Critical assessment of economic impact analyses at selected national festivals

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ABSTRACT

CRITICAL ASSESSMENT OF ECONOMIC IMPACT ANALYSES AT SELECTED NATIONAL FESTIVALS

Festivals have become a global phenomenon and now serve as a platform to promote the leisure and tourism industry within a nation. These events have an undisputed economic effect – not only on the hosting community – but also on the global community. Despite the encouraging community support and the socio-economic impact and spin-offs that are generated by means of such events, the financing of art festivals remains an intricate issue. The fact remains that not all festivals are financially self-sustainable and so require extensive sponsorship in order to ensure the continuation of the event. Limited government funding available due to budget constraints curbs the financial support forthcoming from municipalities and so forces event organisers to seek alternative funding to ensure the survival and feasibility of events. This responsibility places an additional burden on event organisers and so necessitates the use of assessment tools in order to convince private and public institutions or individuals to invest in such events through sponsorships.

During an extensive literature study, it became apparent that the need exists to re-assess fully the economic impact analysis of events. The literature revealed that varying models are used to conduct economic impact analyses. In order to establish a concise framework within which to conduct an economic assessment, it was decided to select only the most-used models – Computable General Equilibrium (CGE), Input-Output (I-O) and Social Accounting Matrix (SAM). The dilemma facing tourism economists is to determine which economic assessment approach is most effective as every methodology has its own advantages and disadvantages. In addition, the type and size of an event also plays a fundamental role when selecting an appropriate measuring tool. This research was further motivated because of the existing gap that exists in the South African context for no study has yet been conducted where the various models that assess economic impact have been applied to the collated data of the same event. This study thus aims to provide an overview and a comparison of competing and supplementing methodologies for modelling the regional economic dynamics and the impacts of events. It further investigates the manner in which regional CGE, I-O and SAM based (multiplier) models operate towards capturing the region-specific, inter-regional and multi-regional production, consumption and factor market patterns as result of expenditures incurred during events. An analysis of the virtues and the limitations of these economic assessment methodologies

suggests that it may be the considerations such as the data collection/compilation, expected output, research objectives and costs involved that ultimately determine the choice of a specific modelling framework.

While addressing the problem stated above, this study produced the following three articles that are now embodied in the work:

- Article 1 - “Critical assessment of economic impact analyses of the ABSA Klein Karoo National Arts Festival”, and
- Article 2 - “Critical assessment of economic impact analyses of the Aardklop National Arts Festival”.

Article 2 investigated and compared the economic assessment results when applying specific constructed models, being the Social Accounting Matrix (SAM) and Computable General Equilibrium (CGE) for the appropriate provinces, to the available data obtained from previous surveys conducted at the 2010 ABSA Klein Karoo National Arts Festival and from the Aardklop National Arts Festival. The two articles indicated that when different models of assessment are applied to the same data set of an event, the economic impact results might differ significantly. This may serve as a warning to economic assessors, academics and researchers that economic impact results can be misleading and therefore the application thereof should be handled with the utmost care in order to avoid misinterpretations and misconceptions.

- Article 3, “Assessing the economic impact of the Aardklop National Arts Festival: a feast of models to opt for – or not?”

In this article, data from a visitor and business survey conducted at the 2010 Aardklop National Arts Festival was used in the analyses made by applying SAM, CGE and I-O regional models constructed for South Africa’s Northwest Province. Results from these analyses were then compared in order to give researchers and practitioners a better insight and clarity regarding which approach works best for the economic assessment of an arts festival. This article highlighted the fact that the measured economic impact results differ when various models that are applied to the same event. It also became evident that the most conservative economic impact was measured by an I-O model, followed with a higher SAM measurement, while CGE revealed the highest economic assessment.

The most significant contribution of this study is embedded in the fact that within the South African context – and even globally – it is the first study of its kind that aimed to determine the economic impact by means of applying more than one assessment model to the data set of a single event. Further, this study provides guidelines for event organisers, academics and economic advisors to follow in conjunction with the existing body of knowledge and practical implementation structures when assessing the economic impact of events.

Keywords:
Event Tourism, ABSA Klein Karoo National Arts Festival, Aardklop National Arts Festival, Regional CGE modelling, Input-Output, Social Accounting, Multiplier Analysis, Oudtshoorn, Potchefstroom

OPSOMMING

‘n KRITIESE ASSESSERING VAN EKONOMIESE IMPAK ANALISES VIR GESELEKTEERDE NASIONALE FEESTE

Die gewildheid van feeste het tot ‘n globale verskynsel ontwikkel en dien as ‘n nasionale platform om die ontspannings- en toerismebedryf ten toon te stel. Hierdie feeste het ‘n onbetwiste ekonomiese effek – nie slegs op die ekonomie van die plaaslike gemeenskap wat dit aanbied nie, maar selfs op ‘n wyer ekonomiese vlak. Ten spyte van volgehoue ondersteuning deur feesgangers, blyk dit dat die meeste feeste nie finansieël self-onderhoudend is nie en moet derhalwe toenemend steun op borgskappe ten einde hul bestaan te verseker. Die beperkte of selfs staking van finansiële ondersteuning vanaf plaaslike owerhede aan feeste kan toegeskryf word aan die voorkeur wat sosiale opheffingsprojekte tans geniet. Feesorganiseerders wend hul toenemend tot die aanwending van assesseringmodelle in ‘n poging om individue en organisasies te oorreed om in feeste te belê deur middel van borgskappe. In ruil hiervoor bied die fees aan die borge wye blootstelling en geleetheid om hul handelsmerke te bevorder.

Na ‘n omvangryke literatuurstudie blyk dit dat ‘n noodsaaklike behoefte bestaan om ‘n volledige assessering van ekonomiese impakstudies van feeste te onderneem. Die literatuur toon verder dat verskeie modelle gebruik word om die ekonomiese impak van feeste te assesseer. Ten einde ‘n verwysingsraamwerk vir hierdie studie saam te stel, is besluit om die mees populêre assesserings modelle: *Computable General Equilibrium (CGE), Input-Output (I-O) en Social Accounting Matrix (SAM),* as teoretiese begronding aan te wend. ‘n Probleem wat feesorganiseerders en ekonome in die gesig staar is die keuse tussen die verskeidenheid assesseringmodelle wat beskikbaar is ten einde die ekonomiese impak van feeste te bereken, aangesien elke model oor unieke voor- en nadele beskik. Die probleem word verder bemoeilik deurdat die aard en grootte van die fees bepalend is tot die keuse van ‘n spesifieke model. Hierdie navorsing word ook gemotiveer deur die bestaande gaping wat in die Suid-Afrikaanse konteks bestaan, aangesien geen vorige studie onderneem is waartydens verskeie ekonomiese assesseringsmodelle toegepas is op die versamelde data van ‘n enkele fees nie. In die lig hiervan het hierdie studie ten doel om ‘n oorsig en vergelyking tussen kompeterende en ondersteunende metodologie te ondersoek met inagneming van die dinamika van die streeksekonomie en impak van feeste. Na aanleiding van die uitgawes aangegaan tydens die aanbied van ‘n fees, word streek-spesifieke, inter-streek en multi-streek produksie verbruik en marktendense bereken deur aanwending van *CGE*, *I-O* en *SAM* modelle wat gebasseer is op die vermenigvuldigereffek. Die keuse vir aanwending van ‘n spesifieke assesseringsmodel mag

beïnvloed word deur die metode van data insameling of data samestelling, verwagte uitsette, navorsingsdoelwitte en kostes.

Die bovermelde probleem word in hierdie studie aan die hand van die volgende drie artikels aangespreek:

- Artikel 1: “Critical assessment of economic impact analyses of the ABSA Klein Karoo National Arts Festival” en
- Artikel 2: “Critical assessment of economic impact analyses of the Aardklop National Arts Festival”.

In hierdie artikels word die ekonomiese impak resultate ondersoek en vergelyk nadat die data, wat bekom is tydens die 2010 ABSA Klein Karoo Nasionale Kunstefees en Aardklop Nasionale Kunstefees, onderwerp aan *SAM en CGE* modelle wat onderskeidelik vir die Wes-Kaap en Noord-Wes provinsies gekonstrueer is. Die resultate van beide artikels toon duidelik wanneer verskillende modelle wat ekonomiese impak meet, toegepas word op dieselfde data van ‘n spesifieke kunstefees, die reultate wesenlik mag verskil. Hierdie bevinding behoort ekonomiese ontleders, akademici en navorsers daarop bedag te maak dat resultate van ekonomiese impakmetings misleidend mag wees. Derhalwe behoort die interpretasie van sodanige resultate en gevolglike aanbevelings met groot omsigtigheid gedoen te word.

- Artikel 3 - “Assessing the economic impact of the Aardklop National Arts Festival: a feast of models to opt for – or not?”

Hierdie artikel vergelyk die onderskeie ekonomiese impakresultate indien *SAM, CGE and I-O* modelle toegepas word op data bekom uit besigheidsopnames voltooi deur besoekers tydens die 2010 Aardklop Nasionale Kunstefees. Die resultate word vergelyk en ontleed in ‘n poging om navorsers beter insigte te gee aangaande watter benadering gevolg behoort te word tydens die uitvoer van ekonomiese impakberekeninge. Die bespreking besvestig dat die onderskeie modelle verskillende ekonomiese impakresulate lewer vir dieselfde fees. Dit blyk duidelik uit hierdie artikel dat ‘n *I-O* model die konserwatiefste ekonomiese impak meet, ‘n *SAM* model heelwat hoër meet terwyl ‘n *CGE* model die hoogste resultate meet.

Die betekenisvolste bydrae van hierdie studie is geleë in die feit dat dit die eerste studie van sy soort in Suid-Afrika (en selfs internasionaal) is wat poog om ‘n vergelyking te tref tussen die

ekonomiese impakresultate van ‘n bepaalde fees soos gemeet deur verskeie assesseringsmodelle. Hierdie studie voorsien ook riglyne vir feesorganiseerders, akademici en ekonome wat, tesame met die bestaande praktyke en modelle vir die assessering van ekonomiese impakte gevolg kan word.

Sleutelterme:
Feeste, toerisme, ABSA Klein Karoo Nasionale Kunstefees, Aardklop Nasionale Kunstefees, *Regional CGE modelling, Input-Output, Social Accounting*, vermenigvuldiger analise, Oudtshoorn, Potchefstroom

ABBREVIATIONS AND ACRONYMS

Aardklop	Aardklop National Arts Festival
CBA model	Cost-Benefit Analysis model
CGE model	computable General Equilibrium model
GDP	Gross Domestic Product
I-O model	Input-Output model
KKNK	ABSA Klein Karoo National Arts Festival
MGM	Money Generation model
ROI model	Rate On Investment model
SAM model	Social Accounting Matrix model
SCM	Supply Chain model
SMC model	Sector Mapping Chain model
SPSS	Statistical Package for Social Science

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INTRODUCTION AND PROBLEM STATEMENT

1.1 Introduction

Festivals date back over centuries. The Policy Studies Institute (1992:1) describes early festivals as traditionally, a time of celebration, relaxation and recuperation that often followed a period of hard physical labour; for example, the sowing or harvesting of crops. The main objective of those festivals was to celebrate or reaffirm the culture of the community and habitually contained a variable degree of artistic performances. Many early festivals had religious or ritualistic components, together with music, dance and drama that featured as an important aspect of the celebrations. It is believed that the first festival took place in Athens in 534 B.C. (HOLND FSTVL, as quoted by Quinn, 2005:6) in honour of the god Dionysus, the patron god of wine, feast and dance. Indeed, the first Olympic Games held in 77 B.C. are commonly cited as the earliest example of a special event (Jago & Dwyer, 2006:1).

Many European countries boast long-standing and culturally rich traditions. In the United Kingdom, art festivals became popular during the early twentieth century. Thereafter they expanded through Europe and eventually became a global phenomenon (Bowdin & Williams, 2007:188). Schoombie (2003:10) reports that by 2003, more than 1,2 million international arts and cultural festivals were already listed on the internet. It seemed that festivals that cater for diverse preferences, languages and cultures were to become yet more popular. Even currently, the media frequently announces the launch of new festivals. Festivals have, undoubtedly, an increasingly significant effect on the leisure and tourism industry that is characterised by a significant economic impact - not only on the hosting community, but also on the global community.

In contrast to the long history of arts festivals found abroad, the local South African tourism sector has emerged only over the past four decades. In 1974, the first national arts festival in South Africa was held in the small Eastern Cape town of Grahamstown. The success of this festival served as a foundation for other national festivals, such as the ABSA Klein Karoo National Arts Festival (hereafter referred to as KKNK) in Oudtshoorn, the Aardklop National Arts Festival (hereafter refer to as Aardklop) presented in Potchefstroom and the Innibos National Arts Festival in Nelspruit.

Numerous and wide-ranging reasons have been proffered as motivations for organising and presenting a festival or event. Some reasons identified by Uysal, Gahan and Martin (1993:6-8) include those of creating a positive image of the local area in which the event is presented, thereby contributing to sustainable development, encouraging an improved host-guest relationship, assisting in preserving natural, social and cultural environments, and also to channel income into the local economy. Mayfield and Crompton (1995:37) identified the main reason for hosting an event as an opportunity to obtain a good financial return on invested resources. Derrett (2005:5) believes that festivals are developed in an industry sector with market viability that perform as an employment provider. Saayman and Saayman (2004:629) add that festivals also serve as a marketing tool because they can create an economic demand during off-season periods. Festivals have considerable social benefits that include aspects such as the generation of income. This may further result in the:

- enhancement of community pride and moral fibre that direct the strengthening of traditions and values;
- encouragement of greater public participation due to personal identification with the theme of an event;
- adoption of new social patterns or cultural practices through exposure at an event;
- increase of marketing opportunities and benefits that include branding and the creation of a positive image;
- improvement of volunteerism and community activity; and
- reinforcement of intercultural interactions and co-operation.

The impact of an arts event is not limited to arts-related factors only. Often, the effect on non-artist factors, including local, regional and national economics, is under-estimated. In order to ensure the sustainability of a festival, Derrett (2005:11) emphasises the importance of a partnership and collaboration between the various key stakeholders, such as artist and non-artist. He identifies various key stakeholders which could include any or all of the festival

organisation committee, the local business community, individual community champions, sponsors, special interest groups (local, regional, national and international), regional alliances, performers and suppliers, the hosting community, residents, regional and local media, visitors, volunteer co-workers, local or other universities, local government, and state or provincial government. An arts festival presents a town or region with much more than mere entertainment. Art festivals unmistakably fulfil certain significant economic functions - this perception serves as the basis for the study.

The aim of this chapter is to provide details with regard to the research processes that will be followed during the study. After centralising the problem statement of this study, a brief description of the desired goal, methodology utilised, and clarification of the concepts will follow. Finally, and in conclusion, a classification of the chapters will be given.

1.2 Problem statement

According to Snowball and Antrobus (2003:8), the matter of public support for the arts is a contentious issue in most countries, but more so in developing countries because of the heavy demands that are placed on the public purse of these countries. The roles and responsibilities of national government, local authorities and the private sector, with regard to rendering support to the tourism industry, seem to have changed during the last decade.

Raj (2003:1) states that even though local governments were primarily responsible for tourism and regional promotion, the public sector became obliged to invest in itself and so relieve provincial and local authorities of their traditional responsibilities and activities. In the context of the South African Government's socio-economic upliftment programmes, functioning within a restricted budget, it becomes an imperative that taxpayers' funds should be appropriately allocated towards priority projects such as housing, health care and education. Event and festival organisers, seen as having a much less urgent demand on the public purse, are therefore compelled to secure alternative funding sources such as private or corporate sponsors, donors and public contributions.

In order to justify this financial support towards community festivals, the private and public sectors require a certain degree of exposure and active participation during such events. The corporate sector therefore requires an estimated return on investment in order to approve sponsorships. The public sector also needs to justify any backing in the form of financial

assistance. According to Bowdin and Williams (2007:188), it is for these reasons that event evaluation through conducting quantifiable economic impact studies became a valuable tool to demonstrate an event's success and the achievement of objectives. It is important to note that impact studies seeking to assess and measure non-profit organisations, such as arts festivals, differ from those that aim to examine profit driven organisations. Certainly, a profitable set of financial statements will rank much lower on an arts festival management's priority list as event organisers regard community development and the accompanying social and economic benefits as being of greater importance. Crompton, Lee and Shuster (2001:79) state that economic impact studies aim to measure the economic return to residents, and so to estimate the magnitude of the return to the community. They admit that traditional financial records provide evidence of aspects such as fiscal accountability, document expenditures, income made and received, as well as confirmation of responsible stewardship of public funds — but they criticise these financial records for not reflecting the broader issue of what the community residents receive in return for the investment of tax funds. In order to address this shortcoming, economic impact studies serve as a vital supplement to financial statements. Even so, economic impact studies are sometimes regarded as an inexact process. The application of complex procedures in order to produce quantifiable outcomes is, for the most part, regarded as a best guess, rather than being inviolably accurate. The nature of those studies that were conducted varied from those with low cost budgets and limited staff skills that focus only on small festivals, to sufficiently funded endeavours with professionals appointed to conduct meticulous research at major events.

Perhaps due to these variables, criticism toward the integrity of analysis and the outcomes of economic impact studies is on the increase. Although many economic impact assessments are indeed completed with integrity, Crompton (1999:17) is of the opinion that there are numerous examples of researchers and consultants who have yielded to the temptation to adopt inappropriate procedures and assumptions in order to record high economic impact results. The intention with such practices is to position an event more favourably in the mind of taxpayers, elected officials and politicians in the hope of sustaining, or even increasing, the resources previously allocated. Comments such as ”They are, in truth, the exact equivalent of an expert witness in a lawsuit who comes to testify in support of the side that is paying the expert's bill” and, ”The fees for the study are like a religious tithe paid to a priest to come bless the endeavour” are quoted by Crompton to confirm this opinion.

Crompton's (1999:13-14) research reveals a regrettable incident where two independent tourism agencies were requested to evaluate the same event. Their reports contained disparate data resulting from the different approaches used for accounting for the use of public funds. Crompton is of the opinion that several underlying assumptions were made during the survey that had a substantial impact on the results. Whether these errors were made due to a genuine lack of understanding of the principles and procedures of an economic impact analysis, or were deliberately stated in order to generate a better picture, is somewhat immaterial. The result of either error is that the stakeholders were misled.

Snowball and Antrobus (2003:3) agree with Seaman's (2000:269) criticism against distorted impact reports. The belief is that economic impact assessments often produce inflated indirect economic effects because of wishful thinking or even because of double accounting. Seaman (2000:270) points out that, "Arts proponents are involved in a dangerous game when they resort to impact studies. In a sense, they are choosing to play one of their weakest cards, while holding back their aces." Proponents are criticised for not distinguishing between resources reallocated within a given community from those generated outside. Seaman believes that the positive externalities or spillover effects provided by the arts to society should be used as motivation for public support, rather than the frequently cited economic benefits.

In their study to determine the economic value of the 2010 Soccer World Cup, Saayman and Rossouw (2008:1) criticise previous research attempts as being limited in focus and preoccupied with what should be included in an economic impact assessment. Most previous researchers conducted assessments that resulted in exaggerated outcomes having no consideration for aspects such as crowding out or substitution. Kelly and Kelly (2000:8) are of the opinion that it is of the utmost importance that all parties using results derived from the application of instruments intended for measuring economic impact should be familiar with both the strengths and the weaknesses of the specific instrument used. They must equally be comfortable with them. When applying specific instruments, it must be kept in mind that the measuring instruments in use at the time could have been applied to promote a specific outcome and may therefore be misleading, while others may be outdated, inadequate or have serious limitations.

Dwyer, Forsyth and Spurr (2004:308) support this view and deliberate on some specific problem areas. They are of the opinion that when using Input-Output models (I-O models), for example, the increase of economic activity associated with some tourism expenditure estimates change

by direct calculation of the increase in output and the addition of extra output in related industries, perhaps, the supplier industries. The assumption is made that resources such as labour, land and capital flow freely to the tourism and related industries. It is presumed that these resources are not used elsewhere, do not come from other industries and do not result in reductions in output elsewhere. By applying such I-O models and multiplier techniques, only positive influences will be taken into account while ignoring all the negative influences. Dwyer *et al.* (2004:308) also argue that I-O models seem to be an interim measurement tool, and that even though the general equilibrium effects of change were recognised when applying these models, it was not possible to handle them in empirical models. On the other hand, the application of readily available Computable General Equilibrium (CGE) models, which are both workable and flexible, allows for presentation of the total economy together with explicit recognition of resource constraints and feedback effects.

A thorough review of the literature brought to light that various methods of assessment and measurement have been applied in international studies seeking to examine the economic impact of events. Some of the most popular models used in these surveys include the I-O model as conducted, for example, by Bryan, Hill, Munday, Roberts and Clarke (1998), the Welsh Economy Research Unit and DCA (Cardiff) (1998), Bryan, Hill, Munday and Roberts (2000), Crompton and Lee (2000), Snowball (2000). Crompton, Lee and Shuster (2001), Brown, Var and Lee (2002), Chang (2002), Stynes (2002), West and Bayne (2002), Hill Strategies (2003), Lynch and Harrington (2003), the California Arts Council (2004), Clark, Grainger and Jaffry (2004), Daniels, Norman and Henry (2004), Arik and Penn (2005) all contributed to the field. Similarly, Milne, Dickson, McElrea and Clark (2005), SQW Limited and TNS Travel and Tourism (2005), Tohmo (2005), IRIS Group, Wendy, McDonald Associates and JP Consulting (2006), Borges (2007), Çela, Knowles-Lankford and Lankford (2007), Measells and Grado (2008), Silva, Mann and Daniel (2008), Saayman, Saayman and Ferreira (2009) and the Sundance Institute (2009) all made important inputs to the literature.

The Social Accounting Matrix (SAM) model, was used as an economic assessment instrument by Edmiston and Thomas (2004), Wagner (1997), Saayman, Rossouw and Saayman (2008), as well as Rivera, Hara and Kock (2008).

Another popular model, the CGE model, was applied by many researchers such as Adams and Parmenter (1995), Narayan (2004), URS Finance and Economics (2004), Blake (2005), PricewaterhouseCoopers (2005), Dwyer, Forsyth and Spurr (2006a and 2006b), Bohlmann and

Van Heerden (2008) and by Saayman and Rossouw (2008). Comprehensive lists of various models that focus on ways of assessing the economic impact of events were identified during an extensive literature study and are presented in Addendum A.

In order to comprehend fully the functionality, application, advantages and limitations of the various models that are utilised in surveys, it is imperative to have a clear understanding of the basic flow of money during an event. Figure 1.1 portrays an overview of money flow within a local economy during the presentation of an event.

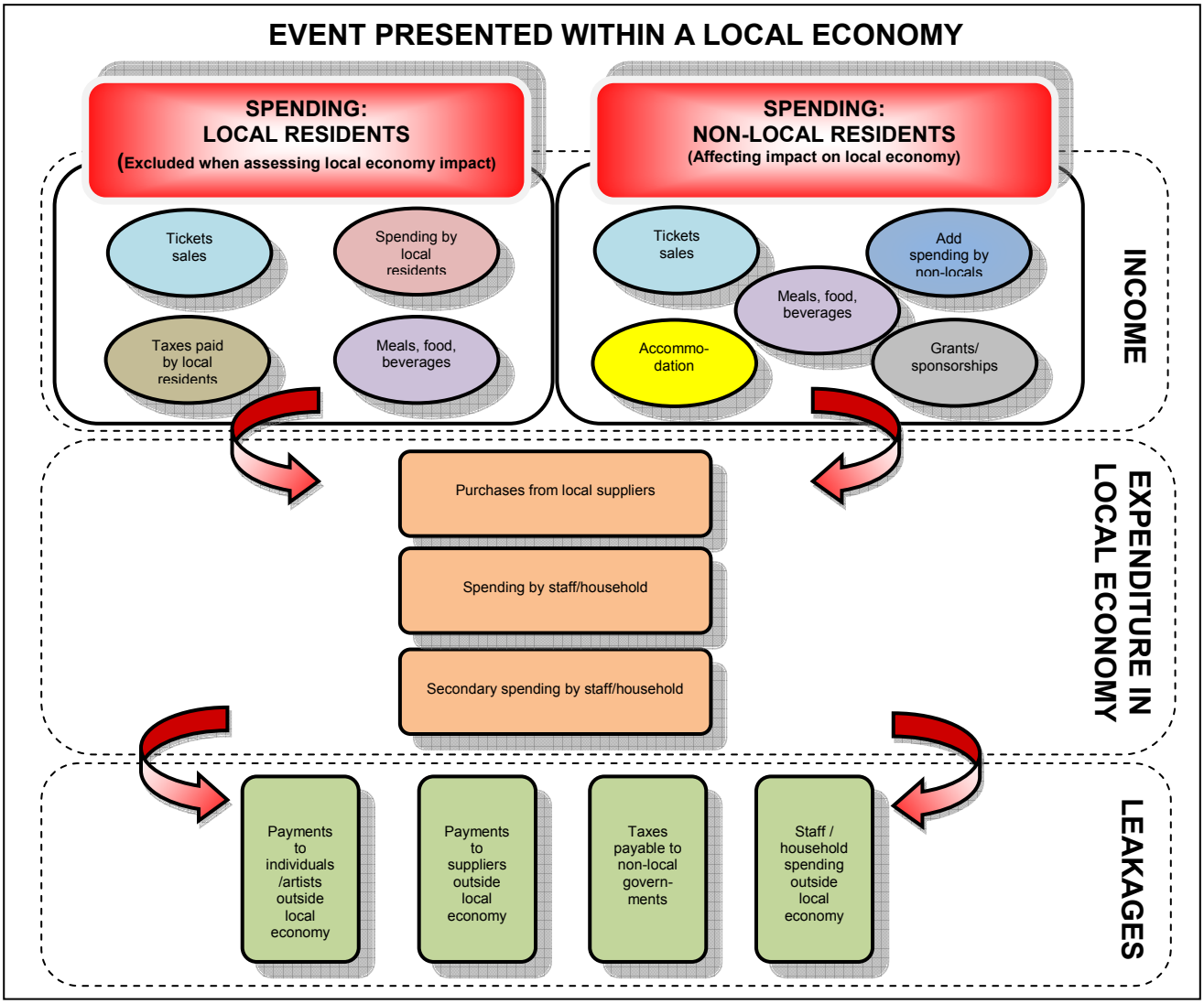


Figure 1.1: The flow of money within a local economy during an event

Source: Adapted from Broomhall (s.a., p. 2), Crompton (1999, pp. 15, 21), Anon (2004, p. 8)

According to Crompton *et al.* (2001:81), four fundamental principles should be adhered to in order to ensure the integrity of an economic impact study. Abusing one or more of these principles will signify a mischievous manipulation of the analysis. These controlled principles are attributed to events after assessment thereof in order to lure investors from outside the community while local residents are excluded. In view of this *caveat*, some out-of-town visitors should also be excluded from such a study. Time switchers, being non-local spectators who planned a visit in the vicinity of the ongoing festival, but altered the time of the visit to coincide with the event, as well as casuals who can be defined as non-local visitors who are already in town and choose to attend the event instead of doing something else, should also be excluded when determining an economic impact.

Crompton *et al.* (2001:81) are also of the opinion that the use of sales (output) as criteria to measure economic impact does not offer significant insights in order to formulate meaningful guidelines with regard to policy-making. Indeed, Raj (2003:5) promotes the principle that measurement of the effect that additional visitor spending has on the personal income of residents within the hosting community serves as a more useful indicator, and contributes to the integrity of the economic impact study.

Although various indicators can be used to express economic impact, Crompton *et al.* (2001:81) maintain that applying indicators will require the use of the multiplier concept. This concept implies that when non-local residents attend an event, their initial direct expenditures stimulate economic activity and create additional business turnover, personal income, employment opportunities and government revenue within the hosting community. The process of job creation and income generation will continue, if some portion of spending remains within the local economy. Multiplier users are nonetheless warned to be cautious when interpreting employment multipliers. The various models in use do not always distinguish between full-time and part-time jobs, while assuming that employees are fully occupied and will be unable to handle additional guests. This assumption may be false because of existing staff that may be underemployed. Furthermore, the conception that only local residents will be appointed in new job vacancies may also be flawed.

Broomhall (s.a.:4) identified various manners in which multipliers are exploited. Sometimes the size of the multiplier is altered and this may cause a restructuring of the economy when substantial changes occur. In such instances, multipliers may be largely under- or over-stated.

When changes occur for shorter periods, when arts festivals have visitors from various places of origin, the multiplier may be too large due to induced effects that were included by error.

Snowball and Antrobus (2003:2-7) confirm that although economic impact studies have been successful in determining the value of goods and were able to provide a quantifiable monetary estimate of worth at, for example, arts festivals, many appear to be flawed having methodological pitfalls. These pitfalls include errors such as defining the area of study, including local spectators, time switchers and casuals, determining the size of multipliers and employment multiplier. In addition, Johnson and Sack (1996:374) include errors such as ignoring leakages, failing properly to calculate costs associated with the event and applying an inflated multiplier.

According to the study done by Chang (2002:1) at the Center for Business and Economic Research, Mitchell College, at the University of South Alabama, the impact estimation should be limited to the expenditure of out-of-town guests whose primary intention is to attend the festival. All expenditures made by local and out-of-town attendees who visited the festival area for reasons other than attending the festival (such as attending business meetings, conferences or visiting friends and relatives) should be excluded. Once appropriate assumptions have been defined and justified, the total expenditure impact can be obtained by multiplying the appropriate multiplier with the total direct expenditures.

Crompton *et al.* (2001:79-81) illustrate the conceptual rationale for undertaking economic impact studies. This logical reasoning is that residents within a community pay levies, in the form of taxes, to local governments (municipalities). A portion of these taxes is used to subsidise the production of an event or is used for developing a facility. The event or facility should preferably attract non-residential visitors who will spend money in the local community (both inside and outside the event) and so generate an inflow of new money into the local economy thereby creating more income and jobs for the local residents. Thus, community residents invest the tax funds and then receive the return on their investments in the form of new job opportunities and higher household incomes. With the inflow of money in an economy, it can be expected that some will leak out again, for example, to pay for imported goods and services, in the form of tax payments to non-local government or as payments made to individuals outside the local economy.

When considering the above opinions, it becomes clear that the need exists to conduct a full re-assessment of economic impact analysis for national arts festivals. For this purpose, an

appropriate model that can be used during such an evaluation process has to be formulated and recommended. In view of the fact that existing models, such as the I-O, SAM and CGE, have several advantages and disadvantages, the decision to recommend a specific model that can universally be regarded as the most appropriate is no easy task. Accordingly, in-depth research needs to be conducted in order to ascertain the most appropriate model for the effective economic analysis of arts festivals. The literature review also reveals a gap, that in the South African context, no study has been conducted where various models that assess economic impact have been applied to the collected data of an event and compared. With this critical need in mind, the research problem of this study can be formulated as follows:

Which model (if any) is the most appropriate to assess the economic impact of the arts festivals under investigation?

The primary research question, as stated in the previous paragraph, can *inter alia* be differentiated into the following secondary or critical questions:

- What are the strengths, limitations and pitfalls of each model?
- Which existing model, if any, could be regarded as the most appropriate to assess the economic impact of national arts festivals?
- Could the model identified as the most appropriate be applied to all surveys or should specific models be applied under certain circumstances?
- Will a combination of the existing models offer a more appropriate solution?

1.3 The purpose and aims of this study

In the light of the primary and secondary research questions formulated in paragraph 1.2 above, the primary aim of this study will be **to determine whether various existing models accessing economic impact reveal different results when being applied to the same or similar selected events**. This aim will be achieved by means of a critical assessment of economic impact analyses undertaken at selected national arts festivals.

In order to conduct this research and to achieve the primary aim of this study as stated above, it is necessary to answer the following critical secondary questions. These questions can thus be translated into the following secondary aims of this study:

- To undertake a historical analysis of economic impact assessments of events;
- To determine the economic impact of the KKNK and Aardklop using the I-O, SAM and CGE models;
- To analyse the strengths and weaknesses of the I-O, SAM and CGE models when assessing the economic impacts of the KKNK and Aardklop;
- To analyse and compare the outcomes obtained when using the various models to measure the economic impact of the selected arts festivals; and
- To draw conclusions and make recommendations based on this study; specifically, which economic model seems to be the most appropriate for use in assessing economic benefits from the identified arts festivals, and to provide guidelines for the use of the most appropriate model.

1.4 Methodology

The research design for this study is based on a quantitative approach. In addition to an extensive literature study conducted for this study, primary as well as secondary data will be used. For a graphical illustration of the research methodology, refer to Figure 1.2.

1.4.1 A quantitative research approach

Quantitative research is synonymous with a positivistic approach to research. The emphasis of this research approach is on the creation of scientific knowledge by means of collecting numerical data on the observable behaviours of samples. In a quantitative approach, the collected data will be subjected to numerical analysis. Phenomena should therefore be observable and numerically verifiable (Gall, Borg & Gall, 1996:28). Anderson and Arsenault (2004:4-5) assert that this approach deals with the measurement of behaviours (phenomena) that includes the prediction of futuristic measurement. The underlying notion of this approach to research is that mathematical models exist and need to be uncovered. Limitations that may occur can be attributed to faulty measurements, imperfect models or an inability to control extraneous variables. From these principles, and considering the purpose of this research - to assess critically the economic impact of selected arts festivals - the quantitative approach and research design as selected research strategy for this study has been chosen as the most suitable.

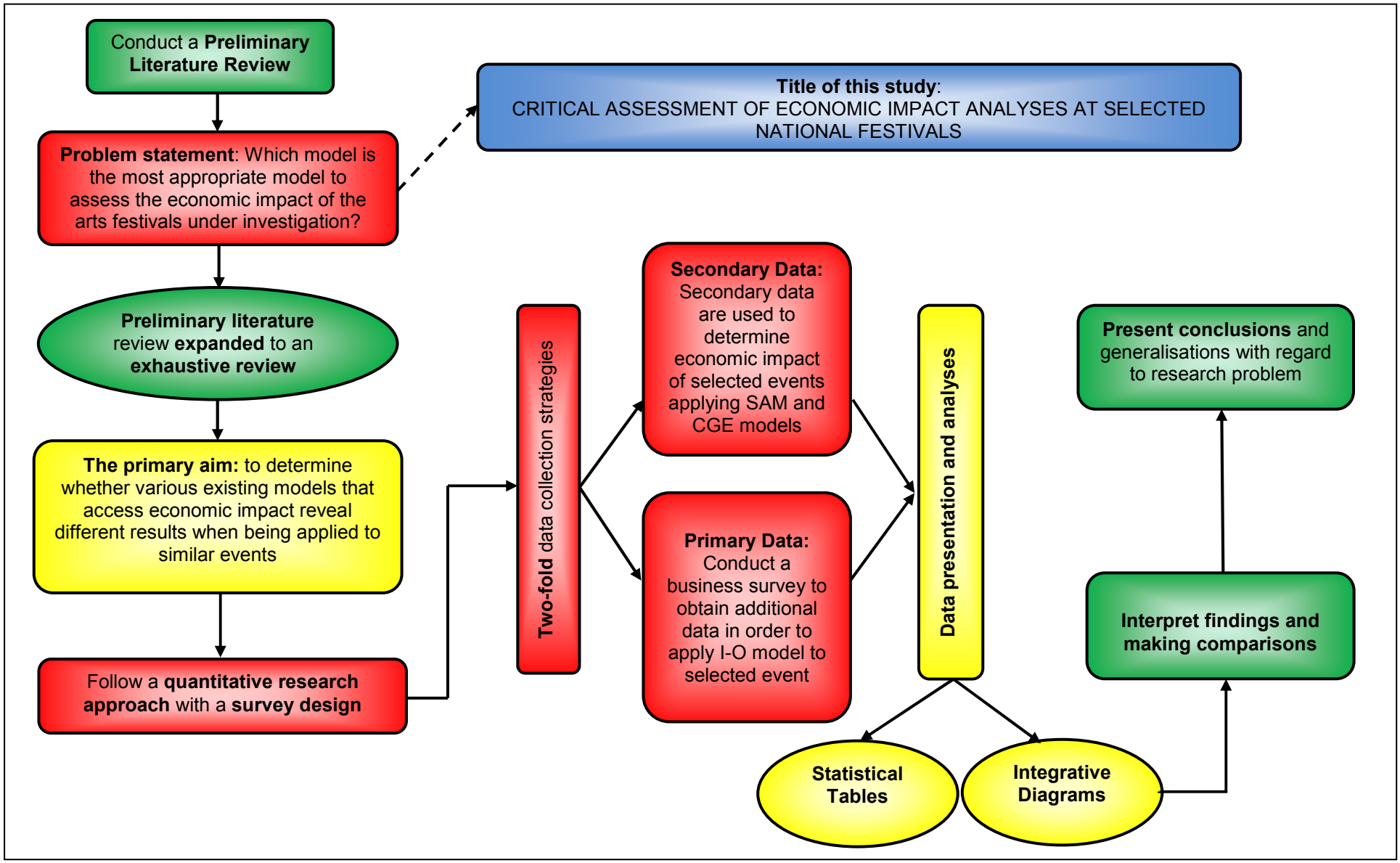


Figure 1.2: Outlay of research design and study methodology

Maree and Pietersen (2010:145) define that quantitative research is a systematic process, objective in nature, and that utilises numerical data collected from only a selected sub-group of a universe (or population) with the aim of subsequently generalising the findings of such a study to the universe that is investigated. In concurrence thereto, McMillan and Schumacher (2006:23) state that quantitative research designs adopt a positivist philosophy of knowing which implies an emphasis on objectivity and on the quantification of phenomena. It follows, then, that quantitative research design and application maximises objectivity using impartial numbers, statistics, structures and controls.

A quantitative approach to research is based on different assumptions about the world. As a result, barrier fences concerning the feelings and beliefs of individuals, and thus allowing a dispassionate research purpose and methods that should be followed typically include a set of procedures and steps that serve as a guideline for the researcher (McMillan & Schumacher, 2006:15-16).

1.4.2 Delimitation of this study

Amongst the numerous events that are currently presented in South Africa, the Grahamstown National Arts Festival, KKNK, Aardklop and Innibos National Arts Festival are recognised as the four national arts festivals (South African Tourism, 2011:1). In order to limit and focus the aim of this study, the KKNK and Aardklop will serve as the primary foci for data collection. Both of these festivals, that originally targeted the Afrikaans-speaking community, offer many similar characteristics including operational management, attendance and the art genres represented. The KKNK and Aardklop have been presented since 1995 and 1998, respectively, on an annual basis. These two festivals have a longstanding consistency with regard to their sound public support, well-organised events and a significant economic impact on the hosting community. The KKNK is also regarded as the largest national festival in terms of the number of visitors and festival activities. It will therefore be most appropriate to select these two festivals as a framework for the main data collection processes of this study.

1.4.3 Literature study

A vast amount of relevant literature that includes both local and international resources will be consulted. These sources will include dissertations, theses, presentations, academic articles,

media reports, books, magazines, working papers, conference papers and other related publications, as well as media analysis. In order to focus the literature search, keywords such as framework, economic impact on arts festivals, assessing economic impact, arts festivals, festivals, events, economic impact models, models for assessing impact, Input-Output model, Social Accounting Matrix (SAM) model and Computable General Equilibrium (CGE) model were used to explore the existing body of knowledge available in either electronic or printed format.

Information will also be obtained from web pages available on the internet. The internet serves as a useful tool during the literature search as the most recent publications and information in the field of study can be readily identified and easily accessed. Search engines such as Google, Yahoo and MSN are widely utilised to obtain contact with publishing authors as contact details are, in most instances, available from the Internet.

During the literature study, scientific databases including ScienceDirect, SAePublications and EBSCOhost will also be accessed in order to survey library catalogues and indices.

1.4.4 Data collection instruments

During this study, both secondary and primary data will be used in order to provide a sound basis for evaluating the economic impact of selected arts festivals.

1.4.4.1 Secondary data obtained from survey data banks

The Institute for Tourism and Leisure Studies at the North-West University, Potchefstroom Campus, has a long-standing relationship with the official national arts festivals in South Africa. Surveys using questionnaires have been conducted on an annual basis since 2002 and the results thereof were made available for this study. The secondary data collated from questionnaires that were completed by attendants at the KKNK and Aardklop during 2010, were subjected to the SAM and the CGE models in order to assess the economic impact that the KKNK and the Aardklop have already recorded.

1.4.4.2 Primary data collected by conducting a new survey

In view of the fact that the available data are insufficient accurately to assess the economic impact of the Aardklop when applying an I-O model, primary data deriving from a business survey including all sectors will have to be conducted in Potchefstroom in order to overcome this shortfall. The aim of the survey will be to determine the extent and value of goods and services sourced from outside the local community during the arts festival. Various businesses that represent all sectors of the global economy of Potchefstroom have been included in the survey.

1.4.4.2.1 Selection of sample

The Yellow Pages of the North West Province for 2009/2010 and Potchefstroom Business Directory 2010 have been consulted in order to categorise businesses according to sector representation (refer to Table 1.1).

Table 1.1: Potchefstroom businesses sector representation and sample selection

SPENDING ITEM	% PRESENTED	NUMBER OF QUESTIONNAIRES
Accommodation	3.57	20
Retail (Clothing, special, health and beauty)	11.29	62
Wholesale	3.78	21
Transport / Fuel	2.69	15
Manufacturing	6.52	36
Restaurants / Fast foods	8.07	44
Tourism, cultural and leisure service (entertainment)	8.43	46
Municipal	1.19	7
TOTAL	**45.54**	**250**

Source: *Yellow Pages of the North West Province, 2009/2010 and Potchefstroom Business Directory, 2010*

All geographic businesses areas in town have been identified, and each business has been listed by performing a door-to-door survey to ensure that those businesses not operating from formal business premises have also been accounted for. During the business survey, a partial approach has been applied and, with a Potchefstroom businesses population of approximately 1 000, 45.54% of businesses have been included. A 25% sample of the estimated businesses was to be included therefore, 250 questionnaires were distributed for this survey. It was estimated that there were 70 accommodation establishments in Potchefstroom (Cilliers, 2009). The accommodation sector presented about 4% of the total businesses in Potchefstroom.

Therefore, the estimated businesses in Potchefstroom were calculated at approximately 2 000 establishments. When the sector representation of businesses in Potchefstroom was taken into account questionnaires have been distributed to the respective sectors in the ratio as per Table 1.1.

1.4.4.2.2 Sampling method

Based on the discussions recorded by Cohen, Manion and Morrison (2001:102-103), a probability sampling strategy has been followed, supported by a purposive sampling method. A particular group has been targeted, very aware of the fact that it did not represent the wider population but simply represented itself. The participants that formed the sample for this study have been handpicked by means of the purposive sampling method as calculated and indicated in paragraph 1.4.4.2.1 and presented in Table 1.1.

Business owners and managers in the city of Potchefstroom were visited on their premises by trained fieldworkers who assisted owners or managers to complete the questionnaire. In order to ensure respondents took part of their own volition, thus leading to accurate and honest feedback, the respondents were briefed about the aim of the research before they completed the documents.

1.4.4.2.3 Compilation of questionnaire

The Institute for Tourism and Leisure Studies at the North-West University, Potchefstroom Campus developed the questionnaire previously. It dealt with business spending and was based on business survey questionnaires previously used during socio-economic impact studies at other festivals presented in South Africa (Saayman & Saayman, 2006:624; Saayman, Saayman & Ferreira, 2009:3). The questions covered categories such as the type of business, employment trends, expenditure patterns – with differentiation of local and non-local expenses – and the perceived influence of Aardklop on the business (refer to Addendum B). The questionnaires were administered by interviewers during face-to-face interviews with respondents in the selected sample. A pilot study was thus unnecessary as this questionnaire has successfully been used in the studies mentioned, and only minor changes were needed in order to ensure applicability.

1.4.4.2.4 Data analysis

Using a partial approach, I-O, SAM and CGE models will be applied to data collated during the KKNK and Aardklop.

1.4.4.2.5 Validity, reliability and ethical consideration

In order to ensure the validity and trustworthy of this study, the ethical guidelines prescribed by the North-West University were rigorously adhered to. Approval to conduct the study necessitated effort to obtain the relevant permissions from authorities including, not only North-West University but also, all business related stakeholders. Respondents were ensured of their anonymity before obtaining their informed consent. Furthermore, all participants had the option to withdraw from this study at any time. The preservation of the dignity of participants was regarded as being of the utmost importance during all data collection activities and subsequent reporting of findings. With these strictures in mind, all documentation that related to data collection strategies and evidence have been dealt with according to all relevant ethical requirements.

1.5 Concept clarification

In order to ensure clear understanding and to avoid any ambiguity concerning the main concepts that are used during this study, the following discussion will provide brief conceptual clarification against which this study must understood.

1.5.1 Economic impact

The purpose of conducting an economic impact analysis is to estimate the additional expenditure that has occurred within the local economy during the presentation of a particular event such as an arts festival (Van Heerden, 2003:9). Fayos-Sola (1998:242) concur that an economic impact analysis should measure the economic benefits that accrue to a community, including the host population's standard of living, economy and environment.

Turco and Kelsey (1993:24) define an economic impact as the net change in the host community's economy as result of spending during the special event. The economic impact is

determined by the spending of non-residents in relation to the event, as well as the degree to which the local residents and businesses adjust their spending due to the event.

For the purpose of this study, economic impact is identified as the measurement of the additional expenditures generated, and the percentage of change occurring, within the local economy due to the presentation of an arts festival. The local community will, to some degree, experience an impact on their local economy, lifestyle and environment as result of the spending made by non-residents during the arts festival. At the same time, the local residents and businesses will alter their own spending because of the non-residential spending.

1.5.2 Arts festivals

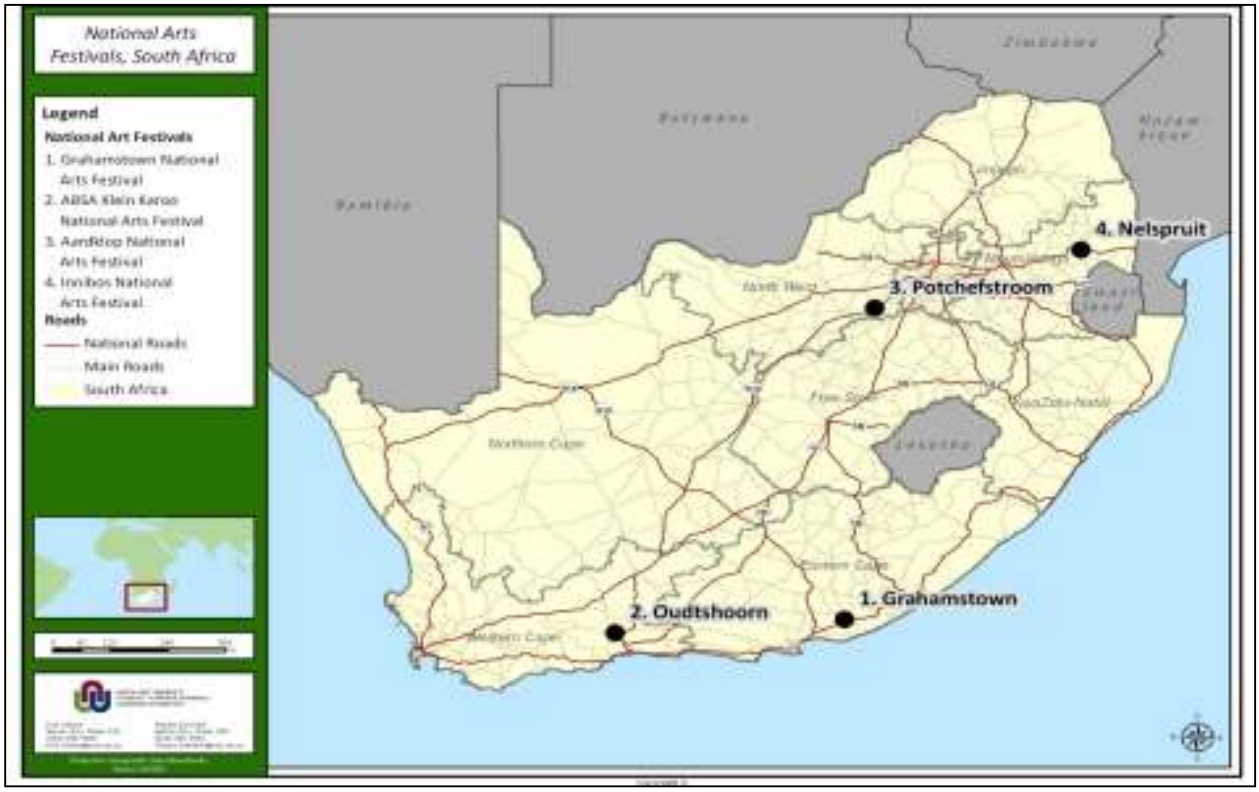
Defining the term arts festival is no simple task. The numerous terms that the media uses, before, during or after a festival, are inconsistent. There can be no little doubt that the formulation of an exact definition, with which everybody can agree, is to attempt the impossible. This difficulty is compounded by the usage over hundreds of years of the term, festival, to describe a multitude of different events (Bowdin, Allen, O'Toole, Harris & McDonnell , 2006:4).

Smith (1990:128) formulated a detailed definition as being, "a celebration of a theme or special event for a limited period of time, held annually or less frequently (including one-time only events), to which the public is invited". While some may regard an arts festival as an opportunity where the arts are celebrated in all possible genres or as a display of traditional and non-traditional arts, others hold the opinion that it is nothing more than "... a non-stop, for days on end, drinking party", as reported in Die Burger newspaper (Anon, 2008).

Although South Africans have the opportunity to share in the activities of numerous annual festivals that are presented countrywide, there are only four arts festivals recognised as "National". These are the Grahamstown National Arts Festival, the Innibos National Arts Festival, the KKNK and the Aardklop (refer to Geographical Map 1.1).

This study will, however, be limited to the investigation of assessing economic impact of the KKNK and the Aardklop festivals alone. Both festivals reveal many similar characteristics that encompass generic aspects such as operational management, diverse attendants, the variety of

art genres presented and the targeted market segmentation. It is believed, therefore, to be rational to apply similar studies to these two selected festivals.



Map 1.1: Geographical location of National Arts Festivals in South Africa

Source: Adopted from School of Environmental Sciences and Development, North-West University

1.5.2.1 The ASBA Klein Karoo National Arts Festival

With the launch of the KKNK, the vision of Nic Barrow, an attorney and businessman from Oudtshoorn (supported by Andrew Marais, then the public relations manager of Naspers) to present a local Afrikaans-language arts festival became a reality. More than a hundred interested individuals from all over South Africa attended a public meeting held in Oudtshoorn in January 1994, during which the foundations for the first Afrikaans-language arts festival was laid. Since the first festival was held during March 1995, the KKNK has matured to a festival that now claims to be devoid of any particular political, social or religious affiliations. The aim of the festival is to serve as a platform where all Afrikaans-speaking people, regardless of their cultural affiliation or race classification, can unite in a post-apartheid South Africa at a cultural festival

where both visual and performing arts are included. Altogether, this festival provides the hosting community with an economic boost when using the festival as a mass tourism attraction.

Studies conducted by Erasmus, Slabbert, Saayman, Saayman and Oberholzer (2010:1), confirm that the KKNK attracts the largest number of visitors of all the national arts festivals. This events is annually held during the March/April school holidays and draws approximately 1 000 artists who perform in more than 200 productions and exhibitions over a period of 8 days to Oudtshoorn. Close examination of ticket sales statistics indicates that a significant growth took place between 1995 and 2005. In spite of this, the studies of Erasmus *et al* reveal a drastic slump in ticket sales of more than 26% during 2006 in comparison with those of previous years. The slight increase of nearly 9% in ticket sales between 2008 (107 151) and 2009 (116 759) was encouraging, although ticket sales dropped once more during the 2010 festival to 85 518.

1.5.2.2 Aardklop National Arts Festival

After noting the success achieved by the annual KKNK, the possibility of presenting similar festivals translated into reality. Using the KKNK as a model, the idea of presenting a festival in the north of the country was mooted. Potchefstroom in the North West Province hosted the first Aardklop during 1998. The organisers wanted to offer a cultural experience for all visitors to the festival - either local or outside visitors - and in this manner contribute to the economic growth of the local community. Being a Section 21 Company with no profit gaining objectives, Aardklop now constructively contributes to the celebration and development of South African arts in general. The festival provides a platform for all creativity and talent of South African artists presenting arts of all genres. It now offers a display of the best current and developing cultural trends, both in South Africa and from the rest of the world. Aardklop creates an opportunity for upcoming talent to perform with established artists in front of both existing and new audiences. It values and embraces the passion of arts, discipline with good management, intrepidity, integrity and quality.

The contributions of the Aardklop festival to the local economy include job creation, providing economic opportunities for the local community and the investment/spending in the local economic area and its surroundings. Local and emerging artists receive assistance and are supported through an artist administration and management course. Performing opportunities are also provided while the festival itself is involved with various community projects

(Potchefstroom City Council, 2007). Exhibition areas for arts, crafts and food stalls are provided for entrepreneurs, including both locals and others exhibitors coming from all provinces.

According to Kruger, Saayman, Saayman and Oberholzer (2009:31), the festival started by selling a mere 25 000 tickets for the 45 productions presented in 1998. Despite the overall growth in the numbers of tickets sold, in their latest statistics, Botha, Saayman, Saayman and Oberholzer (2010:35) reveal an unfortunate decrease in ticket sales when comparing the sale in 2010 of 69 545 tickets against the 72 606 tickets sold in 2009. This decline in ticket sales seems to be somewhat smaller than the decrease of 7 000 tickets (when comparing 2009 sales to those of 2008) or the drop of 12 000 tickets sold between the 2008 and 2007 festivals.

1.6 Chapter classification

The chapter classification for this study will be documented as follows:

1.6.1 Chapter 1: Introduction and problem statement

This chapter introduces the study, and poses the problem statement, goals and the intended methodology that will be followed. Specific concepts are defined and clarified and an examination of the content of each following chapter is subsequently presented. Following this, an overview of the historical analysis of economic impact of events is given, with references to identified processes and models used. The reasons for conducting the study are addressed in some detail.

1.6.2 Chapter 2: A Brief history of assessing the economic impact of events

Chapter 2 presents a literature study and discusses various models that were used in previous studies to assess the economic impact of events, including arts festivals. This chapter will highlight the strengths and weaknesses of the various models that are utilised during economic assessments. The criticism against the use of any one specific model is examined and further elaboration on the use of certain models will be provided.

1.6.3 Chapter 3: Article 1 – Critical assessment of economic impact analyses of the ABSA Klein Karoo National Arts Festival

Chapter 3 forms Article 1, and focuses on the manner in which the SAM and CGE models are applied in order to determine the economic impact assessment of the KKNK.

1.6.4 Chapter 4: Article 2 – Critical assessment of economic impact analyses of the Aardklop National Arts Festival

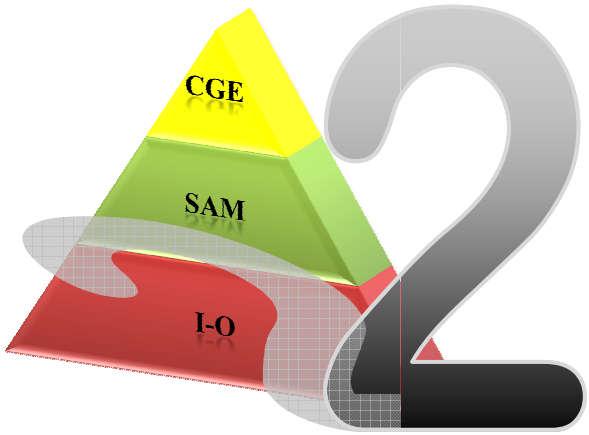
Chapter 4 shows how the application of the SAM and CGE models will be discussed (as they were in Article 2) in an effort to assess the economic impact of the Aardklop. This chapter will also include an analysis and comparison of the outcomes that were recorded when different economic models were used to assess the same arts festivals.

1.6.5 Chapter 5: Article 3 – Assessing the economic impact of the Aardklop National Arts Festival: a feast of models to opt for – or not?

Article 3 forms the body of Chapter 5. It will offer a discussion on the application of an additional model, an I-O to the Aardklop festival, in order to assess the economic impact thereof. The various outcomes using SAM, CGE and I-O models to assess the economic impact of the Aardklop are also analysed and compared.

1.6.6 Chapter 6: Final conclusions and recommendations

In the final chapter, conclusions are drawn from the information that was collected in the previous chapters. Recommendations will be made in order to assist researchers and compilers of economic impact reports for arts festivals. Guidelines and the pitfalls to be avoided when using a specific model to assess the economic impacts of a festival are outlined.



A BRIEF HISTORY OF ASSESSING THE ECONOMIC IMPACT OF EVENTS

2.1 Introduction

Arts festivals play an increasingly significant role in the leisure and tourism industry. They result in an economic impact not only on the hosting community, but nationally and globally. Even so, public support for the arts is a contentious issue, particularly in developing countries where there are so many competing and urgent demands on the public purse (Snowball & Antrobus, 2003:8). Currently, in the organisation of an event, local government is seldom in the position to contribute financially. Event and festival organisers are therefore compelled to search for alternative funding, such as private and corporate sponsors, donors and public contributors. It is likely that private and public sponsors will prescribe the extent of exposure that they would seek to gain from the event and its contribution to the community before considering financial support. Justification for the spending and evaluation of an expected return on investment frequently has an influence on approval of any financial support.

According to Bowdin and Williams (2007:188), event assessments have become a valuable tool in demonstrating success and achievement of objectives, quantifiable through means of conducting economic impact studies. The findings and outcomes of economic impact studies often serve as guidelines to either approve or decline a request for funding.

However, criticism against the integrity of analysts and the outcomes of economic impact studies are on the increase. Crompton (1999:17) is of the opinion, that although many economic impact assessments are made with integrity, there are also numerous examples of researchers

and consultants who have adopted inappropriate procedures and assumptions. This practice has, in the past, generated high economic impact results in order to portray an event more favourably in the mind of taxpayers, elected officials and politicians, with the intention to sustain or even to increase the resources that previously had been allocated. Whether or not these errors were made due to a genuine lack of understanding of the principles and procedures of an economic impact analysis, or were perhaps prepared deliberately to provide a more favourable view of events, does not alter the ultimate fact that stakeholders have been misled.

In order to comment on economic impact assessment, it is imperative that the various models and assessment methods applied during the evaluation process be identified and the principles of each be understood. The literature studied revealed that internationally various methods of assessing and measuring the economic impact of events have been applied[1]. The applied methods vary from pure best estimates to complex mathematical and econometric models. Moreover, the quality and accuracy of these studies vary extensively. Technical reports often reflect economic terms and methods that are of little use to non-economists. This leads to misinterpretations, which perhaps leaves decision makers and the public with a distorted and incomplete view of the economic impact of an event.

Crompton, Lee and Shuster (2001:80) discuss the consequences of applying inappropriate models when assessing economic impact due either to unfamiliarity - or perhaps deliberately - in order to legitimise a position. As a result, following such misleading studies forms the basis for precedents which succeeding sponsors feel compelled to follow and that are likely to result in the continued abuse of the central principles of economic analysis. A possible second consequence might be the discrediting of these underlying principles as valuable tools of assessment.

According to Reeves (2002:50), most of the methodologies measuring the economic impact of arts and creative industries focus on outputs that relate to employment, turnover and to the extent of spending in the local economy by identified sectors, audiences or consumers. As might be expected, a wide range of models and methodologies for conducting economic impact assessments are in use. Kelly and Kelly (2000:23) suggest that in order to assess the socio-economic and cultural impact in a holistic way, fundamental areas such as organisation,

[1] For a comprehensive list of these methodologies and models identified, refer to Addendum A.

income, leakages, capital improvements, attendances and performances, staffing, challenges and cultural benefits should also be investigated.

It is the aim of this chapter to present a brief historical exposition of the various models and methods applied to assess the economic impact of events. A summary of the pertinent functionalities, applications, advantages and limitations of the various models used in surveys and identified in literature studies are discussed. Moreover, the appraisal that follows will attempt to shed some light on the context within which these different models and methods have been applied and the value added through the use of these applications. This appraisal does not seek to cover the full range of methodologies available, but focuses on the most prevalent models and methods that have been applied over an extensive period. The extent to which these models have affected event organisation, policy making and profit margins during the period under review, could be an indicator, or proxy, of their reliability and accuracy.

The various methods of assessment used, measurements applied and underlying assumptions made will all have a substantial impact on the outcomes of an economic impact study. In view thereof, the different models and methods applied during surveys should be investigated in order to understand their functionalities, advantages and limitations. When familiar with the various models and methods, comments with regard to the application of each during economic impact studies may then be possible. The historic analysis of the various models applied to the assessment of the economic impact of events that follows, will serve as both a confirmation of their popularity and offer an indication of the development of the longitudinal model.

2.2 A brief history of models applied to assess the economic impact of events

Exactly when the use of structured or unstructured models to evaluate economic impact became usual is debatable. Although some of the models, as applied during ancient times, were little more than a perception or an idea, they nevertheless served as an indicator for measuring a certain value gained or scarified. The words in Luke 14: 28-30 “[28]For which of you, desiring to build a tower, doesn’t first sit down and count the cost, to see if he has enough to complete it? [29]Or perhaps, when he has laid a foundation, and is not able to finish, everyone who sees begins to mock him, [30]saying, ‘This man began to build, and wasn’t able to finish.” (Bible, 1983) confirms that even during the biblical era, some kind of modelling, albeit very basic, was applied for evaluation purposes.

An overview of various analytical research methods (Hara, 2008:25) for the hospitality and tourism industry, of which events form an integral part, is presented in Figure 2.1.

The analytical methods are mainly classified into qualitative categories that do not deal with mere numbers but rather with thoughts. Very often, qualitative thoughts lay the foundation for good quantitative research (Hara 2008:26).

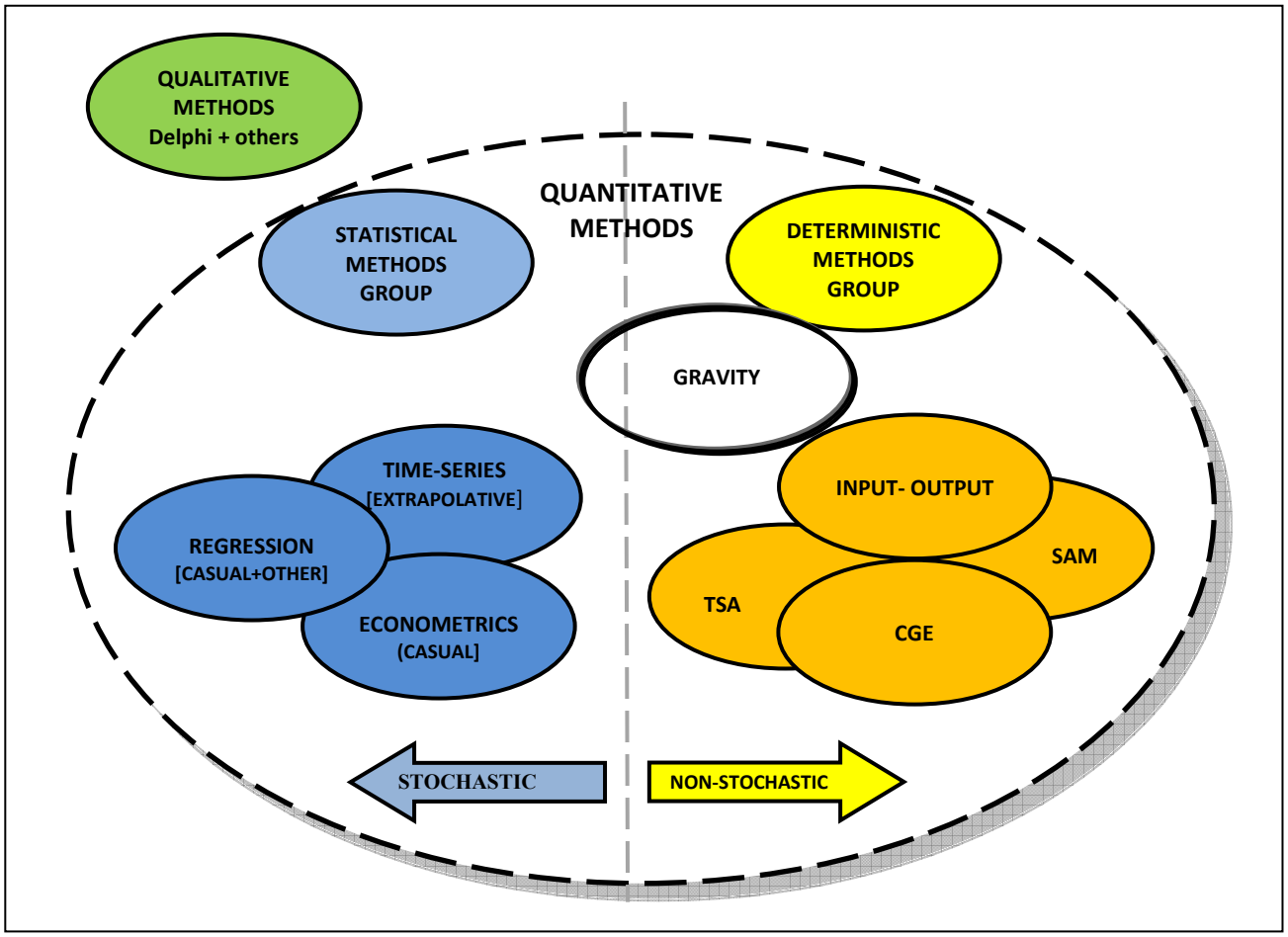


Figure 2.1: Overview of analytical research methods for the hospitality and tourism industry

Source: Hara (2008:25)

As presented in Figure 2.1, quantitative methods are classified as stochastic or non-stochastic strategies. The literature revealed that the most recent models applied when measuring the economic impact of events could be classified as non-stochastic. Such models form part of the deterministic methods groups that include Input-Output (I-O), Social Accounting Matrix (SAM),

Tourism Satellite Accounts (TSA) and Computable General Equilibrium (CGE) models. The statistical methods group regarded as stochastic include Regression, Time-series and Econometrics models.

Each of the research methodologies applied in the past to measure economic impact has a different combination of advantages, shortcomings and limitations. The availability of multiple modulation packages further complicates decision making for event evaluators in opting for the most appropriate alternative (Hara 2008:25).

2.2.1 Qualitative methods

In principle, qualitative methods do not deal with any numbers, or at least not to the extent that quantitative models do. Not all objects under observation can be quantified, although quantitative methods have a relative advantage in external validity (Cohen, Manion & Morrison 2001:27). Qualitative methods play an important role in the thinking and strategic processes. Meaningful questions are raised by researchers with clear vision and insights on observed data and trends. Good quantitative research often starts as solid qualitative thinking, although it is much more of a challenge to put the results from qualitative research in the context of the broader social science fields than those following a quantitative approach (Hara, 2008:25-27).

Qualitative methods with specific reference to Descriptive Research Methods are used in the analysis of employment in the arts and cultural industries by O'Brien and Feist (1995). The method was also applied by Casey, Dunlop and Selwood (1997) in their discussion of culture as a commodity. The London Department for Culture, Media and Sport (2001), investigating creative industries, and Selwood (2001), discussing the profile and policy issues of the UK cultural sector, also advocate the use of this method.

Further, the qualitative economic impacts of the Glastonbury Festival (such as trading opportunities for non-profit organisations and the festival's contribution to the local entrepreneurial culture) are discussed by Baker and Associates (2007). When reporting on Scotland's Year of Highland Culture (2007), Hamilton, Galloway, Langen, Cran, MacPherson, Burns and Snedden (2008) evaluated economic, social and cultural impacts before, during and after the festival year using a range of both qualitative and quantitative methods. Another example is the historical qualitative study that was completed by Snowball and Webb (2008) to

examine the contributing value of the National Arts Festival in South Africa during the transition into democracy, where the festival served as an outlet for the expression of political and social resistance.

2.2.2 Quantitative methods

Although a more qualitative approach is still widely in use, a quantitative approach may be more significant in an effort to advance tourism and hospitality research as a solid social subject. Hara (2008:27) categorises quantitative methods into stochastic (statistical) and non-stochastic (deterministic) models.

2.2.2.1 Stochastic (statistical) models

Stochastic (statistical) models are regarded as a simple representation of the complex interactions of variables in the real world. Several stochastic (statistical) models, as identified by Hara (2008:31-33), are examined below in order to provide a clear exposition of the conceptual framework for this study.

2.2.2.1.1 Regression models

Hara (2008:31) explains that regression models are statistical tools utilised to verify any relationship between variables of interests, presenting many variations of regression modelling, starting from simple linear regression (where there is only one set of dependent variables and one set of independent variables) to a multivariate regression model (when more than two independent variables exist).

Van Zyl (2008) uses a conjoint analysis in a linear regression model with individual ratings for each festival in order to determine which attributes and combinations of attributes could be regarded as the best practices of arts festivals.

2.2.2.1.2 Econometric models

In instances where a statistical application deals with economic data in society from an economic point of view, an econometric model is portrayed. It is most likely that data used within

this model might have already been collected and compiled by others. Econometricians do not collect data by designing experiments, and therefore economic data are often regarded as secondary data. Econometric models are similar to regression models in structure, although the data to be dealt with is not as controllable as statisticians might prefer (Hara 2008:32). When applying econometric models, econometricians tend to face more problems with violations of various assumptions used in the statistical environment than with regression models.

An econometric model was used by Brännäs and Nordström (2006) to measure the impact made by tourism festivals on accommodation. The applied autoregressive count data model incorporates some important factors in the planning and evaluation of an event such as spare capacity, displacement (crowding-out) effects and the cost that visitors face. The results for the festivals under investigation revealed that although there were crowding-out effects, the net tourism effects were positive since the average visitor stayed longer during festival periods. The model indicated that the importance of adjusting the festival programme, if necessary, and that both positive and negative side-effects caused by the festival should be considered.

2.2.2.1.3 Time-series models

Although time series models are similar to other statistical models, they differ in that they do not depend on other variables within the same timeframe, but rather depend on the past behaviour of variables, including past data of the variable itself (Hara 2008:32).

In a study conducted by Jackman and Greenidge (2010), a structural time series model was employed to explain and forecast quarterly tourist movement from Barbados' primary source markets, the USA, United Kingdom, Canada and CARICOM, for the period 1966:1 – 2007:4. The model indicated that arrivals from the main source markets appeared to be less income sensitive. Results also revealed that the structural time series model outperformed the seasonal naïve model used for benchmark comparison purposes in both its multivariate and univariate form.

2.2.2.2 Non-stochastic (deterministic) models

The various types of non-stochastic models, also referred to as deterministic models, are applied to measure the economic impact of events. A discussion on these models follows below.

2.2.2.2.1 Gravity models

Taking their name (and their lead) from Newton's Law of Gravity, the volume of interactions (such as the amount of trade, expenditure of shopping and number of tourists) between two countries, regions or cities can be predicted as being a functional equation of the population in each country, region or city and the distance between them. Predictions regarding the amount of trade, commercial activities, immigration and number of tourists between the two countries/regions/cities given the population of both and the distance between them are made (Hara, 2008:34-35).

A study done by Fourie and Santana-Gallego (2010) who used a standard gravity model of bilateral tourism movement between 200 countries from 1995 - 2006 in an attempt to measure the direct benefit of such mega-events, in this case, the increase of tourist arrivals into the host country, serves as a good example of the application of a gravity model.

2.2.2.2.2 Financial survey models

The purpose of financial survey models is to provide a report on all the financial activities (internal and external) of an event or sector. The report is typically based on quantitative analyses of financial accounts, box office data, attendance statistics, local business surveys and market assessments. The quantitative analyses of the financial survey models are statistically interpreted in order to provide a financial opinion without necessarily taking the qualitative context into consideration.

Studies done by Myerscough (1988), Travers (1998) and Cambridge Arts Theatre (2000) serve as examples where this model was applied to evaluate the impact of events. These models (including the financial survey model) were mainly used in studies completed up to the early 2000's. Reeves (2002:53) noted that only a limited number of studies had been made to that time incorporating more developed models in surveys, for example, the proportional multiplier analysis and an input-output[2] (I-O) based analysis.

[2] See also Section 2.2.2.2.8 for a more complete description of the application of input-output models.

2.2.2.2.3 Supply / Production Chain models

Cordier and Hecq (2008:1) state that the Supply Chain Model (SCM) presents a quantitative analysis of inputs and outputs relating to the specific event, relevant prices and the added value that occurs along the supply chain. Inputs and outputs can be presented by the physical flow of materials and services needed to manufacture a final product, including their monetary equivalents. Supply chain analysis refers to an overall group of economic agents that contribute directly to the determination of a final product, including the total process of operations. Building such a model would require mapping the complete production chain and the development of economic accounts in relation to activities of the agents involved.

These models are limited in the sense that limited indirect impacts on other sectors may be captured. Although SCM deals with fewer sectors than other models, the extent of data required is more detailed. The high level of detailed data required within this model is seldom published and might be prohibitively time consuming to collect. Moreover, projection possibilities may be difficult to make due to the static nature of this type of model.

Alternatively, the Production Chain Model (PCM) can be regarded as the focused application of a SCM. According to Reeves (2002:56), this model is used to describe the process of developing creative products. The different stages of development encompass starting with the conceptualisation of ideas, followed by research conducted and concluding with the distribution and presentation of the final product. Some researchers favour PC models as they can be used in combination with I-O models. This model provides for the examination of dynamics, interdependencies and linkages within and between sub-sectors. Focus is placed on those parts of the production chain responsible for the generation of the creative content. This process is often used to identify or influence strategic interventions, and to encourage growth in creative industries. This may include advocacy strategies that influence policy discourses and development. One such example of a PCM was applied by O'Connor (1998) to evaluate the impact of the cultural sector in Manchester.

2.2.2.2.4 Sector Mapping Chain models

When applying Sector Mapping Chain (SMC) models, elements of Descriptive Research models and I-O models are incorporated using primary and secondary data to map and analyse the

cultural sector or creative industries (Reeves, 2002:62). In combination with case studies or sub-sectoral analyses, the strategic issues associated with the potential economic contribution of a sector, as a whole or per sub-sector, are mapped. A SMC model was applied during a study done by Bretton Hall College (2000) that evaluated the impact of the cultural industries in Yorkshire and the Humber Valley.

2.2.2.2.5 Break-even or Profit and Loss models

This method is utilised to measure direct cost and revenues within a short time span. The efficiency and effectiveness[3] in achieving goals within a given budget are measured by applying this model. In order to evaluate solvency, the bottom line of the financial statements at year-end, requires close interrogation. The revealed surplus or deficit (profit or loss) revealed serves as the main indicator when applying the Break-even or Profit and Loss model (Van Heerden, 2003:64). The model is relatively easy to understand and no complicated calculations nor interpretations are required. Only impacts affecting the organisation's financial performance are addressed and the assessment is done on a short-term basis. Application of this model has the benefit of limited financial requirements as the available financial statements are used. The model is, however, criticised for its limitations in respect of excluding the broader, global economic impacts that are not taken into account. These limitations might result in miscalculated decisions being made.

An application of this model can be found in the report by Mayne (2010) who evaluated the Taste Orange Food and Wine Festival at Bondi, as well as by the Waterhouse review (2009) of The Taste Festival that focused on break-even fundamentals. These studies indicate that Break-even or Profit and Loss models are relatively simple to apply and no complicated calculations and analyses are required. The models are however criticised for their limitations in respect of excluding the broader, global economic impact that is not taken into account. This limitation might result in miscalculated decisions being made. Only impacts affecting the organisation's financial performance are addressed and the assessment is done on a short term basis.

[3] For the purposes of this study the interrelatedness of efficiency and effectiveness will imply that in order to be effective something needs to work efficiently and produce superior results by means of utilising the available time, money, supplies, etc. in the most effective manner.

2.2.2.2.6 Return On Investment models

Most events now depend largely on sponsorships. Sponsors are interested primarily in knowing if their investment will pay off, and how much of a return occurs (Getz, 1991:437). However, sponsors are not only interested in achieving sales, public relations and marketing goals, but also focus on the total impact that the sponsored event may have on the community as a whole. Turco and Kelsey (1993:34) calculated the Return On Investment (ROI) as the amount by which the revenues exceed investment. Here, revenues brought into the event are measured against the expenses incurred to conduct the event. Although the model can be regarded as simplistic due to the standard accounting practices applied, it also has a number of other limitations. These limitations include the facts that only financial performances are measured and not the total economic impact. A promising ROI might not necessarily result in a positive economic impact on the local community - as the money generated by means of visitor spending might be re-invested elsewhere and should therefore be properly classified as leakage.

ROI models were applied to evaluate the economic and cultural impact of the 2004 Brighton Festival Upon Brighton and Hove (Anon, 2004) and were also utilised to evaluate the socio-economic impact of sports and tourism events in Durban, South Africa (Bob, Swart & Moodley, 2005).

2.2.2.2.7 Cost-Benefit Analysis models

The application of a Cost-Benefit Analysis (CBA) may address many of the questions that arise with regard to economic impact of events. These models require that all costs and benefits related to a specific event be compared. Evaluating all possible alternatives when applying this model could assist in deciding on the best alternative in view of the fact that the net worth or value of the event is determined (Van Heerden, 2003:67). This model recently resurfaced as a popular tool where it is utilised together with such other models as I-O, SAM and CGE.

In De Tolly's (2005:77-79) view, this technique offers the advantage of neutrality. The best alternative could be determined without any bias such as personal or political interests. When applying a cost-benefit analysis that also includes the costs incurred, the best investment alternative could be identified as all the long-term benefits and costs of the event are taken into account (Crompton, 1999:32-33). Getz (1991:437) refers to additional advantages such as the

comparison between tangible and intangible costs and benefits in the short- and long-term, the assessment opportunities with regard to the cost of investment, investigation of the distribution of impacts and the evaluation of the net worth and acceptability of events.

Getz (1991:437) cited that major reliability and validity problems are inevitably encountered because of unwarranted assumptions that may be made, and due to applying inappropriate techniques. Nevertheless, Dickey (1975:325) confirms that the technique has the potential to be extremely valuable, although failure to consider the so-called human factors may sabotage its application. These human factors include perceived costs versus actual costs and benefits, discounting of costs and benefits, measurement of benefit factors, inclusion of various costs and benefits, double counting of costs and benefits, determining who benefits, the transfer of costs and benefits and multiplier effects (Dickey, 1975:325).

Application of CBA models were made in studies by King (2003) during the evaluation of the Stan Rogers Folk Festival and the McHugh (2006) survey conducted on the Olympic Games.

2.2.2.2.8 Input-Output models

The Russian-American economist, Wassily Leontief, won the Nobel Committee's Memorial Prize in Economic Science in 1973 for his research into how changes in one economic sector may have an effect on other sectors. He compiled an input-output table for the US economy during 1936 that laid the groundwork for development of multi-sector economic models. Based on his input-output accounting framework, he constructed an open static I-O model. The publication of the model in 1937 led to the popularity of I-O models as a planning tool until the early 1970's (Bandara, 1991:6). According to Dwyer, Forsyth and Spurr (2006a:59), almost all models employed in studies until that time, which consistently measured impacts on gross output, gross domestic or regional product, contributions to economic activity and jobs created, were underpinned by the technique of I-O models, or some variant thereof.

Broomhall (s.a.:4) defines I-O models as sets of equations which describe the relationships that link the output of one industry with all other industries in an economy. Impacts within each industry can be estimated through these models and may provide more significant information than do measures of the mere economic impacts on income, output and employment. According to Cameron (2003:1), an I-O analysis is an analytical framework with the fundamental purpose

of analysing the interdependence of industries in an economy. In its most basic form, an I-O model can be represented by a system of linear equations that describe the distribution of an industry's product throughout the economy. These models are comprehensive methods for estimating the flow of money between sectors, sub-sectors, businesses, organisations and consumers, while they monitor the interrelated effects when applying the various multipliers (Reeves, 2002:54). The application of these models can measure specific effects of macroeconomic changes on the local economy, as well as investigate the contribution that a specific sector within the local economy makes. Models can be tailored to be applicable for specific conditions and economies, or utilised to address economies of scale that are associated with changes of output.

According to Crompton (1999:15), an I-O model represents the diverse flow of economic activities within a region. In view thereof, I-O models can be used to estimate the secondary effects of visitor spending via tracing the economical active linkages between sectors. Secondary effects are either indirect or induced. The indirect effects become evident due to the changes in sales, income generated or jobs created in the sphere of sectors within the region that act as suppliers of goods and services to the recreation or tourism sectors. Then too, a local region may experience an increase in sales figures due to households spending the income that was earned in the tourism and supporting sectors. This is regarded as an induced effect of visitor spending. The sum of the direct and secondary effects represents the total effect. The ratio of total effects to direct sales will then indicate the size of the secondary effects and these are known as multipliers. Unfortunately, reliability and validity problems are often encountered during the process of quantifying these factors. This may result in unwarranted deductions and utilising inappropriate techniques, particularly with regard to the application of multipliers. In view of the fact that multipliers are often misinterpreted - and therefore misused - it is important that users of multipliers take into consideration the context of the model from which the multipliers are derived in order to eliminate their misuse (Ryan & Lockyer, 2001:268). The four universally applied multipliers identified by Jago and Dwyer (2006:29) are output, income, value added and employment.

Notwithstanding the foregoing, I-O models serve as an important tool in decision making with regard to regional development (Tohmo, 2005:444). Developers and policy makers may regard the results as very significant when planning future tourist events and cultural activities. For example, by improving infrastructure or diversifying the region's economic structure, an increase

in local goods and services utilised as inputs in the production process may be noted. The sales of local goods and use of services during an event may also be increased, so minimising the need for goods and services from outside the region.

Although many methods have been used to assess the impacts of projects or events over a period, the application of I-O models is perceived, at times, to be more relevant due to the number of advantages that they offer (Lundberg, Krishnamoorthy & Stevenga, 1995:83; Cameron, 2003:2-3). Mules (1999:37) ascribes the popularity of I-O models to the fact that a large set of economic relationships are encapsulated into one simple matrix equation which is, after years of research, accessible and easily applied. It serves as a low cost and effective method that may be applied to both state and sub-state regional levels, while results are efficiently and easily interpreted and communicated to policy makers.

However, even though I-O models are regarded by some researchers to be the most extensively used and they are perceived to be the least expensive, these models reveal some limitations such as fixed prices, a short time frame and unidirectional sectoral impacts. The literature further reveal that I-O models with calculated multiplier effects which aim to evaluate economic impact in the tourism context seem to be both incomplete and misleading (Dwyer, Forsyth & Spurr, 2004:307). These authors are of the opinion that such techniques have serious limitations and ignore key aspects of the economy, for example, the focus of the direct effect and relationships it has with other parts of the economy. Models further assume that there is a free, unrestricted flow of resources to the relevant sectors of the economy. This assumption results in distorted outcomes when the limited regional resources and the employment of non-local labour are ignored. It is argued that these two factors would have had a direct effect on other sectors of the economy. Consequently, no feedback effects, which typically work in opposite directions to the initial change, are taken into account. Therefore, estimations of impacts on economic activity generally, or on specific variables such as employment, are usually overestimated. Dwyer, Forsyth and Spurr (2004) are also of the opinion that although a presumption exists that the increase in economic activity presents a net change in activity within the economy overall, nothing is said about offsetting the negative effects elsewhere in the economy. Any impact on the economy evaluated by this means will present itself positively even if it was because of pursuing poor policies.

Furthermore, the application of I-O models is limited in the sense that they do not reveal the effects of personal income distribution across different household income segments (Holland &

Wythe, 1993:191). No consideration is given to industry occupation, skills, wages and the resulting income effects. The effect on household income groups is not measured and therefore these models often do not reflect the total economic impact.

The utilisation of I-O models by researchers, to report economic impact in terms of the sales generated, is criticised by Crompton & Lee (2000:115) as they are of the opinion that this method will produce the highest, and therefore the most favourable, figures. They regard the most significant economic impact indicator as the one that measures the contribution to the personal income of residents within the community. According to their research, the measurement of residents' personal income method is reported as having an impact three to four times lower than the sales impact method. They suggest that results for both methods should be reported in order to avoid the perception of a relatively insignificant personal economic impact, and that the sales impact outcome should be used for comparison purposes only.

Crompton and Lee (2000:124) also report that confusion and misunderstanding regarding the benefits of an event often occur when measures derived from applying I-O models are interpreted. This includes reporting impact based on sales generated rather than reporting the impact the event has on local residents' personal income. The calculation of newly created jobs due to the increased demand might be overstated. Further, it is highly unlikely that local businesses will hire additional full time employees if the event is to last for a few days only. Then too, the working hours of existing employees are likely to increase due to overtime, or they could be relieved from other duties in order to accommodate the temporary peak demand. The best scenario would be that additional, but short-term, employees are hired. The possibility of utilising additional capacity, or the fact that new employment opportunities might be filled by non-local residents, which results in a weak impact on the local economy, are often overlooked.

I-O tables are usually published by regional and national authorities a few years after an event. Outdated data could have the effect that analysis for the subsequent years is quite inaccurate. It often happens that only national I-O tables are available, even though the need exists to work on a smaller spatial scale where tables on a regional level are required. Regionalisation methods will then need to be applied which may cause some difficulties (Cordier & Hecq, 2008:3). According to Ellard, Cheek and Nickerson (1999:3), the principle downside of using these models is, in fact, the lack of relevant and readily available economic data.

Cordier and Hecq (2008:2) identified the inability of I-O models to measure smaller impacts accurately due to the high aggregation levels as another shortcoming when compared to CGE models. In order to overcome such limitations experienced when applying I-O models, these models were extended during the development of SAM and CGE models.

Numerous studies have been done including those of Bryan, Hill, Munday, Roberts and Clarke (1998), Ryan (1998), Welsh Economy Research Unit and DCA (Cardiff) (1998), Crompton (1999), Bryan, Hill, Munday and Roberts (2000), Crompton and Lee (2000), Snowball (2000), Crompton, Lee and Shuster (2001), Ryan and Lockyer (2001). Brown, Var and Lee (2002), Chang (2002), Division of Research, Moore School for Business (2002), Stynes (2002), West and Bayne (2002), Hill Strategies (2003), Lynch and Harrington (2003), Snowball and Antrobus (2003), Van Heerden (2003), California Arts Council (2004), Clark, Grainger and Jaffry (2004), Daniels, Norman and Henry (2004), Du Plessis (2004), Edmiston and Thomas (2004) and Van Schalkwyk (2004) have all contributed to the field. Arik and Penn (2005), Kelsey and Ford (2005), Milne, Dickson, McElrea and Clark (2005), SQW Limited and TNS Travel and Tourism (2005), Tohmo (2005), IRIS Group, Wendy, McDonald Associates and JP Consulting (2006), Saayman (2006), Saayman, Kohrs and Saayman (2006), Saayman and Saayman (2006), Strydom, Saayman and Saayman (2006), Borges (2007), Çela, Knowles-Lankford and Lankford (2007), Bonn and Harringtin (2008), Measells and Grado (2008), Silva, Mann and Daniel (2008) have added to the pool of knowledge. More recently, and closer to home, Kruger, Saayman, Saayman and Oberholzer (2009), Kruger, Saayman, Saayman Viviers and Oberholzer (2009), Saayman, Saayman and Ferreira (2009), Slabbert, Kruger, Viviers, Saayman and Saayman (2009), Viviers, Slabbert, Saayman and Saayman (2009), Botha, Saayman, Saayman and Oberholzer (2010) and Erasmus, Slabbert, Saayman, Saayman and Oberholzer (2010) have all made significant contributions to the literature. The Sundance Institute (2009) has also attempted to evaluate the impact events have made by applying I-O models, all of which confirm that the popularity of applying this model should not be underestimated.

The Money Generation (MG) models and Off-The-Shelf Multiplier models are two distinct examples of extensions to I-O models that are readily available. A brief discussion of these models follows:

- Money Generation models

According to Stynes (1997:8), the goal when applying MG models is to obtain an estimation of direct and total sales, income and the employment effects resulting from spending, as well as state and local government tax revenues. In order to achieve this, different multipliers, such as sales spending averages from interviews and mail-back surveys are used.

An accurate aggregate estimate of impacts can be calculated with this simple method with the *caveat* that reliable visitation data, adequate spending data (that represent the visitors) and multipliers for the local region are applied.

Stynes (2008) applied an updated and enhanced version of the NPS MG model, the MGM2, during an exploration of visitor spending at a national park during 2007. The Virginia Department of Conservation and Recreation (2007) suggested the use of the MGM2 model in order to estimate the economic impact of visitor spending on a local region and to calculate quantifiable measures of park benefits.

- Off-The-Shelf' Multiplier models

Stynes (1997:8) deliberates on the Bureau of Economic Analysis approach that provides greater detail in terms of the contribution of different sectors to the direct and total effects of tourism spending. This model illustrates the application of published multipliers to estimate the economic impact. The application of sector-specific multipliers is done in order to obtain estimations of direct and total sales, income and employment effects. When utilising this model, analysts are forced explicitly to handle the margining of goods that are purchased by tourists and so to determine the percentage obtained from local producers (Stynes, 1997:11). This model could therefore be regarded as an extension or product of I-O and SAM models. The study done by Tremblay, Boyle, Rigby and Haydon (2004) to assess the value and contribution of the 2004 Darwin Festival by applying an existing evaluation kit, serves as an example.

2.2.2.2.9 Social Accounting Matrix based models

Chowdhury and Kirkpatrick (1994:58) differentiate between an I-O table that captures economic transactions, notwithstanding their social background, and a SAM model where the aim is to

classify various institutions according to their socio-economic backgrounds, rather than their economic or functional activities. Both the social and the economic data of an economy are utilised in the SAM models. Cameron (2003:2) confirms that the SAM model presents a platform for the logical arrangement of statistical information as far as income flows in a country's economy within a set period, usually for a period of 12 months, are concerned. Typical national accounts presenting different kinds of transactions within an economy as well as I-O tables, national income statistics and household income and expenditure statistics serve as the basis for this model (Cameron, 2003:2).

King (1985:19) identifies two objectives that are central to the use of a SAM model. Firstly, it organises information regarding the economic and social structure of a country over a period. Secondly, it also provides a statistical basis for the creation of an explanatory model that clearly portrays a static image of the economy alongside the simulating effects of policy interventions in the economy under review, or alternative economy impacts.

Explanatory notes by Schwarm and Culter (2003:136-139) shed more light on the functionality of a SAM model. Data are organised in a logically consistent manner as illustrated in Table 2.1. It ties all expenditure made by the sector to the receipts of the relevant sector. Column 1, namely that of commodities, presents the private sectors. Summing down the column, the commodities that the industry demands from other sectors intermediate demand are first, followed by factor demand and, finally, use and Value Added Tax and other costs of doing business are accounted for. All these components, together, represent the domestic supply for the sector. The household column presents the allocation of household income to consumption, savings and taxes payable.

Table 2.1: The Social Accounting Matrix

	Commodity (1)	Factors (2)	Households (3)	Government (4)	World (5)	Totals (6)
Commodity (1)	Intermediate Inputs		Consumption and Investment	Consumption	Exports	
Factors (2)	Value Added				Foreign Value Added	
Households (3)		Distribution of Value Added	Savings	Transfer payments	Foreign Transfer and Savings	
Government (4)	Use and VAT		Income and Property tax	Inter Government Taxes		
World (5)	Imports					
Totals (6)						

Source: Schwarm and Culter (2003:137)

Row 1 represents the demand for the commodities in intermediate inputs, household and government consumptions and exports. The household row represents the source of income including land, labour and capital, government transfers including social security and outside remittances. The remainder of the columns and rows are interpreted in a similar manner.

Data must be organised and linked to the SAM in such a way that the data sources automatically create an, essentially, self-balancing SAM. Data are stored in a series of worksheets that are linked to the SAM. In the example, worksheets would exist for each block in Table 2.1. The advantage of using such a framework is that the SAM can be dynamically linked to make itself balancing (except for some small sums in the Inter Government Transfer block). Data in the side worksheets are arranged in a uniform way across which allows for a relatively rapid SAM construction. Proportional representation and transformation is usually done automatically thus making it easier for the modeller or principle investigator.

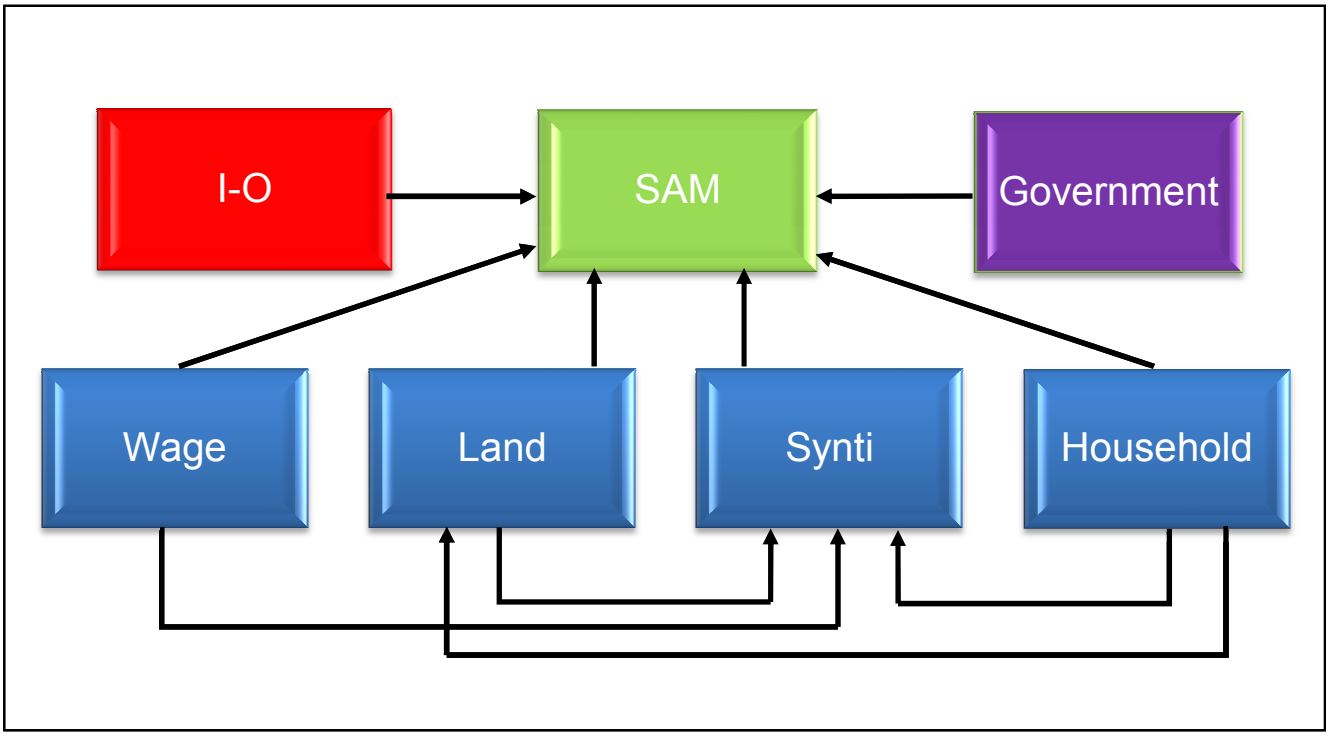


Figure 2.2: The Flow of the Interactive Worksheets and the SAM

Source: Schwarm and Culter (2003:138)

An illustration of the major linkages between the side worksheets and the SAM by Schwarm and Culter (2003:138) is presented in Figure 2.2, above. These worksheets contain data for household expenditures, wages, I-O relationships, land and capital components, the relationship between wage earners and the number of households (Synti) and local government. To ensure that that all worksheets remain consistent with one another, each sheet contains a variety of the original input of the data, calculations and proportional representation.

Schwarm and Culter (2003:138-139) state that each worksheet will contain the following important aspects with connection to SAM:

- Households

The worksheet establishes and distributes residents to the household groups by income and so provides an accounting of expenditures. The number of households in a town will be of crucial value for constructing a SAM and may feed into many different worksheets. The determination of the level of expenditure that is consistent with the distribution of households is also of importance. Estimates of the level of household expenditures across all private sectors are

calculated. Adjustments are made to ensure expenditures on housing are consistent with all other household expenditures. The value of mortgage payments has to be excluded from the finance and real estate sectors as it forms part of the housing service payments entered on the land worksheet.

- Wages

Wages can be separated into any number of groups as required, and inserted into data sheets categorised by sector and group. Unemployment contributions paid by both employers and employees are calculated. The sheet serves as primary entry point for wages, as well as for entering the number of commuters in and out, adjusting earnings accordingly. The resulting values will automatically be transferred to the Synti worksheet.

- Land

Several tasks are performed in this worksheet, including the determination of the flow of income deriving from the land and capital income. Land and capital stock is captured into the model from data files. A depreciation rate of 10% is levied on capital stock values and land stock remaining after maintenance, construction and finance costs have been accounted for. The results flow into SAM under the production sectors. The sheet also distributes household stock among households coming from the household worksheet.

- Synti

The main responsibility of this worksheet is to assign labour, land and capital income to resident households in each city. Income and expenditures of households are compared.

- I-O

After determining the primary proportions for each productive sector in the model, they are parameterised by subtracting the intermediate proportions from the total proportional value leaving the proportion of value added. Multiplying the amount by the sector's value added components (land, labour and capital) and taxes paid automatically obtained from SAM, the total value for the sector is calculated. The total amount minus the amount of value added

represent the value of intermediate demand and is divided among the sectors according to the proportions in the I-O matrix. Inserting the final estimate of intermediate demand automatically into the correct block in the SAM is the only operation required to paste the I-O in the worksheet.

- Local government

A variety of public services including those of security and emergency, as well as a number of taxes on businesses and households, make up this worksheet. Local taxes on sales, use, property and other taxes are distributed over the private sector and household groups. The taxes will appear in Figure 2.2, row 4 and column 1 and 3 in the SAM. Local government tax revenues are then distributed to pay for services including, for example, police, library, administration and parks and recreation expenses and are sub-divided into intermediate inputs, labour, land and capital. All of these values are automatically linked to the SAM.

Although the SAM model shares the basic framework of an I-O model, it allows for measurement of distributional impacts. Traditionally, it has been utilised to examine the structures of national economies and large regions (Wagner, 1997:593). Brown, Var and Lee (2002:275) regard the model as complex and opine that the application thereof aims to establish economic multipliers and to lobby for economic incentives supportive of eco-system management and protection. They recommend the application of available SAM model packages to hosting communities, where relatively accurate estimates of economic impact are required, in view of the fact that these models are relatively inexpensive and can be concluded without inordinate delay.

Wagner (1997), Edmiston and Thomas (2004), Rivera, Hara and Kock (2008), Saayman, Rossouw and Saayman (2008), Saayman and Rossouw (2010) as well as Kruger, Saayman, Saayman and Rossouw (2011) each conducted studies to evaluate the impact of events by applying SAM models. Researchers such as Dwyer, Forsyth and Spurr (2004:308) reiterate similar criticisms against the application of SAM models to those raised against the use of I-O models.

2.2.2.2.10 Computable General Equilibrium models

White and Patriquin (2003:1-2) indicate that potential changes in one sector of an economy can have a significant impact on other sectors within the economy. The application of an I-O, SAM or CGE model can indicate the estimated economic impact. While these models may well be regarded as competitors, each model is pertinent to specific situations and may even complement each other in certain circumstances. I-O and SAM models serve as building blocks to develop CGE models. The implementation of CGE models require a substantial amount of data and are relatively expensive while these models still display many of the limitations experienced with I-O models.

A valuable model to determine the extent of economic effects due to phenomena such as changing event policies would be to combine a SAM within the conceptual framework contained by a CGE model. This would enable an evaluation of the behavioural and technical relationships between variables among sets of accounts. CGE models have been used extensively since the 1970s to assist researchers in addressing contemporary policy issues in mixed economics. The popularity of CGE models may be attributed to the advantages of providing a useful framework for understanding and managing structural changes and of building bridges between theorists, planners and practical policy makers (Cameron 2003:3-4).

According to Cameron (2003:3), the aim of CGE models is to convert the abstract representation of an economy into realistic, solvable models of actual economies. Attempts are made to combine theory and policy in such a way that the analytic foundations of policy evaluations are improved. One way of describing a CGE model would be as an economy-wide model that takes account of the feedback between the demand, income and production structures and all price adjustment structures until decisions made in production are consistent with those made in demand. Alternatively, a typical CGE model can be simplistically defined as a theoretical structure that describes equations for a set time. These equations are, for example, period producers' demands for produced inputs and primary factors, producers' supplies of commodities, demands of inputs to capital formation, demand by households, export demands, government demands, relationship of basic values to production costs and to purchasers' prices, market-clearing conditions for commodities and primary factors, together with macroeconomic variables and price indices. Cordier and Hecq (2008:1) define CGE models as a class of economic models that use actual economic data to predict how an economy might

react to changing policy, technology or other external factors. These models usually comprise of equations (that describe variances), a detailed database (that contain tables of transaction values as presented by I-O or SAM models) and elasticities (dimensional parameters that capture behavioural response to policy scenarios). Supported by up to thousands of equations, CGE models can create simulations for up to 100 years' into the future and may include regional, national and international dimensions.

The primary focus of analysis by means of a CGE framework is quantitative and based on empirical data collected from a specific country or region under investigation. These models attempt to combine theory and policy in order to improve the analytic basis of policy evaluation work. Cameron (2003:3) considers a CGE model to be an economy-wide model that includes reports on demand, income and production structures where all prices adjust until decisions made in production are consistent with decisions made in demand. When applying a CGE model, the abstract representation of an economy is converted into realistic, solvable models of actual economies. These models are more accurate and offer a realistic presentation of actual economics due to the inclusion of elasticities and crowding-out effects that are taken into account. CGE models overcome many of the limitations that occur in I-O and SAM models because they combine these databases within a framework that describes the manner in which various components of the economy are linked, and so react most realistically to changes.

Dwyer, Forsyth and Spurr, (2004:307), believe that the need arises to take all sectors and markets into account and even to include feedback effects when evaluating economic impact. CGE models present just such a rigorous approach to the estimation of economic impacts. These researchers offer that conveniently developed models are available and, considering the low cost of their immediate application, there is no reason why CGE models should not replace I-O models as the primary approach to evaluate economic impact.

The application of a CGE model in order to estimate the economic impact associated with an event, allows for the identification of resource constrains on land, labour and capital that may limit changes in economic activity due to event-related increases in final demand for goods and services. Furthermore, this application allows for relative price changes should the event cause the business to change the composition of their inputs. The government budget sector's behaviour associated with an event is also taken into account. Both the positive and negative effects due to the injected expenditure in a region are estimated (Jago & Dwyer, 2006:33).

Another additional benefit of applying CGE models is that multi-regional models can account for the flows of a multi-state event. Therefore, an estimate of the net impact on state and national economics can be calculated. These models create an opportunity to calculate state and national tax implications outside the area in which the event is being presented. Government subsidies, financed from state revenue or a reduction in other government spending, will have an impact on economic activity and jobs. The impact of these subsidies can be simulated by applying assumptions to the model and to how the event under review will be financed. In order to assist government with making informed decisions concerning event policy, answers to a series of questions may be required. The utilisation of a CGE model can provide just such an assessment of state-wide effects on local, provincial and national levels in instances where an event seeks to receive financial support from state funding.

Cordier and Hecq (2008:2) state that, although CGE models are regarded as more sophisticated than are many others, they have disadvantages also. They are of the opinion that CGE models are not only expensive, but are very time consuming. The complexity of implementation efforts and the results that are highly dependent on key economic parameters (and remain uncertain) are noted as additional limitations. Furthermore, equations used within CGE models tend to develop from an underlying theory that is based on optimising behaviour.

Jago and Dwyer (2006:35) affirm that the primary criticism of CGE models is the fact that they are not required for events other than sizeable ones, such as those presented in regional areas. The choice of economic models used does not matter, since adjustments can be made to I-O models to reveal results that are more realistic. The numerous assumptions required for these models contribute to its complexity and the high costs involved. Again, models may not be available for regions due to data simply not being available. For this reasons, I-O models are often selected as the preferred approach, instead of CGE modelling, when the economic impact of events needs to be determined.

As with I-O models, the ability of CGE models to account for issues with small impacts usually depends on the availability and the level of disaggregation of sub-national data (Cordier & Hecq, 2008:1-2).

Researchers such as Adams and Parmenter (1995), Narayan (2004), URS Finance and Economics (2004), Blake (2005), PricewaterhouseCoopers (2005), Dwyer, Forsyth and Spurr (2006a, and 2006b), Bohlmann and Van Heerden (2008), Saayman and Rossouw (2008) and Rossouw and Saayman (2011) all used CGE models to determine the impact of events during their studies.

2.2.2.2.11 Tourism Policy and Forecasting models and Tourism Satellite Accounts

According to Blake, Durbarry, Sinclair and Sugiyarto (2001:1) and Rossouw and Saayman (2011: 753), Tourism Satellite Accounts (TSAs) can be complemented and extended by the use of Tourism Policy and Forecasting (TPF) models. I-O models formerly used might have correctly measured some of the economic impact in the tourism industry, but they do not completely capture the economic impact. This leads to estimates that are unreliable and heavily biased. With the development of CGE models, many shortcomings revealed in I-O models were overcome. These refinements include, amongst others, allowing for price variations and for resources to be allocated between production sectors. In order to provide a consistent means of modelling tourism in the entire economy, TPF models were applied on CGE model frameworks by including tourism data from TSAs. Not only is the totality of the tourism and travel economic impact thus being measured, but as the model is much more flexible, the application can be expanded to areas such as tourism planning, policy analysis and forecasting.

In their discussion paper, Blake, Durbarry, Sinclair and Sugiyarto (2001) indicate the manner by which research with TSAs can be complimented and extended when TPF models are applied and the information from TSAs integrated into a modelling framework with the aim of providing a technique for modelling the economic impact of tourism and travel.

The study done by Rossouw and Saayman (2011:753-783) demonstrates the relevance and the need for applied general equilibrium models to be complemented and extended through an integration with TSAs as a tool for tourism policy makers in South Africa.

2.3 Popular methods for assessing economic impact of events

Literature studies indicate a number of models that are predominantly used to analyse regional economic issues. These models include, amongst others, econometric forecasting models, fixed

price I-O models, multi-sector SAM models and CGE models. CGE models combine the advantage of econometric practices, while I-O and SAM models strengthen the theoretical basis of modelling efforts and thereby enable a more precise policy analysis (Chun-Chu & Chia-Yon, 2005:673).

Since these models have been the most popular methods applied in recent studies to assess the economic impact of events, including arts festivals, the remainder of this study will focus on the application and value of these specific models.

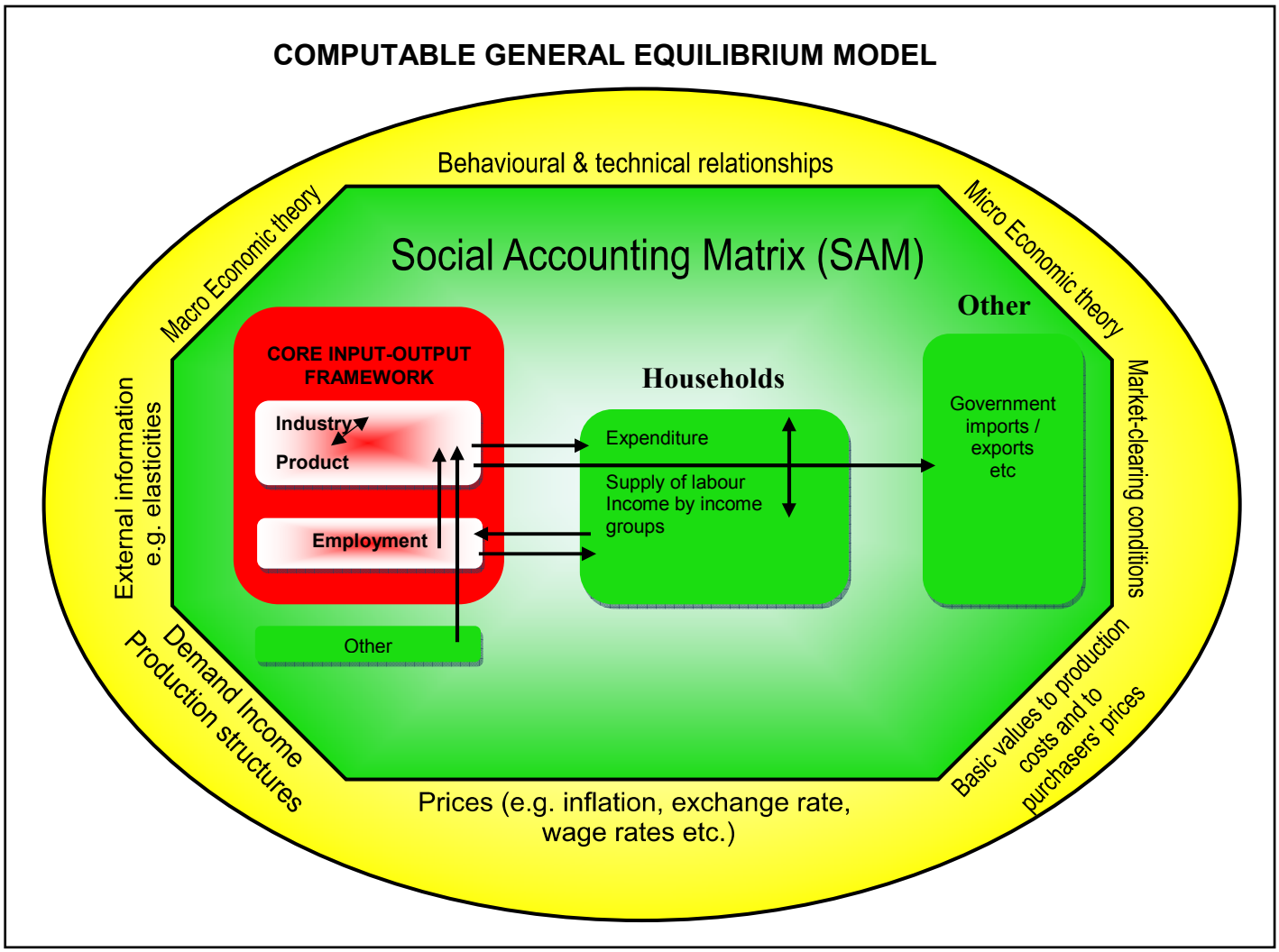


Figure 2.3: Simplified relationship between I-O, SAM and CGE models

Source: Cameron (2003:1)

Cameron (2003:1-3) offers that since I-O models do not include the personal income distribution effects across different household income segments, SAM models utilisation of I-O tables, national income statistics, household income and typical national accounts report on a broader base. However, the need arose for an economy-wide model (CGE) which would include feedback between demand, income and production structures where all prices adjust until decisions made in production are consistent with decisions made in demand. Cameron (2003:2) indicates that a core I-O framework serves to analyse the interdependence of industries in an economy. Linear equations describe the distribution of an industry's product throughout the company, even though their limitations include the lack of revealing personal income distributions effects across different household income segments. Nor do they consider industry occupation, skills and wages with income effects. Furthermore, the total effects on household income groups under review are not revealed when applying these models.

SAM data systems include an economy's social and economic data. The data are sourced from I-O tables, national income statistics and from household income and expenditure statistics. According to Cameron (2003:1-2), a SAM is a more extensive model than is its I-O counterpart because it reflects greater detail of diverse transactions within the economy. Economy-wide effects due to policy changes or other economic impacts can be evaluated when applying a SAM, together with a conceptual framework that includes the behavioural and technical relationships among variables within and among sets of accounts. The conceptual framework is supplied in the form of a CGE model.

The discussed relationships between I-O, SAM and CGE models are illustrated by Cameron (2003:4) in Figure 2.3 above. While I-O and SAM are static databases or snapshots of the economy at a point in time, a CGE model is a set of equations that explains how the various components of the economy (as reflected in the I-O and/or SAM accounts) interact with each other.

2.4 Summary

Since the need arose to measure the economic impact of events, various models and methodologies have been applied. In the light of limited financial sources, contributors are likely to expect a minimum return on investment together with some form of media exposure. Therefore, an event assessment has become a valuable tool for measuring the findings and

outcomes of economic impact studies. These assessments often serve as a guideline to either approve or decline a request for funding.

Since the commencement of arts festivals on a national level, organisers have experienced an increased need accurately to evaluate the economic impact of festivals. This need was emphasised as financial constraints on the government purse forced festival organisers to secure funding from alternative sources. Economic impact assessment models serve as assessment tools to evaluate and so to justify financial contributions.

The effect of applying different instruments in the form of various popular economic models in use during the process of assessment is unclear – and it could have a major impact on the findings and recommendations. By applying various models of assessment to the same event, the matter may be clarified. The literature reviewed indicated that popular models are being implemented without fully considering the significant advantages and disadvantages that each presents and that, consequently, prospective funders can easily be misinformed. It may be regarded, therefore, as imperative to conduct a study in which the virtues and limitations of specific models, when being applied to selected festivals, are fully explored. This must be done in order to determine the most appropriate model for accurate and holistic economic assessment.

It should be noted that since 2000, most studies conducted in order to estimate the economic impact of events with changes in an economy predominantly refer to I-O and CGE models. The SAM, as an improvement on the I-O model, is frequently included in these referrals. Therefore, while still being regarded as popular models to apply when assessing economic impact of events, these models will serve only as the basic assessment tools during this investigation. Furthermore, these models can be compared as they are based on the same basic concept of “General Equilibrium” where not everything in an economy can be explained - until everything has been explained. These models differ from the other partial equilibrium methods in that they account for the overall impact throughout the economy and capture the inter-linkages between the various components in the system. The literature reviewed revealed that these models are widely used, well documented and grounded on sound assumptions.

Articles 1 and 2 will assess the economic impact results when applying SAM and CGE models to KKNK and Aardklop respectively, while Article 3 will broaden the platform of comparison by including the economic impact results of an additional model, namely I-O, calculated for Aardklop.

CRITICAL ASSESSMENT OF ECONOMIC IMPACT ANALYSES OF THE ABSA KLEIN KAROO NATIONAL ARTS FESTIVAL

In the context of limited government funding due to budget expenses prioritised towards social upliftment programs, the South African Government's (local municipalities) funding of arts festivals is extremely restricted. Arts festival organisers are therefore obliged to seek alternative funding to ensure the feasibility and survival of such events. Private and public institutions, or individuals who offer their financial support towards community festivals, insist on definite exposure and active participation during such events to justify their expenditure. Within this framework, organisers have to ensure that they are able to provide evidence of the economic advantages and contributions of the event to secure funding. Economic impact studies of festivals often serve as assessment tools to evaluate and justify financial contributions. In order to provide such evidence, studies are conducted by means of applying contemporary models such as Social Accounting Matrix (SAM) and Computable General Equilibrium (CGE). The critical question that arises is which model can be regarded as the most appropriate to assess the economic impact. This article focuses on an economic assessment of the ABSA Klein Karoo National Arts Festival (KKNK) applying both SAM and CGE models. Since both models have advantages and disadvantages, tourism economists are confronted with the predicament of determining which model is most suitable for application to any specific event. In that light, this article will provide an overview of the competing and supplementing methodologies for modelling the regional economic dynamics and of the impacts of events. An analysis of the virtues and limitations of these alternate methodologies suggests that it may be considerations such as the data collection/compilation, expected output, research objectives and costs involved that will determine the choice of a specific modelling framework. Data from a visitor survey conducted at the KKNK during 2010 were used in the analyses, which were executed using

several regional models constructed for South Africa's Western Cape Province. The discussion in this article confirms that when different models are applied to the same data set from an event, the reported economic impact results can differ significantly. This finding serves as a warning to assessors that economic impact results can be misleading and therefore the application thereof should be handled with the utmost care as the results can readily be misinterpreted by stakeholders.

Keywords: Event Tourism, Economic impact, ABSA Klein Karoo National Arts Festival, Regional CGE modelling, Social Accounting, Multiplier Analysis, Oudtshoorn

3.1 Introduction

Snowball and Antrobus (2003:8) confirm that public support for the arts is a contentious issue in most countries. It is evident that, in developing countries, limited or no funds are made available to create or sustain art festival initiatives and that consequently, the public purse is pressured to support such events. Subsequently, the roles and responsibilities of national government, local authorities and the private sector concerning support to the tourism industry appear to have changed significantly during the last decade. Although local governments used to bear the primary responsibility for promoting regional tourism, the general public is now compelled to invest in itself by surrendering its traditional responsibilities and activities in favour of those responsibilities and activities formerly undertaken by provincial and local authorities (Raj, 2003:1).

In consideration of the fact that the South African Government's socio-economic upliftment program operates within the context of a restricted budget, it is almost inevitable that taxpayers' funds should be allocated strictly towards priority projects. Event and festival organisers, seen as having a much less urgent demand on the public purse, are therefore compelled to search for alternative funding sources, such as private or corporate sponsors and donors. In this regard, Saayman and Saayman (2011) prove that without such sponsorships, arts festivals would not be feasible.

In order to justify their expenditure, private and public institutions or individuals who offer their financial support for community festivals insist on definite exposure and active participation during such events. Currently, sponsorships made by companies seem to be approved only

when an acceptable estimated return on investment is foreseen. Even funding from the public sector will need to justify its allocation. These requirements highlight the rationale of event evaluation as an indispensable tool to demonstrate the success and achievement of the event's objectives by conducting quantifiable economic impact studies (Bowdin & Williams 2007:188). It must be noted that impact studies seeking to assess and measure non-profit organisations and events, such as arts festivals, differ from those that aim to examine profit driven organisations. Certainly, a profitable set of financial statements will rank much lower on an arts festival management's priority list as event organisers regard community development and the accompanying social and economic benefits as being of greater importance.

In recent years, serious criticisms were raised against the integrity of analyses conducted and the outcomes of the economic impact studies. Crompton (1999:17) states bluntly that the integrity of many economic impact assessment studies is questionable. A number of researchers and consultants have succumbed to the temptation to adopt inappropriate procedures and assumptions in order to generate high economic impact results (Saayman & Rossouw, 2008:2). This is done with the intention to portray the event more favourably in the mind of taxpayers, elected officials and politicians to sustain or even increase the resources that were allocated. Comments such as, "They are, in truth, the exact equivalent of an expert witness in a lawsuit who comes to testify in support of the side that is paying the expert's bill" and, "The fees for the study are like a religious tithe paid to a priest to come and bless the endeavour", quoted by Crompton (1999) unfortunately confirm this opinion.

Crompton's (1999:13-14) research records a regrettable incident where two independent tourism agencies were requested to evaluate the same event. Their reports contained disparate data resulting from the different approaches used for accounting for the use of public funds. Crompton is of the opinion that several underlying assumptions were made during the survey that had a substantial impact on the results. Whether these errors were made due to a genuine lack of understanding of the principals and procedures of an economic impact analysis, or were committed deliberately in order to generate a better picture, is somewhat immaterial. The result of either error is that the stakeholders were misled.

Literature indicates that various methods of assessment have been applied in numerous internationally studies to determine the economic impact of events. The most prevalent models used in these surveys include Input-Output (I-O), Social Accounting Matrix (SAM) and

Computable General Equilibrium (CGE) models. As may be anticipated, each model is characterised with individual strengths and weaknesses.

This article will investigate the application of two models of economic assessment to the same event. This may provide answers to research questions such as:

- How do the results obtained from the SAM model differ from the results based on the CGE model when applied to the ABSA Klein Karoo National Arts Festival (hereinafter referred to as KKNK)?
- What is the extent of the difference, if any?

In order to provide a coherent structure for this article, the introduction will be followed by a literature review, a description of the research method used during the research and then a discussion of the results and findings. Finally, this article will conclude with a discussion of the implications when applying the specific models used for assessing economic impact on the referred event.

3.2 Literature review

Following the above, a critical discussion of an economic impact assessment of the KKNK, applying the SAM and CGE models, is regarded as the important context against which this article should be read. Studies using SAM for the assessment of the economic impact of events was used by Wagner (1997), Edmiston and Thomas (2004), Saayman, Rossouw and Saayman (2008), Rivera, Hara and Kock (2008), Saayman and Rossouw (2010), as well as by Kruger, Saayman, Saayman and Rossouw (2011). On the other hand, examples of studies that applied the CGE models for evaluation are evident in the assessments conducted by various researchers such as Adams and Parmenter (1995), Narayan (2004), URS Finance and Economics (2004), Blake (2005), PricewaterhouseCoopers (2005), Dwyer, Forsyth and Spurr (2006a and 2006b), Bohlmann and Van Heerden (2008), Saayman and Rossouw (2008) and Rossouw and Saayman (2011).

Bowdin and Williams (2007:188) state that, in European countries, art festivals form an essential part of a culture that is characterised by rich and elaborate traditions. In the United Kingdom, for example, the phenomenon of art festivals has evolved since the early twentieth century and has now expanded to other countries and to Europe. In South Africa, the tourism industry is still

developing and has only emerged in the national context since the 1970's. As might be expected, the most significant growth in the local tourism industry occurred after the 1994 democratic elections.

In recent years, events and festivals have served as agents to accomplish objectives such as creating infrastructure, providing jobs, generating revenue, attracting investment, growing the arts, promoting a region and building a better image (Gursoy, Kim & Uysal, 2004:173; Snowball, 2000:121). It becomes clear that an event influences several aspects of a community – and to a large extent, the economy of the community. Methods used in studies to assess the economic impact of events or festivals should therefore be considered and applied carefully.

With regard to the most popular models in use, literature reveals the remarkable fact that, in the history of applying models to estimate the economic impact of changes in an economy since 2000, two approaches, the I-O and the CGE models, were primarily used. Very often SAM models, seen as an improvement on I-O models, were included in these referrals. In recent studies I-O, SAM and CGE appear to be the most popular models used to assess the economic impact of events (including arts festivals).

The critical question that arises in this regard is which of the models, the SAM/I-O or CGE, can be regarded as the most appropriate to assess the economic impact of the KKNK National Arts Festival. In an attempt to address this question and so fulfil the purpose of this study, both models will be applied to data collected from the KKNK National Arts Festival. The outcome of the respective assessments will then be compared in order to shed light on the differences in the reported impact that may occur.

An I-O model analyses the interdependence of industries in an economy. In its most basic form, it represents a system of linear equations that describes the distribution of an industry's product through the economy. These models are comprehensive methods for estimating the flow of money between sectors, sub-sectors, businesses, organisations and consumers, by monitoring the effects when various multipliers are applied (Reeves, 2002:54). The application of these models can measure effects of macro-economic changes to the local economy and can investigate the monetary contribution of a certain sector to the local economy. Models can be tailored to specific conditions and economies or can be used to address economies of scale associated with changes of output. SAM models include both social and economic data of an

economy and are regarded as broader-based models and their application is thus favoured. I-O tables, national income statistics and household income and expenditure statistics serve as the foundations of this model and they will, therefore, include typical national accounts that present different kinds of transactions within an economy (Cameron, 2003:2). According to Cameron (2003:2), SAM models present a means for the logical arrangement of statistical information concerning the flow of income in a country's economy within a set period (usually for a period of 12 months).

White and Patriquin (2003:1-2) indicate that potential changes in one sector of an economy can have a significant impact on other sectors within the economy. By applying an I-O, SAM or CGE model, this sectoral impact can be estimated. Even though these models can be regarded as competitors, each model is applicable to specific situations and may even be complimentary to each other, under certain conditions. For example, I-O and SAM serve as building blocks to develop CGE models. Although CGE models require a large amount of data and are costly to implement, these specific models overcome many of the limitations experienced with the I-O models.

Cordier and Hecq (2008:1) define CGE models as a class of economic models that use actual economic data to predict how an economy might react in an event of changing policy, technology or other external factors. The inclusion of the SAM within a conceptual framework as provided by the CGE model (that contains the behavioural and technical relationships between variables within and among sets of accounts) could prove very useful when evaluating the economic effects of event policy changes and other economic phenomena.

3.3 Methodology

For the purpose of this article, both the SAM and CGE models will be applied to the spending data of visitors to the KKNK as a sample festival in an attempt to evaluate and assess the outcomes of their respective economic impact calculations.

Since the initial festival in March 1995, the KKNK has evolved into a contemporary event that claims to be liberated from any political, cultural or religious affiliations. Approximately 1 000 artists perform in more than 200 productions and exhibitions over a period of 8 days in the Klein Karoo town of Oudtshoorn. The festival is renowned for exciting open-air concerts that receive

overwhelming support and accolades (Erasmus, Slabbert, Saayman, Saayman & Oberholzer, 2010:1). The cited research confirms that the KKNK had the highest attendance rate of all the national festivals and is, therefore, recognised as the largest, national arts festival in South Africa.

The Institute for Tourism and Leisure Studies, in collaboration with the School of Economics at the North-West University (Potchefstroom Campus), has a longstanding partnership with the KKNK. For a period of more than ten years, a substantial database on the KKNK has been scientifically compiled. Although this data has been made available for the purpose of this study, only data collected during the 2010 festival will be used. A destination-based survey, where interviews were held on-site during the event, was conducted. After the aim of the survey was explained to voluntarily participants, questionnaires were completed during a structured interview. Participants responded to predetermined questions using the recall method. The responses from participants required a verbal account of their spending regarding predetermined spending items (In this regard, refer to Table 3.1). During the 2010 KKNK, data from 481 completed questionnaires were analysed. In order to ensure a scientific data analysis, the collected sets of data were coded in Microsoft™ Excel™ and processed by means of the Statistical Package for Social Science (SPSS).

3.3.1 Social Accounting Matrix model

A Western Cape Province SAM was used to determine the direct, indirect and induced impact of visitor and organiser spending. The increase in production and employment because of the visitor and organiser spending were calculated within each sector of the economy. Within the framework of a SAM model, data are organised in a logically consistent manner. The model ties all expenditure made by the sector to the recipients of the relevant sector (Schwarm & Culter 2003:136-139). Data must be organised and linked to the SAM in such a manner that the data sources automatically create an essential self-balancing model. Data are stored in a series of worksheets that contain information concerning household expenditures, wages, I-O relationships, land and capital components, the relationship between wage earners, the number of households and the local government. In order to ensure that all worksheets remain consistent with one another, each sheet contains a variety of the original input data, calculations and proportional representation.

According to Saayman and Rossouw (2010:258), data from input-output tables, national statistics and household income and expenditure statistics are required to compile a SAM model. Providing a consistent framework for economy-wide models, SAM generates detailed accounts for industries, categories of the workforce, institutional sub-sectors and various socio-economic household groups (Raa & Sahoo, 2007:59). The various institutions are classified according to their socio-economic backgrounds despite their economic or functional contribution (Chowdhury & Kirkpatrick, 1994:58). During this article, the analysis was based on a SAM as developed by Conningarth Consultants (2006) using a consistent and comprehensive data set of all manual transactions among productive and institutional sectors of the province's economy. Using 2006 prices as a base line, it distinguishes 55 sectors, 12 household types and 4 ethnic groups. By making use of multipliers from a SAM model for the Western Cape Province, the direct spending of visitors at the KKNK as, calculated in Table 3.1, is converted to the linked increase in production, income and jobs in the region, represented by the indirect and induced impact.

3.3.2 Computable General Equilibrium model

CGE models cover the entire range of sectors within the economy, including primary and secondary activities, as well as services. The model accounts for all interrelationships that occur between the various sectors and makes it possible to trace the effects of changes in non-tourism activities on tourism-related sectors, as well as the effects of changes in tourism on the remainder of the economy. The macroeconomic impacts of alternative scenarios on income, employment, welfare, the balance of trade and government revenue, as well as on individual sectors of the economy are quantified.

As the model contains more variables than equations, it necessitates a choice which of the variables will be determined endogenously within the model, and which variables will be determined exogenously. The assumptions concerning the choice of endogenous and exogenous variables are known as the model closure, and should reflect as closely as possible the true economic environment into which the shocks are applied (De Wet & Van Heerden, 2002).

Modifying the closure of the model allows for simulation under different assumptions, time frames and the ability to apply different shocks to the economy. As with all economic modelling

methodologies, it is important when interpreting the results to be aware of the assumptions and restrictions under which the model was run, and how that would influence the various outcomes[4]. The *numéraire*[5] in the simulations to be performed is the nominal exchange rate (*phi*) and is also kept exogenous.

According to Liu and Chen (2004:220), CGE models combine the advantages of econometric I-O and SAM models that strengthen the theoretical basis of the modelling effort and therefore enable more precise policy analysis. During the literature study, it was noticeable that the application of CGE models on a regional scale is limited. Therefore, this article will focus on a small regional CGE model that was developed and applied to analyse the economic impact of the KKNK. A CGE model developed for the Western Cape Province served as the tool to measure economic impact.

The regional model developed and applied for this article is a CGE model elaborated by the Centre of Policy Studies at Monash University[6]. This static model was developed for use with SAM. The basic model was engaged and adapted with data from the Western Cape Province SAM. The resulting model had 55 industrial sectors that produce 55 products, that is, one product per sector (for the purpose of comparison the number of sectors had been aggregated to the 9 basics sectors as used in the SAM-based multiplier analysis). The model followed traditional neo-classical hypotheses of economic rationality, which means that each sector minimises its production costs subject to constant returns of scale, and input prices are given. Families used their income according to traditional functions of utility maximising (Rolim & Kureski, 2006).

Two regions for world trade were considered: the Rest of South Africa and the Rest of the World. Further, imports were regarded as compound goods used in different proportions throughout all sectors. The model also considered that all payments for production factors were received by local families.

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4 The modeller should also remember that the percentage change in all exogenous variables that were not directly shocked will be zero.

5 **Numéraire** is a basic standard by which values are measured. Acting as the numéraire is one of the functions of money in order to serve as a unit of account. This is to measure the worth of different goods and services relative to one another, i.e. in equal units. Numéraire goods are therefore regarded as goods with a fixed price of 1 used to facilitate calculations when only the relative prices are relevant, as in general equilibrium theory.

6 This model can be accessed at: http://www.monash.edu.au/policy/archivep.htm.

The matrix did not distinguish between activities and products. The entrance of commodities, presented in the lines of matrix, signified the purchase of compound goods formed by local (Western Cape Province) and imported commodities (from the rest of South Africa and the rest of the world). Imported products were only used directly by firms. Thus, sectors performed a dual role, that is, to produce and to combine compound goods that use their own product as well as the equivalent in imported goods. Using an example from agriculture, imports consist of any imported goods used directly by the agricultural sector and the import of agricultural products used directly by final demand.

The specific model closure used for simulating the economic impact of the expenditure incurred by festival attendants at the KKNK in 2010 is a modified version of a standard short-run closure. Given the short-run nature of the simulation (owing to the short-run nature of the festival), investment is therefore held constant.

The shocks applied to the local (Western Cape Province) economy were made by means of a simulation where the household consumption expenditure for the specified industries per spending group was increased by a certain percentage each. The scenarios (that is, different spending patterns per spending group) also simulated the overall impact of spending at the festival.

In order to reflect correctly the period under consideration, and to allow for the economic components as identified above, certain variables were held exogenous. Private consumption expenditure, capital stocks, technical change, tax rates and investment were all accounted exogenous, while employment was regarded as endogenous. From a macroeconomic point of view, the impact on GDP and employment levels naturally attracts the most attention, but the results of the various shocks on an industry level are also of great value to business enterprises and investors.

The shocks applied in the various simulations, and the respective magnitudes per sector were based on calculations made from expenditure figures taken from festival surveys as well as the most recent household expenditure figures per sector for the Western Cape Province. However, the precise magnitude of festival-specific capital and infrastructure expenditures remains a contentious issue. Hence, the impact of these investments was not considered in the analysis.

Following the above methodological exposition on the SAM and CGE models, the ensuing results were obtained after application on the KKNK.

3.4 Results of the Social Accounting Matrix-based multiplier analysis

The following discussion will elaborate on the results that were obtained after applying the SAM model in light of its total direct spending, multipliers with secondary effects and the value of the economic impact of the KKNK.

3.4.1 SAM: Total direct spending

Direct spending by visitors at an event serves as the first input when accessing the economic impact that occurs. A specific visitor survey was used to evaluate the spending of visitors while the organisers provided details of their incurred spending in a separate section of the survey. Visitor spending was differentiated into categories such as foreign visitors, visitors living in the Western Cape Province and visitors from the rest of South Africa. The total visitor spending at the 2010 KKNK as per Table 3.1 was calculated by multiplying the number of calculated visitors by the average spending per person. The main contributors are visitors from the Western Cape Province. An additional amount exceeding R13 million was spent by the organisers in preparation for the festival. To assess the economic impact of the festival, only contributions to the Western Cape Province formed part of this survey. Some direct spending which took place outside the Western Cape Province, for example, payment of Value Added Tax to SARS in Pretoria, commission payable to Computicket in Johannesburg and remuneration payable to artists residing outside the Western Cape Province, were excluded. After considering these adjustments, the direct spending (including visitors and organiser spending) totalled R47 252 259.

Based on the information obtained from the questionnaires, the spending pattern of visitors who attended the 2010 KKNK could then be determined and the specific item spending per visitor category is listed in Table 3.1.

Table 3.1: Total expenditure (in ZAR) by visitors at the KKNK

SPENDING ITEM	FOREIGN	LOCAL (WESTERN CAPE)	REST OF RSA	TOTAL
Accommodation	108 996	8 340 743	1 713 211	10 162 950
Food and Restaurants	72 767	6 935 288	966 461	7 974 515
Liquor	16 887	3 106 701	433 319	3 556 907
Soft drinks	37 458	1 451 115	232 805	1 721 378
Performances	23 027	6 174 886	742 661	6 940 575
Purchases: Retailers	73 688	2 626 542	518 216	3 218 446
Purchases: Stalls	81 364	5 962 918	711 582	6 755 863
Amusement Parks / Adventure Activities	0	344 317	67 477	411 794
Transport to KKNK	58 336	3 543 280	1 046 046	4 647 662
Transport at the KKNK	0.00	410 903	116 792	527 695
Parking	0.00	254 998	39 488	294 487
Other	0.00	1 012 730	27 259	1 039 989
TOTAL	**472 523**	**40 164 420**	**6 615 316**	**47 252 259**

Source: Authors' own calculations based on visitor surveys

3.4.2 SAM: Multipliers and secondary effects

Economic activities are stimulated and generate both employment and additional revenue opportunities within the province. By means of production multipliers, the total turnover generated by each sector in the economy of the province can then be calculated. Production will include the demand for intermediate inputs by an activity and the total value added generated by the activity.

3.4.3 SAM: Valuing the economic impact of the KKNK

The following discussion will aim to provide a clearer understanding of the total economic impact of the KKNK, as presented by the sum total of the direct, indirect and induced impact. The impact through production multipliers on the economy by foreigners, residents of the Western Cape Province, rest of South Africa and in total is listed in Table 3.2.

3.4.3.1 SAM: Foreign expenditure

The acquisition of goods and the utilisation of services by visitors from abroad contributes significantly to the revenue generation within the province. From the results displayed in Table 3.2, it is evident that the spending incurred by foreign visitors during the 2010 festival was mostly tourism related. A direct impact was encountered in the trade and accommodation

Table 3.2: Impact through production multipliers (ZAR, 2006 prices) – foreign, local (Western Cape), rest of South Africa and total

SECTOR	DIRECT IMPACT	INDIRECT IMPACT	INDUCED IMPACT	TOTAL IMPACT	PERCENTAGE (TOTAL)
FOREIGN					
Agricultural	0	4 144	1 945	6 089	0.6%
Mining	0	52	59	111	0.0%
Manufacturing	0	35 248	16 373	51 620	5.3%
Electricity and water	0	1 715	1 264	2 978	0.3%
Construction	0	1 705	612	2 317	0.2%
Trade and accommodation	391 159	148 514	95 379	635 051	64.9%
Transport and communication	58 336	47 275	24 184	129 795	13.3%
Financial and business services	23 027	69 220	39 493	131 740	13.5%
Community services	0	10 725	8 067	18 791	1.9%
TOTAL	**472 522**	**318 597**	**187 375**	**978 494**	**100.0%**
LOCAL (WESTERN CAPE)					
Agricultural	0	351 970	165 224	517 194	0.6%
Mining	0	4 372	4 986	9 358	0.0%
Manufacturing	0	2 968 754	1 379 441	4 348 195	5.3%
Electricity and water	0	143 842	105 991	249 833	0.3%
Construction	0	143 043	51 389	194 431	0.2%
Trade and accommodation	28 423 307	11 179 192	7 186 979	46 789 479	56.5%
Transport and communication	3 954 182	3 687 210	1 881 072	9 522 464	11.5%
Financial and business services	6 519 203	7 176 818	4 222 095	17 918 116	21.7%
Community services	1 267 729	994 247	934 931	3 196 906	3.9%
TOTAL	**40 164 420**	**26 649 448**	**15 932 107**	**82 745 975**	**100.0%**
REST OF SOUTH AFRICA					
Agricultural	0	58 078	27 315	85 394	0.6%
Mining	0	767	875	1 642	0.0%
Manufacturing	0	504 275	233 110	737 385	5.4%
Electricity and water	0	24 729	18 245	42 974	0.3%
Construction	0	23 518	8 449	31 967	0.2%
Trade and accommodation	4 575 593	1 825 734	1 173 296	7 574 623	55.3%
Transport and communication	1 162 838	753 715	387 071	2 303 623	16.8%
Financial and business services	810 138	1 113 159	649 226	2 572 523	18.8%
Community services	66 747	157 202	127 988	351 937	2.6%
TOTAL	**6 615 316**	**4 461 176**	**2 625 574**	**13 702 067**	**100.0%**
TOTAL IMPACT					
Agricultural	0	414 193	194 485	608 677	0.6%
Mining	0	5 191	5 920	11 111	0.0%
Manufacturing	0	.3 508 277	1 628 923	5 137 200	5.3%
Electricity and water	0	170 285	125 499	295 784	0.3%
Construction	0	168 266	60 450	228 716	0.2%
Trade and accommodation	33 366 059	13 153 440	8 455 654	54 999 152	56.5%
Transport and communication	5 175 356	4 488 200	2 292 326	11 955 883	12.3%
Financial and business services	7 352 368	8 359 197	4 910 813	20 622 379	21.2%
Community services	1 334 475	1 162 173	1 070 986	3 567 634	3.7%
TOTAL	**47 252 259**	**31 429 221**	**18 745 056**	**97 426 536**	**100.0%**

Source: Authors' own calculations based on multiplier analysis

(61.6%)[7], transport and communication (44.9%)[8] and financial and business services (17.5%)[9] sectors. Applying the principle of backward linkages, the same sectors revealed a significant indirect and induced impact, namely, for trade and accommodation (indirect R148 514, induced R95 379), transport and communication (indirect R47 275, induced R24 084) and the financial and business services (indirect R69 220, induced R39 493).

Suppliers of goods and services residing outside the Western Cape were included in the analysis and may have had a significant direct or indirect effect on the economy of the province. The calculated economic impact estimation of the KKNK will be more comprehensive when the indirect impact is included, although it might be insignificant.

Using the basic sector aggregation published by the South African Reserve Bank and Statistics South Africa, it should be noted that the direct effect of the expenditure by foreign visitors in 2010 was 48.3%, indirect effect 32.6% and induced effect 19.1% of the total increase in expenditure. Sectors affected by experiencing a significant impact were those of trade and accommodation (64.9%), financial and business services (13.5%) and transport and communication (13.3%).

3.4.3.2 SAM: Local (Western Cape) expenditure

In order to determine the economic impact of the spending incurred by visitors living in the Western Cape, a similar approach to estimate the foreign visitor spending was followed. From the data collected by means of the 2010 survey (refer to Table 3.2), it was estimated that the total impact of local expenditure (visitors living in the Western Cape) totalled R82 745 975. The sectors that benefited the most were those of trade and accommodation (56.5%), financial and business services (21.7%) and transport and communication (11.5%). Of the total increase in expenditure in the Western Cape Province related to local spending, the direct impact represented 48.5%, indirect impact 32.2% and induced impact 19.3%.

Table 3.2 indicates that the direct impact on the province's economy as result of spending by local visitors was R40 164 420. The calculation of the economic impact of an event generally excludes expenditure by local visitors while the model still allows for reporting such impact in

[7] Percentage indicates proportion direct impact of the total impact within the trade and accommodation sector.
[8] Percentage indicates proportion direct impact of the total impact within the transport and communication sector.
[9] Percentage indicates proportion direct impact of the total impact within the financial and business service sector.

order to portray a comprehensive assessment. Although nine activity sectors were identified, only four benefited from the direct impact, that is, trade and accommodation (60.7%), transport and communication (41.5%), community services (39.7%) and financial and business services (36.4%). By applying the principle of backward linkages, large indirect (R26 649 448) and induced (R15 932 107) impact were also noted. In view of this, it may be assumed that in the absence of the festival, expenditure of local visitors would have been reduced and, therefore, a smaller amount would have been spent within the province.

3.4.3.3 SAM: Rest of South Africa expenditure

The spending incurred by visitors from the rest of South Africa is determined by following the same procedures used to estimate the expenditures of foreign and local Western Cape visitors. By using production multipliers, the effect on production within the Western Cape is illustrated in Table 3.2. This table indicates the direct, indirect and induced impact as result of visitors from the rest of South Africa.

As confirmed with the expenditure of foreign and local visitors, again the most significant impact occurs within the trade and accommodation (55.3%), financial and business service (18.8%) and transport and communication (16.8%) sectors. Application of the backward linkages principle indicates that the trade and accommodation sector amounts to R4 575 594 (60.4%) when evaluating the direct impact. Significant indirect impacts are also noted in the construction (73.6%), manufacturing (68.4%), agricultural (68.0%) and electricity (57.5%) sectors.

The direct impact of visitors from the rest of South Africa is estimated at R6 615 316 (48.3%), the indirect impact R4 461 176 (32.6%) and the induced impact at R2 625 574 (19.2%). The total increase in local expenditure is estimated at R13 702 067. Sectors that benefited the most are similar to those of foreign visitors, that is, trade and accommodation, financial and business services and transport and communication. The total of these three sectors represents almost 99% of the total expenditure made by KKNK visitors from the rest of South Africa.

3.4.3.4 SAM: Total impact

The preceding sections included an estimation of the direct impact of the KKNK in the Western Cape with regard to spending incurred by the visitors and organisers divided into foreign, local

and rest of South Africa sections. The calculation of economic impact requires that only expenditure that would not have occurred in the absence of the event should be included. In order to evaluate the total economic impact within the province, the calculated direct impact needs to be adjusted by means of the multiplier effect. Production multipliers were used in respect of each activity sector. The total impact of the festival on each of the province's economic sectors (as summarised in Table 3.3) was calculated by multiplying the direct economic impact in each sector by means of specific production multipliers. An estimated total impact of the festival within the province was then determined by means of adding the total impact values of the different sectors together.

Table 3.3: The impact of the KKNK on regional production

SECTOR	FOREIGN SPENDING	LOCAL SPENDING (WESTERN CAPE)	REST OF SOUTH AFRICA SPENDING	DIRECT IMPACT	PRODUCTION MULTIPLIERS[a]	TOTAL IMPACT
Agricultural	0.000	0.000	0.000	0.000	2.823	0.609
Mining	0.000	0.000	0.000	0.000	2.745	0.011
Manufacturing	0.000	0.000	0.000	0.000	2.815	5.137
Electricity and water	0.000	0.000	0.000	0.000	2.560	0.296
Construction	0.000	0.000	0.000	0.000	3.003	0.229
Trade and accommodation	0.391	28.423	4.576	33.390	2.840	54.999
Transport and communication	0.058	3.954	1.163	5.175	2.754	11.956
Financial and business services	0.023	6.519	0.810	7.352	2.684	20.622
Community services	0.000	1.268	0.067	1.334	3.160	3.568
TOTAL	**0.473**	**40.164**	**6.615**	**47.252**		**97.427**

[a]Unit in R million excluding variable production multipliers

Source: Authors' own calculations based on multiplier analysis

The total impact is differentiated between direct, indirect and induced impact in Table 3.2. It can be noted that the direct impact (R47 252 259) increased to a total impact of R97 426 536 when the indirect (R31 429 221) and induced impact (R18 745 056) are also taken into account. This represents an aggregated production multiplier of 2.06. This implies that for every rand that visitors spent in the province, an additional 106 cents are generated in terms of indirect expenditure. In order to calculate the aggregated production multiplier, the total impact is divided by the direct impact.

An important additional value-added element that emanates from presenting an event is the remuneration of employees as this benefits household income. The impact on low-income households is of considerable importance. It is an important indicator of the extent to which the

event contributed to the relief of poverty in the province. The extent of changes that occur within household income, spending and saving patterns can be measured by means of the household income multiplier.

The SAM for the Western Cape is also applied in order to estimate the impact that the total spending during the festival has on a family's income (Conningarth Consultants, 2006). In Table 3.4, specific household income multipliers for each activity sector are calculated and then multiplied with the values of the total sector's impact on family income due to the presentation of the KKNK. It is estimated that an annual remuneration total of R40 462 474 would have been lost to the Western Cape should the festival not have taken place. The aggregated income multiplier is valued at 0.42 and this can be interpreted as an increment of the Western Cape family's income for each rand that is spent by visitors to the province.

Labour, as an important factor in the production process, is also positively impacted. This indicator measures job creation and the contribution of each sector to create new employment opportunities. Salaries and wages are distributed among various types of labourers having a positive impact on the economy.

With the listed values that are available, it becomes possible to estimate the impact of the festival on employment levels in the Western Cape Province (as indicated in Table 3.5). The impact of the 2010 KKNK on the province's job levels was calculated using figures from the Western Cape SAM and the 2006 labour force statistics per province data as categorised per business volume and jobs per activity sector in South Africa. In addition to the number of employees directly involved in the event, 844 jobs may be exclusively dependent on the festival. This implies that should the festival not take place, the province will lose 844 employment positions as well as those positions occupied by employees who are directly involved with the festival. These employment opportunities include direct, indirect and induced impact, and represent both full- and part-time jobs. The sectors that would be the most affected by the absence of the festival are those of trade and accommodation, financial and business services and community services.

Table 3.4: The impact of the KKNK on family income

SECTOR	TOTAL IMPACT (R MILLION)	DIRECT AND INDUCED IMPACTS (R MILLION)			
		REST OF THE HOUSEHOLDS	LOW-INCOME HOUSEHOLDS	TOTAL HOUSEHOLDS	PERCENTAGE (TOTAL)
Agricultural	0.609	0.014	0.199	0.213	0.5%
Mining	0.011	0.000	0.004	0.004	0.0%
Manufacturing	5.137	0.109	1.814	1.924	4.8%
Electricity and water	0.296	0.006	0.104	0.109	0.3%
Construction	0.229	0.005	0.077	0.082	0.2%
Trade and accommodation	54.999	1.197	21.147	22.344	55.2%
Transport and communication	11.956	0.199	4.873	5.072	12.5%
Financial and business services	20.622	0.305	8.775	9.080	22.4%
Community services	3.568	0.130	1.504	1.633	4.0%
TOTAL	**97.427**	**1.966**	**38.497**	**40.462**	**100.0%**

Source: Authors' own calculations based on multiplier analysis

It is important to bear in mind that the input-output tables can only be used to this effect when the job coefficients are known. This requires the existence of estimates for the relationship job-production. Therefore, based on the values presented previously, an alternative method can be applied to present an estimate of the festivals' impact at the level of jobs in the region.

Table 3.5: The impact of the KKNK on employment

SECTOR	TOTAL IMPACT (R MILLION)	LABOUR MULTIPLIERS[a]	EQUIVALENT JOBS (NUMBER)
Agricultural	0.609	20.929	12.7
Mining	0.011	4.823	0.1
Manufacturing	5.137	3.634	18.7
Electricity and water	0.296	4.909	1.5
Construction	0.229	11.258	2.6
Trade and accommodation	54.999	11.119	611.6
Transport and communication	11.956	1.673	20.0
Financial and business services	20.622	5.889	121.4
Community services	3.568	15.543	55.5
TOTAL	**97.427**		**≈844**

[a]The labour multiplier indicates the number of job opportunities that will be created as a result of change in production of 1 million by a particular activity.

Source: Authors' own calculations based on multiplier analysis

This can be done by converting the event's expenditure in the region to equivalent job units. Although the input-output analysis can be used for this purpose, Wilson and Raymond (1973:140) proposed an equation that allows the calculation of credible estimates for these values and which is given by:

$$Equivalent\ Jobs = \sum \frac{S_i}{R_i}$$

where S_i represents the amount of expenditure in the activity sector *i* and R_i represents the average business volume per worker of the sector *i*. Based on this equation, and using data from Statistics South Africa relative to the business volume and jobs by activity sector in the North West Province in 2006, it was possible to obtain an estimate of the impact of the festival with regard to the regional job level (refer to Table 3.6).

Table 3.6: The impact of the KKNK on the level of the employment

SECTOR	TOTAL IMPACT (R MILLION)	TRANSACTION VOLUME / VOLUME OF JOBS	EQUIVALENT JOBS (NUMBER)
Agricultural	0.609	0.019	32.4
Mining	0.011	7.905	0.0
Manufacturing	5.137	2.512	2.0
Electricity and water	0.296	0.009	34.4
Construction	0.229	0.061	3.7
Trade and accommodation	54.999	0.076	724.3
Transport and communication	11.956	0.416	28.7
Financial and business services	20.622	0.126	163.8
Community services	3.568	0.063	56.7
TOTAL	**97.427**		**≈1046**

Source: Author's own calculations

Table 3.6 indicates the number of employment opportunities that were generated within the regional economy as a result of the festival being presented. In addition to the number of employees directly employed by the festival organisers, a total of 1 046 job opportunities may depend upon the festival. Therefore, the absence of the festival would imply a significant reduction in the number of jobs created in the Western Cape Province. The sectors that would be affected the most are those of trade and accommodation, financial and business services and community services.

3.5 Results of Computable General Equilibrium model analysis

The assessment after applying a CGE model in order to determine the economic impact of the KKNK will now be discussed in terms of its total direct spending and simulated results.

3.5.1 CGE: Total direct spending

In view of the fact that the SAM and CGE models calculate the direct spending based on the same data, it could be expected that the results will be similar. In this regard, refer to paragraph 3.4.1 for a detailed discussion.

When applying the CGE model, the local (Western Province) economy was shocked by stimulating the household consumption expenditures for the specified industries per spending group by means of increasing each by a certain percentage. The different spending patterns per spending group also stimulated the overall impact of spending at the festival. The result after applying shocks are summarised in Table 3.7.

Table 3.7: Spending of visitors at the KKNK (% change)

SECTORS WHERE SPENDING WAS INCURRED	FOREIGN	LOCAL (WESTERN CAPE)	REST OF RSA	TOTAL
Trade	0.001%	0.020%	0.003%	0.023%
Accommodation	0.002%	0.134%	0.024%	0.159%
Transport services	0.001%	0.012%	0.004%	0.016%
Business activities	0.001%	0.021%	0.003%	0.023%
Activities / services	0.001%	0.072%	0.004%	0.075%
Total increase in HH expenditure due to festival	**0.006%**	**0.258%**	**0.036%**	**0.297%**

Source: Authors' own calculations based on visitor surveys

3.5.2 CGE: Using the regional model to obtain simulated results

When interpreting the findings of the shock to the Western Cape Province economy, it is essential to keep the type of model closure, or assumptions under which this simulation is run, in mind. In the simulated scenario, the impact of the increased demand for the relevant goods and services is measured. Table 3.8 presents a summary of selected macro-economic results obtained for the given shocks applied to the economy in the simulated scenario.

In the simulated scenario, the increase in household expenditure leads to higher GDP growth and employment, higher prices, lower exports owing to a decrease in competitiveness, and a negative impact on the balance of trade. Given the nature of the shock and model closure, these results are to be expected. Prices increase in this scenario because of the increase in demand of goods. The increase in productivity owing to the increased demand enables output

to increase relative to inputs. Growth in GDP and employment improves because of the relatively cheaper cost of production. Higher prices in the economy would weaken the real exchange rate of the country, decrease its competitiveness in international trade and lead to a lower demand for domestic exports. This increase in the cost of a specific parcel of the provincial labour force led to a 0.011% increase of the real provincial GDP and a 0.05% nominal increase. It shows only a small effect over total employment, yet it provided a 0.063% increase in real household consumption.

Table 3.8: Summary of results for scenarios – provincial and sectoral level impacts

MACRO-ECONOMIC EFFECTS	FOREIGN	WESTERN CAPE PROVINCE	REST OF RSA	TOTAL
	ZAR	ZAR	ZAR	ZAR
Western Cape Economy				
Real GDP	3 266 865	72 919 897	22 455 681	97 065 411
%Change	0.000	0.009	0.001	0.011
Production	2 755 967	70 774 173	13 225 660	85 178 768
%Change	0.000	0.008	0.001	0.009
Employment (#)	5	198	23	222
%Change	0.000	0.017	0.003	0.020
Consumer prices	-	-	-	-
%Change	0.001	0.033	0.006	0.041
Price of labour	1 036 851	26 639 083	5 024 737	32 700 670
%Change	0.001	0.033	0.006	0.041
Total exports	-4 613 926	-116 202 578	-22 044 313	-142 860 816
%Change	-0.003	-0.068	-0.013	-0.084
Competitiveness	-	-	-	-
%Change	-0.001	-0.034	-0.007	-0.042
Balance of trade	-333 819	-8 568 033	-1 641 279	-10 543 131
%Change	-0.001	-0.031	-0.006	-0.038
Sector effects				
Value added (Price)				
Natural Resources	10 977	111 707	56 876	197 525
%Change	0.000	0.001	0.000	0.002
Manufacturing	686 951	17 618 052	3 348 886	21 321 614
%Change	0.001	0.024	0.004	0.029
Services	2 058 039	53 044 415	9 819 898	63 659 629
%Change	0.001	0.039	0.007	0.047
Employment (Volume)				
Natural Resources	-1	-36	-6	-42
%Change	-0.001	-0.022	-0.004	-0.027
Manufacturing	-3	-80	-14	-95
%Change	-0.001	-0.039	-0.007	-0.047
Services	9	313	43	359
%Change	0.001	0.030	0.005	0.036
Household effects				
Real household consumption	1 653 893	44 718 716	8 184 649	53 730 311
%Change	0.002	0.053	0.010	0.063

Source: Integrated and I-O model simulations conducted by the author

Table 3.8 shows a relatively large increase in production and imports. This is mostly due to the respective increase in demand of goods and related productivity. The changes in investment and inventory levels are zero because of the nature of the short-run model closure used in this simulation. In order to understand fully the magnitude and direction of change to macro-economic variables such as GDP, employment and exports caused by the simulated shocks, it is essential to look at the disaggregated micro-economic or industry-specific results. The following tables in this section present a view of the changes in activity levels of selected industries.

3.5.2.1 CGE: Foreign expenditure

Table 3.9 indicates that the increase in output of R2 755 967 can be ascribed to foreign expenditure and represents only 3.23% of the increase in output by all spending groups. The financial and business services as well as the transport and communication sectors reveal an increase in output of 0.002%, the largest for this spending group. All remaining sectors reflect a minor impact.

Table 3.9: Aggregate sectoral level impacts (structural effects for the regional model only) – foreign

EFFECT OF INCREASED EXPENDITURE DUE TO FESTIVAL	VALUE ADDED		EXPORTS		IMPORTS		EMPLOYMENT	
SECTOR ANNUALISED % CHANGE	VOLUME	PRICE	VOLUME	PRICE (ZAR)	VOLUME	PRICE	VOLUME	NOMINAL WAGE
Agriculture, forestry and fishing (1)	-	8 983	-	17 834	-	0	-1	22 221
%Change	0.000	0.000	-0.001	0.000	0.000	0.000	-0.001	0.001
Mining (2-4)	-	1 993	-	155	-	0	0	1 677
%Change	-0.001	0.000	0.000	0.000	0.000	0.000	-0.001	0.001
Manufacturing (5-25)	-	686 951	-	565 129	-	0	-3	212 608
%Change	-0.001	0.001	-0.004	0.001	0.002	0.000	-0.001	0.001
Electricity & water (26-27)	-	49 858	-	0	-	0	0	18 598
%Change	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.001
Construction (28)	-	43 768	-	0	-	0	0	47 319
%Change	0.000	0.001	-0.002	0.001	0.000	0.000	0.000	0.001
Trade & accommodation (29-30)	-	224 019	-	285 642	-	0	0	222 386
%Change	0.000	0.001	-0.005	0.001	0.002	0.000	0.000	0.001
Transport & communication (31-32)	-	339 344	-	218 514	-	0	1	112 481
%Change	0.001	0.002	-0.007	0.002	0.002	0.000	0.002	0.001
Financial & business services (33-35)	-	1 068 952	-	643 171	-	0	4	305 043
%Change	0.001	0.002	-0.009	0.002	0.000	0.000	0.002	0.001
Community services (36-37)	-	332 098	-	2 357	-	0	3	373 601
%Change	0.001	0.001	-0.006	0.001	0.003	0.000	0.001	0.001
Industry average	-	306 219	-	192 534	-	0	0	146 215
%Change	0.000	0.001	-0.004	0.001	0.001	0.000	-0.001	0.001
Total	**-**	**2 755 967**	**-**	**1 732 802**	**-**	**-**	**4**	**1 315 935**

Source: Integrated and I-O model simulations conducted by the author

3.5.2.2 CGE: Local (Western Cape) expenditure

In general, the expenditure by local visitors is excluded when calculating the economic impact of an event. However, in this simulation, the impact due to the spending of locals was calculated in order to obtain a more comprehensive assessment. As per Table 3.10, the local spending group (Western Cape Province) contributes to the largest increase in output (R70 774 173). The most significant increase in output is experienced in the financial and business services sector (0.058%). This sector is followed by transport and communication (0.049%) and community services sectors (0.038%).

Table 3.10: Aggregate sectoral level impacts (structural effects for the regional model only) – local

EFFECT OF INCREASED EXPENDITURE DUE TO FESTIVAL	VALUE ADDED		EXPORTS		IMPORTS		EMPLOYMENT	
SECTOR ANNUALISED % CHANGE	**VOLUME**	**PRICE**	**VOLUME**	**PRICE (ZAR)**	**VOLUME**	**PRICE**	**VOLUME**	**NOMINAL WAGE**
Agriculture, forestry and fishing (1)	-	53 899	-	178 335	-	0	-34	570 921
%Change	-0.005	0.001	-0.008	0.002	-0.006	0.000	-0.017	0.033
Mining (2-4)	-	57 808	-	4 581	-	0	-1	43 095
%Change	-0.014	0.001	-0.012	0.003	-0.011	0.000	-0.025	0.033
Manufacturing (5-25)	-	17 618 052	-	14 609 519	-	0	-80	5 462 393
%Change	-0.024	0.024	-0.094	0.024	0.040	0.000	-0.039	0.033
Electricity & water (26-27)	-	1 203 715	-	0	-	0	1	477 822
%Change	0.003	0.034	0.000	0.000	0.000	0.000	0.010	0.033
Construction (28)	-	1 125 462	-	0	-	0	-4	1 215 734
%Change	-0.002	0.027	-0.055	0.014	0.000	0.000	-0.004	0.033
Trade & accommodation (29-30)	-	5 772 799	-	7 206 964	-	0	15	5 713 618
%Change	0.006	0.034	-0.131	0.033	0.041	0.000	0.006	0.033
Transport & communication (31-32)	-	9 228 284	-	5 930 218	-	0	45	2 889 888
%Change	0.031	0.049	-0.195	0.049	0.076	0.000	0.070	0.033
Financial & business services (33-35)	-	26 723 800	-	16 023 346	-	0	91	7 837 269
%Change	0.019	0.058	-0.229	0.057	0.000	0.000	0.058	0.033
Community services (36-37)	-	8 990 355	-	65 838	-	0	147	9 598 662
%Change	0.048	0.038	-0.156	0.039	0.092	0.000	0.057	0.033
Industry average	-	7 863 797	-	4 890 978	-	0	20	3 756 600
%Change	-0.011	0.026	-0.096	0.024	0.034	0.000	-0.018	0.033
Total	**-**	**70 774 173**	**-**	**44 018 801**	**-**	**-**	**178**	**33 809 402**

Source: Integrated and I-O model simulations conducted by the author

3.5.2.3 CGE: Rest of South Africa expenditure

Expenditure incurred by the rest of South Africa spending group accounts for approximately 15% of the total output increase (R13 225 660). From Table 3.11, the sectors that primarily

contribute to the output increase are the financial and business services (0.111%), transport and communication (0.009%), electricity and water (0.007%) and community services (0.007%).

Table 3.11: Aggregate sectoral level impacts (structural effects for the regional model only) – rest of South Africa

EFFECT OF INCREASED EXPENDITURE DUE TO FESTIVAL	VALUE ADDED		EXPORTS		IMPORTS		EMPLOYMENT	
SECTOR ANNUALISED % CHANGE	VOLUME	PRICE	VOLUME	PRICE (ZAR)	VOLUME	PRICE	VOLUME	NOMINAL WAGE
Agriculture, forestry and fishing (1)	-	44 916	-	71 334	-	0	-6	107 689
%Change	-0.001	0.001	-0.003	0.001	0.000	0.000	-0.003	0.006
Mining (2-4)	-	11 960	-	854	-	0	0	8 129
%Change	-0.003	0.000	-0.002	0.001	-0.002	0.000	-0.005	0.006
Manufacturing (5-25)	-	3 348 886	-	2 782 174	-	0	-14	1 030 332
%Change	-0.004	0.004	-0.018	0.004	0.008	0.000	-0.007	0.006
Electricity & water (26-27)	-	242 167	-	0	-	0	0	90 128
%Change	0.001	0.007	0.000	0.000	0.000	0.000	0.003	0.006
Construction (28)	-	210 503	-	0	-	0	-1	229 315
%Change	0.000	0.005	-0.010	0.003	0.000	0.000	-0.001	0.006
Trade & accommodation (29-30)	-	1 094 247	-	1 384 264	-	0	3	1 077 718
%Change	0.001	0.006	-0.025	0.006	0.009	0.000	0.001	0.006
Transport & communication (31-32)	-	1 734 427	-	1 110 778	-	0	8	545 099
%Change	0.006	0.009	-0.037	0.009	0.014	0.000	0.013	0.006
Financial & business services (33-35)	-	4 972 951	-	2 992 143	-	0	17	1 478 287
%Change	0.004	0.011	-0.043	0.011	0.000	0.000	0.011	0.006
Community services (36-37)	-	1 565 603	-	11 450	-	0	14	1 810 526
%Change	0.005	0.007	-0.027	0.007	0.013	0.000	0.005	0.006
Industry average	-	1 469 518	-	928 111	-	0	2	708 580
%Change	-0.002	0.005	-0.018	0.005	0.007	0.000	-0.003	0.006
Total	**-**	**13 225 660**	**-**	**8 352 998**	**-**	**-**	**20**	**6 377 223**

Source: Integrated and I-O model simulations conducted by the author

3.5.2.4 CGE: Impact of total expenditure

In Table 3.12, the scenario clearly indicates the increased activity in all selected industries. The increased demand and spending seems to have a positive impact on most industries. When the interrelatedness amongst most industries is considered, this is to be expected. This specific scenario also illustrates that activity in the service industries naturally increase, but show little influence on other industries.

Table 3.12: Aggregate sectoral level impacts (structural effects for the regional model only) – total

EFFECT OF INCREASED EXPENDITURE DUE TO FESTIVAL	VALUE ADDED		EXPORTS		IMPORTS		EMPLOYMENT	
SECTOR ANNUALISED % CHANGE	VOLUME	PRICE	VOLUME	PRICE (ZAR)	VOLUME	PRICE	VOLUME	NOMINAL WAGE
Agriculture, forestry and fishing (1)	-	125 764	-	276 420	-	0	-41	687 156
%Change	-0.006	0.001	-0.012	0.003	-0.005	0.000	-0.020	0.040
Mining (2 -4)	-	71 761	-	5 590	-	0	-1	51 869
%Change	-0.016	0.002	-0.014	0.004	-0.013	0.000	-0.030	0.040
Manufacturing (5-25)	-	21 321 614	-	17 683 573	-	0	-95	6 574 497
%Change	-0.028	0.029	-0.114	0.028	0.049	0.000	-0.046	0.040
Electricity & water (26-27)	-	1 474 372	-	0	-	0	1	575 104
%Change	0.004	0.041	0.000	0.000	0.000	0.000	0.013	0.040
Construction (28)	-	1 352 639	-	0	-	0	-5	1 463 249
%Change	-0.003	0.032	-0.066	0.017	0.000	0.000	-0.005	0.040
Trade & accommodation (29-30)	-	6 970 439	-	8 734 050	-	0	18	6 876 870
%Change	0.007	0.040	-0.159	0.040	0.051	0.000	0.007	0.040
Transport & communication (31-32)	-	11 141 810	-	7 156 322	-	0	54	3 478 248
%Change	0.038	0.059	-0.235	0.059	0.092	0.000	0.084	0.040
Financial & business services (33-35)	-	32 022 083	-	19 211 237	-	0	108	9 432 880
%Change	0.023	0.069	-0.274	0.069	0.000	0.000	0.069	0.040
Community services (36-37)	-	10 698 285	-	78 130	-	0	161	11 552 880
%Change	0.052	0.045	-0.186	0.046	0.106	0.000	0.062	0.040
Industry average	-	9 464 308	-	5 905 036	-	0	22	4 521 417
%Change	-0.014	0.031	-0.116	0.029	0.042	0.000	-0.021	0.040
Total	**-**	**85 178 768**	**-**	**53 145 321**	**-**	**-**	**200**	**40 692 754**

Source: Integrated and I-O model simulations conducted by the author

Table 3.12 also presents some detail on an aggregated (since the model actually has 55 sectors) level. Nominal wages all increase in tandem with the national inflation (0.04%, as in Table 3.12) bearing in mind the assumption that the real wage rate is kept constant. Since the world price of goods is kept fixed (the *numéraire* by assumption), no change in national or sectoral level import prices will be observed. From Table 3.12, it is clear that at the sectoral level, there are losers as well as winners as result of the increase in expenditure due to the festival. Following the service industries that directly cater for visitors (29 to 37), electricity and water services exhibit the largest increase in output (0.041%). This is possibly due to the relative share of tourist expenditure in the income base of these sectors, as well as the fact that these industries are directly and indirectly affected by an increase in expenditure by visitors. The transport sector also experiences a significant increase (0.059%). Because of its link to the strongly stimulated service industries directly catering for visitors, manufacturing is an obvious example of the sectors that experience the indirect benefits of increased tourism. The electricity and water sector is a less obvious example. Its growth prospects are enhanced by the expansion of investment or increased demand induced by the additional tourism.

Certain sectors, such as the traded-goods industries, experienced output declines due to the increase in expenditure as result of the festival. These sectors were adversely affected by the higher domestic prices within their specific industries that the expansion of tourism generated. Foremost examples include the traditional exporters (agriculture; mining; non-metallic mineral products; and basic and fabricated metal products) and the import-competing sectors such as textiles, clothing and footwear. Agriculture, forestry and fishing (traditional exporters), which might be expected to experience a significant decline because of the increase in imports, are saved indirectly to some extent from major declines by the increase in tourists' demand (indirectly) for their outputs.

Table 3.12 also displays the changes in employment by industry in the simulated scenario. The increase in expenditure and productivity increases the demand for labour in most industries. For all other sectors, employment increases in line with the increase in total output.

3.6 Findings and implications

This article compares the SAM and CGE models as assessment tools in order to evaluate the economic impact of the KKNK. The following findings resulted from this comparison of the two tools.

Firstly, this article reveals that the economic assessment by means of a SAM-based multiplier analysis and a CGE model generates obviously different results. It is of utmost importance to give cognisance to the fact that various models of assessment measured different economic impact results. These differences became clear with regard to the results that were measured in terms of sectoral, visitors' residence and total impact (as per Table 3.13). The most significant difference in total impact is measured in the manufacturing, trade and accommodation, financial and business services as well as community services. A very substantial difference with regard to the measured economic impact is noted within the local segment when the visitors' origin is considered by SAM and CGE models. The significant local support that is measured by both models may be ascribed to the geographical positioning of Oudtshoorn as the hosting town. The isolated location of the festival as well as the sparsely populated neighbouring provinces may attribute to the meagre support from other provinces and the obviously concentrated local representation.

Table 3.13: Economic impact summary when applying a SAM and CGE model to the KKNK – foreign, local, rest of South Africa and total impact

SECTOR	FOREIGN		LOCAL (WESTERN CAPE)		REST OF RSA		TOTAL	
TOTAL IMPACT								
	SAM	**CGE**	**SAM**	**CGE**	**SAM**	**CGE**	**SAM**	**CGE**
Agricultural	6 089	8 983	517 194	53 899	85 394	44 916	608 677	125 764
Mining	111	1 993	9 358	57 808	1 642	11 960	11 111	71 761
Manufacturing	51 620	686 951	4 348 195	17 618 052	737 385	3 348 886	5 137 200	21 321 614
Electricity and water	2 978	49 858	249 833	1 203 715	42 974	242 167	295 784	1 474 372
Construction	2 317	43 768	194 431	1 125 462	31 967	210 503	228 716	1 352 639
Trade and accommodation	635 051	224 019	46 789 479	5 772 799	7 574 623	1 094 247	54 999 152	6 970 439
Transport and communication	129 795	339 344	9 522 464	9 228 284	2 303 623	1 734 427	11 955 883	11 141 810
Financial and business services	131 740	1 068 952	17 918 116	26 723 800	2 572 523	4 972 951	20 622 379	32 022 083
Community services	18 791	332 098	3 196 906	8 990 355	351 937	1 565 603	3 567 634	10 698 285
TOTAL	**978 494**	**2 755 967**	**82 745 975**	**70 774 173**	**13 702 067**	**13 225 660**	**97 426 536**	**85 178 768**
ADDITIONAL JOB OPPORTUNITIES								
Additional positions created (Excluding positions direct involved)							844	222
Employment opportunities lost if festival terminates							1 046	

Source: Authors' own calculations based on multiplier, integrated and I-O model simulations

In reflection of the calculated impact summarised in Table 3.13, the total impact when applying a SAM model is 14.38% higher (R12 247 768) than when applying a CGE model. The greater calculated impact when applying a SAM model is experienced in the local (R11 971 802 or 16.92%) and rest of South Africa (R476 407 or 3.60%) spending groups. However, in the foreign spending group, the impact calculated by applying the CGE model was larger (R2 755 967) than when calculated with the SAM model (R978 494). The calculated additional job opportunities created due to the KKNK taking place also differ considerably when applying the two different models. The SAM multiplier analysis reflects a much higher employment rate than that calculated with a CGE model. A possible reason for this is that the CGE model captures or accounts for crowding-out effects, while the SAM-based multiplier analysis does not. These differences again highlight the fact that economic assessors should pay meticulous attention when deciding on the most appropriate model to apply. When reporting on inflated figures, potentially misleading information could have negative consequences for all stakeholders.

Secondly, the methodological application of the assessment models indicates that, despite the enhancement of I-O models with multiplier effects, certain limitations still persist during applications. Therefore, the development of SAM models, based on I-O models, is envisaged as an improvement. Application of these models is regarded as simple, quick, reliable, effective, efficient and flexible and the data required is generally readily available.

The methodological problems that may be experienced when applying SAM models incorporating I-O tables are that:

- these tables are published on a national level although the application is needed on a regional level;
- published tables may be outdated;
- economic assessors of events should be aware of the possible hindrance where the geographical area for which the results are reported on and that of the input-output table has no relation;
- when applying these models limited, if any, price movements and supply constrains are accommodated;
- these models do not allow for any changes in the relationship between sectoral inputs and outputs;
- no integrated economic effects are taken into account;
- the assumption is made that the consumption preference of the host region equals that of tourists;
- impact estimates are often overestimated due to multipliers used which include consumption effects;
- the employment impact is often misinterpreted;
- capital expenditure not directly attributable to tourism is often included in the analysis; and
- value added multipliers can be applied to spending that is calibrated in output terms.

CGE models are the most detailed and informative economic modelling technique available and are predominantly used in surveys where a large shock is to be applied to a complex economy (Adams & Parmenter 1999:114). These models are normally utilised to address specific what-if economy-wide scenario's and their application is often discouraged due to factors such as the mechanical complexity, the lack of available data and insufficient time to compile an assessment. Consequently, these models are applied during economic impact studies on national level. Of course, these national surveys have limited use during lower level surveys. Although CGE models are data intensive and relatively expensive to set up and run, they seem to be the preferred economic impact-measuring tool as they may compensate for many of the limitations experienced by I-O models, including supply constraints and price movements. Despite this apparent preference, analysts are often required to become familiar with CGE

modelling software and techniques, despite these being much more complicated to implement and interpret.

Finally, this article clearly indicates the definite economic impact of events and the various stakeholders such as event organisers, visitors, the hosting community and academics who have interests when an event is planned and presented. In view of the fact that the assessment outcome between the various models differ, the application of these results will also influence the stakeholders on different levels. The possible over inflated impact as measured by a SAM model, may be favoured by event organisers to lobby for sponsorships, while others such as residents and business owners within the hosting community are misled. Reporting exaggerated economic impact may render locals that offer services during the event despondent when they perceive their personal benefit as much less than those of the inflated figures. Moreover, when event organisers report higher impact values, sponsors are misinformed and may be presented with an inflated economic impact together with over-estimated job opportunities. In view of the more simplistic and affordable manner in which SAM models can be applied, organisers may be tempted to their application, rather than employing the more complicated and expensive CGE models.

3.7 Conclusions

The discussion in this article aimed to elaborate on the assessment of economic impact of the KKNK when applying SAM and CGE models. In view of the obvious advantages and disadvantages of each model, this article further aimed to explore the most appropriate model to be applied when assessing the economic impact of KKNK. Methodological considerations such as the data collection/compilation, expected output, research objectives and costs involved were included as fundamental principles during evaluation.

Event organisers are concerned mainly with securing funds, not only to ensure the sustaining of an event but, more importantly, the expansion of the event. It is assumed that organisers would prefer to portray the best possible economic impact scenario in relation to job creation and opportunities.

In view of the fact that assessment models are mainly utilised by economists and academics, cognisance should be given to the inherent advantages, disadvantages, challenges and

opportunities that the methodological application of each model presents. In the absence of sound economic reporting, further research and informed decision making by festival organisers and the local community may be hampered.

Assessors may have to decide whether to settle for readily available applications or rather develop a customised model in order to ensure a more accurate economic impact assessment. From the literature study and the measured SAM and CGE economic impact results of the KKNK, the most appropriate measuring tool appears to be a CGE model. This model provides for predicting economic reaction due to the event and takes into considerations variables such as changing policies, technology and other external factors. Since only two models were applied in this article, other measuring tools such as an I-O model may provide even more conservative assessment results when considering the possibility of developing such a model on regional level (the hosting community). The hosting of a local event in a regional town will attract visitors from surrounding areas and generate additional expenditure within the town, though this spending may have little effect on the province as a whole. Even though a significant economic impact may be measured for the town, the effect on the province may be insignificant. Regional models should aim to measure the money flow and impact on the local economy due to hosting an event and therefore results should be more accurate and relevant than when applying models that were developed for provincial or national levels.

The unique contribution of this article is imbedded in the fact that, within the South African context, it is the first study of its kind that aimed to determine the economic impact by means of applying more than one assessment model, that is, SAM and CGE, to the data set of a singular event. Furthermore, this article affirms that regardless of the assessment method or measuring tool applied, popular national events will doubtless have a variable impact on the economy.

In conclusion, possible future research may have to examine whether such a significant difference occurs when the same models are applied to a similar event. It is suggested that a SAM and CGE assessment should be conducted on Aardklop as this festival too reveals characteristics corresponding to the KKNK such as operational management, diverse attendance and a variety of art genres. The outcomes thereof may confirm or contradict the assumption that various models of economic assessments produce different outcomes.

CRITICAL ASSESSMENT OF ECONOMIC IMPACT ANALYSES OF THE AARDKLOP NATIONAL ARTS FESTIVAL

Festivals became a global phenomenon and serve as a platform to portray the leisure and tourism industry within a nation. The economic impact of these events has an undisputed economic effect, not only on the hosting community, but also on the global community. Despite the encouraging community support, socio-economic impact and the spin-offs that are generated through such events, the financing of art festivals remains an intricate issue. The fact remains that not all festivals are financially sustainable and may require extensive sponsorship in order to ensure continuation of the event. The limited availability of government funding due to budget constraints curbs the financial support offered by municipalities whilst forcing event organisers to seek alternative funding to ensure the survival and feasibility of events. This additional burden placed on event organisers necessitates the use of adequate assessment tools in order to convince private and public institutions or individuals to invest in such events through sponsorships. In order to provide such crucial evidence, economic assessment studies are conducted by means of applying contemporary models such as Social Accounting Matrix (SAM) and Computable General Equilibrium (CGE). Deciding on the most appropriate model to assess the economic impact of an event is therefore of crucial importance. Previous research in this regard was undertaken on the Klein Karoo National Arts Festival. This discussion serves to confirm those findings by doing a similar economic assessment on the Aardklop National Arts Festival (hereafter referred to as Aardklop) by means of applying both SAM and CGE. A comparison of the results when re-applying these two models may confirm the appropriateness of use of these models when assessing economic impact of festivals. Due to the advantages and disadvantages of applying these models, tourism economists are often confronted with the dilemma of determining the most suitable assessment tool for economic evaluation. The

argument that follows will provide an overview of competing and supplementing methodologies for modelling the regional economic dynamics and impacts of events. An analysis of the virtues and limitations of these methodologies suggests that it may be considerations such as the data collection/compilation, expected output, research objectives and costs involved that is decisive in the choice of a specific modelling framework. Data from a visitor survey conducted at Aardklop during 2010 was used for the analyses, which were executed using several regional models constructed for South Africa's North West Province. The survey confirms that when different models are applied to the same data set of an event, the reported economic impact results can differ significantly. This finding serves as a further warning to assessors that economic impact results can be misleading and therefore their application should be handled with the utmost care as the results can readily be misinterpreted by stakeholders.

Keywords: Event Tourism, Economic impact, Aardklop National Arts Festival, Regional CGE modelling, Social Accounting, Multiplier Analysis, Potchefstroom

4.1 Introduction

Special events, such as festivals and sport competitions, date back several centuries. Jago and Dwyer (2006:1) point out that the first Olympic Games - held in 77 B.C. - are commonly regarded as the earliest example of a special event. A festival in Athens in 534 B.C. (HOLND FSTVL, as quoted by Quinn, 2005:6) was presented in honour of the god Dionysus, the patron god of wine, feast and dance. Festivals of this nature aimed to celebrate or reaffirm the culture of the community and embraced a selection of artistic exhibitions. Early festivals were characterised by distinct religious or ritualistic components, whilst music, dance and drama featured as important contributory aspects of the festivities.

The increased popularity of festivals during the early 20th century in the United Kingdom, led to the expansion thereof into Europe to such an extent that festivals eventually became a global phenomenon (Bowdin & Williams, 2007:188). The increasing number of arts festivals that occurred on a global scale emphasise the collective desire of communities to participate in activities that emphasise their artistic culture. Schoombie (2003:10) highlights that by 2003, more than 1,2 million international arts and cultural festivals were listed on the internet. Festivals that create platforms for celebrating the diverse preferences of visitors, such as different language and cultural opportunities, have grown enormously in popularity. This notion is most

observable in the frequent media announcements of new festivals, some brand-named in order to mandate recognition of the hosting region or community – or the main sponsor.

The financing of art festivals is a contentious issue in view of the encouraging community support, socio-economic impact and spin-offs that is generated through such events. Only a handful of festivals are financially self-supporting and, according to Saayman and Saayman (2011), very few events would be able to continue in the absence of sponsorships. The intense burdens on the public purse during recent years have created a scenario in which the responsibilities of government, and specifically the duties of local authorities, have had to be prioritised (Raj, 2003:1). It is, therefore, only be expected that government expenses would rather be prioritised to socio-economic upliftment programs, rather than being spent on an event seen as being supported only by selected cultural groups. The shrinking, and in some cases withdrawal of financial support from local authorities necessitates the sourcing of alternative funding from private or corporate sponsors, donors and public contributions in order to ensure the continuance of festivals. In the context of the recent economic recession that currently hampers the recovery of global economies, it can be expected that sponsorships and donations towards festivals will be extremely limited. Private and public sectors that still provide financial support to arts festivals most likely will continue to do so because of a commitment to their wider social responsibilities and in anticipation of the expectation of extensive exposure during the event.

A review of literature that relates to impact assessments of art festivals indicate that a formal set of financial statements would not only be difficult to obtain, but unlikely to attract the type of sponsorships sought. Bowdin and Williams (2007:188) argue that event evaluation by means of conducting quantifiable economic impact studies have become a valuable tool to demonstrate the success and achievements of festivals. In recent years, several methods to conduct these economic impact studies have been developed. Although various methods to assess the economic impact of events have been applied in numerous international studies, the most prevalent models utilised in surveys include Input-Output (I-O), Social Accounting Matrix (SAM) and Computable General Equilibrium (CGE) models. Most unfortunately however, authors such as Crompton (1999:17) have found evidence that although many economic impact assessments are completed with integrity, a number are not. This is evidenced by several examples of assessment studies where researchers and consultants adopted inappropriate procedures and assumptions in order to generate high economic impact results. In addition, erroneous

assumptions were made during data collection practices that had a substantial impact on the results that subsequently led to stakeholders being misinformed. Consequently, criticism against the integrity of analyses and of the outcomes of economic impact studies is increasing.

In comparison to European countries, South Africa is inexperienced regarding the presentation of arts festivals. However, the number of festivals has increased dramatically since the first national arts festival was held in 1974 in Grahamstown. This festival, together with the ABSA Klein Karoo National Arts Festival (hereinafter referred to as KKNK) in Oudtshoorn, Aardklop National Arts Festival (hereinafter referred to as Aardklop) presented in Potchefstroom and the Innibos National Arts Festival in Nelspruit, all form part of South Africa's official national arts festivals.

The KKNK and Aardklop, originally targeted at the Afrikaans speaking community, reveal many similar characteristics. These encompass aspects such as operational management, diverse attendance and a variety of art genres. In terms of visitors spending and attendance, Aardklop can be regarded as the second largest festival, following the KKNK, in South Africa. The focus of this article will be to apply SAM and CGE models to a set of data collected from Aardklop in order to compare the resulting assessments of economic impact. In this manner, it will be possible to investigate questions such as:

- How do economic impact results compare when applying SAM and CGE models to Aardklop data?
- How do the results of the KKNK compare with that of Aardklop when applying both models, respectively?
- Is there any relation between the two set of results?
- What differences are revealed, and to what extent is the differentiation?
- What comparisons are notable?
- Is it advisable to recommend that a standard SAM or CGE model should be developed and applied when assessing economic impact for arts festivals?

In addition, this article will include a discussion on the results of this assessment (including those compiled in published reports). After a short introduction, a literature review will provide the background concerning Aardklop as well as the preferred methods that were used to assess the economic impact from the festival. Following this, an exposition of the research methodology is provided that includes the results when applying alternative models as an assessment of the

economic impact of Aardklop. This article is then concluded with a discussion of the results, findings, implication and conclusions.

4.2 Literature review

The methods that are used to assess economic impact of events or festivals may have significant consequences. It is therefore imperative that serious consideration be given to the application to be chosen as the festivals can serve as a vehicle to achieve socio-economic objectives. These outcomes may include as creating infrastructure, providing jobs, generating revenue, attracting investment, growing the arts, promoting a region and building a better image (Gursoy, Kim & Uysal, 2004:175; Snowball as quoted by Saayman & Rossouw, 2010:255).

Economic impact assessment methods such as SAM and CGE have been applied by several researchers, for example, by Wagner (1997), Edmiston and Thomas (2004), Saayman, Rossouw and Saayman (2008), Rivera, Hara and Kock (2008), Saayman and Rossouw (2010), as well as Kruger, Saayman, Saayman and Rossouw (2011) who all applied SAM widely in their studies. The application of CGE for assessment purpose is further evident in studies done by various researchers such as Adams and Parmenter (1995), Narayan (2004), URS Finance and Economics (2004), Blake (2005), PricewaterhouseCoopers (2005), Dwyer, Forsyth and Spurr (2006a and 2006b), Bohlmann and Van Heerden (2008), Saayman and Rossouw (2008) and Rossouw and Saayman (2011). When reviewing the above studies, most researchers acknowledge as fact that each model that measures economic impact has both advantages and disadvantages. The tendency in the latest studies to apply a combination of models, rather to favour a specific one, in order to overcome some of the shortcomings acknowledged is noted as a way of improving the acceptability of the results.

Clearly, festivals play a significant role in the leisure and tourism industry, one that results in significant economic impact - not only on the hosting community, but increasingly on the global community. The impact of art events frequently transcends the boundaries of art-related areas. The economic effect that festivals have on non- artistic areas such as the local, regional and national economy is measured conducting quantifiable economic impact studies. Although many economic impact assessments are completed with integrity, criticism against the integrity of analysis and the outcomes of economic impact studies is on the increase (Crompton, 1999:17; Saayman & Rossouw, 2008:2).

Studies that focused on assessing the economic impact of events after 2000 primarily refer to Input-Output (I-O) and CGE models. The SAM model is generally viewed as an improvement of the I-O model. In previous research (refer to Article 2), two popular models, SAM and CGE, were applied to the KKNK to assess economic impact. This article serves to interrogate the findings obtained in Article 2. A comparison of results when re-applying these two models to a similar event may confirm the appropriateness of these models when used to assess the economic impact of festivals.

The aim of an I-O model is to analyse the interdependence of industries in an economy. Being regarded as a broader model, SAM models include both social and economic data of an economy and so present a way for the logical arrangement of statistical information in as far as income flows in a country's economy within a set time frame, usually a period of 12 months, are concerned (Cameron, 2003:2).

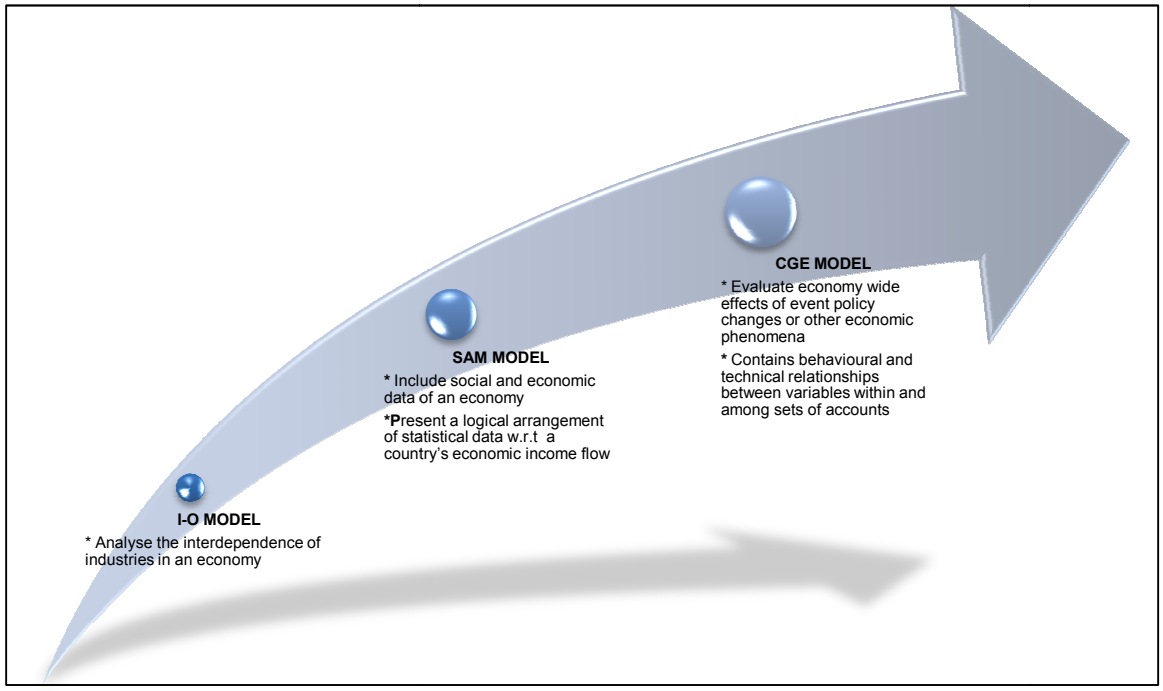

Figure 4.1: I-O and SAM as building blocks to develop CGE models

Source: Adopted from Reeves (2002, p. 54), Cameron (2003, p. 2)

I-O and SAM serve as building blocks to develop CGE models (Figure 4.1). Positioning a SAM-model within the conceptual framework of a CGE-model (that contains behavioural and technical relationships between variables among sets of accounts) may prove to be very

functional when evaluating economy-wide effects of event policy changes or other economic phenomena (White & Patriquin, 2003:1-2).

4.3 Methodology

Serving as an expansion of the selected sample chosen in previous studies (refer to Article 1), SAM and CGE models will be applied to Aardklop in an attempt to evaluate the results of their respective economic impact.

The enormous successes that were accomplished during the KKNK created the opportunity to present similar festivals at a national level. The KKNK provided a framework and motivation for presenting a similar festival in the northern region of South Africa. During 1998, the town of Potchefstroom, situated in the North West Province, hosted the first Aardklop. The mission of the original organisers was to offer a cultural experience to all visitors, while simultaneously providing an opportunity for economic growth in the local community. Not only did the festival provide a platform for displaying the creativity and talent of South African artists, but it also initiated additional investment, spending and job opportunities in the local economic area (Potchefstroom City Council, 2007). Since the initial festival in 1998 when a mere 25 000 tickets were sold for 45 productions (Kruger, Saayman, Saayman & Oberholzer, 2009:31), ticket sales during the 2010 event reached almost 70 000 (Botha, Saayman, Saayman & Oberholzer 2010:35). Sales for the 2007 festival peaked at a recorded 90 000 tickets sold.

Aardklop has a strong association with the Institute for Tourism and Leisure Studies at the North-West University, Potchefstroom Campus and research projects have been done since 2004. During the 2010 art festival, the institute collected a vast amount of data through two surveys that were conducted. With the generous consent of the Institute, this data was employed as secondary data for the purposes of this study. The first survey focused on collecting data from visitors, while the second survey was directed at entrepreneurs who traded in and around the venue of the festival. The questionnaires for this survey were developed in line with those previously used at various arts festivals. The scope of 26 questions in this particular survey ranged from seeking demographic details of respondents, their behaviour during the festival, the duration of their stay at the festival and expenses incurred. Although 550 questionnaires were distributed during the duration of the festival (30 September – 04 October

2010), only the data of 516 could be used. In addition to these instruments, a total of 124 questionnaires were completed by entrepreneurs.

The data was collected by trained fieldworkers who interviewed visitors and completed questionnaires using the recall method. The respondents were asked to indicate their spending during the festival. A destination-based survey was utilised and allowed for interviews to be conducted during the event. Different venues and sites were targeted to conduct interviews during the event in order to ensure that responses represented the diversity of visitors and their opinions. Microsoft™ Excel™ and the Statistical Package for Social Science (SPSS) were employed in order to ensure that the data analysis for this article was completed in a scientific manner.

4.3.1 Social Accounting Matrix model

According to Schwarm and Culter (2003:136-139), a SAM model organises data in a logically consistent manner and ties all expenditure made by the sector to the recipients in the relevant sector. Worksheets reflect the data of household expenditures, wages, I-O relationships, land and capital components, relationship between wage earners, the number of households and local government that are all linked to the SAM model. Each sheet contains a variety of the originally input data, calculations and ratios to ensure that all worksheets remain consistent with one another. Saayman and Rossouw (2010:258) confirm that a SAM model is dependent on the various forms of data such as data from input-output tables, national statistics and household income and expenditure statistics. This model thus offers a consistent framework for economy-wide models and generates specified accounts for industries, categories of the workforce, institutional sub-sectors and various socio-economic household groups (Raa & Sahoo, 2007:59).

The analysis for this article was based on a SAM model for the North West Province as originated by Conningarth Consultants (2006). This model makes use of a consistent and comprehensive data set in terms of all manual transactions among productive and institutional sectors of the province's economy. Using 2006 prices as a base, it distinguishes 55 sectors, 12 household types and 4 ethnic groups. With the application of multipliers according to the SAM model for the North West Province, the direct spending of visitors at Aardklop, as shown in

Table 4.1, is converted into the linked increases in production, income and jobs in the region, represented by the indirect and induced impacts.

4.3.2 Computable General Equilibrium model

Generally, CGE models provide a full account of the interrelationships that occur between all of the sectors. This includes the entire range of sectors in the economy such as primary and secondary activities, as well as services. Not only are the models able to trace the effects of changes in non-tourism activities on tourism-related sectors, but they also report on the effects of changes in tourism on the rest of the economy. Macroeconomic impacts are considered for alternative scenarios on income, employment, welfare, the balance of trade and government revenue, as well as on individual sectors of the economy. As the model contains more variables than equations, it is essential to choose which of the variables will be determined endogenously within the model, and which will be determined exogenously. The practice of model closure is followed, that is, giving preference to specific endogenous and exogenous variables. De Wet and Van Heerden (2002) conclude that the endogenous and exogenous variables should reflect as closely as possible the true economic environments to which the shocks are being applied. When the closure of model is modified, it allows for simulation under different assumptions, time frames, and the ability to apply differing shocks to the economy. As with all economic modelling methodologies, the various outcomes[10] are influenced by the assumptions and restrictions under which the models are run and, when interpreting results, cognisance should be made of this. The *numeraire*[11] in the simulations to be performed is the nominal exchange rate (*phi*) which is also kept exogenous.

A specific CGE model was developed for the North West Province as an alternative economic assessment model. CGE models combine the advantages of econometric I-O models and SAM and thus strengthen the theoretical basis of the modelling effort, enabling a more precise policy analysis (Liu & Chen, 2004:220). During the literature study, it became apparent that the application of CGE models on a regional scale was limited. It therefore became necessary to

[10] The modeller should also remember that the percentage change in all exogenous variables that were not directly shocked will be zero.

[11] **Numéraire** is a basic standard by which values are measured. Acting as the numéraire is one of the functions of money in order to serve as a unit of account. This is to measure the worth of different goods and services relative to one another, i.e. in equal units. Numéraire goods are therefore regarded as goods with a fixed price of 1 used to facilitate calculations when only the relative prices are relevant, as in general equilibrium theory.

construct and apply a small regional CGE model in order reliably to analyse the economic impact of Aardklop.

As used during a previous study to measure the economic impact of the KKNK, the regional model developed and applied for this study is a general computable equilibrium model developed by the Centre of Policy Studies at Monash University[12]. This static model was developed for use with SAM and adapted with data from the North West Province SAM. The newly constructed model presented 37 industrial sectors that produced 37 products. Each sector produced only one product (for the purpose of comparison, the number of sectors has been aggregated to the 9 basic sectors as used in the SAM-based multiplier analysis). Following traditional, neo-classical hypotheses of economic rationality, each sector minimised its production costs subject to constant returns of scale, and input prices are given. Further, it was assumed that families use their income according to traditional functions of utility maximising (Rolim & Kureski, 2006).The model provided for two regions of world trade, namely, the Rest of South Africa and the Rest of the World. Imports were regarded as compound goods used in different proportions throughout all sectors. In addition, the model considered that all payments for production factors were received by local families.

The matrix did not allow for any differentiation between activities and products. The entrance of commodities (obtainable in the lines of matrix) suggested purchases of compound goods presented by local (North West Province) and imported commodities (from the rest of South Africa and the rest of the world). As the imported products were only used directly by firms, the sectors assumed a dual role, that is, to produce and to combine compound goods that used their own product as well as the equivalent in imported goods.

A standard short-run closure model was used to simulate the economic impact of expenditure incurred by festival attendants at Aardklop in 2010. Given the short-run nature of the simulation (following the short-run nature of the festival), investment was therefore held constant. A shock was applied to the North West Province economy by increasing the household consumption expenditure for the specified industries per spending group with a specified percentage each. The scenarios (that is, different spending patterns per spending group) also simulate the overall impact of spending at the festival.

[12] The model can be accessed at: http://www.monash.edu.au/policy/archivep.htm.

In order to correctly reflect the period under consideration and allow for the economic components identified above as shocked, private consumption expenditure, capital stocks, technical change, tax rates and investment were all held exogenous. Employment was endogenous, and was determined within the model. From a macroeconomic point of view, much attention was given to the impact on GDP and employment levels.

The results of the various shocks on an industry level were of great value to business enterprises and investors. Calculations made from expenditure figures were taken from the collected surveys done at Aardklop. The most recent household expenditure figures per sector for the North West Province served as the basis for applying shocks in the various simulations and respective magnitudes per sector. The precise magnitude of festival-specific capital and infrastructure expenditures remained a contentious issue and so, for the purpose of this analysis, their impact has been excluded.

In view of the above methodological exposition on SAM en CGE models, Aardklop revealed the following results:

4.4 Results of the Social Accounting Matrix-based multiplier analysis

The economic impact results obtained after applying SAM to Aardklop data set are as follows:

4.4.1 SAM: Total direct spending

The direct spending that visitors incur during an event serves as the basis for calculating the estimated economic impact. Statistics with regard to visitors' spending were obtained from the visitor's survey, while festival organisers provided details of the costs incurred in order to host the event. The model is structured in such a manner that visitor spending was differentiated into foreign visitors, visitors living in the North West Province and visitors from the rest of South Africa. The total visitor spending at Aardklop during 2010 (as indicated in Table 4.1), was calculated by multiplying the number of tickets sold with the average spending per person. The total amount spent was estimated at R53 949 317, of which visitors from the rest of South Africa contributed a total of R40 352 051. The estimated spending allows adjustments to exclude direct spending that took place outside the North West Province. Such exclusions encompassed

the remuneration paid to the majority of artists residing outside Potchefstroom, Value Added Tax paid to SARS in Pretoria, and commissions payable to Computicket in Johannesburg.

Table 4.1: Total expenditure (in ZAR) of visitors at Aardklop

SPENDING ITEM	FOREIGN	LOCAL (NORTH WEST)	REST OF RSA	TOTAL
Entrance fees	62 213	1 036 222	1 940 655	3 039 090
Accommodation	824 754	1 105 570	8 987 535	10 917 859
Food and Restaurants	188 512	2 156 413	6 672 708	9 017 632
Liquor	69 348	2 261 652	5 659 410	7 990 411
Soft drinks	114 153	1 314 641	2 658 505	4 087 298
Performances	76 197	460 119	1 228 912	1 765 228
Purchases: Retailers	119 860	1 306 650	3 424 356	4 850 866
Purchases: Curios and memorabilia	47 259	182 291	512 475	742 025
Transport to Aardklop	376 704	557 808	4 020 833	4 955 345
Transport at the Aardklop	64 496	251 193	1 976 841	2 292 531
Parking	20 833	215 007	780 263	1 016 103
Other	0	785 371	2 489 558	3 274 930
TOTAL	**1 964 330**	**11 632 936**	**40 352 051**	**53 949 317**

Source: Authors' own calculations based on visitor surveys

4.4.2 SAM: Multipliers and secondary effects

The initial direct spending incurred by non-local visitors during an event supposedly stimulates the economy and creates additional business turnover, personal income, employment opportunities and government revenue within the hosting community. It is then possible to determine the total turnover for each sector within the economy of a province using production multipliers.

4.4.3 SAM: Valuing the economic impact of Aardklop

The following paragraphs portray the direct, indirect and induced impacts that Aardklop has within the local community. These will be discussed. The impact calculated, by using production multipliers, on the economy by foreigners, residents of the North West Province, rest of South Africa and in total is listed in Table 4.2.

4.4.3.1 SAM: Foreign expenditure

The acquisition of goods and services by visitors from abroad creates an additional money influx into the province. Economic activities are stimulated and thus generate employment and additional revenue opportunities for the province. By means of various production multipliers, it is possible to calculate the total turnover within each sector of the provincial economy.

When evaluating the impact results (as stipulated in Table 4.2) it becomes clear that the spending incurred by foreign visitors during the 2010 Aardklop mostly related to tourism. The most significant direct impact occurred within the trade and accommodation (51.7%)[13], transport and communication (43.5%)[14] and in the financial and business (28.4%)[15] sectors. When the principle of backward linkages is applied a significant indirect (R1 582 893) and induced (R1 169 993) impact is noted. It is noteworthy that astonishingly high indirect and induced impacts occurred within the trade and accommodation sector.

In order to determine the wide-ranging estimate of the economic impact that Aardklop has, it is important to include the indirect impact of non-regional suppliers. Suppliers of goods and services from beyond the borders of the North West Province were included in this analysis and may have a significant direct or indirect effect on the economy within the province.

The value of goods and services from regional suppliers are classified according to the basic sector aggregation, as published by the South African Reserve Bank and Statistics South Africa. According to these statistics, the direct effect of the expenditure by foreign visitors in 2010 was 41.6%, the indirect effect 33.6% and the induced effect 24.8% of the total increase in expenditure. Specific sectors that experienced a significant impact were those of trade and accommodation (54.9%), transport and communication (21.5%) and financial and business services (12.1%).

[13] Percentage indicates proportion direct impact of the total impact within trade and accommodation sector.
[14] Percentage indicates proportion direct impact of the total impact within transport and communication sector.
[15] Percentage indicates proportion direct impact of the total impact within financial and business sector.

Table 4.2: Impact through production multipliers (ZAR, 2006 prices) – foreign, local (North West), rest of South Africa and total

SECTOR	DIRECT IMPACT	INDIRECT IMPACT	INDUCED IMPACT	TOTAL IMPACT	PERCENTAGE (TOTAL)
FOREIGN					
Agricultural	0	19 001	16 534	35 535	0.8%
Mining	0	6 578	5 144	11 722	0.2%
Manufacturing	0	174 404	71 496	245 899	5.2%
Electricity and water	0	7 585	6 082	13 667	0.3%
Construction	0	11 513	4 520	16 034	0.3%
Trade and accommodation	1 340 884	731 643	519 253	2 591 781	54.9%
Transport and communication	441 201	334 416	239 336	1 014 952	21.5%
Financial and business services	161 412	218 925	188 436	568 773	12.1%
Community services	20 833	78 827	119 191	218 852	4.6%
TOTAL	**1 964 330**	**1 582 893**	**1 169 993**	**4 717 215**	**100.0%**
LOCAL (NORTH WEST)					
Agricultural	0	66 324	57 713	124 037	0.4%
Mining	0	36 449	28 552	65 001	0.2%
Manufacturing	0	755 620	316 991	1 072 611	3.7%
Electricity and water	0	32 964	27 607	60 571	0.2%
Construction	0	82 511	32 400	114 911	0.4%
Trade and accommodation	8 326 625	4 634 470	3 793 035	16 754 131	57.6%
Transport and communication	809 001	1 635 972	1 072 497	3 517 470	12.1%
Financial and business services	1 496 931	1 569 726	1 336 127	4 402 784	15.1%
Community services	1 000 378	725 387	1 242 473	2 968 238	10.2%
TOTAL	**11 632 936**	**9 539 422**	**7 907 395**	**29 079 753**	**100.0%**
REST OF SOUTH AFRICA					
Agricultural	0	285 103	248 087	533 190	0.5%
Mining	0	131 097	102 647	233 744	0.2%
Manufacturing	0	2 980 067	1 239 934	4 220 002	4.2%
Electricity and water	0	129 658	106 866	236 524	0.2%
Construction	0	261 238	101 950	363 188	0.4%
Trade and accommodation	27 913 576	15 540 998	12 166 678	55 621 252	55.7%
Transport and communication	5 997 674	6 462 947	4 439 306	16 899 927	16.9%
Financial and business services	3 170 980	4 703 430	4 089 446	11 963 856	12.0%
Community services	3 269 821	2 441 366	4 143 568	9 854 755	9.9%
TOTAL	**40 352 051**	**32 935 905**	**26 638 482**	**99 926 437**	**100.0%**
TOTAL IMPACT					
Agricultural	0	370 428	322 334	692 762	0.5%
Mining	0	174 124	136 343	310 467	0.2%
Manufacturing	0	3 910 091	1 628 421	5 538 512	4.1%
Electricity and water	0	170 207	140 554	310 761	0.2%
Construction	0	355 262	138 870	494 133	0.4%
Trade and accommodation	37 581 086	20 907 111	10 478 967	74 967 163	56.1%
Transport and communication	7 247 875	8 433 335	5 751 139	21 432 349	16.0%
Financial and business services	4 829 323	6 492 081	5 614 009	16 935 414	12.7%
Community services	4 291 032	324 580	5 505 233	13 041 845	9.8%
TOTAL	**53 949 317**	**44 058 219**	**35 715 869**	**133 723 405**	**100.0%**

Source: Authors' own calculations based on multiplier analysis

4.4.3.2 SAM: Local (North West) expenditure

In order to determine the economic impact that occurred because of the spending of visitors residing within the borders of the North West Province, the same approach used to calculate foreign visitor spending was followed. In Table 4.2, the value of goods and services supplied by local suppliers and bought by visitors living within the North West Province are presented. Data collected during the 2010 survey at the festival indicated that the estimated direct impact to the province due to spending by local visitors was in the region of R11 632 936. Although economic impact calculations for events usually exclude expenditure incurred by local visitors, the model still allows for reporting a comprehensive impact assessment. During this evaluation, nine activity sectors were identified. Those that gained the most in respect of the direct impact evaluation were trade and accommodation (49.7%), financial and business services (34.0%), community service (33.7%) and transport and communication (23.0%). The total increase in expenditure within the North West Province in terms of local spending represents a direct impact of 40.0%, an indirect impact of 32.8% and an induced impact of 27.2%. It can be cogently argued that, in the absence of the festival and related activities, the expenditure by local visitors might have been less and consequently a smaller amount would have been spent in the province.

4.4.3.3 SAM: Rest of South Africa expenditure

The incurred spending by visitors from the rest of South Africa was calculated using a similar approach to that used to determine the possible spending of foreign visitors and those from within the North West Province. The effect on production within the North West when production multipliers are applied is portrayed in Table 4.2. These multipliers distinguish between the direct, indirect and induced impact due to spending by visitors from the rest of South Africa.

The most significant impact is noticeable within the trade and accommodation (55.7%), followed by transport and communication (16.9%) and financial and business services (12.0%). When backward linkages are applied, substantial indirect and induced impacts are observable within the trade and accommodation sector.

The direct impact within the province due to spending incurred by visitors from the rest of South Africa, is estimated at R40 352 051, representing 40.4% of the total expenditure. The indirect

impact is calculated at 33.0% and the induced impact at 26.7% of the total increase in local expenditure. It is clear that the sectors benefiting the most are comparable to those that benefited in the case of foreign visitors, that is, the trade and accommodation, transport and communication, financial and business services and community services. The total impact within these four sectors totals 94.5% of the total expenditure that was incurred by visitors from the rest of South Africa.

4.4.3.4 SAM: Total impact

It is important to bear in mind that the only expenditures that should be considered when calculating the economic impact are those that occur directly due to the presentation of the event. The estimated direct impact of Aardklop within the North West Province (based on spending incurred by visitors and organisers) was discussed in paragraph 4.4.1. The calculation of the direct impact requires an adjustment of the multipliers that are used to estimate the total impact that the event has on the province. This is achieved when the production multiplier for each activity sector is multiplied with the direct economic impact for that specific sector. When the calculated impacts of all sectors are added together, an estimated total impact of the festival within the province is determined. In this regard, refer to the calculated total impact as presented in Table 4.3. The results reflect a direct economic impact of the festival (calculated at R53 949 317) inflates to a total impact of R133 723 405 when the indirect impact (R44 058 219) and induced impact (R35 715 869) are taken into consideration into account. This represents an aggregated production multiplier (total impact divided by the direct impact) of 2.48. This implies that for every rand that visitors spend during the festival, 148 cents are additionally generated for the province in terms of indirect expenditure.

When an event is presented, consideration must be given to the remuneration of employees as an important additional value-added element that will influence household income. In this regard, the household income multiplier assesses the extent of change that will occur in both the household income and in the spending or saving patterns. The measurement of the impact that an event has on low-income households is regarded as very significant because it can serve as an indicator of the contribution that an event made to the alleviation of poverty in the province.

Table 4.3: The impact of Aardklop on regional production

SECTOR	FOREIGN SPENDING	NORTH WEST SPENDING	REST OF RSA SPENDING	DIRECT IMPACT	PRODUCT MULTI-PLIERS[a]	TOTAL IMPACT
Agricultural	0.000	0.000	0.000	0.000	2.823	0.693
Mining	0.000	0.000	0.000	0.000	2.745	0.310
Manufacturing	0.000	0.000	0.000	0.000	2.815	5.539
Electricity and water	0.000	0.000	0.000	0.000	2.560	0.311
Construction	0.000	0.000	0.000	0.000	3.003	0.494
Trade and accommodation	1.341	8.327	27.914	37.581	2.840	74.967
Transport and communication	0.441	0.809	5.998	7.248	2.754	21.432
Financial and business services	0.161	1.497	3.171	4.829	2.684	16.935
Community services	0.021	1.000	3.270	4.291	3.160	13.042
TOTAL	**1.964**	**11.633**	**40.352**	**53.949**		**133.723**

[a]Unit in R million excluding variable production multipliers

Source: Authors' own calculations based on multiplier analysis

In order to determine the impact the total spending during the festival has on a family's income, the same SAM for the North West Province (Conningarth Consultants, 2006) was applied. Table 4.4 provides the specific household income multipliers for each activity sector. The impact is calculated and then multiplied by the values of the total sector's impact.

In view of the impact that the festival has on family income (as indicated in Table 4.8 above), it appears that if Aardklop had not been presented, an estimated annual amount of R54 856 331 would have been lost, in terms of remuneration, within the North West Province. The combined income multiplier is valued at 0.41 and viewed as a growth in family income for each rand spent at the festival.

Table 4.4: The impact of Aardklop on family income

SECTOR	TOTAL IMPACT (R MILLION)	DIRECT AND INDUCED IMPACTS (R MILLION)			
		REST OF THE HOUSEHOLDS	LOW-INCOME HOUSEHOLDS	TOTAL HOUSEHOLDS	PERCENTAGE (TOTAL)
Agricultural	0.693	0.023	0.162	0.185	0.3%
Mining	0.310	0.013	0.103	0.115	0.2%
Manufacturing	5.539	0.165	1.392	1.558	2.8%
Electricity and water	0.311	0.012	0.098	0.110	0.2%
Construction	0.494	0.017	0.136	0.153	0.3%
Trade and accommodation	74.967	3.184	27.459	30.643	55.9%
Transport and communication	21.432	0.753	6.254	7.007	12.8%
Financial and business services	16.935	0.623	6.292	6.915	12.6%
Community services	13.042	0.678	7.493	8.171	14.9%
TOTAL	**133.723**	**5.467**	**49.389**	**54.856**	**100.0%**

Source: Authors' own calculations based on multiplier analysis

As labour is regarded as an important factor within the production process, this increase may be expected to have a positive impact. Job creation, and especially the contribution of each sector concerning the creation of new employment opportunities serve as important economic indicators. Further, considering that the salaries and wages are distributed among various types of labourers, it is expected to have a significantly positive impact on the economy.

The available values (as listed) present the opportunity to determine the impact that the festival had on employment within the North West Province. Table 4.5 below presents the calculated impact of the 2010 Aardklop National Arts Festival on the employment levels in the province. This calculation is based on figures from the North West SAM and the 2006 labour statistics per province. These are relative to the business volume and employment activity per sector in South Africa. In addition to the number of employees that are directly involved with the event, a further 593 jobs are apparently created because of the festival. One implication of not presenting this festival is that 593 employment opportunities, as well as the positions occupied by employees directly involved with the festival, will not be created.

Employment opportunities include the direct, indirect and induced impact and present both full-, and part-time jobs. The sectors that would be most affected if the festival did not take place appear to be manufacturing, trade and accommodation, as well as financial services.

Table 4.5: The impact of Aardklop on employment

SECTOR	TOTAL IMPACT (R MILLION)	LABOUR MULTIPLIERS[a]	EQUIVALENT JOBS (NUMBER)
Agricultural	0.693	20.929	14.5
Mining	0.310	2.938	0.9
Manufacturing	5.539	3.296	18.3
Electricity and water	0.311	2.454	0.8
Construction	0.494	5.629	2.8
Trade and accommodation	74.967	5.652	423.7
Transport and communication	21.432	1.452	31.1
Financial and business services	16.935	1.963	33.2
Community services	13.042	5.181	67.6
TOTAL	**133.723**		**≈593**

[a]The labour multiplier indicates the number of job opportunities that will be created because of change in production of 1 million by a particular activity.

Source: Authors' own calculations based on multiplier analysis

It is imperative to take into account that the input-output tables can only be applied in this regard when the employment coefficients are known. This implies that the estimates with regard to the

employment-production relationship must be available. Alternatively, and based on the values presented previously, another method can be applied to present an estimation of the impact of the festival on employment.

This is achieved by means of converting the expenditure with regard to employment during the event into equivalent units. Although the input-output analysis can be used to accomplish this, Wilson and Raymond (1973:140) developed an expression that allows for the calculation of credible estimates for these values and is as follows:

$$Equivalent\ Jobs = \sum \frac{S_i}{R_i}$$

In this expression, S_i represents the amount of expenditure in the activity sector *i* while R_i represents the average business volume per worker of the sector *i*. Based on this expression, and using data from the Statistics South Africa relative to the business volume and jobs by activity sector in the North West Province in 2006, it was possible to obtain an estimate of the impact of the festival with regard to the regional employment level. In this regard, refer to Table 4.6. It can be reasoned that the number of jobs generated in the regional economy due to presentation of the festival totals 627.

Table 4.6: The impact of Aardklop on the level of the employment

SECTOR	TOTAL IMPACT (R MILLION)	TRANSACTION VOLUME / VOLUME OFJOBS	EQUIVALENT JOBS (NUMBER)
Agricultural	0.693	0.048	14.5
Mining	0.310	0.277	1.1
Manufacturing	5.539	4.289	1.3
Electricity and water	0.311	0.026	12.1
Construction	0.494	0.178	2.8
Trade and accommodation	74.967	0.176	426.0
Transport and communication	21.432	0.994	21.6
Financial and business services	16.935	0.509	33.2
Community services	13.042	0.114	114.3
TOTAL	**133.723**		**≈627**

Source: Authors' own calculations based on multiplier analysis

This implies that, in addition to the number of employees directly employed by the festival organisers, 627 employment opportunities may depend upon the existence of the festival. In other words, in absence of the festival, a reduction of at least 627 employment opportunities

would occur. The trade and accommodation, financial and business services and community services would be the sectors most adversely affected.

4.5 Results of Computable General Equilibrium model analysis

The results obtained after applying a CGE model to the data set of Aardklop National Arts Festival will be discussed below in terms of total direct spending and simulated results.

4.5.1 CGE: Total direct spending

The total direct spending for SAM and CGE models is based on the same data and therefore could be expected to reveal similar results. Refer to paragraph 4.4.1 for a detailed discussion.

During the application of the CGE model, the North West Province economy was shocked by stimulating the household consumption expenditures for the specified industries per spending group by increasing each with a certain percentage. Table 4.7 summarises the results after applying shocks and portrays the different spending patterns per spending group and the overall impact of spending at the festival.

Table 4.7: Spending of visitors at Aardklop (% change)

SECTORS WHERE SPENDING WAS INCURRED	FOREIGN	LOCAL (NORTH WEST PROVINCE)	REST OF RSA	TOTAL
Trade	0.003%	0.039%	0.108%	0.151%
Accommodation	0.032%	0.077%	0.395%	0.505%
Transport services	0.002%	0.004%	0.031%	0.037%
Business activities	0.004%	0.036%	0.076%	0.116%
Activities / services	0.000%	0.014%	0.047%	0.062%
Total increase in HH expenditure due to festival	**0.041%**	**0.172%**	**0.658%**	**0.871%**

Source: Authors' own calculations based on visitor surveys

4.5.2 CGE: Using the regional model to obtain simulated results

The model closure type and assumptions used for the simulation should be noted when interpreting the findings of the shock to the North West Province economy. The impact of the increased demand for the relevant goods and services is measured in the simulated scenario. A

summary of selected macroeconomic results that were obtained from the given shocks applied to the economy in the simulated scenario is presented in Table 4.8.

Table 4.8: Summary of results for scenarios – provincial and sectoral level impacts

MACRO-ECONOMIC EFFECTS	FOREIGN	NORTH WEST PROVINCE	REST OF RSA	TOTAL
	ZAR	ZAR	ZAR	ZAR
North West Province Economy				
Real GDP	4 951 300	23 420 187	87 059 545	115 764 501
%Change	0.001	0.004	0.016	0.020
Production	4 440 402	21 274 463	77 829 525	103 877 858
%Change	0.001	0.003	0.011	0.015
Employment (#)	27	37	214	264
%Change	0.002	0.006	0.024	0.032
Consumer prices	-	-	-	-
%Change	0.005	0.024	0.085	0.113
Price of labour	2 660 438	13 302 189	47 944 485	63 907 111
%Change	0.005	0.024	0.085	0.113
Total exports	-2 231 103	-10 625 353	-39 342 524	-52 198 981
%Change	-0.010	-0.048	-0.178	-0.236
Competitiveness	-	-	-	-
%Change	-0.005	-0.024	-0.087	-0.117
Balance of trade	-1 330 565	-6 103 244	-23 313 814	-30 747 624
%Change	-0.005	-0.021	-0.081	-0.106
Sector effects				
Value added (Price)				
Natural Resources	60 338	287 182	1 210 257	1 578 402
%Change	0.000	0.001	0.005	0.005
Manufacturing	418 424	2 073 363	7 645 447	10 179 270
%Change	0.003	0.016	0.059	0.078
Services	3 961 640	18 913 917	68 973 821	92 120 186
%Change	0.006	0.027	0.100	0.133
Employment (Volume)				
Natural Resources	-9	-43	-152	-204
%Change	-0.003	-0.015	-0.053	-0.071
Manufacturing	0	-2	-6	-8
%Change	-0.005	-0.029	-0.095	-0.129
Services	36	81	372	476
%Change	0.005	0.014	0.063	0.082
Household effects				
Real household consumption	4 533 763	19 134 507	74 843 299	98 540 539
%Change	0.008	0.033	0.129	0.170

Source: Integrated and I-O model simulations conducted by the author

In the review of the simulated scenario, the increase in household expenditure leading to higher GDP growth and employment, higher prices and lower exports because of less competitiveness leads to a negative impact on the balance of trade. These results were to be expected, bearing in mind the nature of the shock and model closure type that was simulated. Prices increased in this scenario following the increase that occurred in the demand of goods. The increase in

productivity might be ascribed to the increased demand that enabled the output to increase in relation to inputs. The growth in GDP and employment improved due to the relatively cheaper costs of production. Higher prices in the economy will have the effect of a weakened real exchange rate, decreased competitiveness in the international trade and lowered demand for domestic exports.

This increase in the cost of a specific parcel of the provincial labour force led to a 0.02% increase of the real provincial GDP, and a 0.14% nominal increase. Although this records an insignificant effect on total employment, it provides a 0.17% increase in real household consumption. Table 4.8 reflects a relatively large increase in production and imports due mainly to the respective increase in the demand of goods and related productivity. The changes in investment and inventory levels are zero, due to the nature of the short-run model closure used in this simulation. In order to fully understand the magnitude and direction of change to macroeconomic variables such as GDP, employment and exports caused by the simulated shocks, it is imperative to review the disaggregated microeconomic or industry-specific results. The following table summarises the changes in activity levels of selected industries.

4.5.2.1 CGE: Foreign expenditure

In the review of the data tabulated as Table 4.9, it is clear that the structural effects for the regional model for foreign expenditure is the least influenced of all spending groups. It records a figure of less than 5% of the total increase in output. The largest increase in output (0.008%) is experienced in the financial and business services sector, followed by the trade and accommodation sector (0.007%). The majority sectors reveal a minimum impact, with the agricultural sector actually experiencing a negative impact.

Table 4.9: Aggregate sectoral level impacts (structural effects for the regional model only) – foreign

EFFECT OF INCREASED EXPENDITURE DUE TO FESTIVAL	VALUE ADDED		EXPORTS		IMPORTS		EMPLOYMENT	
SECTOR ANNUALISED % CHANGE	VOLUME	PRICE	VOLUME	PRICE (ZAR)	VOLUME	PRICE	VOLUME	NOMINAL WAGE
Agriculture, forestry and fishing (1)	-	-2 674	-	0	-	0	-3	20 115
%Change	-0.001	0.000	0.000	0.000	-0.001	0.000	-0.002	0.005
Mining (2-4)	-	63 012	-	156 322	-	0	-6	532 480
%Change	-0.002	0.000	-0.002	0.000	-0.001	0.000	-0.003	0.005
Manufacturing (5-25)	-	418 424	-	191 673	-	0	0	103 608
%Change	-0.003	0.003	-0.013	0.003	0.005	0.000	-0.005	0.005
Electricity & water (26-27)	-	55 283	-	0	-	0	0	14 308
%Change	0.000	0.005	0.000	0.000	0.000	0.000	0.001	0.005
Construction (28)	-	160 297	-	40	-	0	-1	37 614
%Change	0.000	0.004	-0.008	0.002	0.000	0.000	-0.001	0.005
Trade & accommodation (29-30)	-	890 173	-	382 711	-	0	9	187 872
%Change	0.002	0.007	-0.028	0.007	0.018	0.000	0.006	0.005
Transport & communication (31-32)	-	1 121 338	-	359 936	-	0	2	192 355
%Change	0.002	0.006	-0.024	0.006	0.005	0.000	0.006	0.005
Financial & business services (33-35)	-	1 125 012	-	515 225	-	0	5	157 150
%Change	0.003	0.008	-0.033	0.008	0.000	0.000	0.009	0.005
Community services (36-37)	-	609 537	-	43 010	-	0	17	280 679
%Change	0.008	0.005	-0.022	0.006	0.014	0.000	0.009	0.005
Industry average	-	493 378	-	183 213	-	0	3	169 576
%Change	-0.002	0.004	-0.013	0.003	0.005	0.000	-0.002	0.005
Total	**-**	**4 440 402**	**-**	**1 648 917**	**-**	**-**	**24**	**1 526 182**

Source: Integrated and I-O model simulations conducted by the author

4.5.2.2 CGE: Local (North West) expenditure

An estimated 20.5% of the total increase (R103 877 858) in output is ascribed to local expenditure (refer to Table 4.10). The most significant increase in output is experienced in the financial and business services sector (0.046%). This sector is followed, respectively, by transport and communication (0.029%) and the trade and accommodation sectors (0.028%).

Table 4.10: Aggregate sectoral level impacts (structural effects for the regional model only) – local

EFFECT OF INCREASED EXPENDITURE DUE TO FESTIVAL	VALUE ADDED		EXPORTS		IMPORTS		EMPLOYMENT	
SECTOR ANNUALISED % CHANGE	VOLUME	PRICE	VOLUME	PRICE (ZAR)	VOLUME	PRICE	VOLUME	NOMINAL WAGE
Agriculture, forestry and fishing (1)	-	-2 674	-	15 937	-	0	-13	100 575
%Change	-0.003	0.000	-0.003	0.001	-0.006	0.000	-0.012	0.024
Mining (2-4)	-	289 856	-	677 395	-	0	-30	2 662 400
%Change	-0.009	0.001	-0.008	0.002	-0.008	0.000	-0.017	0.024
Manufacturing (5-25)	-	2 073 363	-	954 121	-	0	-2	518 041
%Change	-0.017	0.016	-0.063	0.016	0.025	0.000	-0.029	0.024
Electricity & water (26-27)	-	262 901	-	0	-	0	0	71 539
%Change	0.000	0.021	0.000	0.000	0.000	0.000	0.001	0.024
Construction (28)	-	814 481	-	205	-	0	-3	188 071
%Change	-0.002	0.019	-0.038	0.009	0.000	0.000	-0.003	0.024
Trade & accommodation (29-30)	-	3 554 333	-	1 503 892	-	0	18	939 361
%Change	0.006	0.028	-0.112	0.028	0.053	0.000	0.012	0.024
Transport & communication (31-32)	-	5 347 205	-	1 721 693	-	0	8	961 777
%Change	0.009	0.029	-0.115	0.029	0.023	0.000	0.021	0.024
Financial & business services (33-35)	-	6 180 791	-	2 833 735	-	0	28	785 749
%Change	0.017	0.046	-0.180	0.045	0.000	0.000	0.053	0.024
Community services (36-37)	-	2 754 206	-	193 154	-	0	27	1 403 397
%Change	0.012	0.024	-0.099	0.025	0.045	0.000	0.014	0.024
Industry average	-	2 363 829	-	877 792	-	0	4	847 879
%Change	-0.010	0.018	-0.065	0.016	0.021	0.000	-0.015	0.024
Total	**-**	**21 274 463**	**-**	**7 900 132**	**-**	**-**	**33**	**7 630 910**

Source: Integrated and I-O model simulations conducted by the author

4.5.2.3 CGE: Rest of South Africa expenditure

Expenditure incurred by the rest of South Africa totals some 74.9% of the total output increase (R103 877 858). According to Table 4.11, the sectors mainly contributing to this immense increase are financial and business services (0.153%), trade and accommodation (0.111%), transport and communication (0.109%), community services (0.089%) and electricity and water (0.086%).

Table 4.11: Aggregate sectoral level impacts (structural effects for the regional model only) – rest of South Africa

EFFECT OF INCREASED EXPENDITURE DUE TO FESTIVAL	VALUE ADDED		EXPORTS		IMPORTS		EMPLOYMENT	
SECTOR ANNUALISED % CHANGE	VOLUME	PRICE	VOLUME	PRICE (ZAR)	VOLUME	PRICE	VOLUME	NOMINAL WAGE
Agriculture, forestry and fishing (1)	-	139 049	-	209 834	-	0	-44	362 497
%Change	-0.011	0.005	-0.032	0.008	-0.006	0.000	-0.039	0.085
Mining (2-4)	-	1 071 208	-	2 518 519	-	0	-108	9 595 970
%Change	-0.033	0.004	-0.029	0.007	-0.025	0.000	-0.060	0.085
Manufacturing (5-25)	-	7 645 447	-	3 537 163	-	0	-6	1 867 154
%Change	-0.058	0.059	-0.233	0.058	0.099	0.000	-0.095	0.085
Electricity & water (26-27)	-	1 052 834	-	0	-	0	12	257 844
%Change	0.008	0.086	0.000	0.000	0.000	0.000	0.026	0.085
Construction (28)	-	2 911 336	-	735	-	0	-11	677 855
%Change	-0.006	0.067	-0.135	0.034	0.000	0.000	-0.012	0.085
Trade & accommodation (29-30)	-	14 166 465	-	6 058 689	-	0	107	3 385 697
%Change	0.029	0.111	-0.448	0.112	0.245	0.000	0.075	0.085
Transport & communication (31-32)	-	20 147 010	-	6 487 845	-	0	36	3 466 491
%Change	0.043	0.109	-0.431	0.108	0.093	0.000	0.097	0.085
Financial & business services (33-35)	-	20 683 962	-	9 506 522	-	0	86	2 832 040
%Change	0.053	0.153	-0.603	0.151	0.000	0.000	0.164	0.085
Community services (36-37)	-	10 012 214	-	703 798	-	0	120	5 058 202
%Change	0.052	0.089	-0.359	0.090	0.172	0.000	0.061	0.085
Industry average	-	8 647 725	-	3 224 789	-	0	21	3 055 972
%Change	-0.031	0.066	-0.242	0.061	0.087	0.000	-0.047	0.085
Total	**-**	**77 829 525**	**-**	**29 023 105**	**-**	**-**	**193**	**27 503 749**

Source: Integrated and I-O model simulations conducted by the author

4.5.2.4 CGE: Impact of total expenditure

The increased activity within all selected industries of the chosen scenario is indicated in Table 4.12. Most industries revealed a positive impact due to the increase in demand and spending, because of the interrelatedness of most industries. The activities in the service industries naturally increased although other industries seem to be less influenced. For detail on an aggregated level (since the model actually has 37 sectors), refer to Table 4.12. Nominal wages all increase in tandem with the national inflation (0.113% as per Table 4.12), bearing in mind the assumption that the real wage rate is kept constant. No change in national or sectoral level import prices will be noted since the world price of goods is kept fixed (the *numeraire* by assumption). It is, however, noteworthy that losers as well as winners at the sectoral level are recorded due to the festival causing an increase in expenditure. The service industries directly catering for visitors (29 to 37) are followed by the electricity and water (0.112%) sector when industries that exhibit the largest increase in output are evaluated. Possible reasons for these results may be ascribed to the relative share of tourist expenditure in the income base of these

sectors. Also, these industries are directly and indirectly affected by an increase in expenditure by visitors. Another sector that experiences a significant increase is that of transport (0.144%). Due to its link to the strongly stimulated service industries directly catering for visitors, manufacturing is the obvious example of the sectors that experience the indirect benefits of increased tourism. The electricity and water sector is a less obvious example as its growth prospects may be enhanced by the expansion of investment or increased demand induced by the additional tourism.

Table 4.12: Aggregate sectoral level impacts (structural effects for the regional model only) – total

EFFECT OF INCREASED EXPENDITURE DUE TO FESTIVAL	VALUE ADDED		EXPORTS		IMPORTS		EMPLOYMENT	
SECTOR ANNUALISED % CHANGE	**VOLUME**	**PRICE**	**VOLUME**	**PRICE (ZAR)**	**VOLUME**	**PRICE**	**VOLUME**	**NOMINAL WAGE**
Agriculture, forestry and fishing (1)	-	141 723	-	239 052	-	0	-59	484 899
%Change	-0.015	0.005	-0.036	0.009	-0.012	0.000	-0.054	0.113
Mining (2-4)	-	1 436 680	-	3 369 604	-	0	-144	12 836 168
%Change	-0.044	0.006	-0.039	0.010	-0.034	0.000	-0.080	0.113
Manufacturing (5-25)	-	10 179 270	-	4 703 883	-	0	-8	2 497 621
%Change	-0.079	0.079	-0.310	0.078	0.130	0.000	-0.130	0.113
Electricity & water (26-27)	-	1 379 618	-	0	-	0	14	344 909
%Change	0.009	0.112	0.000	0.000	0.000	0.000	0.028	0.113
Construction (28)	-	3 901 276	-	984	-	0	-15	906 741
%Change	-0.009	0.090	-0.181	0.045	0.000	0.000	-0.016	0.113
Trade & accommodation (29-30)	-	18 668 196	-	7 974 939	-	0	134	4 528 919
%Change	0.036	0.147	-0.590	0.148	0.316	0.000	0.093	0.113
Transport & communication (31-32)	-	26 708 225	-	8 599 469	-	0	46	4 636 994
%Change	0.055	0.144	-0.571	0.143	0.122	0.000	0.124	0.113
Financial & business services(33-35)	-	28 098 200	-	12 912 031	-	0	120	3 788 313
%Change	0.074	0.207	-0.818	0.206	0.000	0.000	0.227	0.113
Community services (36-37)	-	13 364 669	-	939 180	-	0	152	6 766 166
%Change	0.065	0.118	-0.479	0.120	0.227	0.000	0.078	0.113
Industry average	-	11 541 984	-	4 304 349	-	0	26	4 087 859
%Change	-0.043	0.087	-0.321	0.081	0.113	0.000	-0.065	0.113
Total	**-**	**103 877 858**	**-**	**38 739 142**	**-**	**-**	**238**	**36 790 729**

Source: Integrated and I-O model simulations conducted by the author

The traded-goods industries sector experienced output declines due to an increase in expenditure. These industries were negatively affected by the higher domestic prices in their specific industries, as the export of these products declined. Traditional export sectors such as those of agriculture, mining, non-metallic mineral products, basic and fabricated metal products, and import-competing sectors presented by textiles, clothing and footwear sectors serve as such examples. Agriculture, forestry and fishing (a traditional exporter), which might be

expected to experience a significant decline because of the increase in imports, are saved to some extent from major declines by the (indirect) increase in tourists' demand for their outputs.

The changes in employment by industry in the simulated scenario are also reflected in Table 4.12. An increase in the demand for labour is experienced in most industries, due to increased expenditure and productivity. For all other sectors, the employment increase noted is in relation to those of total output.

4.6 Findings and implications

The economic impact assessment on the KKNK has indicated that SAM and CGE models provide startlingly different results even when they are applied to the same data set. This article undertook to explore the possible variance of results when the SAM and CGE models were employed to measure the economic impact of Aardklop. The following emerged from this research:

Firstly, this article confirms previous findings that when different measuring tools are applied to the data set of an event, in this instance Aardklop, it is likely that very different results will be obtained (refer to Article 1). The difference in the measured economic impact when applying the SAM and CGE models to Aardklop is even greater than the variance measured for KKNK. It is therefore critically important for economic assessors to pay serious attention to the purpose, scope and characteristics of models that measure economic impact results before interpreting them. Ignoring the purpose and intention of each model applied may lead to misinterpretation and inaccurate conclusions that can mislead stakeholders.

Table 4.13 indicates that significant differences with regard to results measured by SAM and CGE are experienced within the various sectors, visitors' residence and total impact. The most significant difference in total impact is measured in the trade and accommodation, financial and business services, transport and communication, construction sectors as well as in manufacturing. A very substantial difference with regard to the measured economic impact is noted within the rest of South Africa segment when the origin of visitors is considered by the models.

Table 4.13: Economic impact summary when applying a SAM and CGE model to Aardklop – foreign, local, rest of South Africa and total impact

SECTOR	FOREIGN		LOCAL (NORTH WEST)		REST OF RSA		TOTAL	
TOTAL IMPACT								
	SAM	**CGE**	**SAM**	**CGE**	**SAM**	**CGE**	**SAM**	**CGE**
Agricultural	35,535	-2,674	124,037	-2,674	533,190	139,049	692,762	141,723
Mining	11,722	63,012	65,001	289,856	233,744	1,071,208	310,467	1,436,680
Manufacturing	245,899	418,424	1,072,611	2,073,363	4,220,002	7,645,447	5,538,512	10,179,270
Electricity and water	13,667	55,283	60,571	262,901	236,524	1,052,834	310,761	1,379,618
Construction	16,034	160,297	114,911	814,481	363,188	2,911,336	494,133	3,901,276
Trade and accommodation	2,591,781	890,173	16,754,131	3,554,333	55,621,252	14,166,465	74,967,163	18,668,198
Transport and communication	1,014,952	1,121,338	3,517,470	5,347,205	16,899,927	20,147,010	21,432,349	26,708,225
Financial and business services	568,773	1,125,012	4,402,784	6,180,791	11,963,856	20,683,962	16,935,414	28,098,200
Community services	218,852	609,537	2,968,238	2,754,206	9,854,755	10,012,214	13,041,845	13,364,669
TOTAL	**4,717,215**	**4,440,402**	**29,079,753**	**21,274,463**	**99,926,437**	**77,829,525**	**133,723,405**	**103,877,858**
ADDITIONAL JOB OPPORTUNITIES								
Additional positions created (Excluding positions direct involved)							593	264
Employment opportunities lost if festival terminates							627	

Source: Authors' own calculations based on multiplier analysis and I-O model simulations

In reviewing the calculated impact summarised in Table 4.13, the total impact when applying a SAM model is 28.73% higher (R29 845 547), than when applying a CGE model. The higher calculated impact obtained by applying a SAM model is apparent across all spending groups, foreign (R276 813 or 6.23%), local (R7 805 290 or 36.69%) and rest of South Africa (R22 096 912 or 28.39%) expenditure, respectively. The calculated growth in employment opportunities due to Aardklop also differs immensely when the two models are applied. The SAM model calculated a higher growth in employment opportunities.

Secondly, when comparing the economic impact of the 2010 KKNK as assessed in previous studies (refer to Article 1) to that of 2010 Aardklop shown in Table 3.14, it is evident that both SAM and CGE models measured a greater impact for Aardklop. Taking into account that KKNK was presented over 8 days and Aardklop took only 5 days, this may imply that even though an event may be presented over an extended period, it does not necessarily ensure a higher economic impact.

A third finding indicates that, irrespective of the event that was assessed, SAM measured that the trade and accommodation sectors experienced the highest impact, while CGE indicated that the financial and business sectors benefited the most. The possibility may exist that these same sectors will also measure the highest impact when assessing other festivals.

Fourthly, the assumption that was proposed in previous studies conducted on the economic impact assessment of the KKNK suggests that the local community supports the festival more than foreign visitors do and visitors from the rest of South Africa do (refer to Article 1). The survey conducted during the 2010 KKNK indicates that 58% visitors who attended the festival originated from the local Western Cape Province (Erasmus, Slabbert, Saayman, Saayman & Oberholzer, 2010:11). However, by contrast, in this study of the economic impact assessment of Aardklop visitors from the rest of South Africa support the festival significantly more than do local visitors. This may very possibly be ascribed to the geographical location of the hosting community. The fact that Aardklop (Potchefstroom) is located closely to the densely populated Gauteng Province may be a reason why the festival is considerably better supported by visitors from the rest of South Africa, than it is by locals. Botha, Saayman, Saayman and Oberholzer (2010:7) report that 62% of visitors who attended the 2010 Aardklop were from provinces other than North West. Gauteng visitors were estimated at 39% of the total visitors. The obvious positive impact that the geographical location of an event may have provides an opportunity for organisers to explore expansion opportunities, such as possible commuting facilities and packages, to further increase visitor attendance.

Fifthly, this article as well as the previous studies conducted (see Article 1), confirms that the difference in measured economic impact, when applying various assessment tools to the same event, may be ascribed to the characteristics of the specific model used and therefore careful consideration of the conditions, context and main aim for conducting an economic assessment must be made. SAM models, based on I-O models, are regarded as fairly simple, quick, reliable, effective, efficient and flexible, making use of readily available data. In contrast, CGE models are known for making use of detailed and informative economic modelling techniques. Such models are normally utilised to address specific what-if economy-wide scenarios used in surveys where a large shock is to be applied to a complex economy. Perhaps because of their accuracy and flexibility, CGE models seem to be the preferred tools measuring economic impact as they may overcome many of the limitations experienced with SAM and I-O models, including supply constraints and price movements. Consequently, these models are often applied during economic impact studies at national level, but have limited use during lower level surveys.

SAM and CGE models were applied to calculate the additional job opportunities for Aardklop (refer to Table 4.13). Once again, the SAM model indicates a much more optimistic amount of

additional positions created, recording 593 comparing to the 264 jobs measured by the CGE model.

The sixth finding indicates that the methodological application of assessment models is not without limitations. Despite the development of SAM models based on I-O models with multiplier effects, certain methodological problems may persist, such as:

- outdated data that are used in order to publish tables;
- published tables that are not applicable to the level or region they are being applied to;
- no, or limited, price movements and supply constraints provided for in the model;
- ignoring variances between the sectoral input and output relationships;
- disregarding integrated economic effects;
- the presumption that the consumption preferences of the hosting communities are similar to those of the visitors;
- applying overestimated multipliers to determine consumption effects;
- the inaccurate calculation of the impact of employment opportunities;
- the inclusion of non-related capital expenditure with the economic impact analysis; and
- applying value added multipliers to spending that is calibrated in output terms.

CGE models and their application are often discouraged because of methodological limitations such as:

- their mechanical complexity;
- insufficient or lack of available data;
- high data intensity and detail that are required;
- insufficient time to compile and calculate assessment;
- the relatively high expenses to set up and run the applications;
- complex implementation techniques that are required;
- the specialised knowledge of CGE software required; and
- trusting in recommendations made by inexperienced analysts.

Finally, this article confirms that the interpretation of economic impacts results obtained from applying various measuring tools such as SAM and CGE models may have unintended consequences for the various stakeholders involved, such as event organisers, visitors, the hosting community and academic scholars. Because the assessment outcome for Aardklop

using SAM and CGE models revealed an even more significant difference than those recorded during similar studies done on the KKNK, it confirms that the utmost caution should be taken when decisions are to be made based on the results. Not only may the (inappropriate) results have an adverse effect on all stakeholders, but they may even jeopardise the existence of the event itself.

4.7 Conclusions

The aim of this article was to interrogate and illustrate the findings of previous studies that applied different measuring tools to an event in order to assess the economic impact. The discussion in this article therefore articulates the assessment of the economic impact of Aardklop when applying SAM and CGE models.

This article confirms the finding of previous studies indicating the variance in measured economic impact results. This is emphasised by an even larger difference in results when Aardklop data were assessed. Due to the variance in the measured results that different models produce, very serious and deliberate consideration should be given to the preferred model that is utilised. A slapdash, hasty approach to the choice, interpretation and application of assessment models must be avoided as inappropriate result information may adversely influence decision-making and have serious consequences for all stakeholders depending on the sustainability of an event.

The literature study and even larger difference in the economic impact as measured by SAM and CGE for Aardklop confirms that CGE assesses economic impact more conservatively.

This article provides an important contribution to the discussion of which assessment tools should be chosen as the tool to measure the economic impact of a specific event. To date, only limited studies have been conducted within the South African context where different models that measure economic impact have been applied to a chosen event. Further, this article affirms that, regardless of the assessment method or measuring tool that is applied, popular national events will, doubtless, have a variable impact on the economy.

Further research will have to be conducted as only two models, namely SAM and CGE, were applied to measure the economic impact of Aardklop. The remainder of the three most popular

models, an I-O model, was excluded from this study. Literature studies show that I-O models to measure economic impact of event are frequently applied, especially to evaluate the impact of smaller events. When a regional town hosts a local event, the event will attract visitors from surrounding areas bringing new expenditure to the town, although perhaps very little to the province as a whole. Therefore, a significant economic impact may be measured by the town but the impact on the economy of the province may be hardly noticeable. Regional models should aim to measure the money flow and impact on the local economy due to hosting an event, and therefore results should be more accurate and relevant than when applying models that were developed for provincial or national levels.

An economic assessment that includes an I-O model may provide an even broader platform to assess the economic impact of events. For future research, it is suggested that an economic assessment should be conducted on the same set of Aardklop data but applying an I-O model. The outcome thereof may confirm or contradict the assumption that various models of economic assessments produce different outcomes.

ASSESSING THE ECONOMIC IMPACT OF THE AARDKLOP NATIONAL ARTS FESTIVAL: A FEAST OF MODELS TO OPT FOR - OR NOT?

Since the first Aardklop National Arts Festival (hereafter refer to as Aardklop) was held during 1998 in the North West town of Potchefstroom, it has grown tremendously. The organisers' original intention was to present a unique cultural experience for a diverse group of visitors while contributing significantly to the economic growth of the local community. Researchers are of the opinion that not all festivals are financially sustainable and may thus require extensive sponsorship in order to ensure the continuation of the event. In recent years, local government funding for events has been curtailed and therefore organisers have to secure alternative funding in order to ensure sustainability. This challenging undertaking compels event organisers to make use of acceptable assessment instruments in order to persuade private and public institutions or individuals to support such events through sponsorships. Event organisers usually commit to economic assessment studies done by means of applying contemporary models to obtain economic impact results. However, selecting the most appropriate model to assess the economic impact of an event is contentious, at the least. Previous research in this regard was done by applying both Social Accounting Matrix (SAM) and Computable General Equilibrium (CGE) models to the data sets of the ABSA Klein Karoo National Arts Festival and Aardklop respectively. The outcomes of these research endeavours indicated that significant economic impact differences exist when the various models are applied to an event. It becomes necessary, therefore, to shed more light on these measured differences and broaden the platform of assessment by applying an additional model, namely the Input-Output (I-O) model, to the same 2010 Aardklop data set compiled during the initial survey. While this article again confirms that measured economic impact results differ for various models applied to the same

event, it now also indicates the extent of the disparity. The most conservative economic impact was measured by an I-O model; followed with a higher SAM measurement, while CGE revealed the highest economic assessment.

Keywords: Event Tourism, Economic impact, Aardklop National Arts Festival, Input-Output modelling, Regional CGE modelling, Social Accounting, Multiplier Analysis, Potchefstroom

5.1 Introduction

The Aardklop National Arts Festival (hereafter refer to as Aardklop) can be regarded as the cultural heartbeat of Potchefstroom and the North West Province and was presented for the first time during 1998. The intentions of the organisers were to present a unique cultural experience for a diverse group of visitors while contributing significantly to the economic growth of the local community. Currently, the festival provides a showcase for a wide variety of the creativity and talent that South African artists possess. The festival features the arts in various genres and offers a display of the best current and developing cultural trends within South Africa. Exhibition areas for arts, crafts and food stalls are provided for more than 500 entrepreneurs, including both local and other entrepreneurs arriving from all provinces. The contribution that the festival makes towards the local economy includes such significant aspects as the creation of diverse economic opportunities stimulating an increase in investment and spending, expanding employment opportunities, and the initiation of various community projects (Potchefstroom City Council, 2007). Botha, Saayman, Saayman and Oberholzer (2010:35) allude to the fact that Aardklop has experienced tremendous growth.

The attendance of this festival became an extremely popular leisure activity and, currently, a diverse festival calendar caters for as many genres as possible in order to cater to the varied preferences of visitors. Economic impact analyses clearly indicate that events have a varying effect on the local and even the global sphere of the economy (Antrobus, Webb & Mather, 1997; Brown, Var & Lee, 2002; Borges, 2007; Fourie & Santana-Gallego, 2010). Saayman and Saayman (2011) raise the serious concern that not all festivals are financially sustainable and so require extensive sponsorship in order to ensure the continuation of the event. The community's response to this requirement (in the context of the recent global economic recession which is not yet showing clear signs of gradual recovery), is remarkably positive in view of the frequent media announcements of new festivals that are being presented, many of

which are brand named in order to gain recognition for the hosting community and exposure for the major sponsors.

In most countries, financial support of festivals is a contentious issue despite the local, regional and national economic impact and benefits that festivals provide (Snowball & Antrobus, 2003:8). In developing countries characterised by limited funds at their disposal and with extensive demands made for social upliftment projects such as housing, health care and education, financial support for the presentation of festivals becomes a source of dispute. Raj (2003:1) argues that it is more likely for prioritised socio-economic improvement programs to be awarded government funding rather directing taxpayers' money towards events that (reputedly) accommodate only marginal cultural groups. Local authorities limit or even withdraw financial support for festivals, and therefore alternative financial assistance from private or corporate sponsors, donors and public contributions are needed to sustain such festivals. For this reason, it is only sensible that the private and public sectors providing financial support to arts festivals, insist on a certain degree of exposure during the event in order to ensure return on investment. It can therefore be expected that sponsors and organisers require measures of that economic impact that serve as a valuable motivation for proving the event's successes and achieved objectives (Bowdin & Williams, 2007:188).

Methods used to assess economic impact of events or festivals should be considered with great care as they are being used as a vehicle to promote objectives such as creating infrastructure, providing jobs, generating revenue, attracting investment, enhancing the arts, promoting a region and improving the image thereof (Saayman & Rossouw, 2010:255). The results obtained from the specific method of measurement have the potential to create a significant impact that includes an economic influence. A study of numerous international economic impact assessments reveals that the models most frequently used in surveys include the Input-Output (I-O), Social Accounting Matrix (SAM) and Computable General Equilibrium (CGE) models – refer to Addendum A.

In previous research, critical assessments of the economic impact of the ABSA Klein Karoo National Arts Festival (KKNK) and Aardklop were discussed where both the SAM and CGE models were applied. With consideration to the assessment results of these two models, the aim of the discussion in this article is to interrogate the previous studies and to provide an even broader platform to assess economic impact. This will be done by applying and then comparing

a third model, namely I-O, to the same set of data that were obtained from Aardklop. In addition, an attempt will be made to obtain answers to questions such as:

- What is the extent of economic impact of Aardklop when applying I-O, SAM and CGE models respectively?
- What differences are revealed and what is the extent of the differentiation?
- What comparisons are notable?
- Would there be a preferred model to be used in the process of assessing economic impact?
- Does any particular model reflect significant advantages or disadvantages?

5.2 Literature review

In recent years, several methods have been developed to conduct economic impact studies. An exploration of the literature indicates that studies applying SAM, CGE and especially I-O (or partial I-O models) for assessing the economic impact of events, are abundant. This can readily be seen from the research documents listed in Table 5.1.

Table 5.1: Previous studies applying I-O, SAM and CGE models on events to assess economic impact

MODEL	YEAR	AUTHORS
Input-Output / Partial Input-Output	1998	Bryan, Hill, Munday, Roberts & Clarke; Ryan; Welsh Economy Research Unit & DCA (Cardiff)
	1999	Crompton
	2000	Bryan, Hill, Munday & Roberts; Crompton & Lee; Snowball
	2001	Crompton, Lee & Shuster; Ryan & Lockyer
	2002	Brown, Var & Lee; Chang; Division of Research, Moore School for Business; Stynes; West & Bayne
	2003	Hill Strategies; Lynch and Harrington; Snowball & Antrobus; Van Heerden
	2004	California Arts Council; Clark, Grainger & Jaffry; Daniels, Norman & Henry; Du Plessis; Edmiston & Thomas; Van Schalkwyk
	2005	Arik & Penn; Milne, Dickson, McElrea & Clark; Kelsey & Ford; SQW Limited & TNS Travel & Tourism; Tohmo
	2006	IRIS Group, Wendy, McDonald Associates & JP Consulting; Saayman; Saayman, Kohrs & Saayman; Saayman & Saayman; Strydom, Saayman & Saayman
	2007	Borges; Çela, Knowles-Lankford & Lankford
	2008	Bonn & Harrington; Measells & Grado; Silva, Mann & Daniel
	2009	Kruger, Saayman, Saayman & Oberholzer; Kruger, Saayman, Saayman, Viviers & Oberholzer; Slabbert, Kruger, Viviers, Saayman & Saayman; Saayman, Saayman & Ferreira; Sundance Institute; Viviers, Slabbert, Saayman & Saayman
	2010	Botha, Saayman, Saayman & Oberholzer; Erasmus, Slabbert, Saayman, Saayman & Oberholzer
Social Accounting Matrix	1997	Wagner
	2004	Edmiston & Thomas
	2008	Rivera, Hara & Kock; Saayman, Rossouw & Saayman
	2010	Saayman & Rossouw
	2011	Kruger, Saayman, Saayman & Rossouw
Computable General Equilibrium	1995	Adams & Parmenter
	2004	Narayan; URS Finance and Economics
	2005	Blake; PriceWaterhouseCoopers
	2006	Dwyer, Forsyth & Spurr (a); Dwyer, Forsyth & Spurr (b)
	2008	Bohlmann & Van Heerden; Saayman & Rossouw
	2011	Rossouw & Saayman

Source: Literature reviewed – refer to Addendum A

Since South African festivals have developed as a substantial segment of the leisure and tourism industry, the need to assess their economic impact has increased accordingly. This need has been highlighted bearing in mind that festivals usually require financial support to ensure sustainability. Unfortunately, well-founded criticism against the integrity of these analyses and the outcomes of economic impact studies is well documented. Crompton (1999:17) is of the opinion that although most economic impact assessments are indeed completed with integrity, the veracity of some is questionable. Various examples are obtainable in which researchers and consultants applied inappropriate procedures and assumptions in order to generate high economic impact results. The tendency to make use of inflated multipliers that enhance the overall economic impact of an event and thus make the economic value more generous than accurate is of great concern to some researchers (Kelsey & Ford, 2005:7; Stynes, 1997:6). In other surveys, several underlying assumptions are made that have an extensive impact on the outcomes (Gilbert, 2008:3; Bonn & Harrington, 2008:774). Moreover, some researchers (Jaffee, 2009:12) criticise the accessibility and ease of use by off-the-shelf models and are of the opinion that, "in the wrong hands, the software will produce inflated results at best, and at worst, completely ridiculous projections". Andreatta (2009:1) reports that the economic impact of events may often be inflated as assessors, "rely on questionable attendance calculations and the application of what economists say is a misused mathematical formula for determining how money trickles through the economy". LeBeau's view that, "economic impact studies are not an exact science but rather an education process – we've been working on this and trying to make it better every year" as quoted by Andreatta (2009:1), serves as confirmation that following incorrect assessment practices may have serious consequences for all stakeholders involved.

The function of an I-O model is to analyse the interdependence of industries within a specific economy. The application of I-O models as an assessing tool has been used on a global scale since its first publication in 1937 (Bandara, 1991:6). I-O models are defined as sets of equations that describe the relationships that link the output of one industry with all other industries in an economy (Broomhall, s.a.:4). Impacts within each industry can be estimated using these models and may provide more significant information than do mere economic impacts on income, output and employment. Cameron (2003:1) posits that an I-O analysis is an analytical framework with the fundamental purpose of analysing the interdependence of industries in an economy. In its most basic form, an I-O model represents a system of linear equations that describe the distribution of an industry's product throughout the economy. Crompton (1999:15)

states that an I-O model represents the diverse flow of economic activities within a region. In this view, I-O models present a framework to estimate the secondary effects of visitor spending by means of tracing the active economic linkages between sectors. These secondary effects may be either indirect or induced. The indirect effects are those that manifest because of changes in sales, income generated or employment opportunities established within the sphere of sectors in the region that supplies goods and services to the recreation or tourism sector. When a local region experiences an increase in sales figures due to households spending the income earned within the tourism and supporting sectors, it is regarded as an induced effect of visitor spending. The sum of these direct and secondary effects represents the total effect. The ratio of total effects to direct sales will then indicate the size of the secondary effects and is known as the multiplier.

Viewed as a broader model and as an improvement on I-O models, SAM encompasses both the social and economic data of an economy and provides a way to present the logical arrangement of statistical information (in so far as income flows in a country's economy) within a set time frame, usually of approximately 12 months (Cameron, 2003:2). According to King (1985:19), the model aims to organise economic information and social structure of a country over a defined period and compiles an explanatory model that portrays a static image of the economy with simulated effects or alternative economy impacts.

The model organises data in a logical consistency and ties all expenditures made by the sector to the receipts of the relevant sector. The various worksheets reflect the data of household expenditures, wages, I-O relationships, land and capital components, relationship between wage earners, the number of households and local government. In order to ensure that all worksheets remain consistent with each other, each sheet contains a variety of the original input of data, calculations and ratios (Schwarm & Culter, 2003:136-139).

I-O and SAM models provide a framework to build CGE models. Many of the limitations that occur in I-O and SAM models are overcome due to the combination of databases within the frameworks that describes the manner in which various components of the economy are linked and how they react to changes in that economy. Although CGE models are regarded as more accurate and offer a realistic presentation of the actual economy due to the inclusion of elasticities and crowding-out effects that are taken into account, several disadvantages do persist (Adams & Parmenter, 1999:118; Cordier & Hecq, 2008:2).

Cameron (2003:3) regards a CGE as an economy-wide model that includes the entire range of sectors such both primary and secondary activities, as well as services. Reporting on demand, income and production structures, all prices adjust until decisions made in production are consistent with decisions made in demand. A CGE model allows for the identification of resource constrains on land, labour and capital that may limit changes in economic activity due to an event-related increase in the final demand for goods and services. In addition, a CGE model accounts for relative price changes should the event cause the business to adjust the composition of their input, government budget sector's behaviour, and for both positive and negative effects due to the event (Jago & Dwyer, 2006:33).

5.3 Methodology

The outcomes of previous research endeavours where SAM and CGE models, respectively, were applied to the 2010 data sets of ABSA Klein Karoo National Arts Festival and Aardklop, indicated that significant differences exist in reported economic impacts (refer to Article 1 and 2). This article will attempt to shed more light on these differences and to broaden the platform of assessment by applying an additional model, namely Input-Output (I-O), to the same data set of Aardklop.

The methodological framework for this research will follow a survey design for which both primary and secondary data will be required. McMillan and Schumacher (2006:602) view survey research as, "the assessment of the current status, opinions, beliefs and attitudes by questionnaires or interviews from a known population". In view of the quantitative nature of this study, the survey method may be regarded as the most appropriate for this research. The survey as research design also provides the researcher with the opportunity to describe and interpret what actually exists (Cohen, Manion & Morrison 2001:169). This feature will enable the researcher to describe existing economic assessment models and interpret the results obtained after application of the models to specific art festivals.

During this quantitative study, primary and secondary data were used to assess the economic impact of Aardklop. Since 2002, data have been collected annually by means of surveys conducted by the Institute for Tourism and Leisure Studies at the North-West University, Potchefstroom Campus. The questionnaires were based on visitor spending and completed by a selected sample of visitors. The collated information included participants' demographic

details, their activities during the festival, the length of their stay and, specifically, their expenditure patterns. The secondary data as collected during the presentation of the 2010 festival were then used to assess the economic impact of the festival by applying SAM and CGE models. However, it is important to note that the data on hand (referring to data collected during the 2010 survey), was regarded as insufficient to effectively assess the economic impact of Aardklop when applying an I-O model. Therefore, a Potchefstroom business survey that encompasses all business sectors was conducted during July 2010. The purpose of this particular survey was to determine the extent to which goods and services needed to present the festival were sourced from outside the local community. The survey included specifically sampled businesses in order to ensure the representation of all sectors within the local economy.

The sample selection for collecting primary was based on data obtained from Potchefstroom Business Chamber. The total number of accommodation establishments in Potchefstroom was estimated at 70 (Cilliers, 2009). In view of the fact that the accommodation sector represents approximately 4% of the total businesses, it was estimated that in Potchefstroom there were in the region of 2000 business establishments. During the survey, a partial approach was applied to the Potchefstroom business population of 1 000, implying that 45.54% of business would be included. Considering that the estimated business population in Potchefstroom is around 1 000, a 25% sample implies that 250 questionnaires needed to be distributed for this survey. In order to ensure a proportional business sector representation for Potchefstroom during this survey, questionnaires were distributed to the respective business sectors as indicated by Table 5.2.

Table 5.2: Potchefstroom businesses sector representation and sample selection

SPENDING ITEM	% PRESENTED	NUMBER OF QUESTIONNAIRES
Accommodation	3.57	20
Retail (Clothing, special, health and beauty)	11.29	62
Wholesale	3.78	21
Transport / Fuel	2.69	15
Manufacturing	6.52	36
Restaurants / Fast foods	8.07	44
Tourism, cultural and leisure service (entertainment)	8.43	46
Municipal	1.19	7
TOTAL	**45.54**	**250**

Source: The Yellow Pages of the North West Province, 2009/2010 and Potchefstroom Business Directory, 2010

All geographical business areas in town were identified and each business was listed by means of a door-to-door survey. In order to identify business that did not operate from formal business premises, the Yellow Pages of the North West Province for 2009/2010 and Potchefstroom Business Directory 2010 were consulted extensively.

In order to enhance the scientific integrity of this study, a probability sampling strategy based on discussions by Cohen *et al*. (2001:102-103) was followed and was supported by a purposive sampling method in order to ensure accurate representation and high validity of the data. Participants that formed the sample of this study were handpicked by means of the purposive sampling method. The participants that formed the sample for this study were readily accessible and willing to participate in the completion of questionnaires (Tustin, Lighthelm, Martins & Van Wyk, 2005:152).

Reliable data from the above sample was collected by means of questionnaires. The data collection process was administered by interviewers during face-to-face interviews with respondents in the selected sample. Maree and Petersen (2010:158) list some advantages when using this method, obtaining a high response rate, the possibility to use lengthy questionnaires, the interviewer being able to render immediate assistance to respondents and that the literacy level of respondents becomes irrelevant. A specific questionnaire for the purpose of this study was developed by the Institute for Tourism and Leisure Studies at the North-West University. The questionnaire covered specific business spending and was based on business survey questionnaires previously used during socio-economic impact studies of the Addo Elephant National Park (Saayman & Saayman, 2006:624) and the Karoo National Park (Saayman, Saayman & Ferreira, 2009:3). A pilot study was unnecessary as this questionnaire had been used successfully in the studies mentioned and only minor changes were needed in order to ensure applicability. Participants' responses were accurately captured by making use of the recall method or by consulting authentic data resources such as financial statements.

Ten post-graduate students from the North-West University, Potchefstroom Campus, who acted as fieldworkers in previous surveys conducted by the institute, were trained in various aspects of the research procedures for this specific survey. The fieldworkers themselves were remunerated for conducting the structured survey questionnaires. In order to ensure the trustworthiness and reliability of the data collection procedures, the researcher enforced strict quality controlled measures on all completed questionnaires. The data collection process also

ensured that respondents participated in their own free will. The respondents were provided with detailed information concerning the aim of the research beforehand and could withdraw from the research at any time. In order to ensure maximum participation, the respective business owners and managers were visited at their premises throughout the city of Potchefstroom.

The collected data was coded in Microsoft™ Excel™ and processed using Statistical Package for Social Science (SPSS). Statistical techniques including descriptive analyses will help to provide preliminary insights regard to the nature of the responses.

5.3.1 Social Accounting Matrix model

During this article, a SAM model for the North West Province as originated by Conningarth Consultants (2006) was used for data analysis. A consistent and comprehensive data set in terms of all manual transactions among productive and institutional sectors of the province's economy was used. Using 2006 prices as a base line, it distinguishes 55 sectors, 12 household types and 4 ethnic groups. With the application of multipliers according to the SAM model for the North West Province, the direct spending of visitors at Aardklop (see Table 5.7) is converted into the linked increases in production, income and jobs in the region, as represented by the indirect and induced impact.

5.3.2 Computable General Equilibrium model

The literature study revealed that the application of CGE models on a regional scale, that is, for the North West Province is limited and so the construction of a small regional CGE model in order to analyse the economic impact of Aardklop was necessary. The regional model developed and applied during this article is a general computable equilibrium model elaborated by the Centre of Policy Studies at Monash University[16]. This static model was developed for use with SAM and adapted with data from the North West Province SAM. The newly constructed model presented 37 industrial sectors that produced 37 products. Each sector produced only one product (for the purpose of comparison the number of sectors have been aggregated to the 9 basics sectors as used in the SAM-based multiplier analysis). Following traditional neo-classical hypotheses of economic rationality, each sector minimised its production costs subject to constant returns of scale, and input prices are given.

[16] The model can be accessed at: http://www.monash.edu.au/policy/archivep.htm.

The model includes the entire range of sectors within the economy, that is, both primary and secondary activities, together with services, and accounts for all interrelationships that occur between these sectors. The macroeconomic impacts for alternative scenarios on income, employment, welfare, the balance of trade and government revenue, as well the economy's individual sectors are considered. Following the practice of model closure, it was necessary to distinguish variables between endogenous and exogenous within the model and so to give preference to specific endogenous and exogenous variables. The decision should be based on the aim that endogenous and exogenous variables should reflect the true economic environment as closely as possible in which the shocks are being applied. By modifying the closure of the model, various assumptions, periods and shocks applied to the economy are simulated. Distinctive to economic modelling methodologies, the various outcomes[17] are influenced by the assumptions and restrictions under which the model is run and when interpreting results, cognisance should be given to this.

Furthermore, it was assumed that families use their income according to traditional functions of utility maximising (Rolim & Kureski, 2006). The model provided for two regions of world trade, the Rest of South Africa and the Rest of the World. Imports were regarded as compound goods used in different proportions throughout all sectors. In addition, the model considered that all payments for production factors were received by local families.

No differentiation between activities and products was accounted for by the matrix. The entrance of commodities (obtainable in the lines of matrix) suggested purchases of compound goods presented by local (North West Province) and imported commodities (from the greater South Africa and the rest of the world). As the imported products were only used directly by firms, the sectors assumed a dual role, that is, to produce and to combine compound goods that used their own product as well as the equivalent in imported goods.

The economic impact of expenditure incurred by festival attendants at Aardklop in 2010 was simulated by a standard short-run closure model. Given the short-run nature of the festival, the simulation was run accordingly (short-run) and, therefore, investment was held constant. The North West Province economy was shocked by increasing the household consumption expenditure for the specified industries per spending group with a specified percentage each.

[17] The modeller should also remember that the percentage change in all exogenous variables that were not directly shocked will be zero.

The different spending patterns per spending group also simulate the overall impact of spending at the festival.

Private consumption expenditure, capital stocks, technical change, tax rates and investment were all held exogenous in an attempt to correctly reflect the period under consideration and allow the economic components to be shocked. Employment was endogenous, and determined within the model. From a macroeconomic point of view, much attention was paid to the impact on GDP and employment levels. Results obtained from the various shocks on an industry level were of great value to business enterprises and investors. Calculations made from expenditure figures were based on surveys done at Aardklop. The most recent household expenditure figures per sector for the North West Province served as basis for applying shocks in the various simulations, and respective magnitudes per sector. Because the precise magnitude of festival-specific capital and infrastructure expenditures remained a contentious issue, their impact has been excluded for the purpose of this analysis.

5.3.3 Input-Output model

Both visitor and organiser spending at Aardklop were included to estimate the contribution of the festival in terms of output and income generated in the area. Expenditure was based on spending information based on the survey done during the 2010 festival. The visitor survey was utilised in order to calculate the average spending pattern per visitor group for the various spending item. The spending per visitor was calculated by dividing the estimated average spending per visitor group with the number of visitors per visitor group.

In order to provide for the leakage principle (when expenditure that leaks out of the hosting community's economy is excluded when assessing the economic impact), the following adjustments have been adopted: a weighting factor of 0.15 was applied to performance spending due to the large portion being paid over to artists, Computicket and SARS. The food and restaurant spending weighting factor was adjusted to 0.718 in order to allow for food stalls operated by entrepreneurs from outside of the hosting community. A weighting factor of 0.06 was applied to curios and memorabilia spending as only 6% of entrepreneurs operating these stalls were from the hosting community. Because many visitors did not need to travel long distances to the event and therefore ensured sufficient fuel intake before leaving their

hometown, the transport to the event spending weighting factor was adjusted to 0.5. With the necessary leakages provided for, the total direct spending was calculated for visitors.

Vaughan, Farr and Slee (2000:97) suggest that either an iteration or matrix version should be applied in a proportional multiplier analysis to determine the impact on the local economy. The matrix version was successfully applied during similar research done by Saayman and Saayman (2006:625) and Saayman, Saayman and Ferreira (2009:5). By creating a matrix inversion, an eight-by-eight matrix per sectors was inverted to determine the effects of change in demand.

By expanding the input-output table to a nine-by-nine matrix, the effect of household spending and wages, or the effect on income, can be determined. The expanded matrix is based on the assumption that the consumption pattern of the research area is similar to that of the national consumption pattern (as defined in the 2005 nationwide input-output table). The income generated due to one additional visitor is thereby calculated. By applying the output multipliers to the direct spending of all visitors at the event, the total production effects of their spending can then be calculated.

5.4 Results of I-O, SAM and CGE model analysis

The discussion to follow will elaborate on the results that were obtained after I-O, SAM and CGE models were applied to the data set of the 2010 Aardklop.

5.4.1 The output and income generated by the festival

The average spending pattern per visitor group for the various spending items is tabulated in Table 5.3.

Table 5.3: Estimated expenditure per visitor group according to input-output spending items at Aardklop (in ZAR)

SPENDING ITEM	FOREIGN	%	NORTH WEST	%	REST OF RSA	%
Entrance fees	136	1.7	97	5.6	106	3.1
Accommodation	1,806	23.0	104	6.0	491	14.5
Food and Restaurants	575	7.3	281	16.2	507	15.0
Liquor	152	1.9	212	12.2	309	9.1
Soft drinks	250	3.2	123	7.1	145	4.3
Performances	1,113	14.2	287	16.6	447	13.2
Purchases: Retailers	263	3.3	122	7.1	187	5.5
Purchases: Curios and memorabilia	1,725	22.0	285	16.4	466	13.8
Transport to Aardklop	1,650	21.0	105	6.0	439	13.0
Transport at the Aardklop	141	1.8	24	1.4	108	3.2
Parking	46	0.6	20	1.2	43	1.3
Other	-	-	74	4.2	136	4.0
TOTAL	**7,856**	100.0	**1,733**	100.0	**3,383**	100.0

Source: Authors' own calculations based on visitor surveys

The number of visitors per visitor group is estimated at 2.875 (foreign), 2.100 (North West) and 2.060 (rest of South Africa) respectively. The calculated spending per visitor (differentiated in the various spending item categories) was determined by dividing the estimated average spending per visitor group with the number of visitors per visitor group – see Table 5.4.

Table 5.4: Estimated expenditure (before leakage adjustments) per visitor according to input-output spending items at Aardklop (in ZAR)

SPENDING ITEM	FOREIGN	NORTH WEST	REST OF RSA
Entrance fees	47	46	51
Accommodation	628	49	238
Food and Restaurants	200	134	246
Liquor	53	101	150
Soft drinks	87	59	70
Performances	387	137	217
Purchases: Retailers	91	58	91
Purchases: Curios and memorabilia	600	136	226
Transport to Aardklop	574	50	213
Transport at the Aardklop	49	11	52
Parking	16	10	21
Other	-	35	66
TOTAL	**2 733**	**825**	**1 642**

Source: Authors' own calculations based on visitor surveys

After implementing the necessary adjustment to allow for leakages, the total expenditure per visitor was calculated as per Table 5.5.

Table 5.5: Estimated expenditure (after leakage adjustments) per visitor according to input-output spending items at Aardklop (in ZAR)

SPENDING ITEM	FOREIGN	NORTH WEST	REST OF RSA
Entrance fees	47	46	51
Accommodation	628	49	238
Food and Restaurants	144	96	177
Liquor	53	101	150
Soft drinks	87	59	70
Performances	58	21	33
Purchases: Retailers	91	58	91
Purchases: Curios and memorabilia	36	8	14
Transport to Aardklop	287	25	107
Transport at the Aardklop	49	11	52
Parking	16	10	21
Other	-	35	66
TOTAL	**1 496**	**519**	**1 069**

Source: Authors' own calculations based on visitor surveys

5.4.2 Total direct spending at the festival

The total expenditure of R84 074 422 was calculated according to the expenditure per visitor multiplied by the total visitors who attended Aardklop during 2010. It is decreased to R53 949 317 when allowing for leakages, as per Table 5.6.

Table 5.6: Total estimated expenditure of visitors at Aardklop (in ZAR)

SPENDING ITEM	FOREIGN	NORTH WEST	REST OF RSA	TOTAL
Entrance fees	62 213	1 036 222	1 940 655	3 039 090
Accommodation	824 754	1 105 570	8 987 535	10 917 859
Food and Restaurants	188 512	2 156 413	6 672 708	9 017 632
Liquor	69 348	2 261 652	5 659 410	7 990 411
Soft drinks	114 153	1 314 641	2 658 505	4 087 298
Performances	76 197	460 119	1 228 912	1 765 228
Purchases: Retailers	119 860	1 306 650	3 424 356	4 850 866
Purchases: Curios and memorabilia	47 259	182 291	512 475	742 025
Transport to Aardklop	376 704	557 808	4 020 833	4 955 345
Transport at the Aardklop	64 496	251 193	1 976 841	2 292 531
Parking	20 833	215 007	780 263	1 016 103
Other	-	785 371	2 489 558	3 274 930
TOTAL	**1 964 330**	**11 632 936**	**40 352 051**	**53 949 317**

Source: Authors' own calculations based on visitor surveys

5.4.3 The multiplier effect as calculated by I-O model

Following a matrix inversion (eight-by-eight matrix sectors), the effects of change in demand were determined. The additional output created in each category due to one additional visitor or change in demand is indicated in Table 5.7. The matrix inversion process reveals output multipliers of 1.43, 1.35 and 1.38, all within the range of 1.1 to 1.5 for South African rural output multipliers that were previously estimated for town such as Potchefstroom, Oudtshoorn and Grahamstown (Saayman & Saayman, 2004:638). The adjusted matrix to a nine-by-nine matrix, the effect of household spending and wages was calculated (Table 5.7). It is notable that spending is directly related to income of a business, and when it expands its production, the income of other business expands. However, not all income received by business translates into income for consumers. Some of it is spent on other expenses such as buying stock, paying for salaries and wages, and for profit taking. The correlation between output and income multipliers is remarkable - the highest in the category, foreign visitors, followed by visitors coming from the rest of South Africa and then, visitors from the North West Province.

Table 5.7: Output and income multipliers at Aardklop (in ZAR)

CATEGORY	CHANGE IN DEMAND	CHANGE IN OUTPUT	CHANGE IN INCOME	OUTPUT MULTIPLIER	INCOME MULTIPLIER
Foreign	1 496	2 141	987	1.43	0.66
North West	519	699	321	1.35	0.62
Rest of RSA	1 069	1 474	672	1.38	0.63

Source: Authors' own calculations based on visitor surveys

The sectoral differentiation of change in output generated due to one additional visitor is indicated in Table 5.8.

Table 5.8: Sectoral changes in output for Aardklop (in ZAR)

CATEGORY	FOREIGN	NORTH WEST	REST OF RSA
Accommodation	628	49	238
Retail	724	383	669
Wholesale	58	15	37
Transport / Fuel	361	51	188
Manufacturing	6	2	5
Restaurants / Fast foods	144	96	177
Tourism, cultural and leisure service	106	67	84
Municipal	114	35	76
TOTAL	**2 141**	**699**	**1 474**

Source: Authors' own calculations based on visitor surveys

By applying the output multipliers to the total direct spending by all visitors at Aardklop, the total production effects of their spending can be calculated, as shown in Table 5.9.

5.4.4 Total impact as calculated by I-O model

Table 5.9: Impact of visitors spending at Aardklop on production (in ZAR)

CATEGORY	DIRECT	OUTPUT MULTIPLIER	TOTAL
Foreign	1 964 330	1.43	2 811 215
North West	11 632 936	1.35	15 668 888
Rest of RSA	40 352 051	1.38	55 632 691
TOTAL	**53 949 317**		**74 112 794**

Source: Authors' own calculations based on visitor surveys

Having calculated the total impact, the sum of the indirect and induced impact is calculated by subtracting the direct impact from the total impact – see Table 5.10.

Table 5.10: Impact of Aardklop on the local economy (in ZAR)

CATEGORY	DIRECT	OUTPUT MULTIPLIER	INDIRECT + INDUCED
Foreign	1 964 330	2 811 215	846 885
North West	11 632 936	15 668 888	4 035 952
Rest of RSA	40 352 051	55 632 691	15 280 640
TOTAL	**53 949 317**	**74 112 794**	**20 163 477**

Source: Authors' own calculations based on visitor surveys

The total economic impact for the 2010 Aardklop as calculated by SAM and CGE models was reported in the previous studies (refer to Article 2). The results of these assessments are reflected in Table 5.11.

5.5 Comparing the economic impact results of Aardklop as calculated by SAM, CGE and I-O models

When comparing the economic impact results of Aardklop it must be kept in mind that the demographical composition of Potcfestroom (as measured by an I-O model) is relative to that of the entire North West Province (as measured by SAM and CGE models). The larger economic impact as measured by SAM and CGE models is ascribed to less leakages and larger multipliers allowed for when applying I-O models. Having calculated the economic impact of

Aardklop by applying SAM, CGE and I-O models, the following results and comparisons were derived:

5.5.1 The comparative total impact as calculated by SAM, CGE and I-O models

The various calculated direct, indirect, induced and total impact for models applied are summarised in Table 5.11

Table 5.11: Total impact due to Aardklop (in ZAR)

IMPACT	SAM	CGE	I-O
Direct impact	53 949 317	53 949 316.69	53 949 317
Indirect impact	44 058 219	Not applicable	Not applicable
Induced impact	35 715 869	Not applicable	Not applicable
Total indirect en induced impact	79 774 088	49 928 541	20 163 477
TOTAL IMPACT	**133 723 405**	**103 877 858**	**74 112 794**

Source: Authors' own calculations based on visitor surveys

Figure 5.1 presents a graphical presentation of the total impact differentiated between direct and a total of indirect and induced impact when calculated for SAM, CGE and I-O models. As the I-O model does not differentiate between indirect and induced impact, these impacts are totalled for all models in the graph for comparison purposes.

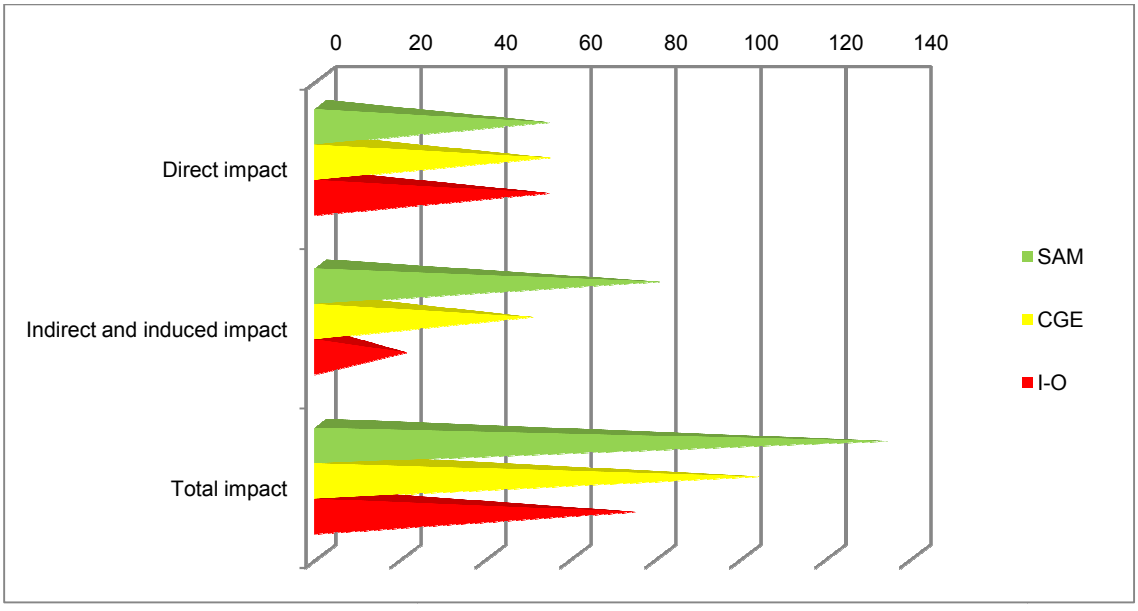

Figure 5.1: Total impact due to Aardklop (in ZAR Millions)

5.5.2 Direct impact as calculated by SAM, CGE and I-O models

The calculated direct impact as calculated by SAM, CGE and I-O models for visitors originated from foreign, North West Province, rest of South Africa and in total are equal, as portrayed in Table 5.12.

Table 5.12: Direct impact due to Aardklop (in ZAR)

IMPACT OF VISITORS ORIGINATED FROM	SAM	CGE	I-O
Foreign	1 964 330	1 964 330	1 964 330
North West	11 632 936	11 632 936	11 632 936
Rest of South Africa	40 352 051	40 352 051	40 352 051
DIRECT IMPACT	**53 949 317**	**53 949 317**	**53 949 317**

Source: Authors' own calculations based on visitor surveys[18]

5.5.3 Indirect and induced impact as calculated by SAM, CGE and I-O models

The calculated induced impact for visitors originating from foreign, North West Province and rest of South Africa are listed in Table 5.13.

Table 5.13: Indirect and induced impact due to Aardklop (in ZAR)

IMPACT OF VISITORS ORIGINATED FROM	SAM	CGE	I-O
Foreign	2 752 885	2 476 072	846 885
North West	17 446 817	9 641 527	4 035 952
Rest of South Africa	59 574 386	37 477 474	15 280 640
INDIRECT AND INDUCED IMPACT	**79 774 088**	**49 928 541**	**20 163 477**

Source: Authors' own calculations based on visitor surveys

The total of indirect and induced impact calculated for SAM, CGE and I-O models are summarised in Figure 5.2.

[18] The same visitor's expenditure is applied to SAM, CGE and I-O models which explains the similar direct impact results.

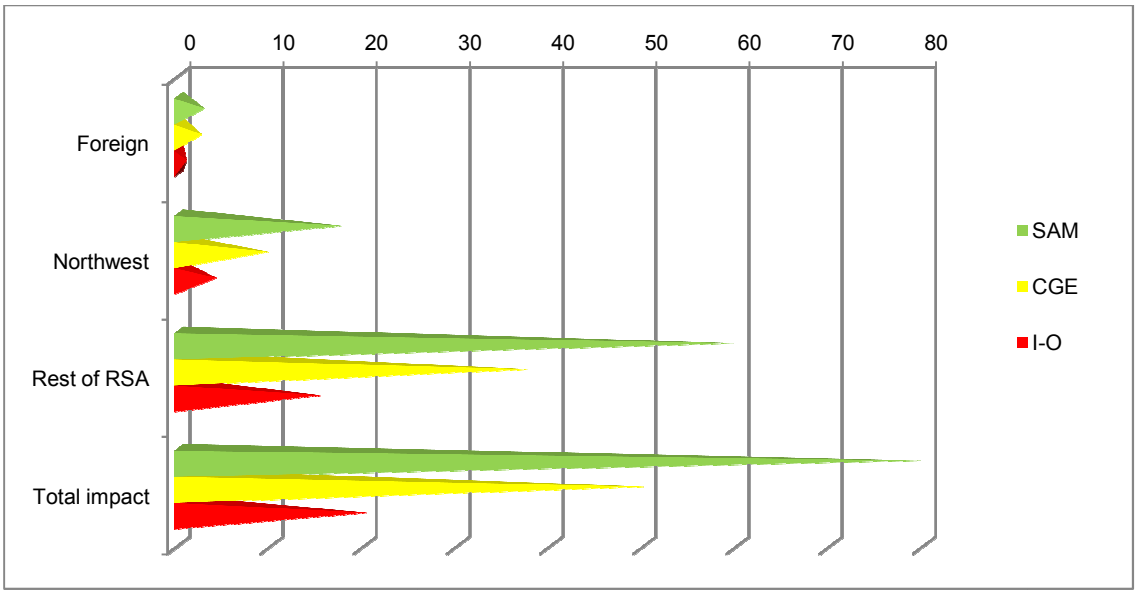

Figure 5.2: Total indirect and induced impact due to Aardklop (in ZAR Millions)

5.5.4 Total impact as calculated by SAM, CGE and I-O models

The calculated total impact for visitors who originated from foreign, North West Province, rest of South Africa and in total are portrayed in Table 5.14.

Table 5.14: Total impact due to Aardklop (in ZAR)

IMPACT OF VISITORS ORIGINATED FROM	SAM	CGE	I-O
Foreign	4 717 215	4 440 402	2 811 215
North West	29 079 753	21 274 463	15 668 888
Rest of South Africa	99 926 437	77 829 525	55 632 691
TOTAL IMPACT	**133 723 405**	**103 877 858**	**74 112 794**

Source: Authors' own calculations based on visitor surveys

A graphic presentation of the total impact (direct, indirect and induced) calculated by a SAM, CGE and I-O model respectively is presented in Figure 5.3.

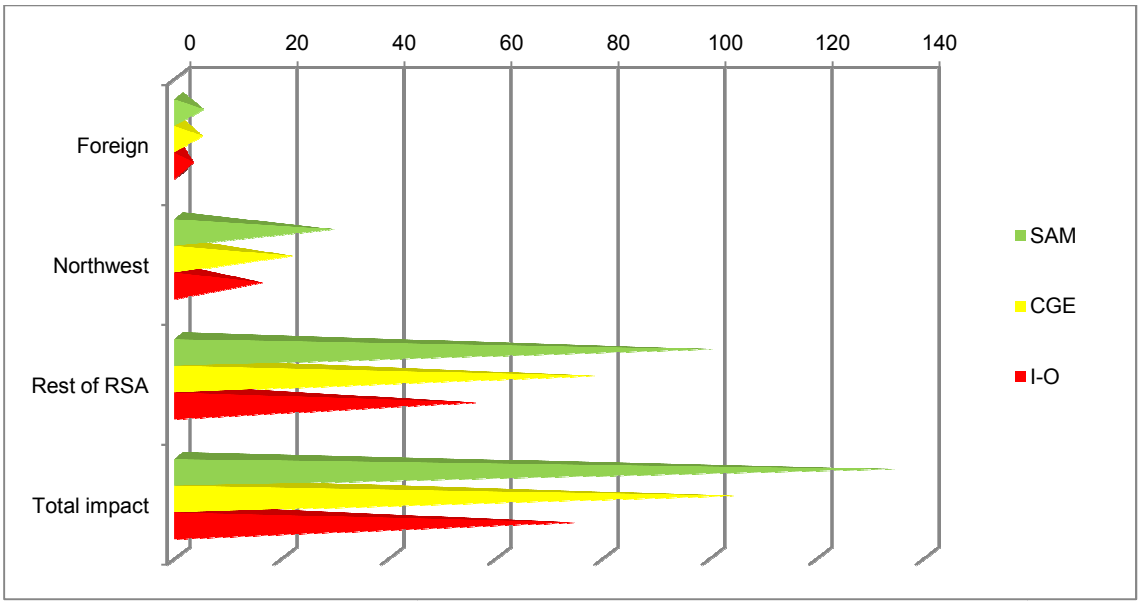

Figure 5.3: Total impact (direct, indirect and induced) due to Aardklop (in ZAR Millions)

5.5.5 Employment due to the festival

Based on figures from the North West SAM and CGE models, as well as the 2006 labour statistics per province, relative to the business volume and employment activity per sector in South Africa, it is possible to determine the impact that the festival has on employment within the North West Province. According to the SAM calculation, an additional 593 jobs were created in addition to the number of employees that would have been directly involved with the event. By implication, 593 employment opportunities as well as the positions occupied by employees directly involved would be lost should the festival be terminated. In addition to the number of employees directly employed by the festival organisers, 627 employment opportunities may depend upon the existence of the festival. The CGE model measured significant lower employment opportunities of only 264.

Although 18.85% of respondents who took part in the business survey indicated that additional workers are employed by them during the festival, no estimation of additional positions created due to presentation, or employment opportunities that will be lost if it is terminated, can be calculated when applying an I-O model, due mainly to insufficient data.

5.6 Findings and implications

This article is distinctive as no previous comparative research has been conducted, within the South African context, that evaluates the economic impact of a singular event by means of applying the SAM, CGE and I-O assessment models. Based on the results of the research in this article conducted concerning Aardklop among the businesses and community of Potchefstroom, the following findings were identified:

Firstly, when reviewing the results after applying a SAM, CGE and I-O model, respectively, to the same set of Aardklop data, the calculated economic impact of each model differs substantially. Table 5.14 summarises a total impact difference of R29 835 547 when comparing the SAM (R133 723 405) and CGE (R103 877 858) results. The almost 29% difference in measuring by the two models, leads to the obvious question as to which is the most reliable. In an attempt to answer this, an even broader platform to access economic impact was created by applying an I-O model. The total impact of R74 112 794 as calculated by an I-O model measures even R29 765 064 less than that calculated by the CGE model. The three models applied reveals an exceptional high - low difference of R59 610 611 in total impact. All spending sectors, foreign, local (North West) and the rest of South Africa, measure the highest impact when applying a SAM model, followed by the CGE and I-O models. Despite the comparative differences between the assessment models that became apparent in this article, the indisputable fact persists that the hosting of an event has a varying economic impact with associated consequences for all stakeholders. The total direct impact for all models (Table 5.12) is based on the same data and therefore reveals similar results, namely R53 949 317 with an equal measurement by all three models for each spending sector.

As CGE and I-O models do not measure indirect and induced impact separately, a collective total for both is calculated (Table 5.13). As noted with the total impact, the highest total indirect and induced impact is measured by a SAM model (R79 774 088), followed by CGE (R49 928 541) and I-O (R20 163 477) models. With the direct impact measured equally by all models, the difference of the total of indirect and induced impact is the same as that of the total impact.

Comparing the calculated results when applying the I-O model, it is evident that a greater economic impact is reflected when SAM and CGE models are used. During this study, a customised I-O model was developed for the small city of Potchefstroom. However, provincial

SAM and CGE models had to be applied, as no such models exist for Potchefstroom. Results indicate that when a provincial SAM model with its secondary effects is applied to data collated from an event hosted by a small city, the calculated total impact is largely overstated. The regional CGE model developed for the use with a SAM (for the North West Province) calculates a lesser total impact, although it too is overstated. This may be ascribed to the fact that a model that is designed for a specific geographical area (I-O model) allows for detailed measurement of leakages and elasticity, while provincial based models (SAM and CGE) measure the effect to a lesser extent. Table 5.15 provides a summary with regard to the comparative measured impact results.

Table 5.15: Results using SAM, CGE and I-O models assessing economic impact of Aardklop

SECTOR	SAM	CGE	I-O
Direct impact as % of total impact	40.4	51.9	72.7
Indirect spending + induced impact as % of total impact	59.6	48.1	27.3
Sectors with most total spending	Rest of South Africa	Rest of South Africa	Rest of South Africa
Significance of job creation	593	264	Not easily measured
Cost of model application	Provincial model is readily available and affordable	Provincial model is readily available and affordable	Development of regional models can be expensive
Accuracy of measured impact	Possibly grossly over-estimated	Possibly moderate over-estimation	Conservatively measured

Source: Authors' own calculations based on visitor surveys

Secondly, in view of the significant differences in the measured economic impact when various models are applied to the same event, it becomes imperative that organisers, economists and academics who use assessment results to inform and guide stakeholders should ensure that the results that were obtained by means of a specific model relate accurately to the purpose for which the tool was developed. This was once again highlighted. It must be very carefully noted that the reporting of misleading assessment results may have severe, if unintended, economic and social consequences.

Finally, a most significant limitation of an I-O model seems to be the inadequate measurement of job opportunities created. Some stakeholders may find measuring tools such as SAM and CGE models preferable for this purpose due to their ability to better account for additional job opportunities, rather than the I-O models that may provide more conservative economic impact results, but fail to assess the creation of job opportunities (as illustrated in Table 5.15).

5.7 Conclusions

The purpose of this article was to apply an additional model, the I-O model, to the same data set of Aardklop (compiled during the 2010 survey) in order to further investigate differences that manifested when SAM and CGE models were used to measure the economic impact of the event. Secondly, this article aimed to broaden the platform of assessment by comparing the measured economic impact results obtained by using SAM, CGE and I-O models, respectively.

The results obtained for this article confirm that measured economic impact results differ greatly between the various models even when applied to the same event. The findings also indicate the extent of disparity between the results that were obtained after the three models were applied to the same data set of Aardklop. The inconsistency of measured results between the three models is most notably characterised by an estimated high/low difference of R59 610 611 in total impact analysis. The total economic impact variance between SAM and CGE is an estimated R30 million, while an almost equal difference between CGE and I-O results is noticeable.

The results further support the concern that the economy of hosting communities normally experience high leakages and so the local economy does not benefit to the extent that is generally expected and forecast. This phenomenon is apparent through lower multiplier values, and this research once more highlights the significance of not using over-inflated multipliers to determine economic impact on hosting communities. This finding is particularly illustrated by the I-O results that considered just this principle. This article confirms that economic assessment models may reveal varying results and the irresponsible application thereof could have a detrimental effect on all stakeholders. Serious caution should be taken when analysts utilise economic assessment results to provide guidance concerning sponsorships and decision-making.

This article provides a unique contribution to the existing body of knowledge in respect of the empirical comparisons of SAM, CGE and I-O models as assessment tools when measuring the economic impact of a national arts festival, in this case, Aardklop. This article confirms the findings in previous studies (refer to Article 1 and 2) that when the same data of an event are subjected to different assessment models, a significant difference in results can be expected. The variance in measured results as obtained from SAM, CGE and I-O models highlights the

fact that academic scholars, organisers and sponsors should carefully calculate and align the application of specific models with the intended purpose for which it was developed.

For future research, the application of SAM, CGE and I-O models, either individually or collectively, in order to determine the extent of the varying economic impact that is measured by each model to the remaining national arts festivals may be of great significance. In this study, only one assessment model (I-O) was developed for small city level while the SAM and CGE models were on provincial level. In order to confirm and investigate this measured difference in economic assessment results, it is suggested that all models applied should be developed at the level of the specific hosting city. In addition, studies should be conducted to assess the different economic impact that result when these measuring tools are applied to other types of mega events such as the Olympic Games, FIFA Soccer World Cup or Rugby World Cup. An even more extended study that interrogates the applied models (for example, CGE) with Cost-Benefit Analysis Models and Tourism Satellite Accounts may reveal further important lessons to be learned.

FINAL CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

The aim of this chapter is to summarize the findings of the research that was conducted in this study. The discussion that will follow addresses the research questions that were formulated in Chapter 1. Recommendations based on these findings will be made in light of the critical assessment of economic impact analyses at selected national festivals that was completed to determine whether various models applied to assess economic impacts reveal different results when they are applied to the same or similar events.

6.2 Synthesis of this study

In this study entitled **Critical assessment of economic impact analyses at selected national festivals,** several economic impact analyses were investigated in order to determine the extent to which selected models (SAM, CGE and I-O) assess a specific event, as well as the implications thereof for stakeholders, such as the hosting community, sponsors, event organisers and academics.

During an extensive literature study, it became apparent that a need exists to conduct a full re-assessment of methodologies for the economic impact analysis of events. The literature revealed that various models are used to conduct economic impact analyses. In order to establish a concise framework within which to conduct an economic assessment, it was decided to select only the most popular models used, the SAM-based multiplier analysis, I-O and CGE

modelling. Because these models each reveal several advantages and disadvantages the decision to recommend a specific model as the most appropriate becomes extremely complex. Therefore, it became necessary to conduct research in order to ascertain the possibility of a most appropriate model for the effective economic analysis of arts festivals. This research was also motivated by the gap that exists in the South African context, for no study has been conducted where various methodologies that are applied to assess economic impacts have been applied to the collated data of a single event. In view of this limitation, the research problem of this study was formulated as:

- **Which model (if any) is the most appropriate to assess the economic impact of the arts festival under investigation?**

The aims of this study diverged into primary and secondary aims, after the formulation of the research question. A number of questions were derived from the primary research question, and, by researching the answers to these questions, the primary question could then be answered. The formulation of aims gave focus and direction to the study in such a manner that meaningful empirical research could be conducted.

In Chapter 1, the focus was on the background and orientation of this study. The specific area of interest was clarified and an elucidation for the rationale for undertaking this study was given. The main research question was formulated against the background of these choices and considerations. The formulation of the purpose and central research question of this study is descriptive by nature, and focuses on exploring the possibility of applying the most appropriate model to assess the economic impact of an event. After the formulation of the research questions, a concise description of the possible contribution and assumptions of this study were provided. The paradigmatic perspective and approach to this study were discussed and followed by a brief overview of the research design, methodological choices, ethical considerations and quality criteria. The chapter was concluded with a chapter classification in terms of the expected research processes.

Chapter 2 includes the relevant literature study as background to this research, and presents the conceptual framework against which this study should be read. The investigation was started with an examination of the relevant literature on the economic impact assessment of events, as contextual backdrop to this study. The focus then included the extent and impact of

economic assessment of events in the South African context with special reference to the methodologies, advantages and disadvantages that each assessment tool model encompasses. The discussion then elaborated on the theories concerning the application of each model in the light of their application and consequent results. Chapter 2 also includes a discussion and justification with regard to designing and conducting the empirical part of this study.

Chapter 3 (Article 1) provides an elaboration of the economic impact assessment after SAM and CGE models were applied to the data set of KKNK. This article and discussion explored the advantages and disadvantages of each model and then aimed to explore the most appropriate model to apply when assessing the economic impact of KKNK. The methodological considerations such as the data collection and compilation, expected output, research objectives and costs involved were included as fundamental principles during such an evaluation.

In Chapter 4 (Article 2), the findings of previous studies that applied different measuring tools to an event in order to assess the economic impact were interrogated. The discussion in this article focused on the assessment of the economic impact of Aardklop when applying SAM and CGE models. The methodological and application processes of applying these models were also considered while the advantages and disadvantages of each were highlighted.

Chapter 5 (Article 3) started with a historical perspective on Aardklop as a national arts festival. This article then discussed the methodological application of a typical I-O model while focussing on the advantages and disadvantages thereof. The purpose of this article was to apply an additional model, namely I-O, to the same data set of Aardklop (as compiled during the 2010 survey) in order to investigate differences that appeared when SAM and CGE models were used to measure the economic impact of the event. Chapter 5 also concluded with a possible broader platform of economic assessment by comparing the measured economic impact results as obtained by SAM, CGE and I-O models.

In this study entitled **Critical assessment of economic impact analyses at selected national festivals,** several economic impact analyses were investigated in order to determine the extent to which selected models (SAM, CGE and I-O) assess a specific event, as well as the implications thereof for stakeholders such as the hosting community, sponsors, event organisers and academics.

During an extensive literature study it became apparent that a need exists to conduct a full re-assessment of methodologies for the economic impact analysis of events. The literature revealed that various models are used to conduct economic impact analyses. In order to establish a concise framework within which to conduct an economic assessment it was decided to select only the most popular models used, namely SAM-based multiplier analysis, I-O and CGE modelling. In view of the fact that these models reveal several advantages and disadvantages make the decision to recommend a specific model as the most appropriate extremely complex. Therefore it became necessary to conduct research in order to ascertain the possibility of a most appropriate model for the effective economic analysis of arts festivals. This research was also motivated because of the gap that exists in the South African context as no study has been conducted where various methodologies that are applied to assess economic impacts have been applied to the collated data of an event. In view of this limitation the research problem of this study was formulated as: **Which model (if any) is the most appropriate to assess the economic impact of the arts festival under investigation?**

The aims of this study diverged into primary and secondary aims, after the formulation of the research question. A number of questions were derived from the primary research question, and, by researching the answers to these questions, the primary question could be answered. The formulation of aims gave focus and direction to the study in such a manner that meaningful empirical research could be conducted.

In Chapter 1 the focus was on the background and orientation of this study. The specific area of interest was clarified and an elucidation for the rationale for undertaking this study was given. The main research question was formulated against the background of these choices and considerations. The formulation of the purpose and central research question of this study is descriptive by nature, and focus on exploring the possibility of applying the most appropriate model to assess economic impact of an event. After the formulation of the research questions a concise description of the possible contribution and assumptions of this study were provided. The paradigmatic perspective and approach to this study were discussed and followed by a brief overview of the research design, methodological choices, ethical considerations and quality criteria. The chapter was concluded with a chapter classification in terms of the expected research processes.

Chapter 2 includes the relevant literature study as background to this research, and presents the conceptual framework against which this study should be read. The investigation was started with an examination of the relevant literature on assessing economic impact of events, as contextual backdrop to this study. The focus then included the extent and impact of economic assessment of events in the South African context with special reference to the methodologies, advantages and disadvantages that each model as assessment tool encompasses. The discussion elaborated on the theories with regard to the application of each model in light of their application and consequent results. Chapter 2 also includes a discussion and justification with regard to designing and conducting the empirical part of this study.

Chapter 3 (Article 1) provides an elaboration of the economic impact assessment after SAM and CGE models were applied to the data set of KKNK. This article and discussion explored the advantages and disadvantages of each model and further aimed to explore the most appropriate model to apply when assessing the economic impact of KKNK. The methodological considerations such as the data collection and compilation, expected output, research objectives and costs involved were included as fundamental principles during such an evaluation.

In Chapter 4 (Article 2) findings of previous studies that applied different measuring tools to an event in order to assess the economic impact were interrogated. The discussion in this article focused on the assessment of the economic impact of Aardklop when applying SAM and CGE models. The methodological and application processes of applying these models were also deliberated on while the advantages and disadvantages were highlighted.

Chapter 5 (Article 3) started with a historical perspective on Aardklop as a national arts festival. This article discussed the methodological application of a typical I-O model while focussing on the advantages and disadvantages thereof. The purpose of this article was to apply an additional model namely I-O to the same data set of Aardklop (as compiled during the 2010 survey) in order to investigate differences that appeared when SAM and CGE models were used to measure the economic impact of the event. Moreover, provided a possible broaden platform of economic assessment by comparing the measured economic impact results as obtained by SAM, CGE and I-O models.

6.3 The unique contribution of this study

The most significant contribution of this study is embedded in the fact, that by all accounts, within the South African context – and even globally – it is the first study of its kind that aimed to determine the economic impact by means of applying more than one assessment model to the data set of a singular event. In Article 1, a SAM-based multiplier analysis and CGE model for the Western Cape Province were applied to the data set of KKNK in order to assess the economic impact it has. In an effort to confirm the appropriateness to use these models when assessing economic impact of festivals, a similar study was conducted by developing and applying North West Province SAM and CGE models to the data set of Aardklop (Article 2). Article 3 aimed to broaden the existing body of knowledge in respect of the empirical comparisons of SAM and CGE models as assessment tools to measure the economic impact of a national arts festival, Aardklop, by applying a partially developed I-O model to the same set of data. Therefore, the scope of investigation during this survey was extended to measure and compare the economic impact results by applying three models to the same data set.

In view of the results obtained, it is evident that when the same data set of an event is subjected to different assessment models, a difference in results can be expected. The extent of disparity between the economic impact results that were obtained after the models were applied to the same data set was significant.

The differences in measured economic impact results should serve as a warning to tourism economists, academic scholars, organisers and sponsors to carefully contemplate and align the application of specific models with the intended purpose for which it was developed. Each model has its own advantages and disadvantages. Therefore the dilemma is to determine the most suitable assessment tool for economic evaluation. Reporting misleading assessment results may have serious economic and social consequences for all stakeholders involved, unintended or otherwise.

Further, this study provides guidelines that event organisers, academics and economic advisors may follow, together with the existing body of knowledge and practical implementation structures, when assessing the economic impact of events.

6.4 Conclusions with regard to the literature study

The following discussion will present the conclusions from the literature studies that have been conducted during this study. This discussion will expound the methodological advantages and disadvantages as they pertain to the critical analyses of economic impact at selected arts festivals. The conclusions will reflect on the findings that have been made in terms of Chapter 2, as well as the articles included in Chapters 3 to 5.

The literature study indicated that:

- government financing of art festivals in developing counties is increasingly becoming a contentious issue due to monies being allocated towards upliftment programmes rather than to the arts;
- event organisers are compelled to source alternative means of funding such as private and corporate sponsors, donors and public contributors in order to ensure the sustainability of an event;
- an event assessment is regarded as an indispensable tool for measuring the findings and outcomes of economic impact studies;
- assessment results often serves as guideline to either approve or decline requests for financial support;
- various assessment models can be applied in order assess the economic impact of an event and each has consequences in term of findings and recommendations;
- the most popular models used to assess economic impact predominantly refer to I-O and CGE models, with SAM as an improved I-O model;
- event organisers, economists and academics that employ assessment results to inform or guide stakeholders often neglect to ensure that the results obtained by means of a specific model relate to the purpose for which the specific tool was developed;
- economic analysers often apply popular models without considering the advantages, disadvantages, challenges and pitfalls of each – stakeholders may thus be misinformed with corresponding severe economic and social consequences;
- assessors often have to decide on the use of readily available assessment models or the development of customised tools in order to ensure a more accurate economic impact assessment;
- assessors will have to consider the costs of developing a customised assessment tool remembering that budget constraints already exist;

- the methodological application of assessment models is not without limitations. Despite the development of SAM models based on I-O models with multiplier effects, certain methodological problems, including CGE, persist. These limitations are summarised in Figure 6.1.

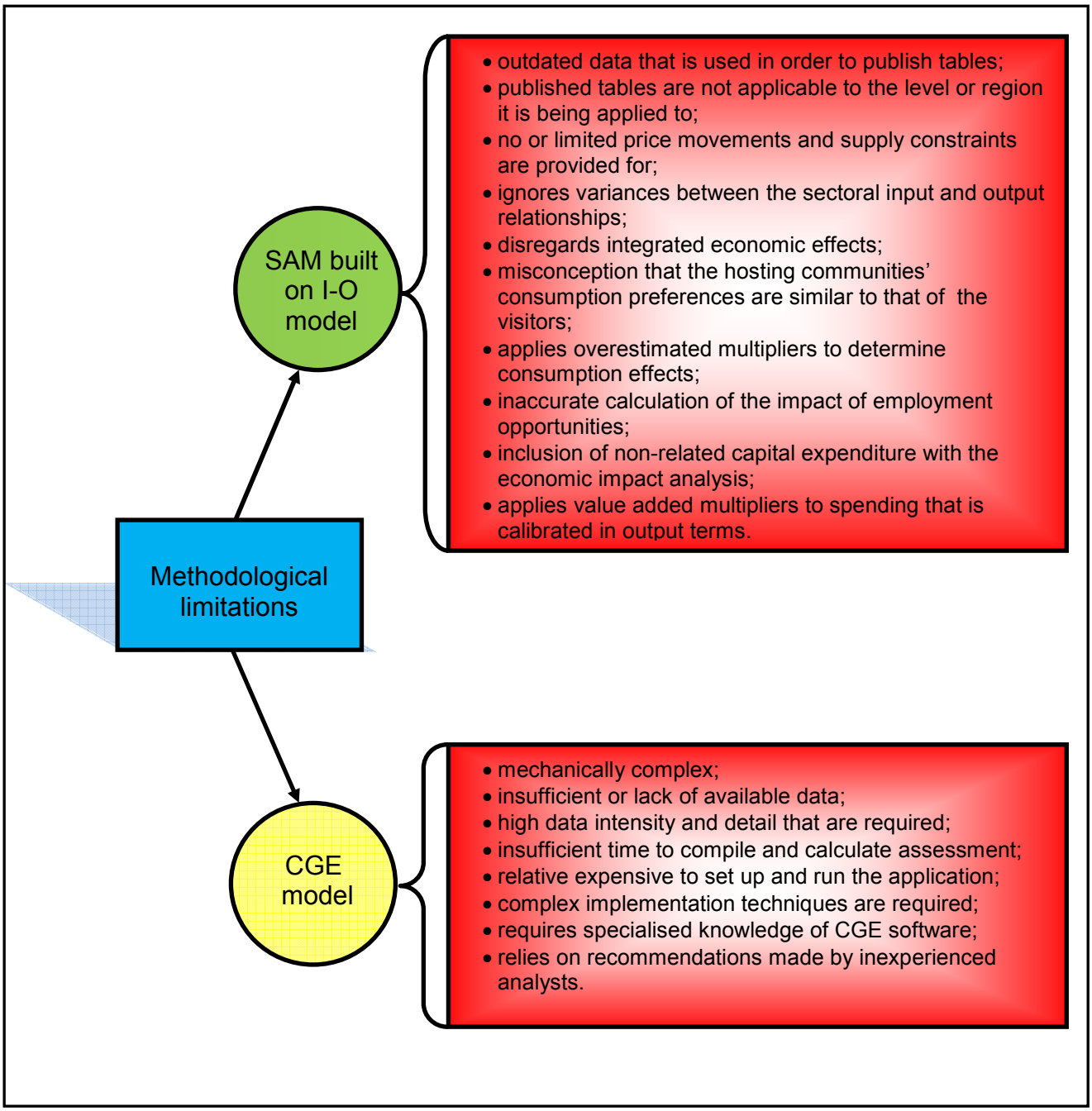

Figure 6.1: Methodological limitations of SAM, CGE and I-O models

6.5 Conclusions with regard to the survey

The discussion in the following paragraphs will highlight the most significant findings and conclusions concerning the survey that forms the empirical essence of the research. The conclusions will reflect on the findings that have been made in terms of the survey results. The surveys indicated that:

- regardless of the assessment method or measuring tool that is applied, an event will doubtless have an impact on the hosting and/or national economy;
- various models of assessment measure different economic impact results for the same event;
- the extent of the disparity between the economic impact results as measured by SAM, CGE and I-O to the same data of a singular event was quite substantial;
- in terms of the economic impact assessment the I-O model measured the results most conservatively, followed by higher CGE results, while SAM offered the highest impact;
- an overstatement of economic impact occurs when SAM and CGE models are applied. SAM results are characterised by a higher overstatement than the overstatement reported by CGE model;
- the significant difference in the measured economic impact may be ascribed to the fact that a customised I-O model was developed for the small city of Potchefstroom while the provincial SAM and CGE models had to be applied as no smaller “city” models exist;
- the economy of hosting communities normally experience high leakages and therefore the local economy does not benefit to the extent that is generally expected;
- caution should be taken not to make use of over-estimated multipliers when assessing the economic impact of events on hosting communities;
- reporting exaggerated economic impact results may render locals that offer services during an event despondent when they perceive their personal benefit as being much less than the inflated figures;
- although an event may be presented over an extended period of time, this does not necessarily ensure a greater economic impact;
- irrespective of the event that was assessed, SAM recorded that the trade and accommodation sectors experienced the highest impact, while CGE indicated that the financial and business sectors benefited the most;

- the geographical location of the event is of great significance as it will have an influence on the origin of visitors, that is, whether or not they are local or from the rest of South Africa;
- the obvious positive impact that the geographical location of an event may have, provides an opportunity for organisers to explore expansion opportunities, such as possible commuting facilities or all-inclusive packages, to further increase visitor attendance;
- SAM and CGE models reveal quite different calculated additional job opportunities. SAM models are much more optimistic concerning additional positions that the same data measured by CGE models.

6.6 Guidelines and recommendations in respect of the conclusions of this study

In reflection of the above conclusions, this study provides possible guidelines for event organisers, academics and economic advisors. Despite other contributions, these guidelines are also regarded as a significant and singular contribution with regard to the existing body of knowledge and practical implementation structures for economic assessment of events.

6.6.1 Guidelines for event organisers

During the planning and organisation of an event organisers have to:

- pay serious consideration to the geographical location of the event. In view of the fact that the geographical location of an event has a significant influence on the economic impact of the event, the geographical positioning must ensure relatively effortless accessibility of and departure from the event;
- ensure that diverse genres are included in the events programme in order to secure attendance of a target population that includes local visitors as well as those from the rest of South Africa;
- concentrate their marketing efforts and strategies on visitors from the rest of South Africa that are financially able to support such events in order to ensure a greater economic impact;
- take cognisance of the fact that an extended festival duration may not necessarily generate a greater economic impact than events presented in a more concise time frame;

- consider the specific calendar time when an event is presented, in order to target non-local visitors, as this will enhance the economic impact should the event coincide with scheduled holidays;
- target communities of visitors that are characterised by stronger economies;
- include, where possible, other surrounding tourism attractions within the local community as means of securing greater event support and increasing the length of stay;
- communicate the economic impact assessment information to local visitors in order to convince them of the economic advantages of taking part in the event and so ensure their support;
- aim to block as many as possible leakages from the hosting community in order to maximise the economic impact;
- support the goods and services provided from within the local community in order to limit imports.

6.6.2 Guidelines for academics and economic advisors

When reporting on the economic assessment of events, academic scholars and economic advisors should:

- be aware of the strengths and weaknesses, as well as the advantages and disadvantages, of each model that is utilised;
- keep in mind that the design characteristics and purpose of the model that is applied should suit the conditions and context of the event;
- carefully consider the context of assessment results calculated by a specific model before any recommendations are made or decisions taken;
- avoid a haphazard approach to the choice, interpretation and application of the assessment tool as inappropriate results may adversely influence decision making;
- be conscious of the fact that various measuring tools applied to the same data set will present different results;
- avoid using over-estimated multipliers in order to avoid unrealistic results;
- eschew themselves from improper and unethical assessment practises that may mislead the stakeholders involved;

- be aware that, in order to determine the most appropriate model much depends on certain factors such as the magnitude of the event, as well as the extent of available data.

6.7 Future studies

Concerning future research, it may be of great significance to repeat the same investigation by applying SAM, CGE and I-O models, either individually or collectively, to the remaining national arts festivals. This should determine the extent of the varying economic impact that is measured by each model. In this study, just one assessment model (I-O) was developed on small city level while the SAM and CGE models were from a provincial level. In order to confirm and investigate the measured difference in economic assessment results, it is suggested that all models applied should be developed on the level of the specific hosting city.

In conclusion, it must be noted that criticism against the estimated and actual calculated economic impact results of mega-events such as the Olympic Games, FIFA Soccer World Cup and Rugby World Cup are on the increase. Because of this criticism, future studies should be conducted where the various measuring tools are applied on the same mega-event. An even more extended study that interrogates the applied models (for example, CGE) with Cost-Benefit Analysis Models and Tourism Satellite Accounts may yet reveal further important lessons to be learned.

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ADDENDUM A

MODELS APPLIED TO ASSESS THE ECONOMIC IMPACT OF EVENTS DURING PREVIOUS STUDIES

DATE	AUTHOR	OTHER	CBA	TSAS AND TPF	ROI	SECTOR MAPPING	PRODUCTION / SUPPLY CHAIN	DESCRIPTIVE RESEARCH	FINANCIAL SURVEYS	INPUT-OUTPUT / PARTIAL INPUT-OUTPUT	SAM	CGE
1988	Myerscough, J.								X			
1995	Adams, P. & Parmenter, B.R.											X
	O'Brien, J. & Feist, A.							X				
1997	Antrobus, G., Webb, A. & Mather, D.	#1										
	Casey, B., Dunlop, R. & Selwood, S,							X				
	Wagner, J. E.										X	
1998	Bryan, J., Hill, S., Munday, M., & Roberts, A.									X		
	Ryan, C.									X		
	Hiller, H.H.	#2										
	O'Connor, J.						X					
	Travers, T.								X			
	Welsh Economy Research Unit and DCA (Cardiff).									X		
1999	Crompton, J.L.									X		
2000	Bretton Hall College.					X						
	Bryan, J., Hill, S., Munday, M. & Roberts, A.									X		
	Cambridge Arts Theatre.								X			
	Crompton, J.L. & Lee, S.									X		
	Snowball, J.D.	#3								X		
2001	Blake, A., Durbarry, R., Sinclair, M.T. & Sugiyarto, G.			X								
	Crompton, J.L., Lee, S. & Shuster, T.J.									X		
	Department for Culture, Media and Sport, Creative Industries.							X				
	Ryan, C. & Lockyer, T.									X		
	Selwood, S.							X				
2002	Brown, D., Var, T. & Lee, S.									X		
	Chang, S.									X		
	Division of Research, Moore School for Business.									X		
	Stynes, D.J.									X		
	West, G. & Bayne, B.									X		
2003	Hill Strategies.									X		
	King, E.M.		X									
	Lynch, T. & Harrington, J.									X		
	Mann Weaver Drew / De Montfort University.											
	Snowball, J.D. & Antrobus, G.G.	#4								X		
	Van Heerden, A.									X		
2004	Anon.				X							
	California Arts Council.									X		
2004	Clark, D., Grainger, J. & Jaffry, S.									X		

DATE	AUTHOR	OTHER	CBA	TSAS AND TPF	ROI	SECTOR MAPPING	PRODUCTION / SUPPLY CHAIN	DESCRIPTIVE RESEARCH	FINANCIAL SURVEYS	INPUT-OUTPUT / PARTIAL INPUT-OUTPUT	SAM	CGE
	Daniels, M.J., Norman, W. & Henry, M.									X		
	Du Plessis, C.									X		
	Edmiston, K. D. & Thomas, M.X.									X	X	
	McIntyre, M.H.	#5										
	Narayan, P.K.											X
	Tremblay, P., Boyle, A., Rigby, H. & Haydon, J.	#6										
	URS Finance and Economics.											X
	Van Schalkwyk, C.									X		
2005	Arik, M. & Penn, D.A.									X		
	Armbrecht, J. & Lundberg, E.	#7										
	Blake, A.											X
	Bob, U., Swart, K. & Moodley, V.				X							
	Economic Benefits Distribution research Working Group.	#8										
	Kelsey, C.W. & Ford, S.									X		
	Milne, S., Dickson, G., McElrea, A & Clark, V.									X		
	PricewaterhouseCoopers.											X
	SQW Limited & TNS Travel and Tourism.									X		
	Tohmo, T.									X		
2006	Brännäs, K. & Nordström, J.	#9										
	Dwyer, L., Forsyth, P. & Spurr, R. (a)											X
	Dwyer, L., Forsyth, P. & Spurr, R. (b)											X
	IRIS Group Wendy & MacDonald & Associates & JP Consulting.									X		
	McHugh, D.		X									
	Saayman, M.									X		
	Saayman, M., Kohrs, I. & Saayman, A.									X		
	Saayman, M. & Saayman, A .									X		
	Strydom, A.J., Saayman, M. & Saayman, A.									X		
2007	Baker Associates.	#10										
	Borges, D.R.									X		
	Bowdin, G.A.J. & Williams, M.	#11										
	Centre for Tourism Research in Africa.	#12										
	Çela, A., Knowles-Lankford, J. & Lankford, S.									X		
	Virginia Department of Conservation & Recreation.	#13										
2008	Bohlmann, H.R. & Van Heerden, J.H.											X
	Bonn, M.A. & Harrington, J.	#14								X		
	Hamilton, C., Galloway, S., Langen, F., Cran, A., MacPherson, C., Burns, M. & Snedden, E.	#15										
	Measells, M.K. & Grado, S.C.									X		
	Rivera, M.A., Hara, T. & Kock, G.										X	
	Saayman, M. & Rossouw, R.											X
	Saayman, M., Rossouw, R. & Saayman, A.										X	
	Silva, B., Mann, M. & Daniel, H.									X		
	Snowball, J.D. & Webb, K.G.	#16										
2008	Stynes, D.J.	#17										

DATE	AUTHOR	OTHER	CBA	TSAS AND TPF	ROI	SECTOR MAPPING	PRODUCTION / SUPPLY CHAIN	DESCRIPTIVE RESEARCH	FINANCIAL SURVEYS	INPUT-OUTPUT / PARTIAL INPUT-OUTPUT	SAM	CGE
	Van Zyl, C.	**#18**										
2009	Kruger, M., Saayman, M., Saayman, A. & Oberholzer, S.									**X**		
	Kruger, M., Saayman, M., Saayman, A., Viviers, P. & Oberholzer, S.									**X**		
	Slabbert, E., Kruger, M., Viviers, P., Saayman, M. & Saayman, A.									**X**		
	Saayman, M., Saayman, A & Ferreira M.									**X**		
	Slabbert, E., Kruger, M., Viviers, P., Saayman, M. & Saayman, A.									**X**		
	Sundance Institute.									**X**		
	Viviers, P., Slabbert, E., Saayman, M. & Saayman, A.									**X**		
	Waterhouse, C.	**#19**										
2010	Botha, K., M., Saayman, M., Saayman, A. & Oberholzer, S.									**X**		
	Erasmus, J., Slabbert, E., Saayman, M., Saayman, A. & Oberholzer, S.									**X**		
	Fourie, J. & Santana-Gallego, M.	**#20**										
	Jackman, M. & Greenidge, K.	**#21**										
	Mayne, B.	**#22**										
	Saayman, M. & Rossouw, R.										**X**	
2011	Kruger, M., Saayman, M., Saayman, A. & Rossouw, R.										**X**	
	Rossouw, R. & Saayman, M.			**X**								**X**

#1. Calculated by means of an economic impact model using the methods of 'ticket sales' and 'accommodation provided.'
#2. Chain of relationship by means of backward and forwarding linkage modelling.
#3. Multiplier effect calculated for direct and indirect impact (I-O) and Willingness-to-pay method.
#4. Multiplier effect calculated for direct and indirect impact (I-O) and Willingness-to-pay method.
#5. Multiplier effect calculated by using the New Economic Foundation's established LM_3 measure.
#6. Modified version of the Sustainable Tourism CRC *Encore* Event Evaluation Kit.
#7. Willingness-to-pay model.
#8. Flow- back modelling by applying the Economic Impact Model for Arts and Heritage (EIMAH).
#9. Econometric model.
#10. Qualitative methodology applied.
#11. Five-stage Approach to Evaluation Model.
#12. Measured direct impact spending only (both on- and off-site spending included) based on non-resident attendees.
#13. Money Generation Model 2.
#14. Capacity Utilization Model.
#15. Qualitative methodology applied.
#16. Qualitative methodology applied.
#17. Money Generation Model 2.
#18. Linear regression model.
#19. Break-even model.
#20. Standard gravity model.
#21. Structural time series model.
#22. Break-even model.

ADDENDUM B

QUESTIONNAIRE : BUSINESS SURVEY - POTCHEFSTROOM

BESIGHEIDSVRAELYS / *BUSINESS SURVEY*

Beantwoord asb die volgende vrae deur die toepaslike blokkie in te vul. / *Please answer the following questions by writing in the appropriate answer or choosing the appropriate block.*

1. Watter katgorie beskryf u besigheid die beste? U kan meer as een kategorie kies. / *Which category describes your business best? You may choose more than one category.*

B & B	1
Gastehuis / *Guesthouse*	2
Lodge	3
Hotel	4
Curio winkel / *Curio shop*	5
Kleinhandelaar/ *Retailer*	6
Groothandelaar / *Wholesaler*	7
Vulstasie / *Petrol station*	8
Depot	9
Vervaardiger / *Manufacturer*	10
Wildsplaas / *Game Reserve*	11
Restaurant	12
*Ander / *Other*	13
*Spesifiseer / S*pecify:*	

2. Hoe lank bestaan u besigheid al? / *How long has your business been in existence?*

Jare / *Years*	

3. Hoeveel mense het u in diens? / *How many people do you employ?*

Permanent	
Tydelik / *Temporary*	
TOTAAL / *TOTAL*	

4. Neem u tydens Aardklop Nasionale Kunstefees addisionele mense in diens? / *During Aardklop National Arts Festival, do you employ any additional people?*

Ja / *Yes*	1
Nee / *No*	2

5. Hoe is u omset (inkomste na belasting) verdeel ten opsigte van die volgende koste? Sien notas onder vir inligting. / *How is your turnover (income after tax) divided between the following business costs? See notes below for more clarification.*

Voorraad aankope / *Stock purchases*	%
Munisipale dienste / *Municipal services*	%
Ander dienste / *Other services*	%
Bedryfsuitgawes / *Operational costs*	%
Salarisse en winste / *Wages and profit*	%
TOTAAL / *TOTAL*	100 %

Notas:

- Onder voorraad word bedoel alle materiaal wat aangekoop word met die doel om dit te herverkoop of te gebruik in die produksieproses.
- Ander dienste is dienste wat u besigheid gereeld gebruik wat nie deur die munisipaliteit voorsien word nie, soos byvoorbeeld sekuriteit, koeriers, bankdienste, Internet.
- Bedryfsuitgawes is alle kostes wat u besigheid aangaan, wat nie voorraad of munisipale en ander dienste is nie, soos byvoorbeeld verversings, skryfbehoeftes, herstelwerk.
- Salarisse en winste sluit in alle vergoeding aan werkers en die eienaar

Notes:

- *With stocks we mean all material that is bought with the aim to resell, or to use in the production process.*
- *Other services are services that your business buys on a regular basis, but that is not supplied by the municipality, such as security, couriers, bank services, Internet.*
- *Operational costs are all costs that your business incurs, not relating to stock, other services or municipal service, such as refreshments, stationary, repairs.*
- *Wages and profit include all remuneration to workers and the owners.*

6. Watter persentasie van u (1) voorraad, (2) dienste en (3) bedryfsuitgawes koop u van plaaslike besighede, dit is, besighede in die Potchefstroom omgewing? / *What percentage of your (1) stock, (2) services and (3) operational needs is bought from suppliers in the local area, that is, businesses in the Potchefstroom area?*

	1	2	3
	Voorraad / *Stock*	Ander dienste / *Other services*	Bedryfsuitgawes / *Operational costs*
% Plaaslik / *Local*			
% Buite / *Outside* Potchefstroom			
TOTAAL / *TOTAL*			
	100%	100%	100%

7. Dui aan wie is u hoof leweransier(s) van (1) voorraad, (2) dienste en (3) bedryfsuitgawes in die plaaslike area? Bv. Ek koop 80% van my 'ander dienste' van plaaslike besighede (vraag 6 toon dus 80%, 20% verdeling vir 'ander dienste'), en hierdie 80% van 'ander dienste' wat ek plaaslik koop, word soos volg verdeel – ek betaal Charlie's Security Services (60%), gevolg deur Sun Couriers (20%) en ABSA bank (20%). / *Indicate who are your main suppliers of (1) stock, (2) services and (3) operational costs in the local area? E.g. we buy 80% of all 'other services' from local businesses (question 6 thus shows an 80%, 20% split in 'other services') and this 80% is split between the following businesses: I pay Charlie's security Services (60%), followed by Sun couriers (20%) and ABSA Bank (20%).*

1. VOORRAAD / *STOCK*	PERCENTAGE
	%
	%
	%
	%
	%
	%
TOTAAL / *TOTAL*	**100 %**
2. ANDER DIENSTE */ OTHER SERVICES*	PERCENTAGE
	%
	%
	%
	%
	%
	%
TOTAAL / *TOTAL*	**100 %**
3. OPERASIONELE UITGAWES / OPERATIONAL COSTS	PERCENTAGE
	%
	%
	%
	%
	%
	%
TOTAAL / *TOTAL*	**100 %**

8. Watter impak het Aardklop Nasionale Kunstefees op die omset van u besigheid? / *What impact does the Aardklop National Arts Festival have on the turnover of your business?*

Geen invloed / *No impact*	1
Geringe invloed / *Slight impact*	2
Beduidende styging / *Significant impact*	3

Dankie vir u tyd!
Thank you for your time!