REPORT

On a study to assess the Economic Impact of the AFRICA AEROSPACE & DEFENCE 2014 exhibition

Submitted to:

The AFRICA AEROSPACE & DEFENCE 2016 exhibition partnership

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GOPA Group
Southern Africa (Pty) Ltd

Title page

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Research topic: Economic Impact Assessment of the Africa Aerospace & Defence (AAD) 2014 exhibition, held at Waterkloof Air Force Base (AFB), Tshwane

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Abbreviations

AAD	Africa Aerospace & Defence
AFB	Air Force Base
AMD	The South African Aerospace, Maritime and Defence Industries Association
ARMSCOR	The Armaments Corporation of South Africa SOC Ltd
AVE	Advertising value equivalent
CAASA	Commercial Aviation Association of Southern Africa
CEIR	Centre for Exhibition Industry Research (US)
EIA	Economic Impact Assessment
EVE	Editorial value equivalent
DOD	Department of Defence
GDP	Gross Domestic Product
ICCA	International Congress and Convention Association
I/O	Input/output (table)
JSE	Johannesburg stock exchange
MICE	Meetings, incentives, conferences and exhibitions
OO	Organisers' Office (Africa Aerospace & Defence)
PIT	Personal income tax
PR	Public relations
ROI	Return on investment
SSA	Sub-Saharan Africa
SQSC	Service Quality Scorecard
US	United States (of America)
VAT	Value added tax
WTO	World Tourism Organisation

1. Introduction

This report is submitted in response to an invitation to submit a proposal & quotation for an Economic Impact Assessment (EIA) of the 2014 Africa Aerospace & Defence (AAD) Exhibition. It is essentially based on a previous proposal (the 2012 Exhibition), but the cost has been lowered.

Under the auspices of a long-standing partnership between the South African Aerospace, Maritime and Defence Industries Association (AMD), the Armaments Corporation of South Africa SOC Ltd (ARMSCOR), the Commercial Aviation Association of Southern Africa (CAASA Trust) and the Department of Defence (DOD), the bi-annual AAD has evolved into an event that is widely regarded as a national asset.

This partnership between commercial and military aviation has been singularly successful and represents one of South Africa's premier exhibitions, attracting decision-makers in the aerospace industry from all over the globe and aviation enthusiasts from every Province in the country.

It is also recognized that an event of the stature of AAD impacts positively on the economy, particularly within the Tshwane municipal area – hence the keen interest in a study aimed at quantifying this impact.

This report contains the results of the economic impact assessment, which is mainly quantitative but also alludes to a number of positive impacts which defy precise calculation, despite representing key advantages to the South African economy of the hosting of AAD.

The objectives of the study are set out in the following section, as well as the key macro-economic indicators that served as focus areas for the impact assessment.

Section 3 sets out the underlying methodology utilised in the study, which is mainly based on the quantifying of final demand generated by AAD-related activity and input/output table analysis. A concise explanation of the different economic multiplier effects is also provided.

Section 4 contains a concise and essentially generic note on the importance of aviation to the process of socio-economic development. This brief overview is designed to inform readers that do not possess an intimate knowledge of the aviation industry and its indispensable role in promoting swift transport (of people and products), as well as facilitating a wide range of economic activities in other sectors.

This overview is supplemented in section 5 by a brief discussion on the extensive supply chain that is encountered in the aviation industry. The gist of the research conducted for the EIA is presented in sections 6 to 8, with the focus on quantifying the following key impacts generated by AAD 2012:

- Final demand
- Total economic output
- Employment creation
- Taxation revenues

Individual tables are provided in these comprehensive sections, containing the results of the detailed analysis for five different groups of expenditures that are directly linked to the hosting of AAD 2014.

Each of the methodologies utilised for the determination of the fundamental demand impact of each of these five groups of expenditures are set out in table-format, followed by detailed tables with the results of the calculated economic impacts. In order to provide greater clarity on these impacts, the results of selected indicators have also been illustrated in graphical format.

Section 9 briefly discusses additional impacts and benefits of AAD 2014 for which exposure to input/output table analysis is not technically possible, but which may be regarded as particularly noteworthy for an overall perspective of the socio-economic impact of the AAD Exhibition.

Section 10 summarises the full range of impacts of AAD 2014, together with an indication of the specific impact on Tshwane and a concluding note.

2. Objectives of the Study

As indicated in the proposal dated 15 July, the terms of reference for this study have been well-formulated (in the invitation to tender dated 12 June 2013) and may be summarised as follows:

Key Objective of the Study: *To determine the Macroeconomic Impact on Tshwane & the SA economy of the 2012 Africa Aerospace & Defence (AAD) Exhibition*

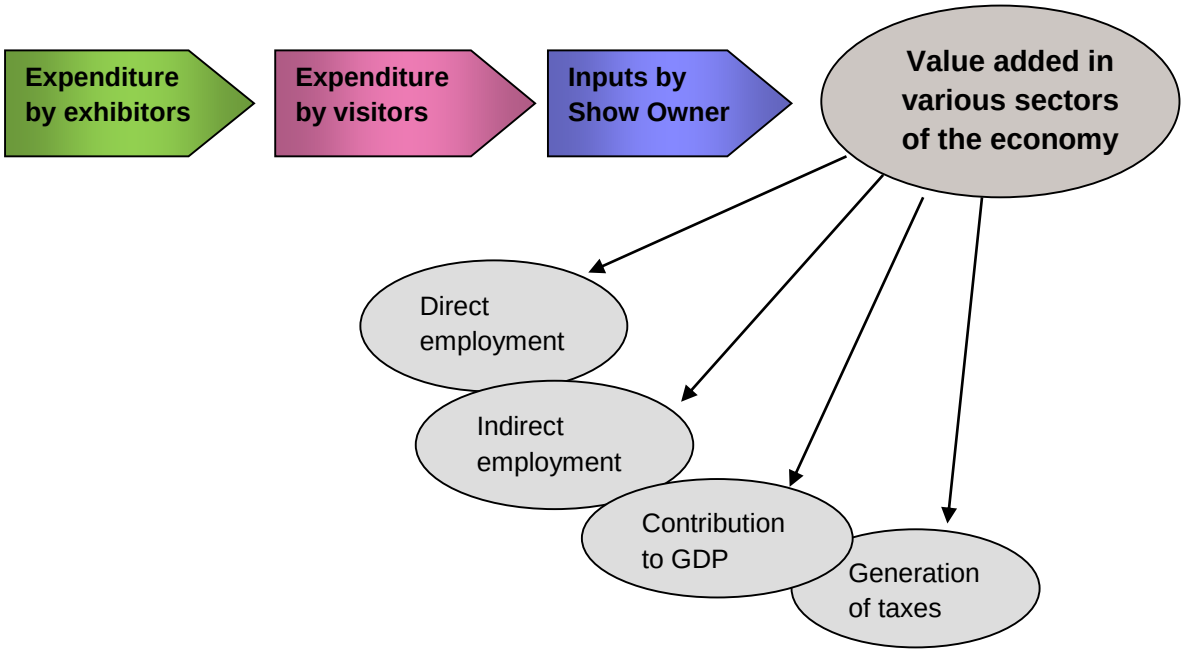
i) Quantifying the impact that the AAD 2012 Exhibition had on the South African macro-economy and the economy of Tshwane. This involves the impact on key economic indicators such as final demand (emanating from private consumption expenditure, government expenditure, capital formation and exports), total output in the economy, employment creation (formal – in terms of different skills levels & informal) and taxation revenues (mainly personal income tax [PIT], value added tax [VAT] and corporate tax).

ii) An assessment of the impact on different sectors of the economy (i.e. the key industries that benefit from the different sets of expenditures/final demand values generated by the AAD Exhibition)

iii) An indication of important supplementary impacts that are not technically quantifiable in terms of macroeconomic input/output table analysis

The following diagram provides an example of the series of economic processes that are set in motion as a result of the AAD exhibition.

The effects illustrated in the diagram are not exhaustive, but serve to assist an understanding of the methodology to be followed in the Study (this diagram was also included in the proposal).



3. Methodology

3.1 Determining final demand

The critical starting point for determining the impact of AAD 2012 on the economy is to determine the value of final demand emanating from various groups of expenditures.

The following five groups of expenditures were identified in terms of accurate data that could be exposed to input/output analysis (for the calculation of total output, employment; and taxation revenues generated by the original demand values):

- The expenditures incurred by international visitors
- Expenditure by trade day visitors
- Expenditures by public day visitors
- Costs arising over the whole planning and execution cycle of hosting AAD
- Expenditures relating to the costs of building stands and chalets

These expenditures translate into final demand for a variety of goods and services, for which it is possible to calculate certain macroeconomic effects through the application of input/output analysis.

Most of these results will pertain to an impact at a regional level (within Tshwane or other parts of Gauteng), but in the case of taxation revenues, the positive effects will be reflected at national level (via SA Revenue Services).

3.2 Input/output table analysis

In order to accurately and objectively quantify the direct and indirect macroeconomic effects of a particular source of economic activity relating to the AAD Exhibition, input/output table analysis was utilised. A country's national accounts provide detailed and statistically accurate data pertaining to a variety of key economic indicators.

An input/output (I/O) table records economic transactions between the different industries of a country. As such, it is merely an extension of a country's national accounts, but it disaggregates total value added into all sectors of economic activity. Analysis of the I/O table can be used to determine the economic interdependence between sectors as well as the likely impact that any change in one sector has on others.

A positive exogenous change in final demand will lead to additional output (turnover), value added, employment, income and, ultimately taxation revenues in that sector. Such additions will arise as a direct result of the particular expenditure, but increased production in one sector will give rise to additional demand for the output of upstream sectors (suppliers of primary and intermediate inputs), as well as facilitate an increase in downstream industries that use the products of the given sector as inputs.

Such activities will, in turn, give rise to additional incomes which – when spent – will stimulate demand in many other sectors. For these reasons, I/O analysis distinguishes between the ***direct*** impact of the demand in the sector itself, the ***indirect*** impact on upstream and downstream industries, and the ***induced*** impact on the broader economy arising from the rise in household incomes.

Collectively, these three impacts comprise the total potential result of an increase in the level of aggregate economic activity arising from higher demand in a particular sector.

Exposure to I/O analysis of the aggregate demand value for the different types of expenditures pertaining to AAD seems like a relatively simple technique to assess its economic impact, but it will not produce accurate results.

The reason is simply that the demand values require disaggregation into different economic sectors, each of which possesses a unique set of economic multiplier effects. The expenditure and demand values have therefore been analysed and classified in terms of the major economic sectors that are affected by them.

The next step was to determine the relative contributions of all of these sectors to the overall level of economic activity. The resultant weighting exercise provided the basis for applying the different macroeconomic multipliers and to arrive at a quantification of the economic effects of the event.

The specific methodology and steps followed for the five groups of expenditures are discussed in detail in section 5.

4 Concise notes on the role of aviation

4.1 A recent history

Humankind is reckoned to have been on Earth for more than 2 million years, but it is only in the last century years that flight has been mastered. It was exactly 100 years ago that a US naval pilot made the World's first attempt at bombing stationary targets from an aeroplane.

Since then, both military and commercial aviation have developed at an exponential pace, with satellite technology having elevated communications to one of the largest industries in the World. Today, millions of tourists and decision-makers from all walks of life fly to destinations all over the world, sometimes at speeds faster than sound.

Aviation remains the only viable transport mode to reach the world's most underdeveloped regions. As an inference, the aviation industry's role is indispensable in the quest to combat poverty and to extend the reach of medical, educational and welfare services to the World's poorer communities.

From the perspective of time, it represents a fledgling industry, which serves to elevate the achievements of aviation in assisting the development of a multi-dimensional and multi-nodal global transport industry.

Although the legendary DC-3 popularised air travel in the United States more than 70 years ago, prevailing headwinds on the westbound flights were only possible via short trips, during the day, coupled with train travel overnight. In contrast, the Boeing 707-120, which received its first official certification exactly 50 years ago, revolutionised commercial jet travel on a global scale.

4.2 Tourism development

In modern times, aviation's role has been especially prevalent in the development of tourism, which has benefited tremendously from the new era of globalisation. The latter has been driven by the relentless trend for world trade growth to outstrip world output growth by a considerable margin over the past 30 years, combined with substantial increases in *per capita* incomes; the near-spectacular rise of emerging markets as the new force in the World economy; and the rapid democratisation of the developing world.

Today, tourism represents the World's largest industry, commanding an estimated 9% of global GDP. The *World Tourism Organisation (WTO)* estimates that globally, one in eleven jobs are found in tourism and in 2012, more than one billion international tourists visited destinations around the globe.

No doubt exists over South Africa's potential to elevate tourism to new heights in future, particularly as the sub-Saharan African (SSA) region continues to attract significant inflows of foreign direct investment. Aviation will be omnipresent to facilitate these developments.

Tourism growth to South Africa, as measured by the arrival of foreign visitors, exceeded all expectations in 2012 with a growth rate of 10.4%, which was considerably higher than an estimated global rate of growth of 4%. Despite the global economic downturn of 2008/09 and the lethargy of Europe to move out of recession, the South African tourism

industry has blossomed since the turn of the century, recording an average annual growth rate in foreign tourist arrivals of 7.2%.

4.3 National defence capability

The relevance of a thriving and technologically enhanced aviation industry in South Africa should also be viewed from the perspective of the country's Air Force capabilities and the leading role that the DOD is playing in peacekeeping efforts in strife-torn regions on the African continent.

The presence of a sophisticated and diversified aviation sector in both the commercial and military spheres makes it possible for South Africa to play a leading role in creating a more stable socio-political environment in other parts of Africa.

Finally, in addition to the value of media coverage of the 2012 AAD Exhibition, any assessment of the public relations impact of the event should take cognisance of the positive global impact created by favourable perspectives & comments by international visitors and media representatives. There is no doubt that the international image of South Africa (and Tshwane) would have been considerably enhanced by demonstrating the capability to successfully host an event of such magnitude.

5 The extended supply chain of aviation

Aviation makes a significant contribution to the South African economy, particularly via a multi-dimensional supply chain. The value of the aviation industry supply chain in 2010 was determined in a study prepared by Keith Lockwood (as part of a submission to SA Revenue Services to reconsider a proposed *ad valorem* tax on light aircraft).

Adjusting the figures determined in this Report for the nominal growth of value added in the economy between 2010 and 2012 yields a value for local supply of more than R116.4 billion, the bulk of which is related to intermediate inputs from a variety of other sectors in the economy, imports of aircraft services and air transport.

These estimates are reasonably consistent with the findings of a study by Oxford Economics in 2011 titled *Economic Benefits from Air Transport in South Africa*. The study noted that the connections created by aviation between cities and markets represent an important infrastructure asset that generates benefits through enabling foreign direct investment; business clusters; specialization; and other spill-over impacts on an economy's productive capacity.

The accompanying table provides more detail of the diversity of the up-and down-stream activities that are linked to the aviation supply chain. These range from activities and occupations involved in the importation and financing of aircraft, through general operations linked to the movement of people and freight, to industry-specific operations including such diverse activities as geological surveys, crop spraying, eco- and adventure- tourism, and wildlife management.

Emergency operations such as medical rescue, fire fighting and policing also have significant need for aviation services. There are also links to the engineering sector by way of spares production, the servicing of aircraft engines and avionic systems, and the

regular refurbishment of aircraft, while airports also generate a need for various apron and other services, such as air traffic control, catering, cleaning and baggage-handling.

The extended and complex supply chain of aviation, combined with its indispensable role in rapid transport, defence operations and providing access to remote areas, justifies the view that the aeronautical industry should be afforded strategic sector status.

Supply chain for the aviation industry – key elements	
Acquisition (imports)	Aircraft trading organisations Finance & leasing Official registration procedures
General operations	Scheduled commercial flights Courier services Chartered flights Accommodation of crew members Transportation of VIPs
Industry-specific operations	Mining (geological surveys) Aerial photography Agriculture (crop spraying) Health (anti-malaria spraying) Defence (border patrol) Eco-tourism Adventure tourism Wildlife management Animal relocation Transport (vehicle breakdown)
Emergency operations	Emergency medical rescue services Fire fighting Vehicle theft recovery Policing (in general) Rural medical supplies
Training	Pilot training Air navigation training
Maintenance	Aircraft spares & equipment Regulatory servicing of engines Refurbishing Painting
Apron services	Catering supplies Refuelling Cleaning & washing
General airport services	Air traffic control Storage Security Rental of offices

6 Demand and economic output effects of AAD 2012

Tables 1 to 10 explain the methodology and contain the results of the determination of final demand in the economy, as well as the economic output effects relating to five key groups of activities associated with AAD 2012.

Table 1: Methodology for determining the impact on output in the economy of international visitors attending the 2012 AAD Exhibition

Steps	Methodology
1	International visitors were classified in terms of the key global regions documented in the AAD 2012 trade visitor analysis report
2	SA Tourism data sets on spending by international visitors to South Africa were classified according to the same global regions. These data were initially classified under direct spending, indirect spending & capital expenditure. A conservative estimated ratio of 1:1 was assumed between direct & indirect spending, whilst the direct expenditure ratio was based on the relationship between private sector capital formation and household consumption expenditure in the national accounts (as a proxy for capital expenditure by international visitors.
3	Total expenditure in the economy by international visitors was calculated by multiplying the data sets determined by steps 1 & 2, yielding a figure for increased final demand in the economy of **R112.7 million**
4	The average and the total spending by international visitors were classified in terms of the key world regions (see figures 1 & 2)
5	International tourism spending figures were then classified in terms of the major categories of expenditure, as per SA Tourism data, in order to determine the relationship between the different sectors of the economy that benefit from such expenditures (see figure 3). The category for so-called shopping was further classified in terms of five areas that are typical of tourist expenditures, as informed by various SA Tourism Reports.
6	The expenditure figures depicted in figure 3 were then classified in terms of the key output sectors in the economy that benefit from this increase in final demand, classified in terms of national accounts data. These sectors differ marginally from those identified in figure 3, by virtue of further detailed dis-aggregation.
7	Economic output multipliers (in terms of national accounts input/output tables) were then applied to the data above, in order to determine the total impact on output in the economy of expenditures by foreign visitors to AAD 2012, yielding a total figure of **R385.4 million** (see table 2)

Fig 1: Average estimated total expenditure per trip to South Africa by foreign visitors to AAD 2012

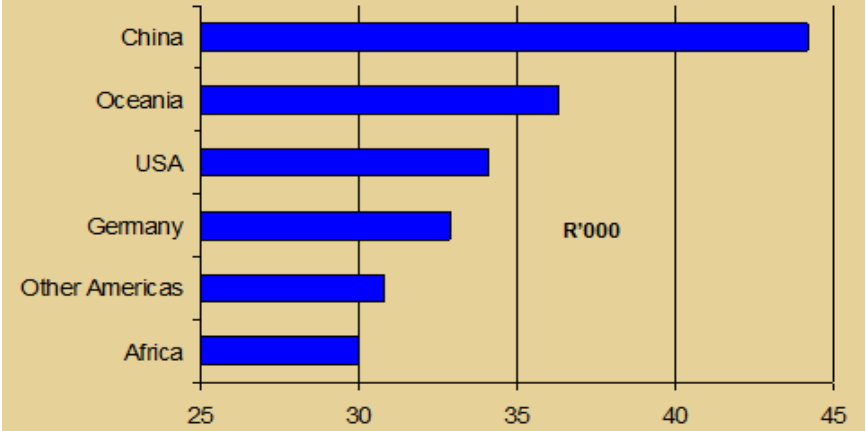


Fig 2: Regional composition of estimated total expenditure by international visitors to AAD 2012 (Rm)

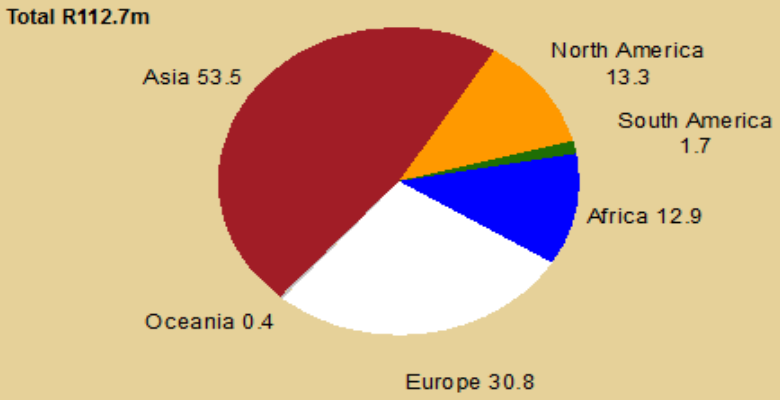


Fig 3: Composition of international visitor expenditure by key category (% of total)

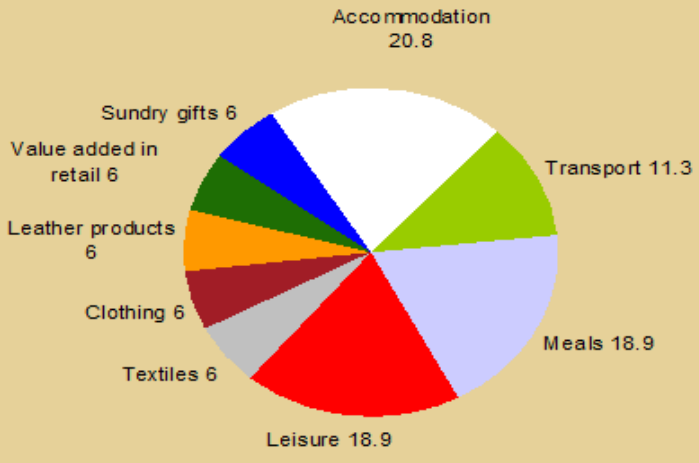


Table 2: Economic output by sector from final demand emanating from AAD 2012 international visitor expenditures (R million)

Sector	Direct	Indirect	Induced	Total
Hospitality	34.3	11.2	34.3	79.8
Accommodation	34.3	11.2	34.3	79.8
Transport & storage	17.9	4.3	17.9	40.1
Business services	15.9	4.7	15.9	36.4
Leather products	11.1	4.8	11.1	27.0
Textiles	10.9	3.9	10.9	25.7
Wearing apparel	10.0	3.3	10.0	23.4
Retail trade	9.8	2.8	9.8	22.5
Other producers	8.1	1.2	8.1	17.3
Food	7.2	2.9	7.2	17.2
Beverages	6.8	2.6	6.8	16.2
Totals	**166.3**	**52.9**	**166.3**	**385.4**

Table 3: Methodology for determining the impact on output in the economy of trade visitors attending the 2012 AAD Exhibition

Steps	Methodology
1	The number of trade visitors was obtained from the mean average of the *AAD 2012 Trade Visitor Analysis Report* (according to the postal code analysis) and the estimates quoted in official reports by the Exhibition Director (base staff numbers were deducted from the former data source)
2	Regional trade visitors were classified in terms of the provincial breakdown documented in the *AAD 2012 Trade Visitor Analysis Report* (see figure 4)
3	SA Tourism data sets on spending by domestic visitors in South Africa were classified according to the provincial breakdown. It was assumed that trade visitors would also attend one of the public days, for a total trip lasting three days. The average amount spent per day by domestic visitors was also obtained from the *SA Tourism Survey 2012*.
4	Total expenditure in the economy by trade visitors was calculated via the data sets determined by steps 1 & 3, yielding a figure for increased final demand in the economy of **R18.2 million**

Table 3 (continued)

5	Domestic tourism spending figures were then classified in terms of the major categories of expenditure, as per SA Tourism data, in order to determine the relationship between the different sectors of the economy that benefit from such expenditures. The category for so-called shopping was further classified in terms of key areas that are typical of tourist expenditures, as informed by various SA Tourism Reports and SA Reserve Bank data on the composition of household expenditure.
6	These expenditure figures were then classified in terms of the key output sectors in the economy that benefit from this increase in final demand, classified in terms of national accounts data.
7	Economic output multipliers (in terms of national accounts input/output tables) were then applied to the data above, in order to determine the total impact on output in the economy of expenditures by trade visitors to AAD 2012, yielding a total figure of **R58.8 million** (see table 4)

Fig 4: Regional composition of non-Gauteng trade visitors to AAD 2012

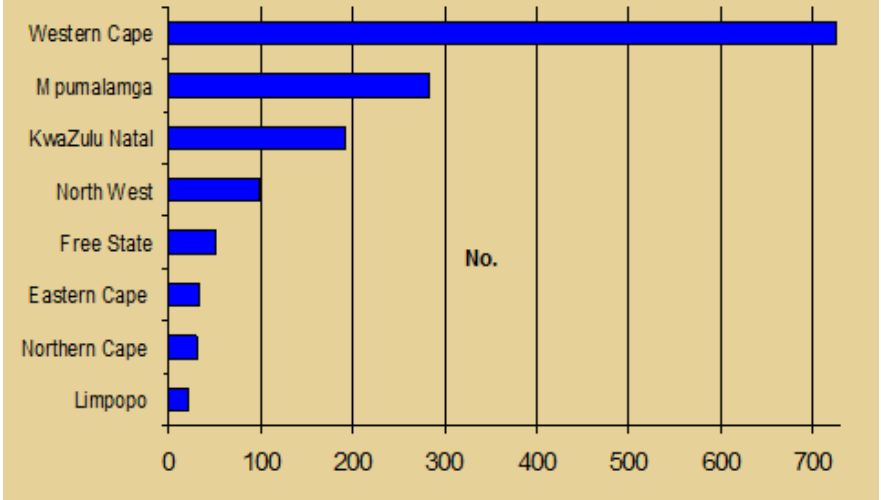


Table 4: Economic output by sector from final demand emanating from AAD 2012 trade visitor expenditures (R million)

Sector	Direct	Indirect	Induced	Total
Transport & storage	6.1	1.5	6.1	13.7
Leather products	3.3	1.4	3.3	8.0
Wearing apparel	3.0	1.0	3.0	6.9
Retail trade	2.9	0.8	2.9	6.7
Hospitality	2.5	0.8	2.5	5.8
Other producers	2.4	0.3	2.4	5.1
Comm. Equipment	2.3	0.2	2.3	4.9
Food	1.3	0.5	1.3	3.1
Business services	1.1	0.3	1.1	2.6
Beverages	0.8	0.3	0.8	1.9
Totals	**25.8**	**7.2**	**25.8**	**58.8**

Table 5: Methodology for determining the impact on output in the economy of Public day visitors attending the 2012 AAD Exhibition

Steps	Methodology
1	The number of visitors attending AAD 2012 on the public days was obtained official reports by the Exhibition Director
2	SA Tourism data sets on spending by domestic visitors in South Africa were classified according to the provincial breakdown. Unlike the trade visitor analysis, it was assumed that public day visitors would only attend one of the days. The average amount spent per day by domestic visitors was obtained from the *SA Tourism Survey 2012* and utilised as the basis for determining the total amount spent by this category of visitors.
3	Total expenditure in the economy by public day visitors was calculated via the data sets determined by steps 1 & 2, yielding a figure for increased final demand in the economy of **R19.8 million**
4	Domestic tourism spending figures were then classified in terms of the same methodology as with trade visitors, namely according to major categories of expenditure, in order to determine the relationship between the different sectors of the economy that benefit from such expenditures

Table 5 (continued)	
5	These expenditure figures were then classified in terms of the key output sectors in the economy that benefit from this increase in final demand, classified in terms of national accounts data
6	Economic output multipliers (in terms of national accounts input/output tables) were then applied to the data above, in order to determine the total impact on output in the economy of expenditures by public day visitors to AAD 2012, yielding a total figure of **R63.7 million** (table 6)

Table 6: Economic output by sector from final demand emanating from AAD 2012 public visitor expenditures (R million)

Sector	Direct	Indirect	Induced	Total
Transport & storage	6.6	1.6	7.0	15.2
Retail trade	3.2	0.9	4.2	8.3
Other producers	2.6	0.4	5.0	8.0
Leather products	3.6	1.5	2.4	7.5
Wearing apparel	3.2	1.1	2.4	6.7
Hospitality	2.7	0.9	2.7	6.3
Comm. Equipment	2.6	0.2	0.7	3.4
Food	1.4	0.6	1.2	3.2
Business services	1.2	0.4	1.4	3.0
Beverages	0.9	0.3	0.9	2.1
Totals	**28.0**	**7.8**	**27.9**	**63.7**

Table 7: Methodology for determining the impact on output in the economy of expenditures related to the hosting of the 2012 AAD Exhibition

Steps	Methodology
1	The detailed income statement of AAD for the 24 month period ending 28 February 2013 was utilised as the starting point for the AAD expenditure analysis
2	All expenditures were analysed and classified in terms of their compatibility with the key sectors of the South African economy (national accounts data for goods & services). Figure 5 depicts the composition of the major expenditure items that were incurred for hosting the 2012 AAD Exhibition.

Table 7 (continued)

3	The relationship between the different expenditure categories was then calculated and applied to the total demand generated by AAD 2012, inclusive of operating surplus. The rationale behind this step is the fact that the AAD partners also ultimately spend their respective shares of this surplus. Due to their association with aviation, the range & composition of AAD-related expenditures can be regarded as an accurate proxy for these expenditures.
4	Total demand was determined by the addition of the turnover, interest received and profit on foreign exchange transactions, yielding a figure for increased final demand in the economy of **R34 million**
5	Economic output multipliers (in terms of national accounts input/output tables) were then applied to the data above, in order to determine the total impact on output in the economy of expenditures related to the hosting of AAD 2012, yielding a total figure of **R124.4 million** (see table 8)

Table 8: Economic output by sector from final demand emanating from the hosting of AAD 2012 (R million)

Sector	Direct	Indirect	Induced	Total
Business services	14.3	4.3	16.6	35.2
Catering & accom.	6.9	2.3	7.0	16.1
Printing & publishing	5.8	2.6	5.9	14.3
Furniture	5.8	2.5	4.7	12.9
Government services	4.3	1.0	6.8	12.1
Construction	4.3	1.8	3.8	9.9
Sundry goods & services	3.9	1.1	3.9	8.8
Civil engineering	1.8	0.6	1.7	4.1
Transport	1.6	0.4	1.7	3.8
Communication	1.3	0.4	1.3	3.0
Finance & insurance	0.9	0.2	1.2	2.3
Other producers	0.6	0.1	1.2	1.9
Totals	**51.6**	**17.1**	**55.7**	**124.4**

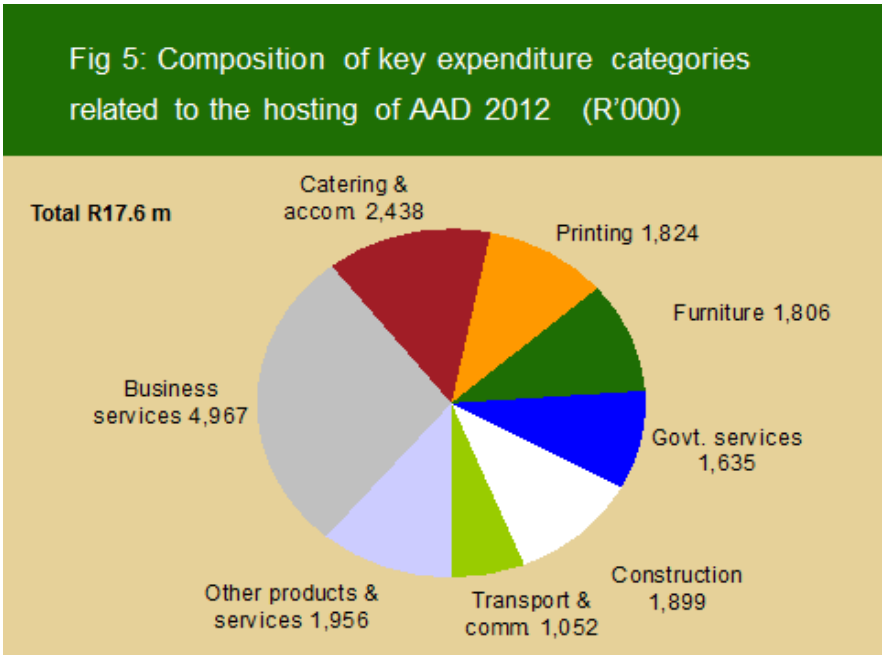


Table 9: Methodology for determining the impact on output in the economy of expenditures on stands & chalets at the 2012 AAD Exhibition

Steps	Methodology
1	Draft cost estimates for different quality exhibition stands were utilised as the basis for determining the economic value of this AAD activity. The information was obtained from a survey of two different firms.
2	Detailed costs for the different components (basic stand shell schemes, as well as a variety of other accessories) were analysed. An average stand cost was calculated for indoor and outdoor purposes (per square meter), yielding figures of R745 and R213, respectively. Against the background of several stands that were visibly substantially more expensive to furbish, these estimates may be regarded as fairly conservative. Figure 6 depicts the composition of the major expenditure items that were incurred for hosting the 2012 AAD Exhibition.
3	The next step was to obtain the total number of square meters rented out as exhibition space during AAD 2012. This information was provided by AAD and used as the basis for calculating the total costs of exhibition stands and temporary structures. This calculation was done separately for indoor space, outdoor space and chalets, yielding a figure for increased final demand in the economy of **R14.7 million**.
4	Individual cost items comprising the average exhibition stand were then further analysed and classified in terms of key expenditure categories linked to national accounts data on the different sectors of the economy.

Table 9 (continued)

5	The relationship between the different expenditure categories identified in step 3 was then calculated and applied to the total demand generated by exhibition stand costs at AAD 2012
6	Economic output multipliers (in terms of national accounts input/output tables) were then applied to the data above, in order to determine the total impact on output in the economy of expenditures related to the cost of stands and chalets at AAD 2012, yielding a total figure of **R52.2 millio**n (see table 10). Figure 6 illustrates the dominant multiplier effect of direct economic output in the economy for the three key groups of structures used at AAD 2012.

Figure 6: Economic output effects generated by the cost of exhibition stands & chalets

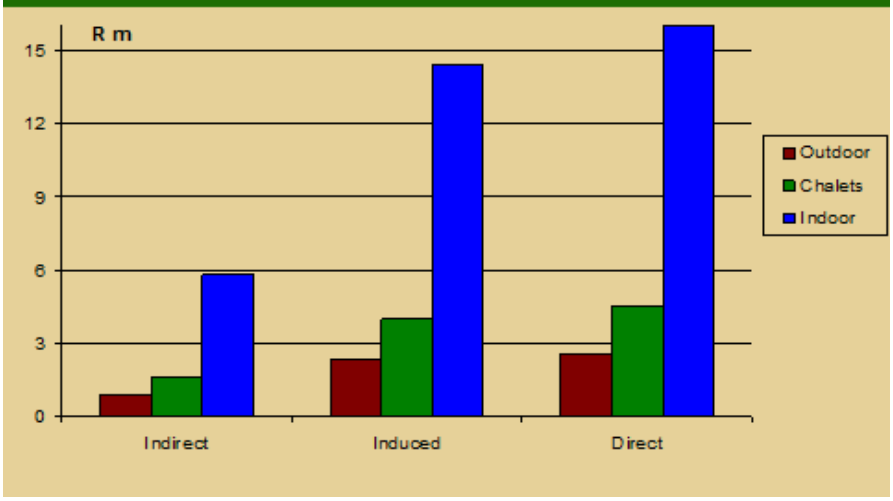


Table 10: Economic output by sector from final demand emanating from the cost of stands at AAD 2012 (R million)

Sector	Direct	Indirect	Induced	Total
Business services	6.6	2.0	7.6	16.2
Furniture	6.5	2.8	5.2	14.5
Construction	5.0	2.1	4.3	11.4
Electrical equipment	2.9	0.8	1.7	5.4
Metal products	1.1	0.4	0.9	2.3
Textiles	0.6	0.2	0.4	1.3
Plastic products	0.5	0.2	0.5	1.1
Totals	**23.1**	**8.3**	**20.7**	**52.2**

7 Employment creation flowing from AAD 2012

Tables 11 to 16 explain the methodology and contain the results of the determination of employment creation in the economy, as a result of the hosting of AAD 2012 (relating to the five key groups of activities identified in section 6)

Table 11: Methodology for determining the impact on employment creation in the economy as a result of the different types of output generated by the 2012 AAD Exhibition

Steps	Methodology
1	The basis for determining the impact on employment creation as a result of economic activity relating to AAD 2012 is the increased final demand in the economy that was determined and explained for the five different sets of economic activity in tables 1, 3, 5, 7 & 9. They are: • Expenditures by international visitors (demand of R112.7m) • Expenditures by trade visitors (R18.2m) • Expenditures by public day visitors (R19.8m) • Expenditures related to the hosting of the event (R34m) • Costs associated with exhibition stands & chalets (R14.7m)
2	These values for final demand were then classified in terms of the key output sectors in the economy relevant to each of the five different groups of expenditures (in terms of national accounts data)
3	Employment multipliers were then applied to each of the particular sector demand values for the five groups of expenditures. In the first instance, the combined direct, indirect and induced employment effects were calculated.
4	The combined employment creation effect determined in step 3 was then classified in terms of the four different skills levels, namely highly skilled, skilled, unskilled and informal sector employment, as well as the total, yielding the following combined figures for the different groups of expenditures: • Expenditures by international visitors: **1,219 jobs** • Expenditures by trade visitors: **188 jobs** • Expenditures by public day visitors: **199 jobs** • Expenditures related to the hosting of the AAD event: **326 jobs** • Costs associated with the construction of exhibition stands & chalets: **123 jobs** Tables 12 to 16 contain the detailed results of the employment creation calculations for the different sets of economic activity, classified in terms of the different skills levels. Figures 7 & 8 illustrate the employment creation effect of AAD 2012 for the different skills levels and key economic sectors, respectively.

Table 12: Employment creation generated by final demand from AAD 2012 international visitor expenditures (by skills levels & sectors)

Sector	High skills	Skilled	Unskilled	Informal	Total
Accommodation	23.2	102.7	75.1	50.6	251.7
Beverages	2.8	10.3	15.1	7.9	36.1
Business services	13.2	43.0	31.4	15.5	103.1
Food	2.6	10.7	16.9	6.5	36.6
Hospitality	23.2	102.7	75.1	50.6	251.7
Leather products	3.4	14.8	19.4	8.4	46.0
Other producers	5.4	19.3	152.5	34.5	211.7
Retail trade	6.9	28.1	23.2	22.9	81.1
Textiles	4.0	15.3	21.0	12.3	52.7
Transport & storage	7.3	25.3	32.2	19.9	84.7
Wearing apparel	3.8	18.2	22.8	18.5	63.3
Totals	**96**	**390**	**485**	**248**	**1219**

Table 13: Employment creation generated by final demand from AAD 2012 trade visitor expenditures (by skills levels & sectors)

Sector	High skills	Skilled	Unskilled	Informal	Total
Beverages	0.3	1.2	1.8	1.0	4.3
Business services	0.9	3.1	2.3	1.1	7.4
Comm. Equipment	0.3	1.0	1.1	0.5	2.9
Food	0.5	1.9	3.0	1.2	6.6
Hospitality	1.7	7.5	5.5	3.7	18.3
Leather products	1.0	4.4	5.7	2.5	13.7
Other producers	1.6	5.7	45.3	10.3	62.8
Retail trade	2.0	8.3	6.9	6.8	24.1
Transport & storage	2.5	8.7	11.0	6.8	29.0
Wearing apparel	1.1	5.4	6.8	5.5	18.8
Totals	**12**	**47**	**90**	**39**	**188**

Table 14: Employment creation generated by final demand from AAD 2012 public visitor expenditures (by skills levels & sectors)

Sector	High skills	Skilled	Unskilled	Informal	Total
Beverages	0.4	1.3	2.0	1.0	4.7
Business services	1.0	3.4	2.4	1.2	8.0
Communication equipment	0.3	1.1	1.2	0.6	3.2
Food	0.5	5.5	8.7	3.4	18.9
Hospitality	1.8	8.1	5.9	4.0	19.9
Leather products	1.1	4.8	6.3	2.7	14.9
Other producers	1.7	6.2	49.3	11.2	68.4
Retail trade	2.2	9.1	7.5	7.4	26.2
Transport & storage	2.7	4.4	5.5	3.4	14.6
Wearing apparel	1.2	5.9	7.4	6.0	20.4
Totals	**13**	**49**	**96**	**41**	**199**

Table 15: Employment creation generated by final demand from the hosting of AAD 2012 (by skills levels & sectors)

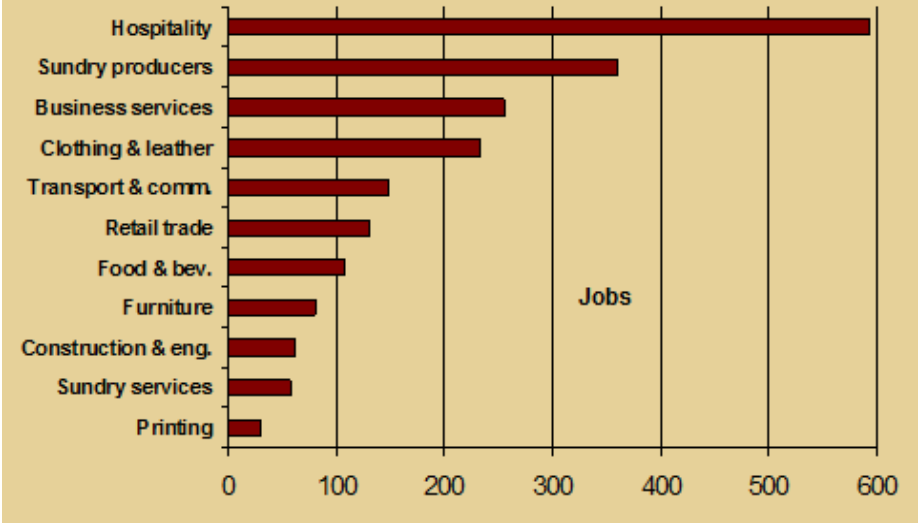
Sector	High skills	Skilled	Unskilled	Informal	Total
Business services	11.9	38.9	28.4	14.0	93.2
Catering & accommodation	4.7	20.7	15.1	10.2	50.7
Civil engineering	0.7	2.4	4.3	2.9	10.4
Communication	0.5	1.8	1.8	1.2	5.3
Construction	1.6	5.5	10.1	7.0	24.3
Finance & insurance	0.6	1.7	1.4	0.7	4.4
Furniture	2.2	9.7	12.5	5.9	30.3
Government services	4.4	14.2	10.0	4.0	32.6
Other producers	0.4	1.5	11.8	2.7	16.4
Printing & publishing	3.1	10.5	11.6	5.0	30.3
Sundry goods & services	1.9	6.7	7.7	3.8	20.2
Transport	0.7	2.3	3.0	1.8	7.8
Totals	**33**	**116**	**118**	**59**	**326**

Table 16: Employment creation generated by final demand from the exhibition stands & chalets at AAD 2012 (by skills levels & sectors)

Sector	High skills	Skilled	Unskilled	Informal	Total
Business services	5.5	17.9	13.0	6.4	42.8
Construction	1.8	6.3	11.6	8.0	27.8
Electrical equipment	0.7	2.7	3.5	1.4	8.4
Furniture	2.5	10.9	14.0	6.6	33.9
Metal products	0.5	1.6	1.8	0.9	4.9
Plastic products	0.2	0.6	0.9	0.3	2.1
Textiles	0.2	0.9	1.2	0.7	3.0
Totals	**11**	**41**	**46**	**25**	**123**

Fig 7: Employment creation by skills level emanating from all AAD 2012 expenditure categories

Fig 8: Employment created by AAD 2012 in terms of key economic sectors



8 Taxation revenues generated by AAD 2012

Tables 17 to 22 explain the methodology and contain the results of the determination of taxation revenues generated in the economy as a result of the hosting of AAD 2012 (relating to the five key groups of activities identified in section 6)

Table 17: Methodology for determining the impact on taxation revenues as a result of the different types of output generated by the 2012 AAD Exhibition

Steps	Methodology
1	The basis for determining the impact on taxation revenues (received at national level by SA Revenue Services) as a result of economic activity relating to AAD 2012 is the same as in the case of employment, namely the increased final demand in the economy that was determined and explained for the five different sets of economic activity in tables 1, 3, 5, 7 & 9. They are: • Expenditures by international visitors (demand of R112.7m) • Expenditures by trade visitors (R18.2m) • Expenditures by public day visitors (R19.8m) • Expenditures related to the hosting of the event (R34m) • Costs associated with the exhibition stands & chalets (R14.7m)
2	These values for final demand were then classified in terms of the key output sectors in the economy relevant to each of the five different groups of expenditures (in terms of national accounts data)
3	Taxation revenue multipliers were then applied to each of the particular sector demand values for the five groups of expenditures. In the first instance, the combined direct, indirect and induced employment effects were calculated.
4	The taxation revenue effect determined in step 3 was then classified in terms of three different source groups, namely indirect taxes, corporate taxes and taxes paid by households
5	The combined taxation revenue effect yielded the following values for the different groups of expenditures: • Expenditures by international visitors: **R31.2 million** • Expenditures by trade visitors: **R4.7 million** • Expenditures by public day visitors: **R5.1 million** • Expenditures related to the hosting of AAD: **R10.2 million** • Costs associated with the construction of exhibition stands & chalets: **R4 million** Tables 18 to 22 contain the detailed results of the taxation revenue calculations for the different sets of economic activity, classified in terms of the different sources of taxation. Figure 9 illustrates the total taxation revenue effect of AAD 2012 for the different key sources of taxation and expenditure groups.

Table 18: Taxation revenues generated by final demand from AAD 2012 international visitor expenditures (by taxation source & sector) - R million

Sector	Indirect	Corporate	Households	Total
Accommodation	0.5	3.3	2.5	6.4
Beverages	0.1	0.6	0.5	1.2
Business services	0.4	1.8	1.3	3.5
Food	0.1	0.5	0.5	1.2
Hospitality	0.5	3.3	2.5	6.4
Leather products	0.2	0.6	0.6	1.3
Other producers	0.2	0.7	1.1	2.0
Retail trade	0.2	1.1	1.0	2.3
Textiles	0.2	0.6	0.6	1.4
Transport & storage	0.8	1.8	1.4	4.1
Wearing apparel	0.2	0.5	0.6	1.3
Totals	**3.6**	**15.0**	**12.6**	**31.2**

Table 19: Taxation revenues generated by final demand from AAD 2012 trade visitor expenditures (by taxation source & sector) - R million

Sector	Indirect	Corporate	Households	Total
Beverages	0.02	0.07	0.06	0.15
Business services	0.03	0.13	0.10	0.25
Communication equipment	0.03	0.04	0.05	0.11
Food	0.03	0.10	0.08	0.21
Hospitality	0.04	0.24	0.19	0.47
Leather products	0.05	0.18	0.16	0.39
Other producers	0.05	0.21	0.33	0.59
Retail trade	0.07	0.34	0.28	0.69
Transport & storage	0.28	0.63	0.48	1.40
Wearing apparel	0.06	0.15	0.18	0.39
Totals	**0.65**	**2.10**	**1.90**	**4.70**

Table 20: Taxation revenues generated by final demand from AAD 2012 public visitor expenditures (by taxation source & sector) - R million

Sector	Indirect	Corporate	Households	Total
Beverages	0.02	0.08	0.07	0.16
Business services	0.03	0.14	0.10	0.27
Communication equipment	0.03	0.05	0.05	0.12
Food	0.03	0.11	0.09	0.23
Hospitality	0.04	0.26	0.20	0.51
Leather products	0.05	0.20	0.18	0.43
Other producers	0.06	0.23	0.36	0.64
Retail trade	0.08	0.37	0.31	0.75
Transport & storage	0.31	0.69	0.52	1.52
Wearing apparel	0.07	0.17	0.19	0.43
Totals	**0.71**	**2.28**	**2.07**	**5.1**

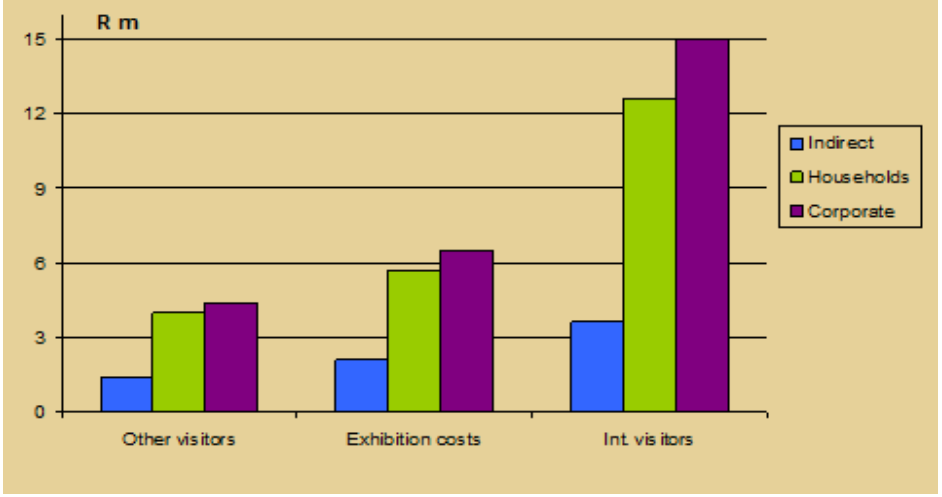
Table 21: Taxation revenues generated by final demand from the hosting of AAD 2012 (by taxation source & sector) - R million

Sector	Indirect	Corporate	Households	Total
Business services	0.33	1.63	1.20	3.16
Catering & accommodation	0.11	0.67	0.51	1.29
Civil engineering	0.07	0.15	0.12	0.34
Communication	0.03	0.13	0.09	0.25
Construction	0.25	0.33	0.29	0.87
Finance & insurance	0.02	0.11	0.09	0.21
Furniture	0.11	0.35	0.36	0.82
Government services	0.20	0.38	0.52	1.10
Other producers	0.01	0.05	0.09	0.15
Printing & publishing	0.10	0.39	0.44	0.93
Sundry goods & services	0.10	0.33	0.29	0.72
Transport	0.1	0.2	0.1	0.38
Totals	**1.4**	**4.7**	**4.1**	**10.2**

Table 22: Taxation revenues generated by final demand from the exhibition stands & chalets at AAD 2012 (by taxation source & sector)

Sector	Indirect	Corporate	Households	Total
Business services	0.15	0.75	0.55	1.45
Furniture	0.12	0.39	0.40	0.91
Construction	0.29	0.37	0.34	1.00
Electrical equipment	0.06	0.13	0.13	0.32
Metal products	0.02	0.07	0.07	0.16
Textiles	0.01	0.03	0.03	0.08
Plastic products	0.01	0.03	0.04	0.08
Totals	**0.7**	**1.8**	**1.6**	**4.0**

Figure 9: taxation revenues generated by key expenditure categories at AAD 2012



9 Ancillary economic impact effects

9.1 Public relations impact

The media and public relations impact of AAD 2012 was well recorded by *Tribeca Public Relations,* with an editorial value equivalent (EVE) of **R27.3 million** (at a ratio of 3:1 between EVE and the advertising value equivalent - AVE).

According to the post-Exhibition public relations (PR) report, the EVE generated by AAD 2012 represents a return on investment on the expenditure on PR of 6,200%, which is quite remarkable. Print media was once again responsible for the largest share of coverage (51%) and also the largest share of AVE (48%).

A total of 380 different media firms from around the globe were accredited to attend AAD 2012. In addition to traditional media communication, social media platforms were also utilised with great success during the 2012 Exhibition.

It was not part of the brief of the PR firm to also capture the international media coverage, but it can realistically be assumed that such coverage would have generated substantial publicity in terms of AVE. The communication that took place on social media platforms by the large contingent of international visitors would also have contributed to generating interest in tourism to South Africa.

Furthermore, it is clear from the profiles of international visitors that most of them fall into the categories of high-ranking officials; business executives; and foreign media representatives. As such, they tend to be highly influential and many would have been subjected to media interviews in their countries of origin prior to and after the event.

In an attempt to place a value on the international media coverage of AAD 2012, a conservative estimate of 10% of the EVE can be used as a guideline. Due to exchange rate and cost of living differentials between countries, purchasing power parity needs to be applied to this figure to obtain an effective value in local currency terms.

Utilising the 2013 Big Mac-index for this exercise yields an EVE value of foreign media coverage of **R5.9 million**.

9.2 Business procured as a result of exhibiting

An effort was made by the AAD OO and the author to quantify the value of business deals that were concluded (directly & indirectly) as a result of firms exhibiting their products and services at AAD 2012.

Due to the relatively short notice with the survey request and the existence of some degree of confidentiality with regard to such information, it was not possible to obtain sufficient surveyed information.

In a further attempt to provide an estimate of the value of such business, the author resorted to a literature study on the topic of returns on investment (ROI) at trade shows. The underlying premise of participation at public exhibitions is related to the existence of a range of valuable opportunities for firms that participate, including meeting potential customers, finding new and better ways of doing business and building a reputation within an industry.

Statistics quoted in research conducted in 1995 by S Gopalakrishna, G L. Lilien, J D. Williams, & I K. Sequeira are illuminating. According to their sources, trade show expenditures account for nearly one-fifth of the total for business marketing & communications budgets for U.S. firms and approximately one-fourth of the budget for European firms (Jacobson 1990; Schafer 1987). Adjusting the level of these expenditures for inflation, the total amounts to over $80 billion annually in the United States alone.

Despite trade shows being characterised by substantial investments by many participating firms, the issue of trade show effectiveness (in terms of ROI) has generally tended to be a matter of faith.

According to comprehensive survey data from the Center for Exhibition Industry Research (CEIR) in the US, 70% of the attendees at a trade show plan to buy one or more of the products on show. On average, 76% of attendees ask for quotes and 26% end up signing purchase orders. 72% of visitors say the show itself influences their buying decisions.

The positive impact of exhibiting at a trade show reaches far beyond the event itself, as 87% of attendees will pass along some of the information they obtained at the show, and 64% will tell at least six other people about it. From a sales perspective, shows have also been proven to be cost-effective, as it costs 22% less to contact a potential buyer at a show than through traditional field sales calls.

Because of the range of exhibitor objectives, as well as the complementary and interactive nature of trade shows in the selling process, even the most sophisticated marketers typically do not attempt to calculate the ROI regarding trade show expenditures. Most firms rely on surrogate measures of performance, such as audience activity, audience quality, proportion of target audience attracted to the booth, proportion actually reached, and number of sales leads generated at the show.

The study by Gopalakrishna *et. al.* attempted to quantify the ROI of exhibiting at a trade show for a manufacturer of gas chromatographic equipment. Their analysis confirmed the existence of meaningful positive economic returns to the firm. They also provided evidence that the show had positive effects on generating product awareness and interest. The study concluded that a ROI of 112% was achieved over the medium term by the particular company.

This rate of return will differ widely from one exhibitor to the next, but may be regarded as a useful, yet conservative proxy for the average exhibitor at AAD 2012. Many of the products exhibited at AAD are of such an expensive nature that even marginal incremental sales values will tend to dwarf the costs of exhibiting.

In the event of applying the same ROI as determined by the Gopalakrishna (*et. al.*) study on the rental costs of exhibitors at AAD 2012 and their stand costs, a figure of **R47.2 million** is obtained as a rough estimate of the value of business secured at the event. Against the background of Denel Aviation and Aerosud having received contracts in 2012 worth R350 million from Airbus (France), this figure may be regarded as very conservative.

When applying this figure to the average economic output multiplier effect for the economy as a whole, total demand emanating from business procured from exhibiting at AAD 2012 translates into total economic output of **R157 billion**.

9.3 Medium-term tourism impact

According to the *Trade Visitor Analysis Report* by *Green Exhibition Services,* a total of more than 3,000 international visitors from 92 different countries attended the 2012 AAD Exhibition. The economic impact of the expenditures associated with these visitors was duly analysed and quantified in previous sections. Figures 10 and 11 provide a ranking of international visitors to AAD 2012 in terms of the top-ten source countries from outside of Africa and from Africa.

Fig 10: Number of international visitors to AAD 2012 – top-10 source countries (outside Africa)

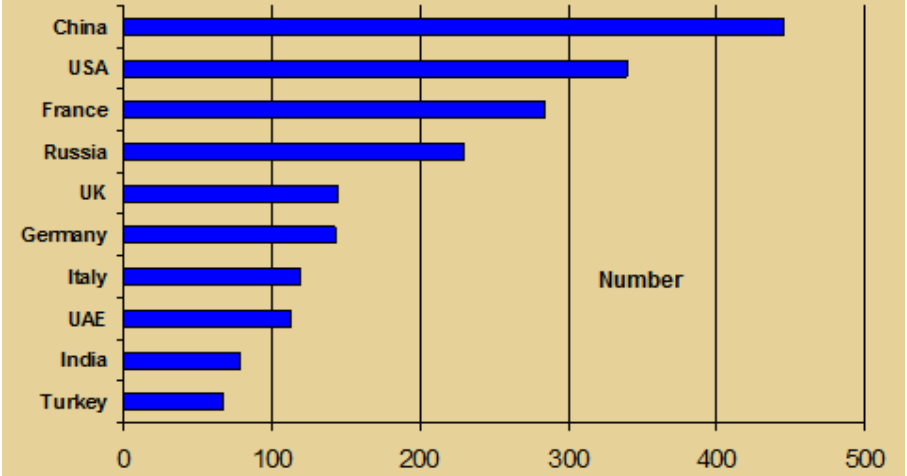
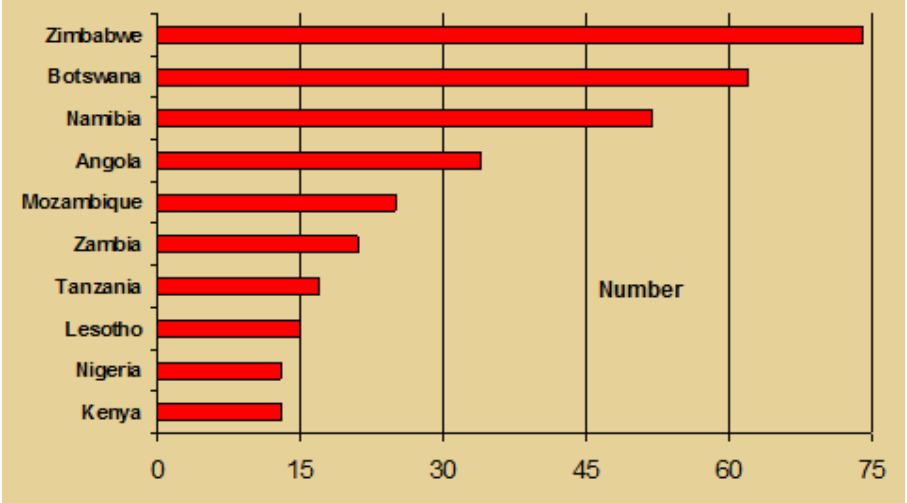


Fig 11: Number of international visitors to AAD 2012 from Africa – top-10 source countries



An ancillary impact of this exceptionally high number of international visitors is the indirect influence on inbound tourism via the concept of tourism retention, which may be defined as the probability that tourists will continue their relationship with a particular destination.

A recent study based on the hospitality industry in Gauteng by D J Petzer, (University of Johannesburg), T F J Steyn (Cameron University, Oklahoma, USA) & P G Mostert (North-West University), published in the *African Journal of Marketing Management* (April 2009), attempted to quantify the retention rate of tourists.

Based on the results of a survey, the study estimated that approximately 66% of guests who stayed for business related purposes were retained, which was significantly larger than the number of guests who stay for leisure only.

A further guideline for assessing the retention rate of international visitors to South Africa may be found in research conducted by M P Swart. Unique methodology was introduced by Swart in terms of the development of three new constructs for empirical research related to tourism, namely the Service Quality Scorecard (SQSC), satisfaction and retention.

This methodology was part of a doctoral thesis completed in 2013 at the University of Johannesburg, titled: *A Business Tourist Service Quality Scorecard for predicting Tourist Retention.*

Results from the predictive model designed by Swart proved that the higher the SQSC, the greater the level of satisfaction, which results in greater business tourist retention. Fortunately for South Africa, the country enjoys a high level of satisfaction amongst international visitors gauged for their experience whilst in the country.

According to *Tourism SA,* in the 3rd quarter of 2012, a total of 85.7% of international tourists to South Africa indicated an absence of any negative experience during their visit.

For purposes of providing a rudimentary estimate of the value of secondary tourism activity resulting from AAD 2012, the following assumptions may be made:

- A repeat visitor rate equivalent to the average for the industry (in the 3rd quarter of 2012), namely 87%
- A ratio of 2:1 over the medium term for success in influencing friends and relatives to also visit South Africa

When applied to the multiplier values utilised in section 6, this would yield a medium-term economic output impact of **R1.1 billion**.

10 Summary of economic impact of AAD 2012

Tables 23 to 26 and figures 12 to 14 summarise the economic impacts quantified in section 6.

Table 23: Summary of economic output effects of demand generated by AAD 2012 (R million)

	Direct	Indirect	Induced	Total
International visitors	166.3	52.9	166.3	385.4
Trade visitors	25.8	7.2	25.8	58.8
Public day visitors	28.0	7.8	27.9	63.7
Hosting of exhibition	51.6	17.1	55.7	124.4
Stand & chalet costs	23.1	8.3	20.7	52.2
Totals	**294.9**	**93.4**	**296.3**	**684.5**

Table 24: Summary of employment effects of demand generated by AAD 2012 (number of jobs)

	High skills	Skilled	Unskilled	Informal	Total
International visitors	96	390	485	248	1219
Trade visitors	12	47	90	39	188
Public day visitors	13	49	96	41	199
Hosting of exhibition	33	116	118	59	326
Stand & chalet costs	11	41	46	25	123
Totals	**165**	**643**	**835**	**412**	**2055**

Table 25: Summary of taxation revenue effects of demand generated by AAD 2012 (R million)

	Indirect	Corporate	Households	Total
International visitors	3.6	15.0	12.6	31.2
Trade visitors	0.65	2.10	1.90	4.70
Public day visitors	0.71	2.28	2.07	5.1
Hosting of exhibition	1.4	4.7	4.1	10.2
Stand & chalet costs	0.7	1.8	1.6	4.0
Totals	**7.0**	**25.8**	**22.3**	**55.2**

Table 26: Summary of ancillary economic impacts generated by AAD 2012 (R million)

	R million
EVE of media exposure - local	27.3
EVE of media exposure - overseas	5.9
Economic output value of business procured	157
Medium-term tourism economic output value	1,100

Fig 12: Summary of economic output generated by AAD 2012 (Total R685 million)

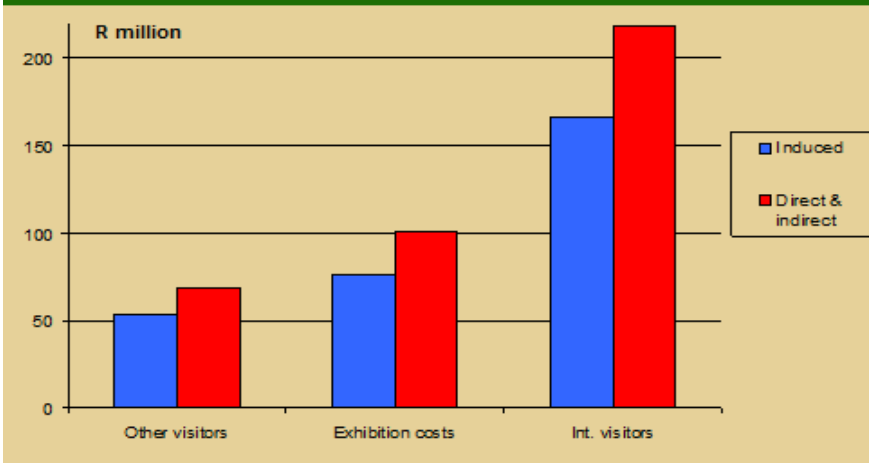


Fig 13: Summary of employment created by AAD 2012 (Total 2,055 jobs)

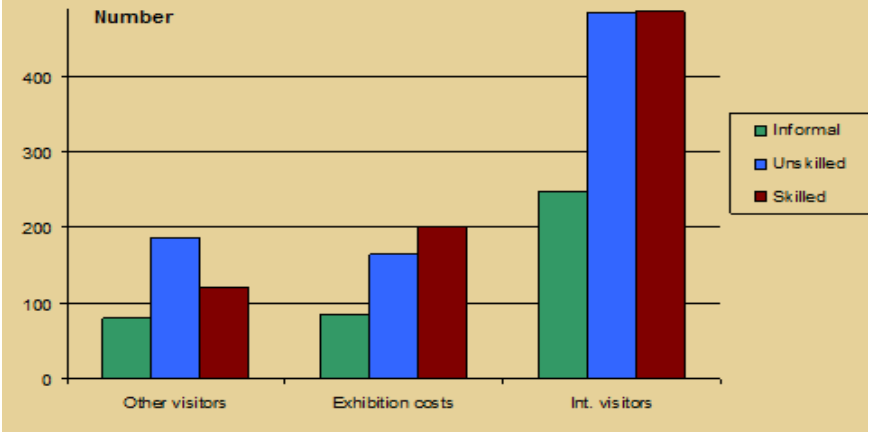
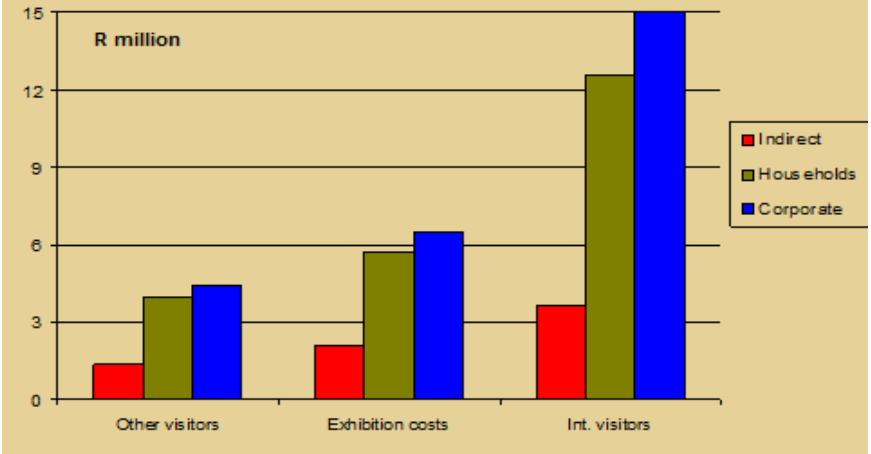


Fig 14: Summary of taxation revenues generated by AAD 2012 (Total R 55.2 million)



Concluding note

It is fairly obvious from the above impact assessment that the 2012 AAD exhibition generated a substantial amount of final demand in the economy.

This demand was eventually translated into a large value of output in forward-linked and backward linked industries that form part of the sector-specific value chain for such an exhibition.

A total of around 130,000 visitors attended AAD 2012, which represents a multiple of the average number of visitors that attend exhibitions in South Africa. No other event allows for a greater degree of comprehensive information sharing on aviation matters than the bi-annual AAD Exhibition and it has become a showcase for the country's diversified and sophisticated aviation industry.

The socio-economic importance of the Exhibition to Tshwane is most visible through an enlargement of the gross geographic product of the region, employment creation, tourism and a unique PR opportunity. Although substantial taxation revenues are also generated by the event, most of these flow to the national government.

The latter nevertheless justifies the consideration of requests to National Treasury (perhaps via the Gauteng Provincial Government) for funding to improve the exhibition infrastructure in and around Waterkloof AFB (where necessary).

Although some measure of the economic impact of AAD 2012 would have originated outside Tshwane and even outside Gauteng (e.g. processed food and petroleum), the overwhelming majority of the output and employment effects would have been specific to Tshwane.

In conclusion, it is also important to note the role of the AAD Exhibition in enhancing the Gauteng region's tourism potential. By virtue of its long-standing dominance of broad-based economic activity in South Africa, as well as being home to the World's number one-ranked securities exchange (the Johannesburg Stock Exchange – JSE), Gauteng houses approximately 75% of the head offices of JSE-registered companies and an estimated 90% of head offices of international and multi-national companies doing business in South Africa.

It is therefore not surprising that Gauteng dominates the so-called MICE (meetings, incentives, conferences and exhibitions) tourism market in South Africa, with the bi-annual AAD Exhibition remaining one of the premier events.

Business tourism represents a rapidly growing segment of the global tourism market. According to research by the International Congress and Convention Association (ICCA), more than 50% of world meetings and conferences rotate.

Pro-active policies aimed at encouraging MICE activity could secure a larger slice of this rotating market for Gauteng (and Tshwane), worth approximately $16.7 billion in 2011 (in terms of delegates' fees and exhibition expenses).