverage-serving industry 3. Railway passenger transport 4. Road passenger transport 5. Water passenger transport 6. Air passenger transport 7. Transport equipment rental 8. Travel agencies and other reservation services industry 9. Cultural industry 10. Sports and recreational industry 11. Retail trade of country-specific tourism characteristic goods 12. Other country-specific tourism characteristic industries

Source: United Nations (2010B)

The alterations and aggregation of the following consist of (United Nations, 2010B):

a) The extraction of detailed data referring to tourism-related products and tourism industries from the surveys, administrative records and other databases used for the compilation of the supply and use tables when the detail available in the tables is not sufficient;
b) The valuation of reservation services (provided by travel agencies, tour operators and others) based on the gross margin that they generate. The corresponding adjustment is to be made to the value of the tourism services that have been intermediated, which should be the valued net of the reservation services.

2.5.1.2 Regional tourism statistics

The following statistical information on international and domestic tourism in a region is required (StatsSA, 2018D):

- Number of trips and overnights by forms of tourism and classes of visitors.
- Average expenditure per day/trip per traveller for accommodation, restaurants and related services, passenger transport services (transport), travel agencies and similar services, cultural activities, sport and recreational services, shopping, and others.
- Modes of transport.
- Accommodation type.

This information is usually published by the national or regional tourism-related authorities or research institutions and uses semi-standardised methods to measure the data. According to Grobler (2016), the data in South Africa is standardised at a national level but regional data (not collected at a national level) is not necessarily comparable with the national data or other regional data due to different methodologies and sample sizes.

2.5.1.3 Regional tourism expenditure

The expenditure items published in regional tourism data are much more aggregated compared to national tourism statistics. The data is used to disaggregate the national TSA into regional expenditure share data. The expenditure items do not match the product categories of the national TSA. Therefore, the expenditure items should be reduced from 10 to 5 items as an example. The researcher needs to undertake separate mapping and data treatment for the expenditure items. This process has to be conducted for domestic and international tourism. As more data becomes available, this technique provides the opportunity to refine and update the composition of the products per group (Jean-Pierre & Perrain, 2016; Pham *et al.,* 2008).

2.5.2 **Table 2: Production account of characteristic industries**

The production account consists of two variables, namely production and intermediate consumption with the difference between the two yielding the GVA. This table is derived from existing SUTs on a regional level (Institutio de Estadistica, 2010). If no regional SUTs exist, then the national SUTs should be regionalised.

2.5.2.1 National supply and use tables

The national SUTs are an integral part of the System of National Accounts 2008 (SNA). The SNA is a framework that accumulates and reconciles goods and services into supply and demand data, reflecting the most comprehensive industry relationship in the economy through the usage of SUTs and IO Tables (United Nations, 2018). The SUTs integrates all the components of income, production and expenditure that link to other parts of the SNA; resulting in a comprehensive estimation of GDP. These tables record how products are brought into an economy and how they are used. The SUTs consist of two interlinking tables (Miller & Blair, 2009).

The first table represents the supply of goods and services by type of product and type of industry, referred to as the supply table. In the table, there is a distinction made between domestic products and imports, as shown in Table 2-5.

Table 2-5: Structure of supply table

		Industries				**Imports**	**Total**
Products		Agriculture	Mining	….	Services		
	Agriculture	Output by product by industry				Imports by product	Total supply by product
	Mining						
	….						
	Services						
	Total	**Total Output of Industry**				**Total Imports**	**Total Supply**

Source: United Nations (2018)

The second table is called the use table, and interprets the use of different products through intermediate consumption, households, governments and exports. The value-added per industry is also determined, such as compensation of employees, other taxes less subsidies on production, consumption of fixed capital and net operating surplus. Table 2-6 shows the simplified structure of the use table.

Table 2-6: Structure of use table

		Industries				**Final Uses**			**Total**
Products		Agriculture	Min-ing	….	Services	Final Consump-tion	Gross Capital formation	Exports	
	Agriculture	Output by product by industry				Final uses by product and category			Total use by product
	Mining								
	….								
	Services								
	Value Added	**Value added by component and industry**							**Value Added**
	Total	**Total output of industry**				**Total final uses by category**			

Source: United Nations (2018)

The SUTs provide a full representation of the economy and all its activities. As discussed above, there is a problem with measuring the economic contribution of the tourism sector

since this sector does not exist as an individual sector within the SIC. The tourism sector consists of multiple industries and only contributes to a portion of the industry outputs within selected sectors. Therefore, the direct value of the tourism sector cannot be accurately extracted from the SUTs or other IO models. To address these types of concerns, the SNA makes provision for the extension of its existing accounts through satellite accounts. One type of satellite account involves the rearrangement of the central classification of the SNA and introduction of new complementary elements (United Nations, 2018). The term satellite account refers to an additional account system, which is used alongside the SNA to quantify the size and significance of a particular sector, hence the development of the TSA (United Nations, 2010B; Pham *et al.*, 2008:5-6).

The availability of regional SUTs is limited or non-existing in most countries, and those that are available are highly aggregated (United Nations, 2010B). Issues with developing regional SUTs relate to assigning non-specific transaction units to regional boundaries, establishing an interregional trade flow matrix, and further distributing external transactions between the rest of the world and the other regions. (United Nations, 2018).

2.5.2.2 Regionalising the supply and use tables

Regionalising supply can be an obstacle to the construction of an RTSA (United Nations, 2013). The product-mix problem between national and regional models and the availability of data can influence the design and outcome of a regional model. The following techniques extend regional models for a national, regional and local perspective (Miller & Blair, 2009):

- Simple location quotients (LQ)
- Fabrication effects
- Regional purchase coefficient
- Double-entry bi-regional IO tables

The solutions used to construct the production account are valid systems that are neither unique nor perfect (United Nations, 2013). Rokicki, Fritz, Horridge and Hewings (2019) make a comparison between the regionalisation techniques for IO and similar models. They state that “most of the authors claim the LQ approach to be one of the best non-survey alternatives

to estimate a regional IO" (2019:5), since it is more compatible with limited datasets. The LQ accuracy can be further improved by combining it with bi-proportional methods (e.g. RAS) (Rokicki *et al.*,2019; Brand, 2012). The other techniques are less popular and not necessarily better, especially in situations where data is limited. Researchers are aware of the limitations using these techniques in developing an accurate RTSA, but the lack of better information requires the disaggregation of regional supply to a five-digit level SIC (De Maesschalck & Weekers, 2014).

2.5.2.3 Regional production account

Once the SUTs is regionalised, two classification frameworks can be used to establish the regional production account (United Nations, 2013), as shown in Table 2-7.

Table 2-7: RTSA production account classification

Production of RTSA	**Intermediate consumption in the RTSA by product categories**

• Tourism characteristic products
  ○ Accommodation services
  ○ Food and beverage services
  ○ Passenger transport
  ○ Recreational services
  ○ …
• Tourism-related products
• Non-tourism related consumption products
• Others
	• Agricultural products
	• Mining and queries
	• Manufacturing products
	• Construction
	• Electricity and water
	• Wholesale and retail
	• Financial, real estate services
	• Business services
	• Community, social and personal services

Source: United Nations (2013)

2.5.3 Table 3: Supply and internal tourism consumption

The use of regional tourism statistical data to determine tourism expenditure presents a view of visitor spending, where the values of the goods and services denote the purchasers' prices. This includes all marginal cost incurred on top of the production cost incurred by the matching industries (United Nations, 2013).

The development of the proposed Table 3 is done by determining the proportion of the domestic output of each product consumed by visitors through allocating tourism

consumption (Table 1) into the total supply of each product at basic prices (Table 2) (StatsSA, 2018D). From the calculated level of output, the researcher can determine the contribution of products to GVA and the total GDP for the region. The GVA breakdown ratios are used to derive compensation of employees, gross operating surplus, employment, intermediate commodity and the net taxes on production (Pham *et a.,* 2008).

2.5.4 **Table 4: Employment in the tourism industries**

It has been suggested that less content is incorporated in the RTSA compared to the national TSA, with basic employment categories (salaried vs unsalaried) and type (full- or part-time) dependent on the availability of data (United Nations, 2013). Employment numbers should be available for tourism-related industries (e.g. restaurants, public transport) at national and perhaps even regional level. A tourism ratio should be allocated to these employment numbers (by industry) to determine the estimated direct tourism employment (StatsSA, 2018D).

2.6 CONCLUSION

The national TSA cannot determine the contribution of tourism in different regions of a country. This is due to the unequal distribution of tourism activity geographically in a country (Jean-Pierre & Perrain, 2016). With the construction of an RTSA, it is important to take care when using national TSA data to estimate the RTSA because it is based on survey data that is affected by sampling errors. Since data limitations exist at national TSA level, researchers are cautioned when using this data at a regional level. Moreover, it is critical for the construction of an RTSA that regional SUTs exist and are kept up-to-date. The construction of an RTSA needs to ensure that its data and structure follow a consistent format that can be routinely updated.

CHAPTER 3: METHODOLOGY AND DATA ANALYSIS

3.1 INTRODUCTION

According to Darbellay and Stock (2012), tourism is an interdisciplinary study field as it interchanges between business education and scientific research. The study is characterised as positivism with empirical research, using quantitative analysis on secondary data (Babbie & Mouton, 2001; Saunders, Lewis & Thornhill, 2012).

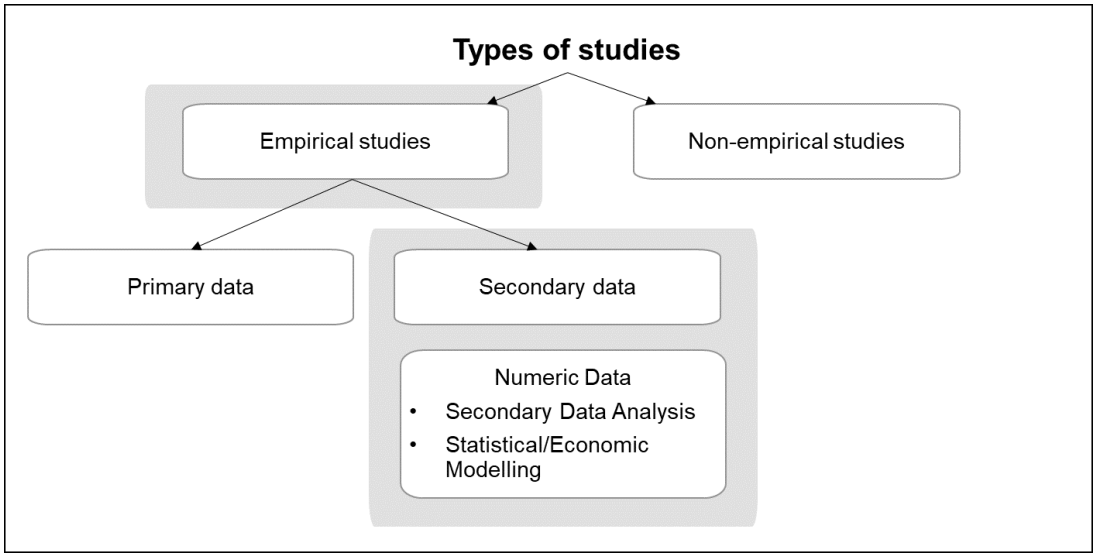
The researcher applied a top-down approach for the construction of the RTSA, as it is one of the primary methods used in other literature to compile an RTSA in countries where resources, budget, time and data limitations are prominent (Jones *et al.,* 2003; Braendvong *et al.,*2001; Pham *et al.*, 2008; Frechtling, 2012; NathPandey & Singh, 2013; Zhang, 2018). The outcome of the study is an RTSA for the Western Cape region in South Africa. Data challenges were experienced in the construction of the RTSA, which limited the accuracy of the findings and brought forth recommendations on what needs to be done to overcome these challenges in the context of South Africa and other emerging destinations.

3.2 RESEARCH DESIGN

The research paradigm for the study is positivism as the study is based on identifiable and measurable attributes, with the research procedure and findings premise being objective, scientific and detached from research biases (Ponterotto & Grieger, 2007). The study is purely empirical as it uses numerical data, which reflects the main characteristic of positivism, whereas postpositivism, constructivism and critical theory paradigms have an element of qualitative research and can be biased towards the researcher's values (Tuli, 2010).

Figure 3-1 illustrates the research strategy used by the researcher.

Figure 3-1: Inquiry strategy



Source: Mouton (2001)

As the literature emphasises, the construction of an RTSA can be done through a top-down or bottom-up approach (Jean-Pierre & Perrain, 2016; Song *et al.,* 2012; Pham *et al.,* 2008; Fletching, 2008). Both approaches are grounded in empirical studies, either using primary, secondary or mixed data collection and analysis methods. The bottom-up approach has advantages as it provides a more comprehensive framework and data for an RTSA. This approach requires the collection of primary data at local level in terms of business expenditure and tourists spending habits through which the actual consumption of tourists are determine for a region. The downside is that this approach is very data and resource intensive and difficult to use for inter-regional comparisons or be compared to the national TSA (Jones, Munday & Roberts, 2009). The top-down approach is the more common method found in the literature (United Nations, 2013; Frechtling, 2012; NathPandey & Singh, 2013; Zhang, 2018), since it is more cost effective, uses existing resources and allows for national and inter-regional comparisons. The top-down approach may poorly represent regional tourism supply and demand as this approach uses existing data, which might not have the correct breakdown of information in terms of geographical distribution and expenditure patterns for tourists in a region (Jones & Munday, 2010).

Taking the aforementioned into consideration, the researcher applied a top-down approach to determine the appropriateness of the secondary data available in South Africa in the

context of constructing an RTSA for a region. An RTSA generated via this approach requires secondary data at both a national and regional level. Secondary data is available on either publicly accessible online platforms, such as search engines and the official website of the related institution, for example StatsSA; database-knowledge system, for example Quantec; public domains in paper-based or digital format; and within closed or intra-institutional domains such as South African Tourism (SAT), the destination marketing organisation of South Africa (Greener, 2008; Quantec, 2019; StatsSA, 2018D). This study used secondary data in the form of official statistics at both the national and regional level where appropriate.

The existing secondary data used for the study is all numerical based datasets with unit values provided in numbers, percentages, currencies and prices (constant or real). Thus, quantitative research methods were used for the research design and data analysis though statistical techniques, macro-economic analysis, econometrics and matrices (Smeral, 2015A).

3.3 SECONDARY DATA AVAILABILITY AND APPROPRIATENESS

The following sub-section evaluates the datasets obtained from public domains and institutions, to assess the appropriateness and limitations of the available data for the Western Cape region in South Africa.

As determined in the literature, the RTSA requires:

1. Availability of a national TSA.
2. Availability of regional tourism statistical data (number of trips, number of overnights, average expenditure by product type, modes of transport/ accommodation type).
3. Availability of regional SUTs with 3-digit SIC level or higher.

The following data sources were identified for the study area:

Table 3-1: Secondary data responsible institutions in South Africa

Information requirement	Institutions	Data source
The System of National Accounts	• Statistics South Africa (StatsSA): National Accounts Division	• Gross Domestic Product Quarterly Publication (Excel®)

Information requirement	Institutions	Data source
National Tourism Satellite Account	• StatsSA: National Accounts Division	• Tourism Satellite Account for South Africa, provisional 2017 (Excel®) (StatsSA, 2018D)
Regional Tourism Research Statistics	• StatsSA	• Domestic Tourism Survey 2017 (Excel®) (StatsSA, 2018A)
	• SAT	• Departure Survey 2017 (Excel®) (SAT, 2018A) • Domestic Tourism Survey 2017 (Excel®) (SAT, 2018B)
	• Western Cape Tourism, Trade and Investment Promotion Agency (Wesgro) • Western Cape Department of Department of Economic Development and Tourism (DEDAT).	• Western Cape Tourism Performance 2017 (PDF) (Wesgro, 2018B) • Regional Trends Annual 2016 (PDF) (Wesgro, 2017)
Regional Supply	• Quantec	• GVA per sector for both national and Western Cape provincial data 2017 (Excel®) (Quantec, 2019) • Output for per sector for both national and Western Cape provincial data 2017(Excel®) (Quantec, 2019)

The researcher evaluated the data as stipulated by Johnston (2014) as follows:

- the purpose of the study for which the data was collected;
- the institution or person responsible for collecting the information;
- the actual information that was collected;
- the period of data collection;
- the method of obtaining the information; and
- the consistency of the information compared to another source.

3.3.1 National TSA

The TSA for South Africa consists of the proposed Tables 1 to 7 and 10, with the specified product categories, as stated earlier in this section. Table 3-2 represents the data sources used to compile the TSA.

Table 3-2: TSA data sources in South Africa

Data	Frequency	Coverage	Source
Demand-side data			
Tourism and migration	Monthly and annually	Movement control system	StatsSA
Income and Expenditure Survey	Every 5 years	30 000 households sampled	StatsSA
Living Conditions Survey	Every 5 years	30 818 dwelling units sampled	StatsSA
Domestic Tourism Survey	Annually	32 000 households sampled	StatsSA
SU-tables (Supply and Use)	Annually Periodically	Entire economy	StatsSA and South African Reserve Bank
Supply-side data			
Financial statistics of consolidated general government	Annually	General government	StatsSA and South African Reserve Bank
Tourist accommodation survey	Monthly	1071 enterprises sampled	StatsSA
Survey of food and beverages	Monthly	1048 enterprises sampled	StatsSA
Large sample survey (LSS) on accommodation	Every 3 years	5 892 enterprises sampled	StatsSA
LSS on personal services	Every 3 years	4722 enterprises sampled	StatsSA
LSS on the transport industry	Every 3 years	7448 enterprises sampled	StatsSA
LSS on real estate and business services	Every 3 years	8004 enterprises sampled	StatsSA
LSS on wholesale and retail trade	Every 3 years	3000 wholesale enterprises sampled 2800 retail enterprises sampled	StatsSA
Annual Financial Statistics	Annually	13431 enterprises sampled	StatsSA and South African Reserve Bank (SARB)
SU-tables (Supply and Use)	Annually Periodically	Entire economy	StatsSA and South African Reserve Bank (SARB)

Data	Frequency	Coverage	Source
Other data sources			
Departure survey	Monthly	57 600 foreign visitors sampled	SAT
Domestic survey	Monthly	15 600 adult residents sampled	SAT

Source: StatsSA (2018)

The TSA for South Africa is quite robust and well-defined within the TSA:RMF 2008 (United Nations, 2010B). There are aspects that are not covered in this national TSA as per the international recommendations, including the differentiation between same-day visitors from tourists relating to inbound and domestic tourism, estimation of tourism expenditure on second homes, tourism consumption in kind, outbound tourism expenditure by products, tourism collective consumption and tourism gross fixed capital formation in tourism industries (Ragab, 2014). Nonetheless, according to the TSA:RMF 2008, countries can apply the TSA relating to the availability of information and are not required to conform to the recommended structure and aggregation (United Nations, 2010B). Therefore, the structure of an RTSA in the South African context will follow the prescribed format of the country's national TSA.

3.3.1.1 National TSA Tables

Tables 1 to 3 describe the tourism consumption components relating to inbound, domestic and outbound tourism expenditure. Table 4 combines Tables 1 to 3 and estimates the internal tourism expenditure, creating the basis for the TDGVA and TDGDP.

Table 5 represents the production accounts of the tourism industries and other industries, conforming to the format defined by the SNA. The output is aggregated by the product and it is value at basic prices. Furthermore, intermediate consumption is presented at purchasers' price value. The difference between the two values represents GVA. The value added is broken down into compensation of employees, gross operating surplus of corporations, mixed income of the unincorporated business and net taxes on production.

Table 6 denotes the reconciliation between internal tourism consumption and domestic supply. It is important to bear in mind at this stage that because several assumptions are used to relate inputs to particular outputs of production processes of industries, the results have a modelled component and cannot be considered as directly observed and reconciled with statistical data (United Nations, 2010B). Since the assumption made to derive the internal tourism consumption is based on demand data and is reconciled with supply data. Therefore, the base assumption is that tourism demand is equal or less that supply within the Table 6. Similarly, Table 7 estimates the employment in the tourism sector by applying the industry ratio to the total employment for each industry. The industry ratio is calculated from Table 6 between to industry output and tourism share. Therefore, Table 7 represents both direct and indirect contributions per industry.

The final table, table 10, represents the non-monetary indicators used to model the tourism contribution of the sector, as per the following examples:

- number of trips by forms of tourism;
- type of visitors and duration of the stay;
- physical indicators regarding types of accommodation;
- modes of transport used;
- the country of origin; and
- the number and size of the establishments belonging to tourism industries.

3.3.1.2 Main aggregates

For the aggregation of the tables, the following relevant indicators are produced, which indicate the size and contribution of the tourism sector to the economy (StatsSA, 2018D):

- Internal tourism expenditure
- Internal tourism consumption
- GVA of tourism industries
- TDGVA
- TDGDP
- Employment in tourism

The national TSA is the premise for the RTSA when using a top-down approach, with Table 4 and 5 forming the base for the construction of the internal tourism consumption and production account tables in the RTSA. Further, the RTSA product matrix will align to the national TSA structure. The construction of the RTSA, thus, requires demand data to break the TSA Table 4 down to regional tourism consumptions and production supply data to adjust TSA Table 5 to represent a regional production account. Therefore, the availability of regional tourism demand data and industry supply data is critical in disaggregating the national TSA down to regional level.

3.3.2 **Regional tourism demand data**

The study requires statistics relating to international and domestic tourism for a region in South Africa. Two regions conduct their own primary research on a periodic basis, namely KwaZulu-Natal and Western Cape. The data is collected and reported at a local level and not aggregated to a regional level due to limitations in the sampling method, as will be elaborated later in this section. Other regions, such as Gauteng, have released annual reports on international tourism data but this data is either outdated or is drawn from the SAT Departure Survey (Masemola, 2017).

3.3.2.1 Available international (inbound) tourism data

In South Africa, the data available that statistically represents international (inbound) tourism is found in the Tourism and Migration monthly statistical release by StatsSA (2018B) and the Departure Survey by SAT (2018A).

3.3.2.1.1 Tourism and Migration statistics by StatsSA

Publication institution

The Statistician General of Statistics South Africa (StatsSA) is responsible for the collection, production and dissemination of all official and other statistics in the Republic of South Africa, as per the Statistics Act 6 of 1999. StatsSA adopted the Economics and Social Council Statistical Commission principles as set by the United Nations. StatsSA's Tourism and

Migration Statistics (StatsSA, 2018B) is based on the standard and is used in calculating the national TSA

Survey collection

The Tourism and Migration Statistics provides information on South African residents and foreign travellers who enter and exit the country's borders. The monthly release details the mode of travel, the purpose of visit and the age and sex distribution of travellers. The data is collected by the Department of Home Affairs immigration officers at South Africa's ports of entry (StatsSA, 2018C). Table 3-3 provides information on the data collection method for the Tourism and Migration Statistical release of StatsSA.

Table 3-3: StatsSA Tourism and Migration statistics data collection method

Sample	Data collection	Publication period
Data collected by immigration officers at all road, air and sea entry ports	All travellers arriving into or departing from South Africa are captured in the Movement Control System by Home Affairs	Monthly – released 2 months post data collection period

The data is collected from the population, which means the information is accurate and reliable (StatsSA, 2018C). Furthermore, the delay between the data collection and publication is short, which means the data is recent.

Data appropriateness

Table 3-4 presents the data of the Tourism and Migration Statistical release of StatsSA as per the data requirements of an RTSA.

Table 3-4: RTSA data requirements for the StatsSA Tourism and Migration statistics

Spatial availability	Number of trips	Number of overnights	Average expenditure by product type	Modes of transport/ accommodation type
South Africa's ports of entry	Arrivals, departures and transits for visitors and non-visitors	-	-	Transport used to enter the country

The data provides information on the number of arrivals, departures and transits of all individuals travelling across the South African border. The main information collected: individual demographics, travel purpose and mode of transport entering the country. The categories are limited for the Tourism and Migration Statistics as it relates to the immigration

or travel declaration documents or questions posed to inbound travellers and outbound travellers. It does not yield in-depth statistics, such as a holiday purpose category including tourists on vacation, visiting friends and relatives, shopping and other personal reasons for travelling to the country (StatsSA, 2018C).

Limitations

The data available in the Tourism and Migration Statistical release is not sufficient for an RTSA, as the data is not broken down to regional level, nor does it provide information on international tourist expenditure behaviour. The construction of an RTSA requires information on tourist expenditure on tourism-related products such as accommodation, restaurants and similar, passenger transport, travel agents, culture and recreational activities, retail and others. Furthermore, this information should also be provided at a regional level (Jean-Pierre & Perrain, 2016; Pham *et al.,* 2008).

3.3.2.1.2 Departure Survey by SAT

Publication institution

South African Tourism (SAT) is the tourism marketing agency for South Africa and is governed by the Tourism Act 3 of 2014. As per the act, one of the main function of SAT is the development of tourism definitions and statistics that are aligned to the International Recommendations for Tourism Statistics (United Nations, 2010A). SAT is responsible for two primary data collection surveys, one of which is the Departure Survey.

Survey collection

The Departure Survey offers a more in-depth analysis of international tourists travel behaviour, segmentation and geographical spread and covers data which is not addressed by the Tourism and Migration statistical release. SAT conducts the Departure Survey on a monthly basis at OR Tambo International Airport, King Shaka International Airport and Cape Town International Airport, as well as twelve land border posts (SAT, 2018C). Table 3-5 provides information on the data collection method for the Departure Survey from SAT.

Table 3-5: SAT Departure Survey data collection method

Sample	Data collection	Publication period
Monthly sample of 3800 at the airports and 1000 at the land boarders	Sample set for the 44 identified international markets is drawn from the Tourism and Migration reports which determines the number of international tourists entering South Africa to be interviewed at the border posts and international airports	Monthly releases on arrival numbers Quarterly releases Annual releases on expenditure patterns, accommodation usage, travel behaviour, experiences, buying-process and travel patterns Annual release published 6 months after data period

The survey uses a stratified probability sample and has 57 600 respondents annually. All respondents must be tourists per the following definition - non-residents of South Africa who have visited South Africa on this trip for not less than one night and not longer than 365 days. Furthermore, they must be above the age of 18 years. The data is collected a monthly basis and the survey sample weighting per month needs to concur with the actual arrivals of that same month. The sampling and frequency of the survey is valid as per the International Recommendations for Tourism Statistics (United Nations, 2010A). Information is also released on a monthly, quarterly and annual basis. The release of the data is usually between four to six months after the survey collection period. The annual release is usually a few months before the national TSA, as it is one of the surveys used to construct the TSA (StatsSA, 2018C).

Data appropriateness

The data provided from the Departure Survey provides information on:

- reasons for visiting South Africa;
- how long the visitors spent in South Africa;
- information pertaining to the sites visited, their satisfaction levels with the facilities and services and types of accommodation used. This has been broken out into each of the provinces of South Africa;
- their expenditure patterns while in South Africa;
- how the decision was made to visit South Africa;
- what their travel arrangements were;
- their overall impressions of their visit to South Africa;
- their travels to other African countries; and

- personal demographic information.

Table 3-6 presents the data of the Departure Survey from SAT as per the data requirements of an RTSA.

Table 3-6: RTSA data requirements for the SAT Departure Survey

Spatial availability	Number of trips	Number of overnights	Average expenditure by product type	Modes of transport/ accommodation type
National and all provinces (regions)	Number of arrivals per foreign tourist type	Number of overnights per foreign tourist type	Only for total average spent per province	Transport used to travel within the country Accommodation type used by tourists

For this study, it would be appropriate for the researcher to use the data from the SAT Departure Survey as it provides information at a regional level that details the travel behaviour and total spending of international tourist travelling in South Africa (SAT, 2018A).

Limitations

The limitation of the data is that the expenditure information is only shows the collective spend and total average spend of international tourist, and does not detail the expenditure distribution by type of tourism-related product. For the purposes of an RTSA, the international tourism demand data needs to provide the expenditure distribution of international tourism by type of tourism-related product per region (NathPandey & Sing, 2013). This should include accommodation services, restaurant and similar, passenger transportation services, travel agencies and similar services, cultural services, sports and recreational services, retail and/or non-specific products (StatsSA, 2018D).

This limits the researcher in determining the consumption level and distribution of international tourist expenditure in a region. Therefore, the construction of the RTSA would require a general assumption by disaggregating the international tourist consumption for the national TSA to a regional level (Jean-Pierre & Perrain, 2016). This means that the accuracy of an RTSA in the context of South Africa could be discredited because the actual spending patterns of international tourist in a region is not determined. Nonetheless, as stated by UNWTO, an TSA is allowed to make assumptions as per the limitations of the data in its

study area (United Nations, 2013). Regardless of this statement, the use of national spending patterns as a base for regional data will impair the ability to develop a interregional RTSA as not all regions are the same.

3.3.2.1.3 Regional statistics for Western Cape

Publication institution

For the purpose of this study, the focus will be placed on the Western Cape Province (region) as a case study exercise for the construction of an RTSA in the context of South Africa. The following institutions are responsible for tourist statistics at a regional level in the selected study area: Western Cape Tourism, Trade and Investment Promotion Agency (Wesgro) and the Western Cape Provincial Department of Economic Development and Tourism (DEDAT). Wesgro is the marketing arm of the Western Cape Government as governed by the Western Cape Tourism Act of 2014. This agency is responsible for regional studies on trade and tourism, where the DEDAT is responsible for comissioning the tourism sector related studies (Bux, 2018). In collaboration with DEDAT, Wesgro is responsible for destination performance reports and regional visitor trend surveys (Phillips, 2018).

Survey collection

The majority of the tourism statistical reports from Wesgro are compiled from secondary data sources but the agency does conduct monthly visitor surveys at local level in the Western Cape. Table 3-7 provides insight into the data available from these institutions.

Table 3-7: Wesgro data collection method

Institution and data survey	Sample	Data collection	Publication period
Wesgro Western Cape Destination Performance Report: Annual 2017	Not applicable	Secondary data	Annual – released 6 months post data collection period
Wesgro and DEDAT Western Cape Tourism Performance 2017	Not applicable	Secondary data	Annual – released 6 months post data collection period
Wesgro *Regional Visitor Trends Annual Reports	6073 respondents for Cape West Coast from Jan to Dec 2016	The visitor tracking survey is a voluntary survey only placed at local tourism offices; it	Annual – released 2 years post data collection period

Institution and data survey	Sample	Data collection	Publication period
(Cape West Coast, Garden Route, Winelands, Overberg, etc.)	250 respondents for Cape Karoo from Jan to Jul 2016 1036 respondents for Cape Overberg from Jan to Jul 2016 572 respondents for Cape Town from Jan to Jul 2016 2510 respondents for Winelands from Jan to Jul 2016 3283 respondents for Garden Route from Jan to Dec 2016	is not representative of the total tourism industry of the region.	

Data appropriateness

Table 3-8 evaluates the appropriateness of the regionally produced Western Cape tourism statistics.

Table 3-8: Appropriateness of the regional statistics available on international (inbound) tourism

Institution and data survey	Spatial available	Number of trips	Number of overnights	Average expenditure by product type	Modes of transport/ accommodation type
Wesgro Western Cape Destination Performance Report: Annual 2017	Provincial (regional) *Sourced from SAT*	Total international arrivals Total domestic Trips	International tourist average length of stay Total number of bednights spent by international tourists	Total foreign direct spend International tourist average spend	Accommodation type used by tourists
Wesgro and DEDAT Western Cape Tourism Performance 2017	Provincial (regional)	Total volume of international and tourists	Total bednights spent by foreign tourists	Total value of international tourists (foreign tourism expenditure) Tourism GVA for Western Cape Tourism Employment of Western Cape	Cape Town International Airport Passenger Movement Status of forward bookings in Cape Town Global hotel performance of Western Cape (including Cape Town,

Institution and data survey	Spatial available	Number of trips	Number of overnights	Average expenditure by product type	Modes of transport/ accommodation type
					Winelands, Garden Route)
Wesgro *Regional Visitor Trends Annual Reports (Cape West Coast, Garden Route, Winelands, Overberg, etc.)	District level	Origin of visitors in percentage Travel group size in percentage	Overnight vs. day visitor percentage representation Average length of stay interval percentage representation	Average spend on accommodation in interval percentage representation Average daily spend interval percentage representation	Mode of transport in interval percentage representation Accommodation usage interval percentage representation

The domestic tourism data published by Wesgro for the Destination Performance Report is sourced from SAT. The GVA and employment estimates are calculated with SAM modelling, “the matrix includes arrival numbers from OAG (Official Airline Guide) and spend data from StatsSA’s Tourism Satellite Account” (Bux, 2018). The Regional Visitor Trends Annual Reports are compiled through visitor information centre surveys collected at local tourism offices that report on intervals descriptive analyses, which limits the accuracy of the data provided.

Limitations

Even though the Western Cape Province has primary research available, the data provided does not satisfy the needs of an RTSA. This is due to the primary data collected only being provided at a local level through the visitor information centre surveys. These surveys are viewed as biased and not representative of an area’s tourist travel patterns, since the sample size for each area and time period cannot be compared geographically nor over space and time. This also means that the data cannot be aggregated to a regional level (Van der Waal, 2019). Furthermore, the data is presented in interval percentage format, which does not define the tourist spending and travel behaviour with accurate numbers.

3.3.2.2 Available domestic tourism data

The data available for domestic tourism is contained in the two Domestic Tourism Surveys, one conducted by StatsSA and the other by SAT, alongside the statistics provided by Wesgro for the Western Cape Province.

3.3.2.2.1 Domestic Tourism Survey from StatsSA

Publication institution

According to StatsSA, there are two domestic tourism surveys conducted in South Africa at a national level, which will be rationalised into a single domestic tourism survey that will only be collected by StatsSA in the near future (2017). Currently, both SAT and StatsSA is running a domestic tourism survey. StatsSA is responsible for the main Domestic Tourism Survey that will become the only official release for domestic tourism statistics in South Africa.

Survey collection

The Domestic Tourism Survey from StatsSA has a sample of 32 000 households across South Africa and is published on an annual and biannual basis. Table 3-9 details the survey collection method.

Table 3-9: StatsSA Domestic Tourism Survey data collection method

Sample	Data collection	Publication period
Approximately 32 000 households All persons in the household (all ages)	Respondent can answer for members of the household Analysis is based on most recent person trips	Annual report Biannual report

The surveys are conducted throughout the year and the data is release about a year after the collection period. The release of the data corresponds with the national TSA. The sample size is based on international recommendations regarding a population sample size that is relevant and validated for national level statistics. Thus, bringing the data down to a regional level presents challenges as the sample sizes for each local boundary is not representative of its population (Grobler, 2016).

Data appropriateness

The survey yields the following data from respondents (StatsSA, 2018A):

- Domestic day and overnight trips undertaken;
- trips undertaken by respondents and trips by other household members without the respondent accompanying them;
- profile of the most recent day/overnight domestic trips by the respondent and other household members (destination, trip length, purpose of visit, accommodation, transport, activities, trip expenditure, etc.); and
- socio-demographics.

Table 3-10 evaluates the data of the Domestic Tourism Survey from StatsSA as per the data requirements of an RTSA.

Table 3-10: RTSA data requirements from the StatsSA Domestic Tourism Survey

Spatial available	Number of trips	Number of overnights	Average expenditure by product type	Modes of transport
National and all provinces (regions)	Numbers per province	Numbers per province	Total spend per province distributed in accommodation, food and beverages, domestic transport, recreation and culture, shopping and other. Average expenditure per tourist for the above mentioned	Percentage distribution of province by the main mode of transport Number of overnight trips by mode of transport and province

The use of the Domestic Tourism Survey from StatsSA would be appropriate for an RTSA, since it has data available on the expenditure pattern of domestic tourists per region. The expenditure is distributed in the following categories: accommodation, food and beverages, domestic transport, recreation and culture, shopping and other (NathPandey & Sing, 2013).

Limitations

This survey is also used by StatsSA to supplement the national TSA (StatsSA, 2018D). What should be taken into consideration with the above-mentioned expenditure distribution and

data on international expenditure is that the data does not necessarily define the actual expenditure of tourists in a regional boundary particularly relating to domestic transport, travel agents and secondary homes (United Nations, 2013). This was also highlighted by the majority of studies on RTSA (refer to Table 2-3); the aggregation of the regional domestic expenditure data would need to be adjusted to maintain the structure and product ratios of the national TSA. This should ensure comparability of the RTSA to the national TSA.

3.3.2.2.2 Domestic Tourism Survey from SAT

Publication institution

The other Domestic Tourism Survey is done by SAT, but this will soon be discontinued as explained earlier.

Survey collection

The SAT Domestic Tourism Survey targets 15 594 South African residents over the age of 18 years. The respondent categories are (SAT, 2018B):

- non-travellers in the past 12 months;
- travellers in the past 12 months; and
- travellers in the past month.

Table 3-11 evaluates the data collection method of the SAT Domestic Tourism Survey.

Table 3-11: SAT Domestic Tourism Survey data collection method

Sample	Data collection	Publication period
15 594 persons (1 300 monthly) Persons 18 years and above	Respondent that has undertaken trip/s	Annual report Quarterly report

The sample is representative of the domestic tourist population as per StatsSA standards. The StatsSA Domestic Tourism Survey has a larger sample size and is based on household sizes and not individuals, such as the above-mentioned survey (StatsSA, 2018A).

Data appropriateness

The SAT Domestic Tourism Survey provides the following information per region (SAT, 2018B):

- trips by source province;
- trips by destination province;
- total domestic tourist spend;
- length of stay;
- bednights;
- purpose of visit;
- travel month;
- day trip.

Table 3-12 evaluates the data of the Domestic Tourism Survey from SAT as per the data requirements of an RTSA.

Table 3-12: RTSA data requirements for the SAT Domestic Tourism Survey

Spatial available	Number of trips	Number of overnights	Average expenditure by product type	Modes of transport
National and all provinces	Numbers per province	Numbers per province	Total spend per province Average spend per province	Percentage distribution for the mode of transport used in South Africa

Limitation

For this study, it would be appropriate for the researcher to use the data from the StatsSA Domestic Tourism Survey, as it will become the only domestic tourism survey in the near future to be released for South Africa. Furthermore, the data available does not provide spend distribution for tourism-related products per region, which limits it usefulness for an RTSA.

3.3.2.2.3 Regional statistics for Western Cape

Publication institution

Wesgro and DEDAT are the custodians for tourism statistics and research at a regional level in the Western Cape. Their published reports on tourism performance and regional tourist

trends focus both on domestic and international tourism demand. The following sub-section builds on section 3.3.2.1.3 above covering the regional statistics provided by Wesgro.

Data appropriateness

Table 3-13 evaluates the appropriateness of the Western Cape regionally produced statistics on domestic tourism.

Table 3-13: Appropriateness of the regional statistics available on domestic tourism

Institution and data survey	Spatial available	Number of trips	Number of overnights	Average expenditure by product type	Modes of transport
Wesgro Western Cape Destination Performance Report: Annual 2017	Provincial (regional) *Sourced from SAT*	Total domestic trips	Total number of bednights spent by domestic tourists	Total domestic direct spend Domestic tourist average spend	Accommodation type used by tourists
Wesgro and DEDAT Western Cape Tourism Performance 2017	Provincial (regional)	Total volume of international and domestic tourists	Total bednights spent by foreign tourists	Total value of domestic (domestic tourism expenditure) Tourism GVA for Western Cape Tourism Employment of Western Cape	Cape Town International Airport Passenger Movement Status of forward bookings in Cape Town Global hotel performance of Western Cape (including Cape Town, Winelands, Garden Route)
Wesgro *Regional Visitor Trends Annual Reports (Cape West Coast, Garden Route, Winelands, Overberg, etc.)	District municipal level	Origin of visitors in percentage Travel group size in percentage	Overnight vs. day visitor percentage representation Average length of stay interval percentage representation	Average spend on accommodation in interval percentage representation Average daily spend interval percentage representation	Mode of transport in interval percentage representation Accommodation usage interval percentage representation

Institution and data survey	Spatial available	Number of trips	Number of overnights	Average expenditure by product type	Modes of transport

Similar outcomes are found for the domestic tourist data as per the international tourist data for the reports released by Wesgro, making the data irrelevant for the use of an RTSA as seen in 3.3.2.1.3.

3.3.3 Production account data

The RTSA simulates the structure of its national counterpart by using a production account to estimate the overall supply of the economy within the selected tourism product categories. The TSA production account is extracted from the SUTs. According to the United Nations (2013), the success of an RTSA is dependent on the availability of regional accounts (preferably regional SUTs).

3.3.3.1.1 National SUT

Publication institution

From 1967 to 1993, South Africa primarily used IO Tables to measure economic activities in the country. In 1993, StatsSA introduced the SNA from which the SUTs stem. From 2014 (Grobler, 2018), StatsSA stopped producing the IO Tables for South Africa while focusing mainly on the SUTs as the base for the SNA.

Survey collection

The SUTs are compiled through a combined effort between StatsSA and the South Africa Reserve Bank. StatsSA is responsible for the compilation of the production and income components, with the Reserve Bank compiling the expenditure, savings and balance of payments components of the National Accounts. From this, StatsSA uses industrial surveys, household surveys, investment surveys and foreign trade statistics to form the SUTs (StatsSA, 2017). Table 3-14 evaluates the data collection method of StatsSA's SUTs.

Table 3-14: StatsSA SUTs data collection method

Sample	Data collection	Publication period
Cross industry Agriculture, forestry and fishing (SIC 1) Mining and quarrying (SIC 2) Manufacturing (SIC 3) Electricity, gas and water (SIC 4) Construction (SIC 5) Wholesale, retail and motor trade; catering and accommodation (SIC 6) Transport, storage and communication (SIC 7) Financial intermediation, real estate and business services (SIC 8) Personal services (SIC 9, excl. SIC 91)	Nominal Estimates: • Data per SIC • Monthly statistics on production and sales per industry per SIC • Real estimates are inflated with relevant producer price indices and implied indices. • Private consumption expenditure as estimated by the SARB Real estimates: • Various price indices are used to derive estimates at constant prices from the nominal estimates • Monthly statistics on production and sales	Annually – release with 62 Industries and 104 products per the SIC. Quarterly - Monthly statistics on generation and consumption for 10 SIC

StatsSA publishes the SUTs annually with the nominal estimates of GDP at a detailed industry and commodity level (62 industries and 104 products). The data period correlates with the national TSA because they are interrelated.

Data Appropriateness

Table 3-15 evaluates the appropriateness of the national SUTs for South Africa.

Table 3-15: Appropriateness of the National SUTs

Spatial available	Digit level	GVA
Nationally make and use matrices Provincially only GDP per 10 SICs	4-digit level at national 1-digit level at provincial	Total gross value added / GDP Compensation of employees Taxes less subsidies GOS / mixed income

As it stands, the national SUTs cannot be used to develop an RTSA, because the regional data is only available at a 1-digit SIC level. According to Laimer (2012), an RTSA requires the regional accounts (SUTs) to be at a 3-digit SIC level or higher. There are methods, as discussed in section 2.5.2.2 that can regionalise the SUTs.

3.3.3.1.2 Availability of regional SUTs

Currently, there are no official regional SUTs in South Africa published by any recognised public institution. There are a few private and academic institutions that disaggregate the national accounts into regional data, such as Global Insight which is a consolidated platform that disaggregates data to a sub-national scale (Rogerson & Rogerson, 2019; Phiri, 2016). For the purpose of this study, the researcher reviewed the data available on Quantec's data management/mining system that provides economic and statistical analysis software and databases for South Africa by applying its algorithms to the database from StatsSA (Quantec, 2019).

Publication institution

Quantec Research (Pty) Ltd (2019) is a South African based consultancy that provides software solutions for data analytics and statistics relating to economics, country intelligence and population census. Subscribing institutions have accesses to aggregated and disaggregated datasets at a national, regional, local and even ward/sub-place level depending on the source type and dataset descriptor fields. Quantec is a subscriber data mining software system available to the researcher via the University of Pretoria.

Survey collection

Table 3-16 evaluates the data collection method of Quantec.

Table 3-16: Quantec data collection method

Sample	Data collection	Publication period
Secondary Data	StatsSA raw datasets Econometric and statistical analysis	Reworked datasets released a few months after StatsSA releases the official data.

Quantec (2019) disaggregates the data release by StatsSA. It provides the data via an online platform from which users can source datasets to apply in their own analysis or to access trended and analysed data for a particular study area or time period.

Data appropriateness

When using Quantec, it is precautionary that the user understands the database-knowledge system uses economic modelling techniques to disaggregate the national data to a lower geographical level. This means that the datasets generated by the Quantec system does

not provide actual values but estimates for regional indicators. To counter the issue relating to the regional SUTs, the researcher had access to the regional distribution of South Africa's GVA and sector outputs. Table 3-17 evaluates the appropriateness of the Quantec data provided on GVA and Output.

Table 3-17: Appropriateness of the GVA and Output data from Quantec

Spatial available	Digit level	GVA
National, regional and local level	2-digit level at regional Only industry level No industry and commodity level matrix	Total GVA Total Output

Quantec uses a LQ methodology to estimate the regional GVA by industry by applying national and regional employment and remuneration estimated ratios to Output and GVA by 85 industries. The regional boundaries of the data are based on the 2011 ward demarcation (Quantec, 2019).

De Maesschalck and Weeker (2014) also used LQ in their study (in Denmark) to regionalise and expand the regional IO Tables to a 5-digit level, which is a more simplistic method to use for either regionalised or disaggregated IO Tables or SUTs (Miller & Blair, 2009). Other studies in developed countries had access to regional accounts or IO Tables (refer to Table 2-3 in the literature review). Some studies also found that these existing regional accounts and IO Tables did not necessarily meet the needs for constructing an RTSA. The studies had either to disaggregate the current regionally available tables or regionalise the existing national SUTs or IO Tables (Braendvong *et al.*, 2001; Laimer, 2012; De Maesschalck & Weekers, 2014).

Taking the above into consideration and the data needs of an RTSA, the current data provided by Quantec at a regional level is not suitable in its given format for the construction of an RTSA. Since the data at regional level only provides the total GVA and Output of industry-by-industry and not a make-use matrix with a product-by-product or product-by-industry design (Zhang, 2018; Desjardin, 2018).

3.3.4 Data limitations and consideration

Taking the data availability and appropriateness into account in terms of the data requirements to construct an RTSA, the following data limitations and considerations have been considered when formulating the methodology for the study.

3.3.4.1 Tourism demand data

The following was considered regarding the data requirements for the RTSA Table 1:

- the SAT Departure Survey only provides the total expenditure per province and the average overall spend per tourist per trip. This will limit the researcher's ability to proportion the international tourism expenditure pattern by region for the RTSA
- the StatsSA Domestic Tourism Survey provides a set of indicators for domestic overnight expenditure (accommodation, food and beverages, domestic transport, recreation and culture, shopping, other) by province. This data can be used to aggregate the domestic tourism expenditure pattern to a regional level
- the data provided by Wesgro provides insight into the local level tourist activities and behaviour but does not provide relevant data on the expenditure contribution and patterns at a regional level for the Western Cape. The researcher will not be able to use the data to aggregate the information in the RTSA Table 1
- the dataset used for international tourism demand and the domestic tourism demand should be comparable across South Africa, otherwise the RTSA will not follow an interregional approach and leave it inequitable on a national level.

3.3.4.2 Supply data

As it currently stands, there are no regional SUTs available for any region in South Africa. The following was considered regarding the data requirements for the RTSA Table 2:

- the availability of GVA and Output at the regional level can be used as a foundation to formulate a regional SUT through the use of LQs

- other ratio techniques will have to be applied to estimate the product values, as the above only provides the total value for the industries
- the regional SUTs need to be a product by product matrix before they can be aggregated for Table 2 of the RTSA.

3.3.4.3 Secondary data acquisition

After the data was collected and evaluated, it was collated into editable format in Excel Microsoft Office for further analysis and aggregation. The facilitation of the large-scale use of data from secondary sources involves the following (Daas & Arends-Toth, 2012):

- the general public must have no objection against the use of the data;
- the data needs to be reliable and representative; and
- the researcher needs the cooperation of administrative authorities to ensure the practical usage and maintenance of the data sources (refer to Annexure A for permission forms).

3.4 DATA ANALYSIS

The construction of the RTSA for the Western Cape required the compilation of three tables, namely internal tourism consumption, the production account, and the supply and tourism consumption reconciliation tables. An employment table was not developed as per the literature suggestion due to data or resource limitations. The data analysis techniques used to compile the selected tables were applied with the understanding of the available data. Each technique applied is based on the economic theory and literature but was adjusted or reconfigured to accommodate the limitations in the data.

3.4.1 **Table 1: Internal Tourism Consumption**

RTSA Table 1 provides the internal tourism consumption by tourism-related and non-tourism-related products. Each product category requires inputs for domestic and international tourism expenditure data. As a collective, this yielded the internal tourism

consumption for the Western Cape in terms of the national TSA for six product categories, which was dependent on the data mapping and assumptions required. Table 3-18 illustrates the structure required for RTSA Table 1.

Table 3-18: RTSA Table 1 Internal Tourism Consumption

Products	International tourism expenditure	Domestic tourism expenditure	Internal tourism consumption
1 - Accommodation services 2 - Restaurant and similar 3 - Passenger transport services (travel agencies) 4 - Sports and recreational services (cultural services 5 - Retail trade of tourism connected goods 6 - Other non-tourism industries	Id_i^R	Id_i^R	TE_i^R
TOTAL	$TE(Id_i^R).$	$TE(Dd_i^R)$	$TDTE_i^R$

The RTSA Table 1 composure is expressed in the following equations:

$TE(Id_i^R) = \sum(Id_i^R)$ ..... *equation 1.1*

$TE(Dd_i^R) = \sum(Dd_i^R).$ ..... *equation 1.2*

$TDTE_i^R = \sum(Dd_i^R).+\sum(Id_i^R)$ ..... *equation 1.3*

Where:

R indicates the regional value

N indicates the national value

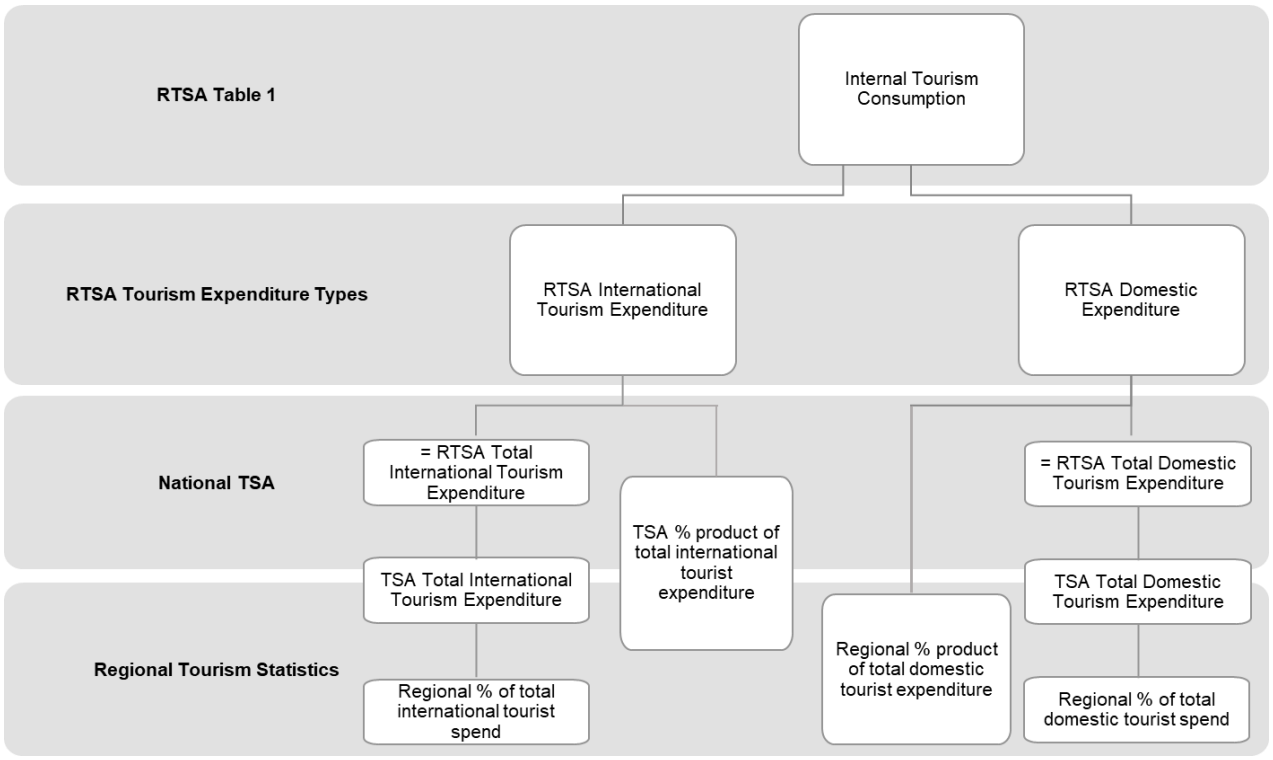
Id_i is the international tourism expenditure for each product *i*

Dd_i is the domestic tourism expenditure for each product *i*

TE_i is the sum of Id_i and Dd_i for each product *i*

The figure below illustrates the process for constructing the RTSA Table 1:

Figure 3-2: RTSA Table 1 process



Source: Adapted from United Nations (2013), Laimer (2012) & Grobler (2019)

The determination of international tourism expenditure for the Western Cape was done by applying the percentage portion of total international tourist expenditure generated by tourists in the region compared to other regions $TE\ (Id_r^R)$, calculated from the Departure Survey (SAT, 2017), to the national TSA $TE\left(Id_i^N\right)$. A similar exercise was undertaken with domestic tourism expenditure, by applying the percentage portion of total domestic overnight trip expenditure generated by tourists in the region compared to other regions $TE(Dd_r^R)$, calculated from the Domestic Tourism Survey (StatsSA, 2017), to the national TSA $TE\left(Dd_i^N\right)$. The Western Cape's total tourism demand expenditure was determined.

The equations for the above mentioned:

$$TE\left(Id_i^R\right) = \left(TE\left(Id_i^N\right)\right)\left(TE\left(\ Id_r^R\right)\right) \qquad \text{..... equation 1.4}$$

$$TE\left(Dd_i^R\right) = \left(TE\left(Dd_i^N\right)\right)\left(TE\left(\ Dd_r^R\right)\right) \qquad \text{..... equation 1.5}$$

Where:

Id_r^R is the total international tourism expenditure ratio for the region

Dd_r^R...is the total domestic tourism expenditure ratio for the region

The product expenditure distribution of international tourism for the Western Cape was based on the national distribution as set in the national TSA. This was due to the lack of data at regional level, which defines the expenditure ratio of international tourists within the provincial boundaries of the Western Cape. However, for domestic tourism expenditure the researcher applied product expenditure ratios to the domestic tourism demand expenditure specific to the Western Cape, as the Domestic Tourism Survey (StatsSA, 2018A) provides expenditure patterns for domestic overnight tourists in the region for accommodation, food and beverage, domestic transport, recreation and culture, shopping, and other product categories.

The equations for the above mentioned:

$$Id_i^R = \left(TE\left(Id_i^R\right)\right)\left(Id_{ir}^R\right) \quad \text{..... equation 1.6}$$

$$Dd_i^R = \left(TE\left(Dd_i^R\right)\right)\left(Dd_{ir}^R\right) \quad \text{..... equation 1.7}$$

Where:

Id_{ir}^R is the international tourism expenditure ratio per product type for the region

Dd_{ir}^R...is the domestic tourism expenditure ratio per product type for the region

Once the supply and tourism consumption were reconciled, the demand (calculated internal tourism consumption) was more than the supply (calculated production account). According to the literature (Laimer, 2012; UNWTO, 2013), this can be experienced with the development of a TSA both on national and regional level because the tourism demand related surveys used are based on recall and not necessarily actual numbers. The researcher should assume that the supply is constant and the demand is variable. Therefore, the demand needs to be adjusted to relate to the national TSA product demand and supply ratio (Grobler, 2019; UNWTO, 2013).

The researcher found that the overestimated demand is due data bias and limitations as explained in section 2.3.2 and 2.3.3. To rectify the issue, the researcher applied an average

import/economic leakage weighting to reduce the demand to a more sensible demand and supply ratio that is comparable with the national ratio. According to Garrigos-Simon *et al.* (2015), the average import/economic leakage of tourism in a small economy is between 45-50% and 10- 20% in an advanced economy. To gauge the parameter, the researcher used the estimated outbound consumption ratio of tourism for South Africa (StatsSA, 2018D), which was equal to 29%. This parameter was applied to the estimated demand for tourism in the Western Cape, which yielded a more comparable result between the regional and national ratios.

3.4.2 Table 2: Production Account

RTSA Table 2 focuses on the production account of tourism industries and other industries (at basic prices). The table follows the format set by the SNA that applies the principal of recording reservation services separately, so the output and intermediate consumption of each industry and the corresponding total for the economy that appears in the last column do not necessarily match the corresponding values found in the national accounts of the country. Table 3-19 illustrates the RTSA Table 2 framework and required equations.

Table 3-19: RTSA Table 2 Production Account

Products	**Accommodation services** **Restaurant and similar** **Passenger transport services (travel agencies)** **Sports and recreational services (cultural services)** **Retail trade of tourism connected goods** **Other non-tourism industries**	**TOTAL output of domestic producers (at basic prices)**
1 - Accommodation services 2 - Restaurant and similar 3 - Passenger transport services (travel agencies) 4- Sports and recreational services (cultural services) 5 - Retail trade of tourism connected goods 68 - Other non-tourism industries	S_{ij}	X_j
TOTAL output (at basic prices)	X_i^T	Y
Total intermediate consumption (at purchasers prices)	$X_i^T - E_i$	$Y - W$
Total gross value added of industries (at basic prices)	E_i	W

Products	Accommodation services	Restaurant and similar	Passenger transport services (travel agencies)	Sports and recreational services (cultural services)	Retail trade of tourism connected goods	Other non-tourism industries	TOTAL output of domestic producers (at basic prices)
Compensation of employees *Other taxes less subsidies on production* *Gross operating surplus*							

Where:

$S = Matrix\ for\ intermediates\ (Product\ by\ Product)$
$Y = Row\ vector\ of\ final\ use$
$W = Column\ vector\ of\ gross\ value\ added$
$X = Column\ vector\ of\ product\ output$
$X^T = Row\ vector\ of\ product\ output$
$E = Gross\ value\ added\ matrix\ (components\ by\ homogenous\ branches)$

Unfortunately, the Western Cape along with all the other regions of South Africa, does not have an official regional SUT or IO Table. The assumption here is that the input structure for regional and national industries is the same and that the regional intermediate matrix should be proportioned according to regional consumption patterns (Brand, 2012).

The following equations were used to calculate the Table 2: Production Account.

$$LQ_i^R = \frac{GVA_i^R / GVA^R}{GVA_i^N / GVA^N} \quad \text{..... equation 2.1}$$

$$TSA_i^r = \frac{LQ_i^R\ (TSA_i^N)}{\sum(TSA_r)}\ (1) \quad \text{..... equation 2.2}$$

$$S_i^R = (Y^R)(TSA_i^r) \quad \text{..... equation 2.3}$$

$$E_i^r = \frac{GVA_i^R}{Y_i^R} \quad \text{..... equation 2.4}$$

$$E_i^R = (X_i^T)(E_i^r) \quad \text{..... equation 2.5}$$

Where:

R indicates the regional value

N indicates the national value

r indicates the estimated ratio

i indicates the use of the equation per product

j indicates the use of the equation per commodity

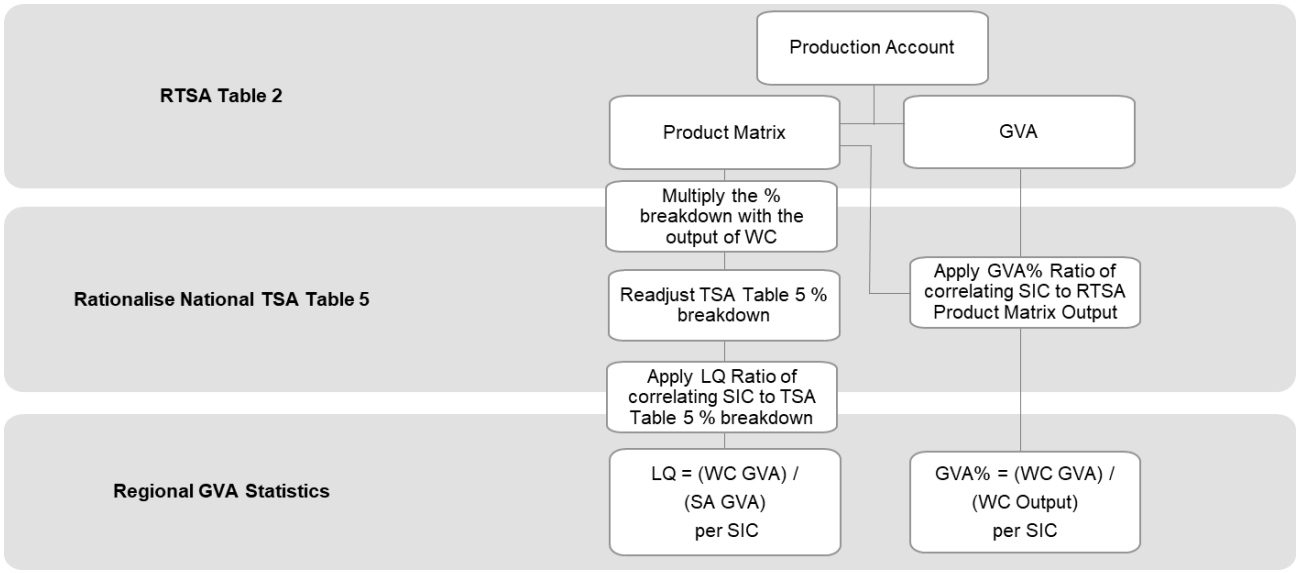
GVA indicates the use of the Gross Value Added

TSA indicates the use of the national TSA Table 5

E ... indicates the total gross value added of industries

The figure below illustrates the process for constructing the RTSA Table 2.

Figure 3-3: RTSA Table 2 process



Source: Adapted from United Nations (2013), Laimer (2012) De Maesschalck & Weeker (2014), & Grobler (2019)

The researcher constructed a tourism SUT for the region by applying a LQ to the national TSA Table 5, which adjusted the account to reflect differences in value added/output ratios for a specific region. This was done by using the Output and GVA data of the Western Cape, generated by Quantec, and applying its weights and ratios to the national TSA Production Account. This method was used because the data available to the researcher was not detailed enough to construct a fully-fledged SUTs for the Western Cape, where the regionalisation of the SUTs would have consisted of 85 industries and not at a product level of 104 or more. This means that products such as accommodation services, and restaurant

and similar are grouped together as a single industry instead of being listed as two individual products. This limits the differentiation of the product matrix in RTSA Table 2 and the ability of the researcher to determine the direct impact of the tourism sector on these products in the RTSA Table 3: Supply and Internal Tourism Consumption. Refer to Annexure B to see the correlation and differences between the datasets as per SIC digit-level.

3.4.3 Table 3: Supply and Internal Tourism Consumption

Table 3 is derived from the previously mentioned tables, and the table represents the tourism share of the production account. Table 3-20 illustrates the structure of Table 3 where the supply and internal tourism consumption is reconciled.

Table 3-20: RTSA Table 3 Supply and Internal Tourism Consumption

Product	1 - a. Accommodation services		2 - Restaurants and similar		3 - Passenger transport services (travel agencies)		4 - Sports and recreational services (cultural services)		Total tourism industries		5 - Retail trade of tourism connected goods		6 - Other non-tourism industries		Total output of domestic producers (at basic prices)	
Supply and Demand Reconciliation	Output	Tourism share	Output	Tourism share	Output	Tourism share	Output	Tourism share	Output	Tourism share	Output	Tourism share	Output	Tourism share	Output	Tourism share
1 - Accommodation services 2 - Restaurant and similar 3 - Passenger transport services (travel agencies) 4 - Sports and recreational services (cultural services) 5 - Retail trade of tourism connected goods 6 - Other non-tourism industries																
TOTAL output (at basic prices)																
Total gross value added of industries (at basic prices)																

Product	1 - a. Accommodation services		2 - Restaurants and similar		3 - Passenger transport services (travel agencies)		4 - Sports and recreational services (cultural services)		Total tourism industries		5 - Retail trade of tourism connected goods		6 - Other non-tourism industries		Total output of domestic producers (at basic prices)	
Supply and Demand Reconciliation	Output	Tourism share	Output	Tourism share	Output	Tourism share	Output	Tourism share	Output	Tourism share	Output	Tourism share	Output	Tourism share	Output	Tourism share
Compensation of employees *Other taxes less subsidies on production* *Gross operating surplus*																

The output of Table 2 is provided in the first column of each product vector and the tourism share provided in the second column. The following equation was used to calculate the Table 3.

$$TE_i^r = \left(\frac{TE_i^R}{X_i^R} \right) \times S_i^R \qquad \text{..... equation 3.1}$$

Where:

R indicates the regional value

N indicates the national value

r indicates the estimated ratio

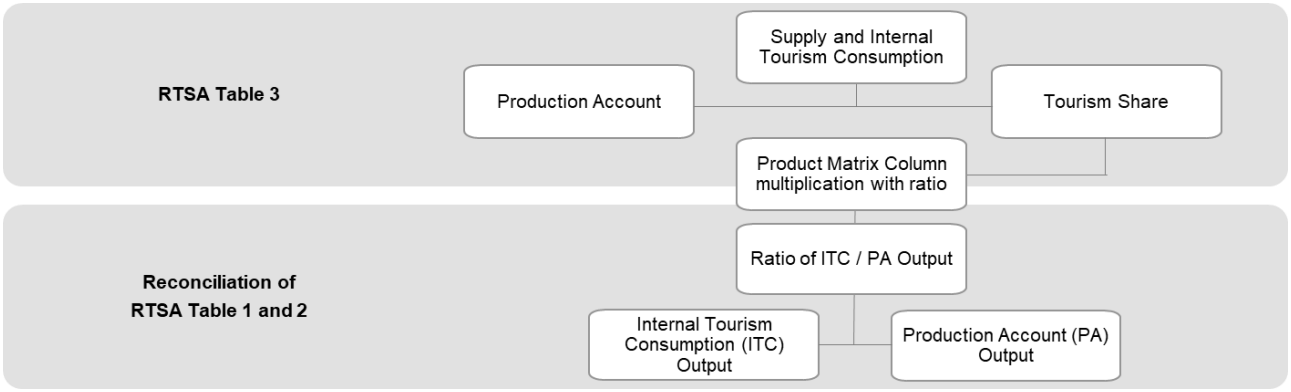
TE indicates internal tourism consumption

X indicates product output

S indicates intermediates product output

The figure below illustrates the process for constructing the RTSA Table 3.

Figure 3-4: RTSA Table 3 process



Source: Adapted from United Nations (2013) & Grobler (2019)

Table 3 was constructed by calculating the demand/supply product ratio from the internal tourism consumption column divided by the total output of the production account column. The ratio per product column is applied to the production account corresponding product row. This results in the value estimate of the tourism sector from a supply perspective and not just a demand perspective as in Table 1. This means that the economic contribution by the tourism sector was determined by the application of the product ratio to the production accounts total output, intermediate consumption and gross value added of industries (products).

3.5 QUALITY AND RIGOUR OF RESEARCH DESIGN

The researcher took cognisance of the data challenges to ensure the adequacy, transparency, reliability and validity of the research findings by following a systematic approach to the methodology design and execution (Fossey *et al.*, 2002). The availability of the secondary data provided access to high-quality large datasets, which is not always possible with primary research where the sample size tends to be too small, especially for the type of analysis required in this study.

The use of existing datasets accelerated the pace of research, as the physical process of survey collection, capturing, cleaning and testing is removed. Furthermore, the reliability of the data is validated through the use of credible data sources within the public domain. To ensure the appropriateness of the secondary data, the researcher evaluated the data concerning the purpose of the study, the information type, the collection process and period,

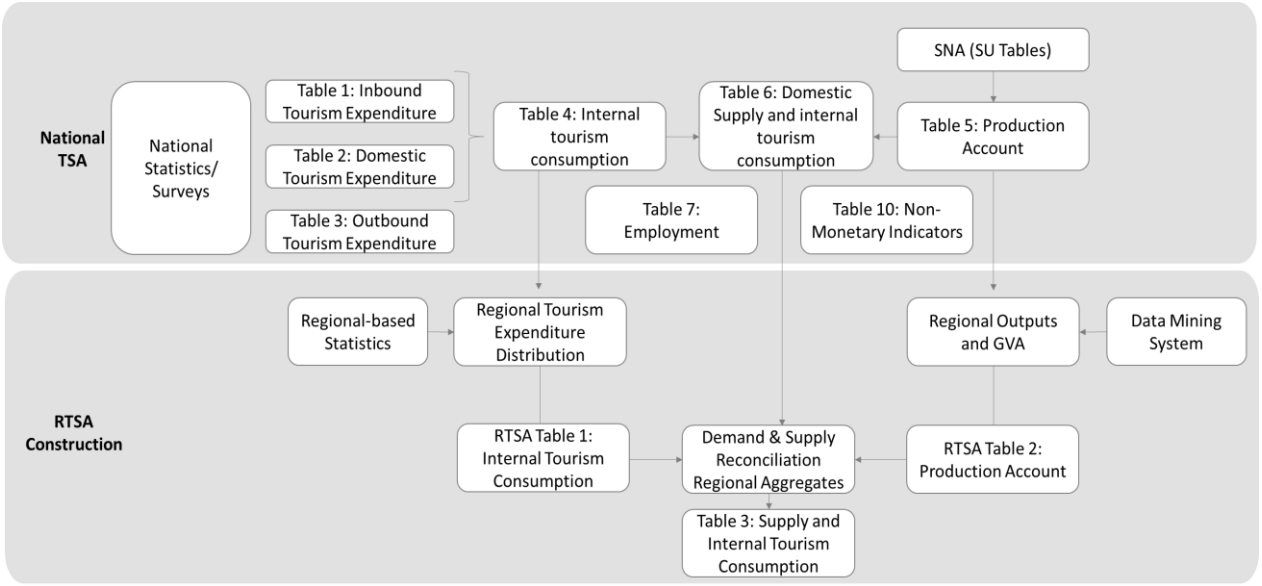
the consistency of the information and relevance. This evaluation process enabled the researcher to determine the appropriateness and shortcomings of the available data, which led to the identification of assumptions and limitations in the study (Johnston, 2014).

Research ethics are fundamental when manipulating data from other sources, as the researcher needs to protect the integrity of the data collected and how it is reported. The researcher showed transparency in the methodology and the use of the data to all parties, both in the academic field and the institution from which the secondary data is obtained (Schutt, 2011). Since the secondary data was collected by a public institution, the researcher would not be required to sign explicit disclosure agreements as constituted by “the right of access to information” Section 32 of the Constitution of South Africa. Nonetheless, the researcher requested and obtained permission to use the specified secondary data from the relevant institutes, reflected in the permission letter signed by the person responsible for the data. Furthermore, the study was approved by the Research Ethics Committee. Finally, it is essential that no work be plagiarised and that all resources used for the study are referenced.

3.6 CONCLUSION

The application of the top-down approach requires the use of existing data. Section 3.3. evaluated the existing data available at a national (South Africa) and regional (Western Cape) level, and deduced that the data is only partially appropriated for the construction of an RTSA. Therefore, the researcher had to apply alternative techniques and assumptions to address the data gaps identified in the South African context. Figure 3-5 provides a summary of the process followed to construct the RTSA within the context of South Africa.

Figure 3-5: RTSA construction process



Source: Adapted from United Nations (2013) & StatsSA (2018D)

According to the UNWTO (United Nations, 2013), each RTSA is unique due to the availability of data in specific destinations, where countries with inadequate data would experience challenges with the compilation of a fully-fledge RTSA, requiring them to apply alternative techniques or assumptions in estimating the tourism contribution at a regional level, as in the case stated above. This was particularly prominent in the used of international and domestic expenditure estimates in section 3.4.1 and the regionalisation of supply in section 3.4.2.

CHAPTER 4: CONSTRUCTION OF THE WESTERN CAPE (WC) RTSA

4.1 INTRODUCTION

The specific statistical data used to construct the WC RTSA is also discussed (as per the recommendations in section 3.3), and the outcomes of the applied methodology in relation to the three tables for the WC RTSA are detailed (as per the proposed data analysis in section 3.4). The base-year for the study is 2017, because this was the last release date where all the required datasets were available. The researcher also reduced the number of product categories reported on in the RTSA to six, versus the eight product categories used in the national TSA. The selected product categories are better aligned to the expenditure distribution information provided at a regional level.

4.2 RTSA DEMAND-SIDE

The demand-side of the WC RTSA uses the available regional tourism statistics to aggregate the national TSA Table 4 down to a regional level, which provides the estimated internal tourism consumption for a region.

4.2.1 Regional tourism statistics

The following datasets were used to calculate WC RTSA Table 1: Internal Tourism Consumption

Table 4-1: Data sources used for Table 1

Data requirement	Data source
National Tourism Satellite Account • Table 4: Internal tourism consumption	Tourism Satellite Account for South Africa, provisional 2017 (Excel) from StatsSA
Regional Tourism Research Statistics • International tourism regional spending proportion • Domestic tourism regional spending proportion • Domestic tourism regional spending pattern	Domestic Tourism Survey 2017 (Excel) from StatsSA Departure Survey 2017 (Excel) from SAT

4.2.1.1 National TSA Table 4

Table 4 in the national TSA makes provision for the value international and domestic tourists spend within the borders of South Africa. Table 4-2 provides a summarised version of Table 4, showing the six selected categories used for the construction of the RTSA. Passenger transport services no longer has sub-categories and is combined with travel agencies and similar services; even though travel agencies are business services, as a category it is more closely related to support services in the travel sector. Cultural services as a category is grouped with sport and recreational services - both are categories under community and social services in the SIC and are collectively grouped in the tourism surveys at regional level. The retail trade of tourism connected goods and non-tourism industries are reported as single categories with no sub-categories.

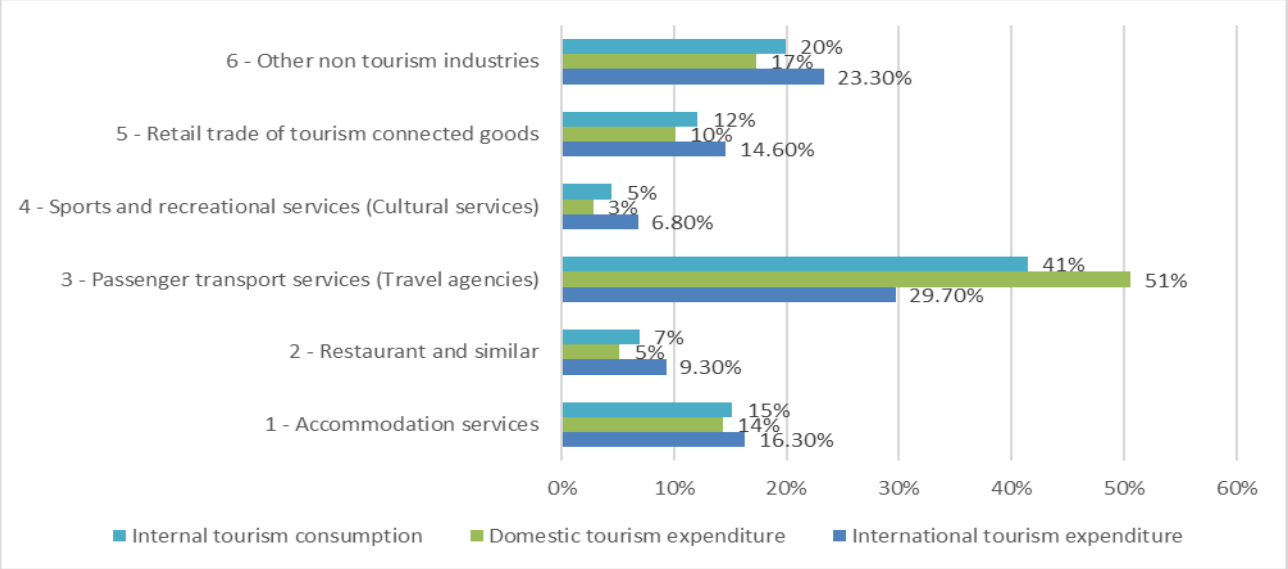
Table 4-2: National TSA Table 4 (R'million), Prelim 2017

Internal tourism expenditure	International tourism expenditure	Domestic tourism expenditure	Internal tourism consumption
1 - Accommodation services	19,757	22,370	42,127
2 - Restaurant and similar	11,223	7,919	19,142
3 - Passenger transport services (travel agencies)	35,891	78,941	114,832
4 - Sports and recreational services (cultural services)	8,273	4,308	12,581
5 - Retail trade of tourism connected goods	17,637	15,818	33,455
6 - Other non-tourism industries	28,198	27,080	55,278
TOTAL	**120,979**	**156,437**	**277,416**

Source: StatsSA (2018D)

According to the TSA prelim 2017 (StatsSA, 2018D), international tourism expenditure contributed 43.6% to the overall internal tourism expenditure, while domestic tourism expenditure makes a slightly larger contribution of 56.4% (refer to Figure 4-1). This indicates the important role domestic tourism plays in the sector, although international tourism still has a fundamental impact on South Africa's tourism economy. It is assumed at a regional level that this distribution would not be the same, because some regions are not international tourist destinations and attract more domestic tourists where others are more prominent in the international market.

Figure 4-1: National TSA Table 4 percentage ratios



Source: StatsSA (2018D)

The breakdown of internal tourism consumption indicates that tourists allocate 41.4% of their expenditure to passenger transport and related services followed by other non-tourism related goods and services at 19.9%. These are both elements that are not primarily focused on tourists whereas accommodation (15.2%), restaurant and similar services (6.9%), and sports and recreational services (4.5%) are more tourism oriented. This shows the importance of general infrastructure and support services in a destination for tourists. What is also important to note is that international tourists have a higher spending proportion on all product categories versus domestic tourists, except for passenger transport. This is because the bulk of international tourist spending on transport is not consumed within the boundaries of South Africa, e.g. international commercial flights.

4.2.1.2 International tourism expenditure patterns by region

The regional tourism statistics used to determine the international tourism expenditure for the Western Cape are sourced from the Departure Survey from SAT (2018A). Table 4-3 is an extraction from the survey that provides the estimated international tourist arrivals share and total spend per region in South Africa.

Table 4-3: Arrivals share and total foreign direct spend in South Africa by province - excluding capital expenditure, 2017

International (Inbound) Tourism 2017	Arrivals		Spend	
	%	**Count (Number)**	*%*	**Count (Rand)**
Gauteng	*39.4%*	4,052,368	*35.5%*	28,617,883,695
Western Cape	*16.8%*	1,727,913	*28.6%*	23,118,227,120
Eastern Cape	*4.0%*	411,408	*4.1%*	3,331,454,758
KwaZulu-Natal	*7.9%*	812,531	*7.3%*	5,867,078,148
Mpumalanga	*15.3%*	1,573,635	*6.5%*	5,259,800,494
Limpopo	*18.3%*	1,882,191	*12.3%*	9,928,584,293
North West	*7.5%*	771,390	*1.9%*	1,522,796,606
Northern Cape	*1.1%*	113,137	*1.1%*	873,946,450
Free State	*11.6%*	1,193,083	*2.7%*	2,205,242,950
Total	***100.0%***	**10,285,197**	**100%**	**80,725,014,513**

Source: SAT (2018A)

According to the survey, 28.6% of international tourism spend happens in the Western Cape making it the second most popular region visited in South Africa. Gauteng holds first place because it is the economic hub of the country and the main port of entry for long-haul travellers. The percentage share of arrivals for the Western Cape is only 16.8%. This means that the value per international tourist travelling to the region is higher compared to other regions. Table 4-4 shows the average length of stay and spend of an international tourist per region, substantiating why the spending is higher in the Western Cape per arrival. On average an international tourist spends 14.1 nights in the region, which is 1.9 nights longer than the overall average length of stay. Furthermore, these tourists spend R14 500 each on average per trip in the Western Cape, R7 800 more than the overall average spend.

Table 4-4: International tourism provincial average length of stay and spend, 2017

International (Inbound) Tourism 2017	Average Length of Stay	Average Total Spend per Tourist per Trip
Gauteng	11.4	R 7,500
Western Cape	14.1	R 14,500
Eastern Cape	11.2	R 8,700
KwaZulu-Natal	10.1	R 7,700
Mpumalanga	8.5	R 3,600
Limpopo	4.4	R 5,600
North West	6.3	R 2,100
Northern Cape	12.6	R 8,400
Free State	12.2	R 2,200
Total	**12.2**	**R 6,700**

Source: SAT (2018A)

4.2.1.3 Domestic tourism expenditure patterns by region

The regional tourism statistics use to determine the domestic tourism expenditure for the Western Cape are sourced from the Domestic Tourism Survey from StatsSA. For the purpose of the study, only overnight trips are used as per the national TSA that does not report on the expenditure from domestic day trips. Table 4-5 provides the estimated number of overnight trips and expenditure per region for domestic tourism.

Table 4-5: Province of destination by number of overnight trips ('000) and expenditure (R'000) on most recent overnight trips, 2017

Domestic Tourism 2017	Overnight trips		Spend	
	%	**Count ('000)**	*%*	**Count (R'000)**
Western Cape	*11.0%*	3,019	*15.8%*	5,669,064
Eastern Cape	*11.8%*	3,235	*12.6%*	4,536,073
Northern Cape	*3.0%*	815	*1.8%*	634,919
Free State	*5.6%*	1,528	*3.7%*	1,315,426
KwaZulu-Natal	*15.8%*	4,340	*16.9%*	6,090,088
North West	*8.0%*	2,203	*5.0%*	1,793,049
Gauteng	*12.2%*	3,350	*12.6%*	4,515,762
Mpumalanga	*9.0%*	2,464	*9.3%*	3,329,921
Limpopo	*16.7%*	4,594	*10.6%*	3,824,145
Unspecified	*6.9%*	1,906	*11.8%*	4,244,118
Total	***100%***	**27,454**	***100%***	**35,952,565**

Source: StatsSA (2018A)

The Western Cape receives 15.8% of domestic tourism expenditure, making it one of the regions with the most domestic tourism spend in the country (second out of nine regions), with KwaZulu-Natal receiving the majority of spend (16.9%). The Western Cape only obtains 11% of overnight trips, ranking it fifth out of nine regions. This shows a similar trend to the international tourist scenario, with the spending power of a single domestic trip yielding a higher value in the Western Cape compared to other regions.

Table 4-6 is extracted from the survey and provides the domestic tourism (overnight trips) expenditure breakdown per region.

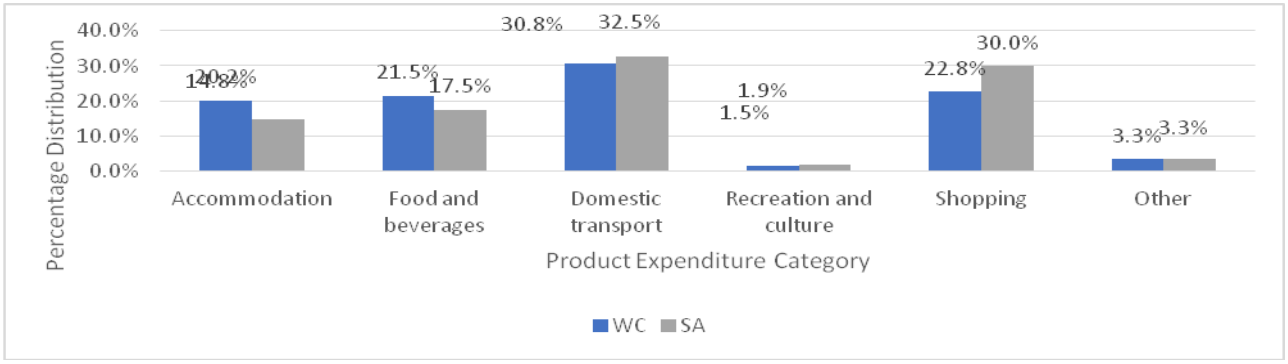
Table 4-6: Province of destination by expenditure (R'000) on most recent overnight trips, 2017

Domestic Tourism 2017	Accommodation	Food and beverages	Domestic transport	Recreation and culture	Shopping	Other	Total
Western Cape	1,142,727	1,219,252	1,744,393	84,011	1,289,768	188,913	**5,669,064**
Eastern Cape	251,577	636,539	1,599,544	36,696	1,852,170	159,547	**4,536,073**
Northern Cape	28,789	107,316	246,848	13,576	221,371	17,019	**634,919**
Free State	111,259	246,341	402,129	21,384	466,794	67,519	**1,315,426**
KwaZulu-Natal	1,455,274	822,558	1,699,338	96,945	1,834,846	181,127	**6,090,088**
North West	270,571	323,878	578,378	33,373	512,057	74,792	**1,793,049**
Gauteng	378,700	694,407	1,707,143	88,987	1,426,649	219,876	**4,515,762**
Mpumalanga	560,844	955,437	956,824	26,937	771,744	58,135	**3,329,921**
Limpopo	186,587	625,943	1,369,954	27,147	1,472,912	141,602	**3,824,145**
Unspecified	924,636	664,697	1,395,107	249,743	927,757	82,178	**4,244,118**
Total	**5,310,964**	**6,296,368**	**11,699,658**	**678,799**	**10,776,068**	**1,190,708**	**35,952,565**

Source: StatsSA (2018A)

According to the Domestic Tourism Survey, domestic tourists spend slightly more on accommodation (20.2%), and food and beverage (21.5%) compared to the expenditure percentage breakdown for South Africa as a whole. Less is spent on other product categories such as domestic transport (30.8%), recreation and cultural services (1.5%) as seen in Figure 4-2. This means that the domestic tourism expenditure ratio in the RTSA will be adjusted to illustrate the differences in expenditure distribution for the Western Cape.

Figure 4-2: Domestic tourism expenditure percentage distribution for Western Cape and South Africa

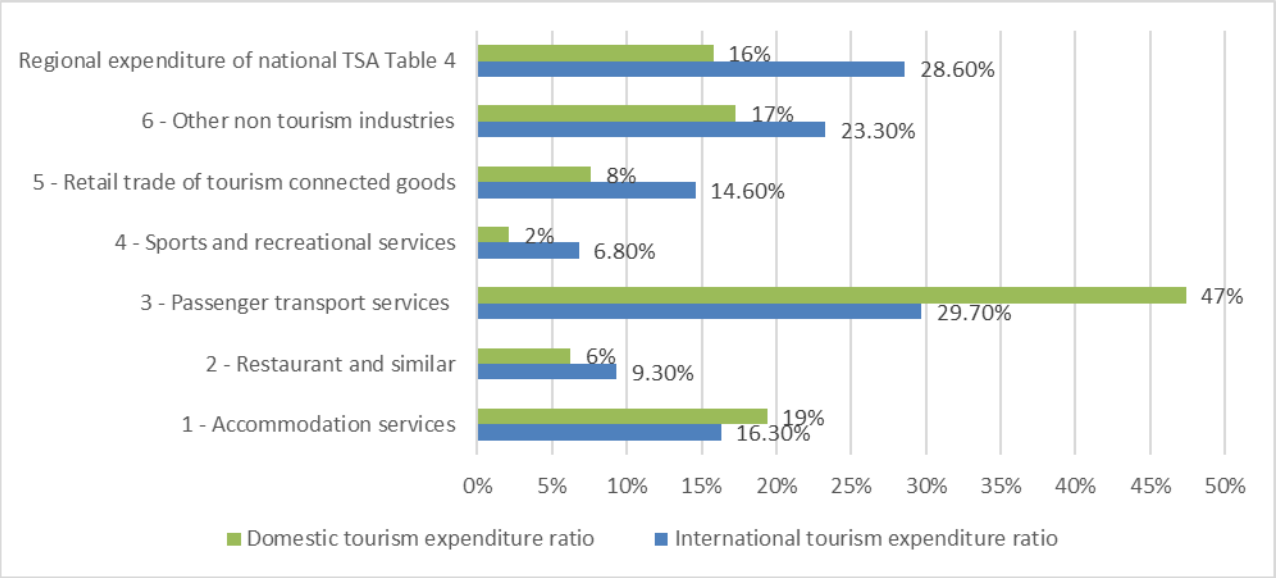


Source: StatsSA (2018A)

4.2.2 Estimate tourism expenditure

The construction of the RTSA Table 1: Internal Tourism Consumption was based mainly on regional weights, which were applied to the national TSA Table 4. Figure 4-3 illustrates the percentage weights for the WC RTSA Table 1 as per the researcher's calculations.

Figure 4-3: Regional tourism expenditure ratios



Source: Calculation

The total expenditure for international tourism was estimated at 28.6% of the national TSA Table 4 International Tourism Expenditure Total (R120,979 million). Domestic tourism expenditure was estimated at 15.8% of the national TSA Table 4 International Tourism Expenditure Total (R156,437 million). These percentage weightings were derived from the calculated percentage share of spending per region from the above-mentioned surveys.

The international tourism expenditure ratios for the product categories kept the same ratios as the national TSA Table 4, as no relevant data was available at regional level. The domestic tourism expenditure ratios used adjusted weights to the national TSA Table 4, as the ratios provided by the domestic survey did not fully conform to the weighted structure of the national TSA.

Table 4-7: Comparison between Domestic Tourism Survey and national TSA domestic tourism expenditure ratio in product categories

DTS product categories	% weighting	TSA product categories	National TSA % weighting	Estimated RTSA % weighting for WC
Accommodation	20.2%	Accommodation services	14.3%	19.4%
Food and Beverages	21.5%	Restaurant and similar	5.1%	6.2%
Domestic Transport	30.8%	Passenger transport services	50.5%	47.4%
Recreation and Culture	1.5%	Sports and recreational services	2.8%	2.1%
Shopping	22.8%	Retail trade of tourism connected goods	10.1%	7.6%
Others	3.3%	Other non-tourism industries	17.3%	17.3%

Source: Calculation

Table 4-8 provides the internal tourism consumption table as calculated with the applied percentage weightings to the national TSA Table 4.

Table 4-8: Unadjusted internal tourism consumption for Western Cape (R'million), 2017

Internal tourism expenditure	International tourism expenditure	Domestic tourism expenditure	Internal tourism consumption
1 - Accommodation services	5,658	4,780	10,438
2 - Restaurant and similar	3,214	1,523	4,737
3 - Passenger transport services (travel agencies)	10,279	11,688	21,967
4 - Sports and recreational services (cultural services)	2,369	530	2,899
5 - Retail trade of tourism connected goods	5,051	1,880	6,931
6 - Other non-tourism industries	8,075	4,267	12,342
TOTAL	**34,646**	**24,667**	**59,313**

Source: Calculation

Where:

$$TE\left(Id_i^{WC}\right) = \left(TE\left(Id_i^{SA}\right)\right)\left(TE\left(Id_r^{WC}\right)\right) \quad \text{..... equation 1.4}$$

$$TE\left(Dd_i^{WC}\right) = \left(TE\left(Dd_i^{SA}\right)\right)\left(TE\left(Dd_r^{WC}\right)\right) \quad \text{..... equation 1.5}$$

$$Id_i^{WC} = \left(TE\left(Id_i^{WC}\right)\right)\left(Id_{ir}^{WC}\right) \quad \text{..... equation 1.6}$$

$$Dd_i^{WC} = \left(TE\left(Dd_i^{WC}\right)\right)\left(Dd_{ir}^{WC}\right) \quad \text{..... equation 1.7}$$

In comparison with the total supply calculated for the Western Cape, it became evident that the estimated demand needs to be readjusted as it was overestimated.

4.2.2.1 Readjustment of regional internal tourism consumption

The regional tourism demand statistics indicated that the expenditure value of tourists are higher than the country's average ratios, which means that the demand/supply ratio for the Western Cape can be assumed to be higher than the national ratio. Table 4-9 provides a comparison between the demand/supply ratios of the unadjusted WC RTSA Table 1 and the national TSA Table 4.

Table 4-9: Unadjusted demand/supply ratio comparison with National TSA

Product categories	Unadjusted demand/supply ratio	National TSA demand/supply ratio	*% Difference*
1 - Accommodation services	158.8%	96.0%	*62.8%*
2 - Restaurant and similar	63.8%	37.9%	*25.9%*
3 - Passenger transport services (travel agencies)	69.0%	49.9%	*19.1%*
4 - Sports and recreational services (cultural services)	47.5%	33.3%	*14.2%*
5 - Retail trade of tourism connected goods	12.5%	8.9%	*3.6%*
6 - Other non-tourism industries	1.1%	0.7%	*0.4%*
TOTAL	**4.7%**	**3.1%**	***1.6%***

Source: Calculation

This difference between demand and supply cannot be that significant since the ratio percentage should be equal or less than 100%, as supply equals demand. Furthermore, the expenditure ratio per product should resemble similar parameters as the national TSA. This means that weighting parameters need to be applied to the unadjusted Table 1 to yield a more realistic result.

The overestimated demand/supply ratio for the unadjusted WC RTSA Table 1 could be due to regional tourism statistics being unable to measure the amount of money spent by tourists visiting the region that was either not consumed in the region or consumed in the region but exported to another region. In addition, the surveys do not necessarily differentiate between money spent on formal accommodation (hotels, BnB, guest houses, lodges, camping sites)

versus informal accommodation (AirBnB, self-catering units, secondary homes, family and friends). This is also experienced with transport, as some visitors use their own transport.

To readjust the figures for WC RTSA Table 1, a 29.1% reduction weighting was applied to both the international and domestic tourism expenditure for all product categories. The reduction weighting was seen as a set parameter for economic leakage in a region in terms of tourism. Furthermore, a 12% reduction weighting was applied to the accommodation product category. This was done to compensate for the overestimation of accommodation expenditure in the region, which could be a result of spending on informal accommodation. Table 4-10 gives a comparison between the readjusted demand/supply ratio and the national TSA.

Table 4-10: Readjusted demand/supply ratio comparison with National TSA

Product categories	Readjusted demand/supply ratio	National TSA demand/supply ratio	*% Difference*
1 - Accommodation services	99.0%	96.0%	3.0%
2 - Restaurant and similar	45.2%	37.9%	7.3%
3 - Passenger transport services (travel agencies)	48.9%	49.9%	-1.0%
4 - Sports and recreational services (cultural services)	33.6%	33.3%	0.4%
5 - Retail trade of tourism connected goods	8.8%	8.9%	-0.1%
6 - Other non-tourism industries	0.8%	0.7%	0.1%
TOTAL	**3.3%**	**3.1%**	0.2%

Source: Calculation

4.2.2.2 Result WC RTSA Table 1: Internal Tourism Consumption

The readjusted ratios are much more desirable and still illustrate the uniqueness of the Western Cape region. Table 4-11 is the final result for the WC RTSA Table 1: Internal Tourism Consumption.

Table 4-11: Readjusted Internal Tourism Consumption for Western Cape (R'million), 2017

Internal tourism expenditure	International tourism expenditure	Domestic tourism expenditure	Internal tourism consumption
1 - Accommodation services	3,528	2,981	6,509
2 - Restaurant and similar	2,278	1,079	3,357

Internal tourism expenditure	International tourism expenditure	Domestic tourism expenditure	Internal tourism consumption
3 - Passenger transport services (travel agencies)	7,283	8,282	15,566
4 - Sports and recreational services (cultural services)	1,679	375	2,054
5 - Retail trade of tourism connected goods	3,579	1,332	4,911
6 - Other non-tourism industries	5,722	3,023	8,746
TOTAL	**24,069**	**17,073**	**41,142**

Source: Calculation

Where:

$$TE\left(Id_i^{WC}\right) = \sum(Id_i^{WC}) \quad \text{..... equation 1.1}$$

$$TE\left(Dd_i^{WC}\right) = \sum(Dd_i^{WC}). \quad \text{..... equation 1.2}$$

$$TDTE_i^{WC} = \sum(Dd_i^{WC}). + \sum(Id_i^{WC}) \quad \text{..... equation 1.3}$$

As per the calculations, it is estimated that the Western Cape contributes 14.8% of national internal tourism consumption. Contrary to the national TSA (43.6%), the international tourism expenditure represents 58.5% of the expenditure in the Western Cape.

4.3 RTSA SUPPLY-SIDE

The supply-side of the WC RTSA relates to Table 5 of the national TSA, by regionalising the SUTs to form the tourism-related production account for the Western Cape. Once the WC RTSA Table 2: Production Account is compiled, the researcher reconciles WC RTSA Table 1 and 2 to construct WC RTSA Table 3: Supply and Internal Tourism Consumption. This estimates the tourism share of the economy for the Western Cape.

4.3.1 Supply and Use Table statistics

The following datasets were used to calculate WC RTSA Table 2: Production Account.

Table 4-12: Data sources used for Table 2

Data requirement	Data source
National Tourism Satellite Account • Table 5: Production Account	Tourism Satellite Account for South Africa, provisional 2017 (Excel) from StatsSA
The System of National Accounts • Supply and Use Tables	Gross Domestic Product Quarterly Publication (Excel) from StatsSA
Regional Supply • GVA for Western Cape and South Africa • Output for Western Cape and South Africa	GVA for industries 2017 (Excel) from Quantec Output for industries 2017(Excel) from Quantec

4.3.1.1 National TSA Table 5

The national TSA Table 5 is compiled the national SUTs, yielding a similar output and GVA that is comparable with the total economy of South Africa. Table 4-13 provides a summary version of the national TSA Table 5.

Table 4-13: TSA Table 5: Production Accounts of tourism industries and other industries for South Africa (R'million Current), 2017

Product category	1 - Accommodation services	2 – Restaurants and similar	3 – Passenger transport (travel agencies)	4 - Sports and recreational services (cultural services)	5 - Retail trade of tourism connected goods	6 - Other non-tourism industries	TOTAL output of domestic producers (at basic prices)
1 - Accommodation services	36,642	0	0	0	0	7,262	43,904
2 - Restaurant and similar	9,875	25,721	0	0	0	14,862	50,459
3 - Passenger transport services (travel agencies)	0	0	220,494	0	0	9,518	230,012
4 - Sports and recreational services (cultural services)	0	0	0	37,817	0	0	37,817
5 - Retail trade of tourism connected goods	0	0	0	0	148,965	227,091	376,056
6 - Other non-tourism industries	19,679	512	4,476	11,004	1,597	8,262,829	8,300,097
TOTAL output (at basic prices)	**66,197**	**26,234**	**224,971**	**48,821**	**150,562**	**8,521,562**	**9,038,346**
Total intermediate consumption (at purchasers prices)	*39,173*	*16,680*	*117,619*	*35,755*	*69,788*	*4,587,602*	*4,866,617*
Total gross value added of industries (at basic prices)	**27,024**	**9,553**	**107,352**	**13,066**	**80,774**	**3,933,960**	**4,171,729**

Product category	1 - Accommodation services	2 – Restaurants and similar	3 – Passenger transport (travel agencies)	4 - Sports and recreational services (cultural services)	5 - Retail trade of tourism connected goods	6 - Other non-tourism industries	TOTAL output of domestic producers (at basic prices)
Compensation of employees	*11,818*	*4,772*	*37,448*	*7,244*	*45,568*	*2,111,300*	*2,218,149*
Other taxes less subsidies on production	*1,008*	*110*	*457*	*1,118*	*1,652*	*78,906*	*83,251*
Gross operating surplus	*14,198*	*4,672*	*69,446*	*4,704*	*33,554*	*1,743,755*	*1,870,329*

Source: StatsSA (2018D)

Table 4-14 shows the weighting of the product by product matrix and the proportioning of the GVA per product. The light shade grey part of the table indicates the ratio weighting of each block in comparison with the total output of the whole matrix, thus, (S_{ij}/Y):1. The dark grey part of the table indicates the portion of the GVA in terms of the product output, thus, (E_i/X_i^T):1.

Table 4-14: National TSA Table 5 weighting

Product category	1 - Accommodation services	2 – Restaurants and similar	3 – Passenger transport (travel agencies)	4 - Sports and recreational services (cultural services)	5 - Retail trade of tourism connected goods	6 - Other non-tourism industries	TOTAL output of domestic producers
1 - Accommodation services	0.0041	0.0000	0.0000	0.0000	0.0000	0.0008	0.0049
2 - Restaurant and similar	0.0011	0.0028	0.0000	0.0000	0.0000	0.0016	0.0056
3 - Passenger transport services (travel agencies)	0.0000	0.0000	0.0122	0.0000	0.0000	0.0011	0.0254
4 - Sports and recreational services (cultural services)	0.0000	0.0000	0.0000	0.0021	0.0000	0.0000	0.0042
5 - Retail trade of tourism connected goods	0.0000	0.0000	0.0000	0.0000	0.0165	0.0251	0.0416
6 - Other non-tourism industries	0.0022	0.0001	0.0000	0.0000	0.0002	0.9142	0.9183
TOTAL output	**0.0073**	**0.0029**	**0.0122**	**0.0021**	**0.0167**	**0.9428**	**0.9840**
Total intermediate consumption	*0.5918*	*0.6358*	*0.5523*	*0.7324*	*0.4635*	*0.5384*	*0.5384*
Total gross value added of industries	***0.4082***	***0.3642***	***0.4477***	***0.2676***	***0.5365***	***0.4616***	***0.4616***
Compensation of employees	*0.1785*	*0.1819*	*0.2333*	*0.1484*	*0.3027*	*0.2478*	*0.2454*

Product category	1 - Accommodation services	2 – Restaurants and similar	3 – Passenger transport (travel agencies)	4 - Sports and recreational services (cultural services)	5 - Retail trade of tourism connected goods	6 - Other non-tourism industries	TOTAL output of domestic producers
Other taxes less subsidies on production	*0.0152*	*0.0042*	*0.0012*	*0.0229*	*0.0110*	*0.0093*	*0.0092*
Gross operating surplus	*0.2145*	*0.1781*	*0.2132*	*0.0964*	*0.2229*	*0.2046*	*0.2069*

Source: Calculation

4.3.1.2 SUTs – Gross Domestic Product per region

According to StatsSA (2018), the Western Cape contributes 13.6% of GPD generated in South Africa (see Table 4-15).

Table 4-15: GDP Contribution by region, 2017

Region	Current prices (R'million)	% Contribution
Western Cape	632,990	13.6%
Eastern Cape	358,627	7.7%
Northern Cape	96,487	2.1%
Free State	234,505	5.0%
KwaZulu-Natal	746,360	16.0%
North West	301,477	6.5%
Gauteng	1,593,874	34.3%
Mpumalanga	348,987	7.5%
Limpopo	340,273	7.3%
GDP at market prices	**4,653,579**	**100.0%**

Source: StatsSA (2018A)

This contribution equates to R632,990 million with over 64.5% generated by the tertiary industries in the Western Cape, where the majority of tourism-related activities take place. Table 4-16 provides a detailed breakdown at a ten SIC level.

Table 4-16: Western Cape GDPR by Industry, 2017

GDPR by industry	Current prices (R'million)	% Contribution
Primary Industries	**25,608**	**4.0%**
Agriculture, forestry and fishing	*24,021*	*3.8%*
Mining and quarrying	*1,587*	*0.3%*
Secondary Industries	**134,777**	**21.3%**

GDPR by industry	Current prices (R'million)	% Contribution
Manufacturing	*87,520*	*13.8%*
Electricity, gas and water	*16,226*	*2.6%*
Construction	*31,031*	*4.9%*
Tertiary industries	**408,037**	**64.5%**
Trade, catering and accommodation	*98,171*	*15.5%*
Transport, storage and communication	*61,921*	*9.8%*
Finance, real estate and business services	*143,391*	*22.7%*
Personal services	*38,670*	*6.1%*
General government services	*65,883*	*10.4%*
All industries at basic prices	**568,422**	**89.8%**
Taxes less subsidies on products	*64,568*	*10.2%*
GDPR at market prices	**632,990**	**100.0%**

Source: StatsSA (2018B)

Unfortunately, StatsSA does not provide a more detailed breakdown of the GDP contribution for the region that could assist in regionalising the SUTs to a digit-level 3 or higher.

4.3.1.3 Regional supply statistics

The regional supply statistics were sourced from Quantec. The data used for the study was the output and GVA per industry (85 industries) for the Western Cape and South Africa. Table 4-17 provides a sector comparison of the GVA contribution for the Western Cape and South Africa.

Table 4-17: Sector GVA contribution for Western Cape and South Africa, 2017

GVA	Western Cape		South Africa	
	Count (R')	%	Count (R')	%
Primary sector	**23,918**	**4.2%**	**441,088**	**10.6%**
Agriculture, forestry and fishing	*22,227*	***3.9%***	*106,421*	***2.6%***
Mining and quarrying	*1,691*	***0.3%***	*334,667*	***8.0%***
Secondary sector	**133,808**	**23.6%**	**870,082**	**20.9%**
Manufacturing	*85,956*	***15.2%***	*551,620*	***13.2%***
Electricity, gas and water	*16,224*	***2.9%***	*155,155*	***3.7%***
Construction	*31,628*	***5.6%***	*163,307*	***3.9%***
Tertiary sector	**409,428**	**72.2%**	**2,860,551**	**68.6%**
Wholesale and retail trade, catering and accommodation	*98,308*	***17.3%***	*626,802*	***15.0%***
Transport, storage and communication	*62,206*	***11.0%***	*411,480*	***9.9%***

GVA	Western Cape		South Africa	
	Count (R')	%	Count (R')	%
Finance, insurance, real estate and business services	*140259*	***24.7%***	*840,697*	***20.2%***
General government	*66,064*	***11.6%***	*739,459*	***17.7%***
Community, social and personal services	*38,557*	***6.8%***	*242,113*	***5.8%***
Total	**567,154**	**100.0%**	**4,171,721**	**100.0%**

Source: Quantec (2019)

When comparing the results with the Western Cape gross domestic product of region0 (GDPR) by industry (Table 4-16), the region does show a similar trend in its structure with an average 1.41% difference between the GVA and GDPR (0.22% difference in totals). It is assumed that the data source for regional supply is reliable and accurate for an assumption.

The researcher determined the LQ for the Western Cape from the accumulative GVA provided for 85 industries. Figure 4-4 provides the LQ for the industries that relate to the products within the RTSA.

Figure 4-4: Western Cape LQ for GVA, 2017

Source: Calculation

Where:

$$LQ_i^{SA} = \frac{GVA_i^{WC}/GVA^{WC}}{GVA_i^{SA}/GVA^{SA}} \quad \text{..... equation 2.1}$$

The location quotient reveals that the Western Cape has a higher competitive level compared to the country's GVA level at 1.12. Thus, the Western Cape has a comparative advantage on average than other regions in South Africa, in terms of GVA. It is further evident that the identified industries have a much higher weighting than the overall economy, which is due to the tertiary sector being more prominent in the Western Cape as illustrated in the previous section.

4.3.1 Regionalise Supply and Use Table

It was possible to compile complete regional SUTs due to data limitations but the researcher used the information available to regionalise the national TSA Table 5. This was done by using the location quotient for the identified industries (Figure 4-4) to adjust the national TSA Table 5 weightings (Table 4-14). Table 4-18 shows the reweighted national Table 5, which now represents the weighting structure of the WC RTSA Table 2 product matrix.

Table 4-18: National TSA Table 5 adjusted weighting

Product category	**1 - Accommodation services**	**2 – Restaurants and similar**	**3 – Passenger transport (travel agencies)**	**4 - Sports and recreational services (cultural services)**	**5 - Retail trade of tourism connected goods**	**6 - Other non-tourism industries**	**TOTAL output of domestic producers (at basic prices)**
1 - Accommodation services	0.0044	0.0000	0.0000	0.0000	0.0000	0.0008	0.0052
2 - Restaurant and similar	0.0012	0.0031	0.0000	0.0000	0.0000	0.0016	0.0059
3 - Passenger transport services (travel agencies)	0.0000	0.0000	0.0119	0.0000	0.0000	0.0010	0.0130
4 - Sports and recreational services (cultural services)	0.0000	0.0000	0.0000	0.0024	0.0000	0.0000	0.0024
5 - Retail trade of tourism connected goods	0.0000	0.0000	0.0000	0.0000	0.0191	0.0250	0.0441
6 - Other non-tourism industries	0.0024	0.0001	0.0000	0.0000	0.0002	0.9104	0.9131
TOTAL output (at basic prices)	**0.0080**	**0.0032**	**0.0119**	**0.0024**	**0.0193**	**0.9390**	**1**
Location quotient	*1.22*	*1.22*	*1.20*	*1.30*	*1.30*	*1.11*	*1.12*

Source: Calculation

Where:

$$TSA_i^r = \frac{LQ_i^{WC}\ (TSA_i^{SA})}{\sum(TSA_r)} \times 1 \qquad \text{..... equation 2.2}$$

4.3.1.1 Regionalised product matrix for WC RTSA Table 2

The output for the production account should be equal to the total output of the economy. The construction of the RTSA Table 2 should be equal to the total output of the Western Cape economy. According to Quantec (2018), the total economic output for the region is R1,259,986 million. This value is inserted into the adjusted weighting scale for the product matrix (Table 4-18) to yield the production account as output data.

Table 4-19: WC RTSA Table 2 product matrix output (R'million), 2017

Product category	1 - Accommodation services	2 – Restaurants and similar	3 – Passenger transport (travel agencies)	4 - Sports and recreational services (cultural services)	5 - Retail trade of tourism connected goods	6 - Other non-tourism industries	TOTAL output of domestic producers (at basic prices)
1 - Accommodation services	5,554	0	0	0	0	1,008	6,562
2 - Restaurant and similar	1,497	3,899	0	0	0	2,063	7,459
3 - Passenger transport services (travel agencies)	0	0	30,095	0	0	1,321	31,417
4 - Sports and recreational services (cultural services)	0	0	0	6,110	0	0	6,110
5 - Retail trade of tourism connected goods	0	0	0	0	24,067	31,527	55,595
6 - Other non-tourism industries	2,983	78	603	1,778	258	1,147,145	1,152,845
TOTAL output (at basic prices)	**10,033**	**3,976**	**30,698**	**7,888**	**24,325**	**1,183,066**	**1,259,986**

Source: Calculation

Where:

$$S_i^{WC} = Y^{WC} \times TSA_i^r \qquad \text{..... equation 2.3}$$

4.3.1.2 Determine GVA contribution for RTSA Table 2

The product matrix provides the total output of the economy per product in terms of the RTSA Table 2 structure, from here the GVA contribution is determined by applying the GVA ratios for the identified industries (from Quantec) to the calculated output (row) for the production account. Table 4-20 provides the calculate GVA ratios for the identified industries.

Table 4-20: Industry GVA ratio on output, 2017

Industry GVA ratio	Catering and accommodation services	Transport and storage	Professional business services	Health and social work	Wholesale and retail trade	Others	Overall
Gross value added at basic prices	0.40	0.53	0.50	0.42	0.59	0.45	0.45
Compensation of employees	*0.18*	*0.18*	*0.16*	*0.20*	*0.26*	*0.23*	*0.23*
Other taxes less subsidies on production	*0.01*	*0.01*	*0.04*	*0.01*	*0.01*	*0.01*	*0.01*
Gross operating surplus	*0.20*	*0.35*	*0.30*	*0.21*	*0.32*	*0.21*	*0.21*

Source: Quantec (2018)

The above-mentioned ratios were applied to the total output row of the WC RTSA Table 2: Production Account. Table 4-21 shows the GVA ratios that were applied to the WC RTSA Table 2 output.

Table 4-21: WC RTSA Table 2 GVA ratios

Product category	1 - Accommodation services	2 – Restaurants and similar	3 – Passenger transport (travel agencies)	4 - Sports and recreational services (cultural services)	5 - Retail trade of tourism connected goods	6 - Other non - tourism industries	TOTAL output of domestic producers (at basic prices)
TOTAL output (at basic prices)	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Total intermediate consumption (at purchasers prices)	*0.60*	*0.60*	*0.48*	*0.58*	*0.41*	*0.55*	*0.55*
Total gross value added of industries (at basic prices)	***0.40***	***0.40***	***0.52***	***0.42***	***0.59***	***0.45***	***0.45***
Compensation of employees	*0.18*	*0.18*	*0.17*	*0.20*	*0.26*	*0.23*	*0.23*

Product category	1 - Accommodation services	2 – Restaurants and similar	3 – Passenger transport (travel agencies)	4 - Sports and recreational services (cultural services)	5 - Retail trade of tourism connected goods	6 - Other non - tourism industries	TOTAL output of domestic producers (at basic prices)
Other taxes less subsidies on production	*0.01*	*0.01*	*0.02*	*0.01*	*0.01*	*0.01*	*0.01*
Gross operating surplus	*0.20*	*0.20*	*0.32*	*0.21*	*0.32*	*0.21*	*0.21*

Source: Calculation

Where:

$E_i^r = GVA_i^{WC}/Y_i^{WC}$ ..... *equation 2.4*

The overall percentage deviation between the RTSA Table 2 and national TSA Table 5 is 5%. This means that the estimated GVA ratios for the Western Cape are in line with the national parameters yet also show the unique structure of the region's economy.

4.3.1.3 Result WC RTSA Table 2: Production Account

The applied location quotient weightings and GVA ratios resulted in the aggregation of the national TSA Table 5 to a regional level. Table 4-22 is the final result for the WC RTSA Table 2: Production Account.

Table 4-22: Regionalised WC RTSA 2: Production Account, 2017

Product category	1 - Accommodation services	2 – Restaurants and similar	3 – Passenger transport (travel agencies)	4 - Sports and recreational services (cultural services)	5 - Retail trade of tourism connected goods	6 - Other non-tourism industries	TOTAL output of domestic producers (at basic prices)
1 - Accommodation services	5,554	0	0	0	0	1,008	6,562
2 - Restaurant and similar	1,497	3,899	0	0	0	2,063	7,459
3 - Passenger transport services (travel agencies)	0	0	30,095	0	0	1,321	31,417

Product category	1 - Accommodation services	2 – Restaurants and similar	3 – Passenger transport (travel agencies)	4 - Sports and recreational services (cultural services)	5 - Retail trade of tourism connected goods	6 - Other non-tourism industries	TOTAL output of domestic producers (at basic prices)
4 - Sports and recreational services (cultural services)	0	0	0	6,110	0	0	6,110
5 - Retail trade of tourism connected goods	0	0	0	0	24,067	31,527	55,595
6 - Other non-tourism industries	2,983	78	603	1,778	258	1,147,145	1,152,845
TOTAL output (at basic prices)	**10,033**	**3,976**	**30,698**	**7,888**	**24,325**	**1,183,066**	**1,259,986**
Total intermediate consumption (at purchasers prices)	*6,017*	*2,384*	*14,356*	*4,568*	*10,070*	*654,171*	*691,566*
Total gross value added of industries (at basic prices)	**4,017**	**1,592**	**16,342**	**3,320**	**14,255**	**528,895**	**568,421**
Compensation of employees	*1,839*	*729*	*5,458*	*1,563*	*6,272*	*273,498*	*289,360*
Other taxes less subsidies on production	*122*	*48*	*300*	*105*	*247*	*12,233*	*13,055*
Gross operating surplus	*2,056*	*815*	*10,584*	*1,651*	*7,736*	*243,164*	*266,007*

Source: Calculation

Where:

$$E_i^{WC} = X_i^{T\ SA} \times E_i^r \qquad \text{..... equation 2.5}$$

The Western Cape production account estimated the output for the economy at 13.9% of the national economy. The tourism-related products (accommodation, restaurants, passenger transport, sport and recreation) equate to 5.3% of the total supply in the region, with the national ratio at 5%. Therefore, the Western Cape has a comparative advantage with its tourism-related products having a higher percentage weighting than at the national level, indicating a larger spending power on recreation and travel-related products.

4.4 RECONCILIATION OF SUPPLY AND DEMAND

The construction of WC RTSA Table 1: International Tourism Consumption and WC RTSA Table 2: Production Account is the foundation of WC RTSA Table 3: Supply and Internal Tourism Consumption. The reconciliation of the first two tables results in the estimation of the tourism sector's direct contribution to the economy of the Western Cape.

4.4.1 Tourism value ratio

To estimate tourism's share of the economy, the demand/supply ratio is applied to the production account columns. Table 4-23 shows the tourism demand and supply ratio for the Western Cape. The domestic, international and total demand are the total outputs from WC RTSA Table 1: Internal Tourism Consumption. The domestic supply is the total output (column) for WC RTSA Table 2: Production Account. The tourism product ratio is the total demand divided by supply.

Table 4-23: Tourism demand and supply ratio for the Western Cape

Products	Domestic demand	International demand	Total demand	Total domestic supply	Tourism product ratio
	R'million				%
1 - Accommodation services	*2,981*	*3,528*	6,509	6,562	*99.2%*
2 - Restaurant and similar	*1,079*	*2,278*	3,357	7,459	*45.0%*
3 - Passenger transport services (incl. travel agencies and similar)	*8,282*	*7,283*	15,566	31,417	*49.5%*
4 - Sports and recreational services (incl. cultural services)	*375*	*1,679*	2,054	6,110	*33.6%*
5 - Retail trade of tourism connected goods	*1,332*	*3,579*	4,911	55,595	*8.8%*
6 - Other non-tourism industries	*3,023*	*5,722*	8,746	1,152,845	*0.8%*
Total tourism expenditures	***17,073***	***24,069***	**41,142**	**1,259,986**	***3.3%***

Source: Calculation

Where:

$$TE_i^r = \left(\frac{TE_i^{WC}}{X_i^{WC}} \right) \times S_i^{WC} \qquad \text{..... equation 3.1}$$

4.4.2 **Result WC RTSA Table 3: Supply and Internal Tourism Consumption**

The application of the tourism product ratio to the product matrix of the production account yields an accumulative product ratio for the total output (row) for each product, which is used to proportion the GVA contribution of the tourism sector.

Table 4-24 is the final result for the WC RTSA Table 3: Supply and Internal Tourism Consumption.

Table 4-24: WC RTSA Table 3: Supply and demand reconciliation, 2017

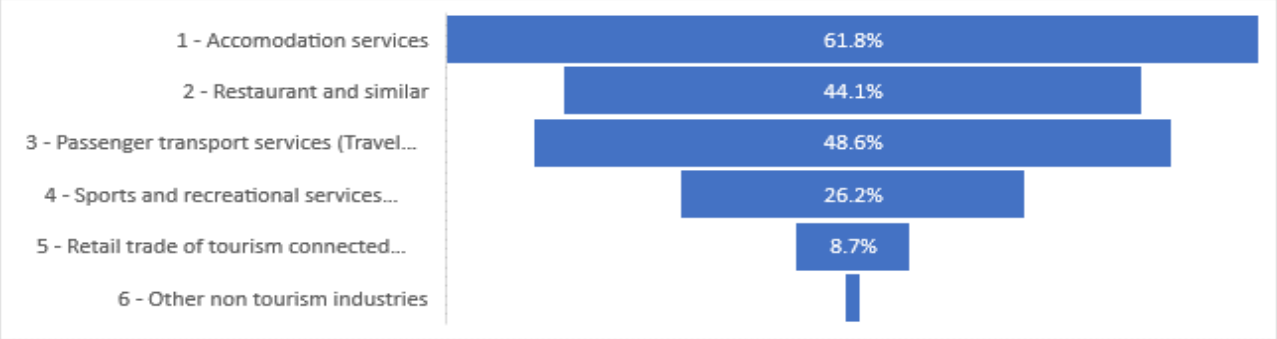
Products	1 - a. Accommodation services		2 - Restaurants and similar		3 - Passenger transport services (travel agencies)		4 - Sports and recreational services (cultural services)		5 - Retail trade of tourism connected goods		6 - Other non-tourism industries		Total output of domestic producers (at basic prices)	
	Output	Tourism share	Output	Tourism share	Output	Tourism share	Output	Tourism share	Output	Tourism share	Output	Tourism share	Output	Tourism share
1 - Accommodation services	5,554	5,509	0	0	0	0	0	0	0	0	1,008	1,000	6,562	6,509
2 - Restaurant and similar	1,497	674	3,899	1,754	0	0	0	0	0	0	2,063	929	7,459	3,357
3 - Passenger transport services (travel agencies)	0	0	0	0	30,095	14,911	0	0	0	0	1,321	655	31,417	15,566
4 - Sports and recreational services (cultural services)	0	0	0	0	0	0	6,110	2,054	0	0	0	0	6,110	2,054
5 - Retail trade of tourism connected goods	0	0	0	0	0	0	0	0	24,067	2,126	31,527	2,785	55,595	4,911
6 - Other non-tourism industries	2,983	23	78	1	603	5	1,778	13	258	2	1,147,145	8,702	1,152,845	8,746
TOTAL output (at basic prices)	**10,033**	**6,205**	**3,976**	**1,755**	**30,698**	**14,916**	**7,888**	**2,068**	**24,325**	**2,128**	**1,183,066**	**14,071**	**1,259,986**	**41,142**
Total intermediate consumption (at purchasers prices)	*6,017*	*3,721*	*2,384*	*1,052*	*14,356*	*6,975*	*4,568*	*1,197*	*10,070*	*881*	*654,171*	*7,780*	*691,566*	*21,607*

Products	1 - a. Accommodation services		2 - Restaurants and similar		3 - Passenger transport services (travel agencies)		4 - Sports and recreational services (cultural services)		5 - Retail trade of tourism connected goods		6 - Other non-tourism industries		Total output of domestic producers (at basic prices)	
	Output	Tourism share	Output	Tourism share	Output	Tourism share	Output	Tourism share	Output	Tourism share	Output	Tourism share	Output	Tourism share
Total gross value added of industries (at basic prices)	**4,017**	**2,484**	**1,592**	**703**	**16,342**	**7,940**	**3,320**	**870**	**14,255**	**1,247**	**528,895**	**6,290**	**568,421**	**19,535**
Compensation of employees	*1,839*	*1,137*	*729*	*322*	*5,458*	*2,652*	*1,563*	*410*	*6,272*	*549*	*273,498*	*3,253*	*289,360*	*8,322*
Other taxes less subsidies on production	*122*	*75*	*48*	*21*	*300*	*146*	*105*	*28*	*247*	*22*	*12,233*	*145*	*13,055*	*437*
Gross operating surplus	*2,056*	*1,272*	*815*	*360*	*10,584*	*5,142*	*1,651*	*433*	*7,736*	*677*	*243,164*	*2,892*	*266,007*	*10,775*

Source: Calculation

The result from the study was able to estimate the direct economic contribution of tourism to the Western Cape economy. Figure 4-5 provides the industry ratio for the total purchased by visitors compared to the total output of the product.

Figure 4-5: Tourism sector economic contribution per product type



Source: Calculation

Overall, the tourism sector contributes to the economy in the region, particularly to the tertiary sector. Table 4-25 gives a comparison between tourism's contribution to the Western Cape economy versus the national contribution as a percentage.

Table 4-25: Tourism's contribution to the economy, comparison Western Cape and South Africa

Tourism's contribution to economy	Western Cape	South Africa
TOTAL output (at basic prices)	3.3%	3.1%
Total intermediate consumption (at purchasers prices)	*3.1%*	*3.2%*
Total gross value added of industries (at basic prices)	3.4%	2.9%
Compensation of employees	*2.9%*	*2.4%*
Other taxes less subsidies on production	*3.3%*	*2.7%*
Gross operating surplus	*4.1%*	*3.4%*

Source: Calculation

The contribution of tourism to the total output of the economy for both the Western Cape region and the country is relatively similar, with only a 0.2% difference. The contribution to GVA for the Western Cape has a higher value at 3.4% (a 0.5% difference). A similar contribution ratio could be expected for other regions in South Africa, which have comparable economic structure to the national economy including tourism (Grobler, 2019). However, this would not necessarily be the case in less economically active or more primary sector-based regions. This emphasises the consideration of apply interregional approach for a RTSA (United Nations, 2013; NathPandey & Singh, 2013; Desjardins, 2018).

4.5 CONCLUSION

The outcome of the study yields comparable results for the Western Cape region, substantiating the validity of the research methodology. Nonetheless, the data limitations and assumptions required to formulate the results does pose a question about the accuracy, thereof, and if this should be considered by policymakers for all regions in South Africa.

The suitability of the data available at a regional level will affect the consistence and accuracy of a RTSA as an extension of the national TSA. Thus, policymakers should first consider improving and aligning the tourism data collected at a regional level to allow for comparable results. These data challenges, further, extends to other emerging destinations that have limited data available, with unstandardised and/or unquantifiable surveys.

Therefore, the results from the WC RTSA construction highlight the key data challenges that could be experienced by other emerging destinations with a similar statistical/data construct.

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CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

The tourism sector has been prioritised as an economic driver in developing countries (Incera & Fernandez, 2015), including South Africa (Rogerson, 2015). The monetary outlay by tourists impacts the forward and backward linkages of an economy. The main industries directly affected by tourist spending include accommodation, food and beverage, business and support services, passenger transport services and cultural, sports and recreational activities (Phiri, 2016). In part of the study objectives, the researcher defined the importance of tourism's contribution as an economic activity from the global level down to the regional level. However, the economic significance of tourism is difficult to quantify (Smeral, 2015B), since tourism is not a specific sector or industry as specified by the SIC, where tourism-related output only represents a portion of an industry's output (StatsSA, 2012). The question of tourism being viewed as an economic sector is debatable, and a multitude of research has been done to measure the impact of tourism as a sector (Baggio, 2018; Cvelbar *et al.*, 2016).

Objective two of the study aimed to understand the representation of tourism through economic techniques. The literature review provided some clarity regarding statistical methods for tourism, statistical issues with tourism data and economic contribution analysis methods used to overcome the above-mentioned problem statement. These techniques include regression and time series analysis, the IO, SAM, CGE models and the TSA (Kido-Cruz *et al.*, 2015; Ferrari *et al.*, 2018). The use of an TSA has gained legitimacy as a method to determine the contribution of the tourism sector at national and regional level (Rutty *et al.*, 2015; Klytchnikova & Dorosh, 2012), due to its internationally recognised methodology (United Nations, 2010B).

The literature review assessed various articles from the United Kingdom, Norway, Australia, Austria, United States of America, India, Belgium, Denmark and Canada to interpret the methods used to develop an RTSA as part of the research objective three. What becomes evident is that the majority of research conducted in this area is mainly done in developed

countries. Furthermore, these researchers have experienced methodology challenges and data limitations in developing an RTSA for a specific region (Jones *et al.*, 2003; Laimer, 2012; Frechtling, 2012; NathPandey & Singh, 2013; De Maesschalck & Weekers, 2014; Desjardins, 2018; Zhang, 2018). The literature review also deduced the methodological considerations to be taken into account when constructing an RTSA (Frechtling, 2012, United Nations, 2013, Jean-Pierre & Perrain, 2016), which in turn informed this study's methodology. This resulted in the use of a top-down approach for this study, which cited secondary data collection as a popular method used to construct an RTSA.

The data requirements for an RTSA in terms of a top-down approach are the availability of a national TSA, regional tourism statistical data and regional SUTs with digit-level 3 or higher. The appropriateness and limitations of the existing numerical based datasets in the case study area was examined in chapter three. This further informed the data analysis method used by the research to construct an RTSA for the study area. Chapter three addressed research objective four and five. Objective six was addressed in chapter 4, which shows the construction of an RTSA for the case study area, the data used, and the challenges experienced in executing the methodology. This allowed the study to identify the limitations and assumptions required to construct the RTSA for the study area.

5.2 FINDINGS

South African policymakers have shown an interest in the need to understand and substantiate tourism policies (Rossouw & Saayman, 2011), with particular reference to the impact tourism has on local economies. There is an intention to extend the national TSA to address this need by developing an RTSA for all nine regions in the country (Ragab, 2014). However, no efforts have been undertaken yet due to the lack of relevant and sample representative data at the regional level (Grobler, 2016). The outcome of this study tested the validity of this statement and yielded corresponding results. The following three overarching data challenges were experienced in the study:

- lack of a regional account
- inadequate tourism surveys at a regional level
- reconciliation of the supply and demand

5.2.1 **Lack of a regional account**

The foundation for constructing an RTSA is the existence of a regional account (United Nations, 2013) as the generation of table 2 and 3 is dependent on the aggregation of the regional account. Unfortunately, there are no official regional accounts available in the study area, as with many emerging tourism destinations (data poor destinations). StatsSA (2018B) provides a digit-level 1 regional GDP, which does not provide enough detail to define the products and industries matrix for the RTSA Table 2 as experienced by Jones *et al.* (2003), Laimer (2012) and Zhang (2018).

To overcome this challenge, the national accounts were regionalised. The researcher used the national TSA Table 5 to maintain the structural balance for the production account regionalisation. A LQ (Rokicki *et al.,* 2019) was calculated for the study area based on the GVA provided for 85 industries and applied as an adjusted weighting to the columns of the national TSA Table 5. The total economic output of the regionalised product matrix for RTSA Table 2 was equal to the output for the region as per the StatsSA report. A similar method was used by Laimer (2012). Nonetheless, the regionalisation of a national account cannot be seen as accurate due to the assumptions applied to determine the treatment of inter-regional trade and activities that cannot be assigned to a single region (NathPandey & Singh, 2013; De Maesschalck & Weekers, 2014). However, policymakers can use this data to potentially weight the value of the tourism sector in a broad geographical area to inform there decision-making regarding economic planning and prioritisation.

The problematic lack of a regional account further extends to the availability of data at a regional level, where the researcher had to use an online data mining source to obtain GVA and output statistics for the study area in order to calculate the LQ. This means that the data sources available are not necessarily accurate and also rely on assumptions (Quantec used an LQ methodology to determine the regional output and GVA for provinces in South Africa). As a result, the accuracy of this method is questionable, although the credibility of the assumptions is justified as per the literature and methodology.

5.2.2 Inadequate tourism surveys at a regional level

The application of the top-down approach requires the availability of tourism data at a regional level (Frechtling, 2012). The tourism data available in the study area is relatively detailed at a national level but highly aggregated at a regional level (StatsSA, 2018D). Even though the study area does have locally collected tourism data, this information cannot be accumulated to a regional level since the local level data is sourced from an inadequate sample size and reports in intervals that are less accurate (Van der Waal, 2019). In addition, to ensure that the top-down approach can be applied to other regions, it is advisable to use information sources that report on tourism statistics in all regions with a comparable methodology (Laimer, 2012; Desjardins, 2018).

The SAT (2018) Departure Survey was used to calculate the international tourism expenditure at a regional level. The unique expenditure pattern for international tourists in the study could not be determined since limited expenditure type information was available in the Departure Survey. As a result, it was assumed that the expenditure ratio breakdown per product type was similar to the national ratio. The StatsSA (2018A) Domestic Tourism Survey was used to calculate the domestic tourism expenditure at a regional level. Here the data did provide a relative breakdown of the expenditure ratio per product type in the study area. The breakdown did not correlate directly with the RTSA Table 1 structure, which required the researcher to apply correlating assumptions between the regional and national data.

In order to overcome the challenge presented by the tourism data, the product categories for the RTSA were reduced to five tourism-related products (accommodation services, restaurant and similar, passenger transport services incl. travel agencies, sports and recreational services incl. cultural services, retail trade of tourism connected goods) (Jean-Pierre & Perrain, 2016). These product groupings were better aligned with the tourism data available at regional level. To ensure the interregional comparability of the RTSA Table 1, the regional tourism data expenditure ratios were applied to the national TSA Table 4. This yielded a comparable result for the study area at a national level (United Nations, 2013). A critical issue experienced in this study is the lack of appropriate sampling and disaggregation

of tourism statistics at a regional level to satisfy the requirements of a top-down approach in constructing an RTSA (Frechtling, 2012; Desjardins, 2018).

5.2.3 Reconciliation of supply and demand

As cited in other studies (Laimer, 2012; NathPandey & Singh, 2013; Zhang, 2018), a major challenge is the reconciliation of supply and demand for the RTSA. Once Table 1 and 2 were established and reconciled on a preliminarily basis, the demand was greater that the supply. In theory, the tourism demand should be equal to or less than the supply (StatsSA, 2018D).

This issue is a result of the treatment of tourism-related products in both Table 1 and 2. The tourism expenditure also had double counting issues since the tourism surveys do not account for economic leakages nor can the survey results be seen as accurate because they are based on tourist perceptions, as stated by Baggio (2018). In addition, the supply figures for the region could be underestimated because Table 2 was constructed from a regionalised national account, which does not necessarily consider the actual structure of the study area's economy (Miller & Blair, 2009).

This study used the based assumption that supply is fixed and that demand needs to be redefined (Grobler, 2019). After the application of economic leakage literature, the demand was reduced to a more consistent ratio relationship to supply, which yielded comparable results with national ratios (Garrigós-Simón *et al.,* 2015).

5.3 LIMITATIONS AND RECOMMENDATIONS

The TSA is an internationally recognised and relatively standardised approach used to determine the direct economic impact of the tourism sector (Klytchnikova & Dorosh, 2012). The main concerns with using the TSA method is that it is very data-hungry and it is seen as a static approach (Baggio, 2018). From the findings, it is evident that the use of the TSA at regional level might not be appropriate for the study area due to the lack of appropriate data.

5.3.1 **Limitations**

Data limitations were experienced in all RTSA studies conducted in developed and data rich countries (Laimer, 2012; Frechtling, 2012; De Maesschalck & Weekers, 2014; Zhang, 2018; Desjardins, 2018). It is assumed that these data limitations would be even more prominent in emerging and data poor countries such as South Africa (NathPandey & Singh, 2013; Karuaihe *et al.*, 2015).

This study set out to determine if an RTSA can be constructed from existing data in a case study area by using a top-down approach. The importance of this approach is that it should be replicated in other regions in South Africa and be developed into an interregional tool (United Nations, 2013). As seen from the findings, this method required multiple assumptions to construct an RTSA for the case study area. These limit the applicability of the method in a data poor country where the tourism demand and supply data at regional level is unreliable in terms of sample size and appropriateness defined in the international RTSA requirements (Grobler, 2019). This led to a reduction of tourism-characteristic products from ten to five and the construction of only three tables that yielded the internal tourism consumption, the gross value added of the tourism industries, and the tourism direct gross value added. Overall, this reduced the input requirements for the RTSA.

Another limitation for the study was the use of a single region, because the researcher could not test the interregional application of the methodology. The study tested the data appropriateness of a more developed region in South Africa to understand the application of an RTSA. Since there are already data challenges identified in this region, similar data challenges would be experienced in other regions. The main issue that would influence the use of this methodology for all regions is the application of interregional trade and economic leakages (Lacher & Nepal, 2010; Nunkoo, 2015).

5.3.2 **Recommendations**

The lessons learned through this study prompt various recommendations for data restructuring and provisioning in order for South Africa to be able to construct an RTSA in line with international standards (United Nations, 2013). Whether a top-down or bottom-up approach is to be followed, provision should be made for official regional accounts with digit-level 3 for all regions. If the supply-side is deemed as accurate and recognisable by policymakers, the estimate of tourism contribution to the regional economy will be credible and comparable (Dwyer *et al.*, 2007). From a demand perspective, the data available at regional level needs to be redefined, particularly in terms of expenditure pattern reporting. The data sources provided by StatsSA and SAT should be realigned to report to the output of the national TSA and provide similar expenditure information at a regional level.

In addition to these core recommendations, it would be advisable that a monthly tourism business survey that is representative of the sector be conducted at regional level to yield more localised results for tourism intermediary and output expenditure (NathPandey & Singh, 2013; Arcoca *et al.,* 2016). This will provide the opportunity to apply a hybrid approach. However, it is important that the data collected must be comparable across a variety of sites or regions to ensure the applicability of this approach at a national implementation level (Jones *et al.,* 2014). There is also the possibility to use this study to supplement the development of a Tourism Economic Account (Jean-Pierre & Perrain, 2016), which is a less complex accounting method with the same principles as the TSA.

Another limitation to overcome is the static nature of the RTSA, since it only provides the direct economic impact of the tourism sector at a specific period and does not track changes in the sector or indirect impacts (Baggio, 2018). Further research into this field shows the extended scope of the TSA by applying IO, SAM or CGE modelling to better quantify the impact of the tourism sector on the broader economy (Comerio & Strozzi, 2019).

Another opportunity would open up if an environmental accounting leg were to be incorporated into the TSA. This would assist policymakers to apply sustainability principles to their decision-making process (Jones *et al.,* 2014).

5.4 CONCLUSION

This study tested the construction of an RTSA, as endorsed by the UNWTO (2013), in an emerging and data poor country. The construction of an RTSA can be done through a top-down or bottom-up approach (Jean-Pierre & Perrain, 2016; Song *et al.,* 2012; Pham *et al.,* 2008; Fletching, 2008). Both approaches are grounded in empirical studies using either primary and secondary or mixed data collection and analysis methods. The top-down approach is the more common method used in literature since it is more cost effective, utilises existing resources and allows for national level and interregional comparisons (Frechtling, 2012).

Taking these aspects into consideration, the researcher applied a top-down approach in order to determine the appropriateness of the secondary data available in South Africa in the context of constructing an RTSA for a region. Even though the researcher was able to construct an RTSA, the data limitations experienced and assumptions required brought forth various recommendations regarding data challenges that need to be addressed in order for South African policy-makers to successfully extend the national TSA to a regional level (Grobler, 2016). A study such as this illustrates the current gaps in tourism statistics in South Africa (Karuaihe *et al*., 2015). However, UNWTO (2013) cautions against the use of the RTSA, as it is critical that it maintains its integrity as per the TSA framework. In conclusion, emerging tourism destinations would need to use alternative methods to construct an RTSA that would be deemed less accurate but still adequate for policymakers decision-making processes.

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ANNEXURES

ANNEXURE A: PERMISSION TO USE DATA

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Economic and Management Sciences

Dept. of Tourism Management

Research conducted by:
Ms. C. Du Plessis
Student number: 11004381
Contact details: 0824543407
chanel@urban-econ.com

Re: Permission to use and process statistical data

TITLE OF STUDY: CONSTRUCTING A REGIONAL TOURISM SATELLITE ACCOUNT FOR A DEVELOPING COUNTRY

Your institution is being approached to participate in an academic research study conducted by Chanel du Plessis, a Master student from the Department of Tourism Management at the University of Pretoria. The purpose of the study is to replicate the technical aspects of a previous study conducted in international literature to develop a tourism satellite account at a regional level for South Africa.

The study requires data relating to the Supply and Use Tables, Input-Output Tables at a national and regional level. If the relevant information is available, the researcher requests permission from the institution to process the data for the study.

The following terms apply for the data use:

(1) that the information will be used for academical purposes, only;

(2) that the study will provide reference to Quantec EasyData where ever the data is used;

(3) that the researcher will not share the data in any format.

The results of the study will be used for academic purposes and may be published in an academic journal. The researcher will provide the institution with a summary of our findings on request.

Please contact my supervisor, Dr. E. du Preez at elizabeth.dupreez@up.ac.za if you have any questions or comments regarding the study.

Herewith, I, Chanel du Plessis, agree to the terms state above regarding the use of Quantec's data for the study.

Signature: C du Plessis

Date: 12/03/2019

Research conducted by:
Ms. C. Du Plessis
Student number: 11004381
Contact details: 0824543407
chanel@urban-econ.com

Re: Permission to use and process tourism research data

TITLE OF STUDY: CONSTRUCTING A REGIONAL TOURISM SATELLITE ACCOUNT FOR A DEVELOPING COUNTRY

Your institution is being approached to participate in an academic research study conducted by Chanel du Plessis, a Master student from the Department of Tourism Management at the University of Pretoria. The purpose of the study is to replicate the technical aspects of a previous study conducted in international literature to develop a tourism satellite account at a regional level for South Africa.

The study requires statistics relating to international, domestic and outbound tourism per province in South Africa. The following statistical information on international and domestic tourism in a province is required:

- Number of trips and overnights by forms of tourism and classes of visitors.
- Average expenditure per day/trip per traveller for accommodation, restaurants and related services, passenger transport services (transport), travel agencies and similar services, cultural activities, sport and recreational services, shopping, and others.
- Modes of transport.
- Number and type of establishment.
- Average number of jobs per establishment type.

If the relevant information is available, the research requests permission from the institution to process the data for the study.

The results of the study will be used for academic purposes only and may be published in an academic journal. We will provide you with a summary of our findings on request.

Please contact my supervisor, Prof. B. Lubbe at berendien.lubbe@up.ac.za if you have any questions or comments regarding the study.

I, LATEGAN MARAIS (Name and Surname) give consent, in relations to WESGRO (Institution Name), to the researcher to use the above stated data for the study.

Signature: _____ Date: 27/09/18

Research conducted by:
Ms. C. Du Plessis
Student number: 11004381
Contact details: 0824543407
chanel@urban-econ.com

Re: Permission to use and process tourism research data

TITLE OF STUDY: CONSTRUCTING A REGIONAL TOURISM SATELLITE ACCOUNT FOR A DEVELOPING COUNTRY

Your institution is being approached to participate in an academic research study conducted by Chanel du Plessis, a Master student from the Department of Tourism Management at the University of Pretoria. The purpose of the study is to replicate the technical aspects of a previous study conducted in international literature to develop a tourism satellite account at a regional level for South Africa.

The study requires statistics relating to international, domestic and outbound tourism per province in South Africa. The following statistical information on international and domestic tourism in a province is required:

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- Modes of transport.
- Number and type of establishment.
- Average number of jobs per establishment type.

If the relevant information is available, the research requests permission from the institution to process the data for the study.

The results of the study will be used for academic purposes only and may be published in an academic journal. We will provide you with a summary of our findings on request.

Please contact my supervisor, Prof. B. Lubbe at berendien.lubbe@up.ac.za if you have any questions or comments regarding the study.

I, Neesha Pillay (Name and Surname) give consent, in relations to SA Tourism. (Institution Name), to the researcher to use the above stated data for the study.

Signature: Pillay

Date: 29/11/19.

ANNEXURE B: SIC CODES

The table below maps out the SIC codes used to construct the national SUT and the national TSA, how it correlates with the requirements of an RTSA and the data provided by Quantec (GVA and Output per region).

SIC Code Mapping

Division	Group	Class	Description	National TSA	RTSA	Quantec
47			Retail trade, except of motor vehicles and motorcycles	7 -Retail trade of tourism connected goods	7 - Retail trade of tourism connected goods	Wholesale and retail trade [QSIC 61-63]
	471		Retail sale in non-specialised stores	*Retail sales of textiles, clothing, footwear and leather goods*		
	472		Retail sale of food, beverages and tobacco in specialised stores	*Retail sales of food, beverages and tobacco*		
	474		Retail sale of other household equipment in specialised stores	*Retail sales of household furniture, appliances, articles and equipment*		
	476		Retail sale of other goods in specialised stores	*Retail sales of automotive fuel Retail sales of pharmaceutical and medical goods, cosmetic and toiletry articles*		
49			Land transport and transport via pipelines	3 - Passenger transport services	3 - Passenger transport services	Transport and storage [QSIC 71-74]
	491		Transport via railway	3.1 - Railway passenger transportation services		
		4911	Passenger rail transport, interurban			
	492		Other land transport			

Division	Group	Class	Description	National TSA	RTSA	Quantec
		4921	Urban and suburban passenger transport	3.2 - Road passenger transportation services		
		4922	Other passenger land transport (Taxi, bus, others)			
50			Water Transport	3.3 - Water passengers transportation services		
	501		Sea and coastal water transport			
		5011	Sea and coastal passenger water transport			
	502		Inland water transport			
		5021	Inland passenger water transport			
51			Air transport	3.4 - Air passenger transportation services		
	511		Passenger air transport			
52			Warehousing and support activities for transportation	3.5 - Transport equipment rental		
	522		Support activities for transportation			
		5221	Service activities incidental to land transportation			
		5222	Service activities incidental to water transportation			
		5223	Service activities incidental to air transportation			
		5529	Other transportation support activities			
55			Accommodation	1 - Accommodation services	1 - Accommodation services	Catering and accommodation services [QSIC 64]
	551		Short term accommodation activities	1.1 - Hotels and other accommodation services for visitors other than 1.2		
	552		Camping grounds, recreational vehicle parks and trailer parks			

Division	Group	Class	Description	National TSA	RTSA	Quantec
	559		Other accommodation			
56			Food and beverage service activities	2 - Restaurant and similar	2 - Restaurant and similar	
	561		Restaurants and mobile food service activities			
	562		Event catering and other food service activities			
	563		Beverage serving activities			
79			Travel agency, tour operator, reservation service and related activities	4 - Travel agencies and similar	4 - Travel agencies and similar	Professional business services [QSIC 831-883]
	791		Travel agency and tour operator activities			
	799		Other reservation service and related activities			
90			Creative, arts and entertainment activities	5 - Cultural services	5 - Cultural services	Health and social work (museums, libraries, other public spaces) [QSIC 93]
	900		Creative, arts and entertainment activities			
91			Libraries, archives, museums and other cultural activities			
	910		Libraries, archives, museums and other cultural activities			
92			Gambling and betting activities			
	920		Gambling and betting activities			
93			Sports activities and amusement and recreation activities	6 - Sports and recreational services	6 - Sports and recreational services	
	931		Sports activities			
	932		Other amusement and recreation activities			

Source: StatsSA (2012), StatsSA (2018D) & Quantec (2018)