

**Final Report - Macro-economic Impact of the Wine Industry on the South African Economy (also with reference to the Impacts on the Western Cape)**

**South African Wine Industry Information and Systems (SAWIS)**

**Version 3**

30 January 2015



MOSAKA ECONOMIC CONSULTANTS cc

TRADING AS

**CONNINGARTH ECONOMISTS**

*PO Box 75818 Lynnwood Ridge,*

*0040, Pretoria, South Africa*

*Tel: +27(0)12 349 19 15*

*E- MAIL : [williamm@conningarth.co.za](mailto:williamm@conningarth.co.za)*

# TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY.....</b>	<b>VI</b>
<b>1 PART 1: INTRODUCTION AND BACKGROUND.....</b>	<b>1</b>
<b>2 IMPORTANT DEVELOPMENTS IN THE WINE INDUSTRY BETWEEN 2008 AND 2013 .....</b>	<b>2</b>
2.1 General Observations .....	2
2.2 Pressure on Profitability in the Wine Industry .....	2
2.3 Consumer Behaviour.....	3
2.4 International Markets .....	3
<b>3 OVERALL ECONOMIC STATUS OF THE WINE INDUSTRY IN 2013.....</b>	<b>5</b>
3.1 Institutional Aspects.....	5
3.1.1 Other Institutional Aspects .....	5
3.2 Overall Economic Status of the Wine Industry in 2013.....	10
<b>4 TOURISM IN 2013.....</b>	<b>11</b>
<b>5 PART II: INTRODUCTION.....</b>	<b>13</b>
<b>6 SCOPE OF MACRO-ECONOMIC IMPACT ASSESSMENT.....</b>	<b>15</b>
<b>7 METHODOLOGY.....</b>	<b>17</b>
7.1 Overall Macro-economic Modelling .....	17
7.2 Technical Content of the Model.....	17
<b>8 PRIMARY DATA AND DATA SOURCES .....</b>	<b>19</b>
<b>9 MACRO-ECONOMIC IMPACT RESULTS .....</b>	<b>20</b>
9.1 Total Economic Impacts on South African and the Western Cape Economies.....	20
9.1.1 Impact on Gross Domestic Product (GDP) at market prices.....	22
9.1.2 Impact on Capital Utilization (Investment in Fixed Assets) .....	22
9.1.3 Impact on Employment Creation.....	22
9.1.4 Comparison between Impacts on the Western Cape and South Africa	23
9.1.5 Comparison of Impact between Provinces .....	24
<b>10 ECONOMIC IMPACTS OF THE COMPONENTS OF THE DIFFERENT STAGES OF BENEFICIATION OF THE WINE INDUSTRY IN SOUTH AFRICA .....</b>	<b>26</b>
<b>11 BACKWARD LINKAGES (DIRECT, INDIRECT AND INDUCED) OF THE WINE INDUSTRY IN SOUTH AFRICA BASED ON THE GDP IMPACT .....</b>	<b>28</b>
<b>12 SECTORAL IMPACT OF THE VARIOUS COMPONENTS OF THE WINE INDUSTRY IN SOUTH AFRICA.....</b>	<b>29</b>
<b>13 TOTAL EMPLOYMENT IMPACT PER SKILL CATEGORY OF THE WINE INDUSTRY IN SOUTH AFRICA.....</b>	<b>32</b>
<b>14 FIXED CAPITAL INVESTMENT IN SOUTH AFRICA SUPPORTING ALL THE LEVELS OF THE WINE INDUSTRY (VALUE ADDED - AND SUPPLY CHAIN).....</b>	<b>33</b>

<b>15</b>	<b>IMPACT ON POVERTY ALLEVIATION PER PHASE OF BENEFICIATION OF THE WINE INDUSTRY IN SOUTH AFRICA .....</b>	<b>35</b>
<b>16</b>	<b>THE WINE INDUSTRY'S BALANCE OF PAYMENTS IMPACTS FOR THE NATIONAL ECONOMY .....</b>	<b>36</b>
<b>17</b>	<b>EFFICIENCY LEVELS OF THE WINE INDUSTRY .....</b>	<b>37</b>
<b>18</b>	<b>CONCLUSION .....</b>	<b>39</b>
18.1	Overall Developments .....	39
18.2	Impact Results .....	39
<b>19</b>	<b>APPENDIX A: SOCIAL ACCOUNTING MATRIX (SAM) .....</b>	<b>41</b>
19.1	The SAM .....	41
19.2	Application of the SAM .....	42
19.3	Detailed structure of the SAM for the Western Cape Province .....	43
19.4	The Western Cape Province SAM .....	44
19.4.1	Activity (Production) Accounts .....	46
19.4.2	Commodity (Goods and Services) Accounts .....	47
19.4.3	Factor Accounts (Labour and Capital) .....	47
19.4.4	Institutional Accounts .....	48
19.4.5	Capital Accounts .....	48
19.4.6	Trade Accounts with the Rest of the World .....	48
19.5	Defining SAM Accounts to Conform to the Structure of the Western Cape Economy .....	49
19.6	Integration of the South African SAM and the Western Cape Province SAM	53
<b>20</b>	<b>APPENDIX B: MAGNITUDE OF LINKAGES .....</b>	<b>54</b>
<b>21</b>	<b>APPENDIX C: DEFINITIONS OF MACRO-ECONOMIC AGGREGATES</b>	<b>55</b>
<b>22</b>	<b>APPENDIX D: DETAILED MACRO-ECONOMIC IMPACT OF THE WINE INDUSTRY .....</b>	<b>57</b>
<b>23</b>	<b>APPENDIX E: DETAILED SECTORAL IMPACT .....</b>	<b>69</b>
<b>24</b>	<b>APPENDIX F: EXOGENOUS VECTOR FOR PRIMARY AGRICULTURE IN STELLENBOSCH .....</b>	<b>71</b>
<b>25</b>	<b>APPENDIX G: PRIMARY DATA .....</b>	<b>74</b>
<b>26</b>	<b>LIST OF INFORMATION SOURCES .....</b>	<b>77</b>

# LIST OF CHARTS, TABLES, DIAGRAMS AND SCHEDULES

Chart 1: Value Chain of Wine Dependent GDP in South Africa .....	26
Chart 2: Value Chain of Wine Dependent Employment in South Africa.....	27
Chart 3: Wine Industry's Direct, Indirect and Induced GDP Impact .....	28
Chart 4: Employment Creation by Skill Category, 2013 .....	32
Table 1: Economic Structure of the Beneficiation Process in the Wine Industry in 2013 (R million, 2013 prices) (a).....	8
Table 2: Growth Rates: 2008-2013; Main Economic Aggregates (current prices)....	10
Table 3: Activities of Foreign Tourists.....	12
Table 4: Geographic Distribution of Wine Grape Vineyards and Wine Grape Tonnages per Wine Region during 2013 .....	19
Table 5: Total Macro-economic Impact of the Wine Industry on the South African Economy [Rand millions; 2013 prices] .....	20
Table 6: Total Macro-economic Impact of the Wine Industry on the Western Cape [Rand millions; 2013 prices] .....	21
Table 7: Total Impact of Different Phases of the Wine Producing and Selling Chain inside the Western Cape and outside the Region (GDP).....	23
Table 8: Impact of Different Phases of the Wine Producing and Selling Chain Inside the Western Cape and Outside the Region (Labour) .....	24
Table 9: Provincial Impacts .....	25
Table 10: GDP: The Wine Industry's Total Sectoral Impact on the South African Economy [Rand millions; 2013 prices] .....	31
Table 11: Capital Impact on South Africa [Rand millions; 2013 prices] .....	34
Table 12: Impact on Poverty Alleviation per Wine Beneficiation Component in South Africa [Rand millions; 2013 prices].....	35
Table 13: Impact on the Balance of Payments of the National Economy [Rand millions; 2013 prices].....	36
Table 14: Efficiency of the Impact of the Wine Industry on the National Economy in terms of Capital Utilization and Poverty Alleviation.....	38
Table 15: Western Cape SAM Framework.....	45
Table 16: Glossary of SAM Framework Terms.....	46
Table 17: Accounts and Activities included in the Western Cape SAM.....	50
Table 18: GDP Generated in the Western Cape through the Backward Linkages of each phase of the Wine making and selling Industry of the Western Cape [Rand millions; 2013prices] .....	57
Table 19: GDP Generated in South Africa through the Value Chain and Backward Linkages of the Wine Industry [Rand millions; 2013 prices] .....	59
Table 20: Capital Needed in the Western Cape to Support the Value Chain and Backward Linkages of the Wine Industry [Rand millions; 2013 prices].....	61
Table 21: Capital needed in South Africa to support the Value Chain and Backward Linkages of the Wine Industry [Rand millions; 2013 prices].....	63
Table 22: Labour Needed in the Western Cape to Support the Value Chain and Backward Linkages of the Wine Industry [Rand millions; 2013 prices].....	65

Table 23: Labour Needed in South Africa to Support the Value Chain and Backward Linkages of the Wine Industry [Rand millions; 2013prices].....	67
Table 24: Sectoral Impact of GDP on detailed sectors [Rand millions; 2013prices]	69
Table 25: Exogenous Vector for Primary Agriculture in Stellenbosch.....	71
Table 26: Farming Production Cost for Wine Grapes for each of the Wine Regions for 2013 (Cost Items as Rand per Hectare).....	74
Table 27: Expenses Attributable to Bulk and Packaged Wine for 2013 (Cost per Rand per Ton).....	76
Diagram 1: Wine Industry Illustrated by means of the Cost Build-Up of a Production Unit .....	14
Schedule 1: Wine Industry Structure in 2008 (2013 in brackets).....	6

## LIST OF ABBREVIATIONS

SAWIS:	South African Wine Industry Information and Systems
PWC:	PricewaterhouseCoopers
SAM:	Social Accounting Matrix
GDP:	Gross Domestic Product
StatsSA:	Statistics South Africa
DBSA:	Development Bank of Southern Africa
DPLG:	Department of Provincial and Local Government
GOS:	Gross Operating Surplus
SARB:	South African Reserve Bank

## **EXECUTIVE SUMMARY**

### **PART I: A GENERAL DESCRIPTION OF THE WINE INDUSTRY**

In Part I of this study reference is made of developments in the wine industry over the past five years or so, whilst the magnitude of the industry in economic terms is given for the calendar year of 2013.

#### **RECENT DEVELOPMENTS**

The South African wine industry is gearing up to export more packaged vintages rather than bulk wine, to take advantage of the windfall of 60 million litres it has been granted to export to the European market annually.

Europe has increased the duty free quota to 110 million litres from 50 million litres that South Africa is currently allowed to export every year. South Africa's total wine exports, a combination of packaged and bulk wine, amounted to 525 million litres a year and 183 million litres were packaged.

From the period 2008 to 2013, there has been a slight increase in the production of red wine as compared to white wine relative to total wine production. For the most part of the first decade of the second millennium, the wine industry in South Africa experienced a significant swing towards red wine production – increasing by 18% over the period 2003 to 2013.

Given that the local demand for wine, red wine in particular, did not match the increased supply, the local industry was forced to enter the export market in a much more aggressive way than ever before. No wonder that export, as percentage of local production increased from 38.3% in 2003 to 57.4% in 2013. Despite fluctuations in the Rand exchange rate over this period, its general trend was downwards, helping to maintain export profitability.

The inflationary conditions coupled with pressure on disposable income have resulted in consumers trading down, obviously becoming much more price conscious. The South African wine consumer in general is regarded as more price conscious and less likely to venture into the higher priced products.

#### **OVERALL ECONOMIC STATUS OF THE WINE INDUSTRY IN 2013**

The total turnover of the alcoholic wine industry, including sparkling wine, in 2013 amounted to R26 359 million. Of this amount R8 514 million was exported directly. Imports amounted to R590 million or about 3% of domestic sales. It's significant that primary agriculture output valued at R4 820 million was beneficiated and added in value downstream to the amount of R26 359 million, i.e. about 5 times the initial value of the raw material inputs. Another R5 972 million was generated indirectly through wine tourism.

If 2013 is compared with the 2008 study, it is evident that the wine industry as a whole did somewhat better over the 2008 – 2013 period. Total turnover grew by 37.5 %. This growth can be attributed mainly to the excellent export performance (close to doubling in current rand value terms since 2008). The growth in value of domestic sales in nominal terms, over the period 2008 – 2013 amounted to only 38.4%. These figures also indicate the much slower growth in primary producers' income but an escalating tax haul by government. The industry has been under ever increasing inflationary pressures on the production side that ultimately had to be given through to the consumers. However, the primary producers were in a more disadvantaged position to recoup all these cost rises.

## **TOURISM**

As in the previous studies, the researchers again made an attempt to establish the extent to which “wine tourism” features in the wine industry's contribution to the economy. Information in this regard is rather scant, but it was possible to make use of indirect methods to establish a useable figure. About 43% of all overseas visitors to the Western Cape travel through the Cape Winelands. Initiatives like the Paarl Waterfront Development initiative has been identified as a key catalytic project which will boost the tourism sector further. The project consists of mixed use developments (including a hotel, restaurants, office blocks, sports science institute etc.) located on the Berg River.



## **PART II: MACROECONOMIC IMPACT ASSESSMENT OF THE WINE INDUSTRY**

This part of the study comprised the use of macro-econometric impact model to calculate the total impact of the wine industry on the South African economy and in particular also on the Western Cape.

### **IMPACT ON GDP (INCLUDING REGIONAL PERSPECTIVE)**

In 2013 the wine industry contributed R36 145 million to the annual GDP of South Africa. What is also important to note is the measure of value added that takes place with every step of beneficiation. Starting at farm level, the initial value of the raw material in terms of income received, amounted to R6 842 million and ultimately leads to a total GDP value of R29 792 million (excluding tourism). This illustrates the exceptional ability of the industry as a creator of economic value added.

However, the question is whether the wine industry contributes a fair and reasonable share to GDP per unit of capital invested compared to other industries. The study showed that its GDP/Capital ratio of 0.58 is higher than the national average of 0.45. Even though this is not a measure of the profitability of the industry, it does signify that its capital “productivity” is somewhat higher than the average for the national economy.

Of the R36 145 million GDP created in South Africa by the wine industry, about R19 287 million remained in the Western Cape (approximately 53%).

### **IMPACT ON EMPLOYMENT**

The wine industry supports employment opportunities to the tune of 289 151 in the RSA. Of this number 55.6% are unskilled, 29.3% semi-skilled and 15% skilled. According to the labour/capital ratio (4.64) it is obvious that capital is applied much more effectively regarding employment creation as the ratio is higher than that of the national economy (2.94). The relative labour intensiveness of the wine industry is specifically the result of the intensive labour production methods which are followed in the primary agriculture. In the Western Cape, the wine industry in total is responsible for total employment of 167 494.

### **CAPITAL UTILIZATION**

A total capital stock of R62 277 million (2013 prices) is required nationally in the wine industry and supporting industries to sustain the present level of GDP creation of R36 145 million in 2013. The wine industry is probably more capital intensive than is generally believed. Although the primary agriculture portion of the wine industry is relatively labour intensive, the other portions of the industry i.e. cellars and manufacturing are more capital intensive.

But, all and all, both on the labour and capital front, the wine industry seem more efficient in its utilization of the country’s production factors.

## INCOME DISTRIBUTION

Household income worth R23 579 million was generated by the wine industry in 2013, of which R3 994 million is destined for the lower income groups of which a large portion is spent in the Western Cape region. Coupled with the annual expenditure by farmers on production inputs, one can understand why the wine industry forms the backbone of the economy of many districts in the Western Cape. 17% of household income is generated by the wine industry which is only slightly above the average of 16% for the economy as a whole.

## CONCLUSION

The South African wine industry has again gone through a tough period of major changes over the past 5 years, as is largely reflected by the changes in its economic structure. Its re-introduction into the world trade set-up has brought huge opportunities, as reflected by the doubling in exports but on the other hand has brought pressure on its competitiveness. As in the past, the R/\$ and Rand/Pound/Euro exchange rates developments will be crucial for the wine industry's future economic health.

In terms of the wine industry's actual impact on the South African economy, the study again produced some interesting results. Of these the following deserves to be mentioned:

- The total capital asset base (direct, indirectly and induced) of the wine industry is estimated at R62 277 million. The corresponding number of employment opportunities that are supported by the wine industry amounts to a significant 289 151. The major part is to be found in the trade, catering, accommodation and transport sectors.
- In terms of GDP, the total (direct, indirect and induced) annual impact of the wine industry on the national economy amounts to R36 145 million which amounts to 1.2% of the total GDP of South Africa in 2013.
- The wine industry generates an amount of R23 578 million of private disposable income. Of this amount, 17% is destined for low-income households, which is slightly higher than for the economy as a whole (16%).
- For purposes of this study, the regional impacts emanating from the wine industry were also calculated for both GDP and labour. Of the total impact that the wine industry has on GDP and employment creation, approximately R19 287 million and 167 494 employment opportunities have been created in the Western Cape respectively.
- From the Employment figures it is important to note the estimated decrease of the impact on unskilled employment of 160 745 to 160 738 from 2008 to 2013 (see Table 5). This can be attributed to a change in the skills component between unskilled and semi-skilled, or it could also be due to the fact that farmers use less unskilled labour, replaced by capital equipment.
- Furthermore, there is only a slight decrease in estimation of the total employment impact in the Western Cape caused by the Wine Industry, from

168 102 (2008) to 167 460 (2013). This is the net outcome of a decrease of labour in the Primary Agriculture and Cellars Industry segments relative to an increase in the other segments of the Wine Industry.

## 1 PART 1: INTRODUCTION AND BACKGROUND

This study of the impact on the wine industry in the Western Cape, with 2013 as the focus year is the fourth consecutive study of this nature. The three previous studies with 1999, 2003 and 2008 as the respective base years produced some very interesting results pertaining to many aspects surrounding and inherent to the wine industry.

One of the most important aims of these studies was to give a reasonably accurate presentation of the magnitude of the industry in monetary terms for a specific calendar year. This also includes the various stages of value added from the raw material producers' levels right through to the final retail sales values (including exports). When these studies started off in 2000, economic data on some of these aspects were scant, but with the help of industry experts these shortcomings were overcome so that 2003 and 2008, would represent an authentic picture of the structure of the wine industry at those particular points in time.

However, as we stand now, the volume and quality of the relevant statistics have improved even further and here the help of SAWIS and its constituent members and other role players, played a crucial role.

With the help of VinPro, PwC and SAWIS etc., it was possible, again to attain more accurate figures of the actual commercial income of wine producers per wine producing region. Information on the sales split between white and red wine varieties as well as the volume and value relationships between bulk and packaged sales could be brought into the equation.

Obviously, information of this nature will help in identifying structural and other changes that are constantly at work in the wine industry.

In addition to the improvement in the quality and availability of the relevant statistics, Conningarth Economists, have since the 2008 study, also worked on improving especially its impact models. In this regard, for example, the most recently updated (adjustments up to 2013) Western Cape Social Accounting Matrix (SAM) was employed to improve the wine impact results on the Western Cape and on the rest of the economy.

In addition, Conningarth Economists have technically improved its impact models to take better notice of possible leakages of wine's intermediate demands to other provinces and even to overseas suppliers.

It's important to note that the study covers the total wine industry (natural wine, sparkling wine, fortified wine, brandy and the non-alcoholic component).

All the above developments, plus others which will be covered later under the particular headings, have hopefully contributed to an improvement in the quality of quantified impact outcomes.

## 2 IMPORTANT DEVELOPMENTS IN THE WINE INDUSTRY BETWEEN 2008 AND 2013

### 2.1 General Observations

In general, one should remember that the South African wine industry's performance since 2008 should be viewed against the background of the worldwide financial meltdown that really started to gain momentum in the second half of that year. South Africa's own economy only started to move into recession in the final quarter of 2008. The South African economy recovered gradually from this low point and gradually moved upwards but again ran into a recessionary mode in the first half of 2014. As indicated in the previous report in the period between 2003 and 2008, a number of structural developments in the wine industry were observed. For example, the changeover to red wine consumption for various reasons, both here and abroad, which mainly caused a major increase in red varietal plantings. This has increased from 18% of total plantings in 1996 to 44% in 2008. Obviously, local producers were prepared to take on the risk of increased red wine production provided the strong tendency in red wine demand continues. Unfortunately, demand did not fully match the increase in supply, leading to depressed prices of red wine grapes to producers.

Given these diverse price movements, it is clear that the range of the mix between red and white wine of a producer would have had an important impact on profitability and commercial viability in general.

Given that the local demand for wine, red wine in particular, did not match the increased supply, the local industry was forced to enter the export market in a much more aggressive way than ever before. No wonder then that red wine production as percentage of local production, increased from just 16.3% in 1999 to 37.9% in 2013. Red wine's share of exports of natural wine in 2013 (in volume terms) amounted to 38%. Another important development was that bulk exports as a percentage of total exports increased from just 30% in 2002 to 65% in 2013. The decreasing value of the Rand against major world currencies, especially the R/£ rate, also made a major contribution to the growth in exports.

### 2.2 Pressure on Profitability in the Wine Industry

Since the first study (1999) the effects of unabated cost pressures in the wine industry has always come to the fore. The pressures can be grouped into the following categories:

- A relatively stagnant position in local wine consumption over the long-term. For example, local packed wine sales amounted to 366 891 229 litres in 1997 compared to 369 407 518 in 2013 i.e.  $\pm 0.7\%$  increase over 16 years (see table 10.1 of the 2014 SAWIS report).
- Cost escalations in excess of the overall inflation rate.
  - Packaging costs (i.e. Rand per litre) increased by 146% from 2008 to 2013.

- Bulk costs increased by 46% per ton 2008-2013.
- National Production Price Index (PPI) increased by 29% over the same period.
- Average wine production costs increased by 52% over the period 2008-2013 compared to an increase of 38.2% in the income per ton of grapes produced.

Studies by VinPro showed that about a third of producers experienced negative Net Farming Incomes (NFIs), which is not sustainable over the longer-term.

### 2.3 Consumer Behaviour

The South African wine consumer in general is regarded as more price-orientated and less likely to venture into the higher priced products.

In 2013 the local demand for wine in volume terms has increased by 1.8% coming from a 2.8% increase in 2012. However, many reasons are being forwarded why the local consumption of wine is declining per capita over the long term

South Africa is one of the few “New World” producers that have seen per capita consumption of wine decline, with the exception of Argentina and Chile. South Africa’s per capita wine consumption in 1998 was 8.7 litres per annum, declining to 6.92 litres per annum in 2013.

It has been suggested that one of the key reasons for South Africa’s declining wine consumption is the aggressive pricing of other liquor products, especially by South Africa’s major beer producer, (SAB Miller) resulting in price sensitive consumers switching away from wine.

Other reasons forwarded for the decline in wine consumption per capita is the estimated 1 million whites that emigrated, as well as the fact that the black consumer does not regard wine consumption with such high priority.

Nevertheless, despite deteriorating economic conditions (unemployment; rising inflation and household indebtedness), wine sales over the last two years showed a welcome upturn.

The Wine market grew by over 4% over the last year or two, with an expected growth of 2.3% in 2014. Similar to 2013, the growth will be mostly in the Super Premium and Premium sector, with some growth coming from the Perlé sector. The growth in the Wine sector will come mostly from the section of the market selling at between R20 and R45 per 750ml bottle.

### 2.4 International Markets

As indicated earlier, the export option to a large extent actually saved the local wine industry from even further financial stress over the past number of years.

The amount exported increased phenomenally from “just” 217 million litres in 2002 to 525 million litres in 2013. Depreciation of the Rand against the US Dollar and the UK Pound in particular over the longer-term has boosted exports.

In contrast to the previous report when the wine industry in 2009 was confronted with a large oversupply of wine worldwide, presently they are looking at significant shortages developing. The big question is how the local wine industry will respond/benefit from this situation.

It is quite clear that this situation is arising from a complex of factors including globalization, developing of “New” emerging markets, market segmentations etc.

### 3 OVERALL ECONOMIC STATUS OF THE WINE INDUSTRY IN 2013

#### 3.1 Institutional Aspects

The important aim of this study is to quantify in Rand terms, the economic value added at each phase of the institutional chain that constitutes the production, distribution and selling of wine locally and overseas. In this instance the 2013 calendar year will be the focus point.

The **production** landscape in wine can be roughly divided into private cellars, producer cellars wholesalers and retailers, as follows:

- **Private wine cellars:** these tend to be smaller operations, with just under half of these cellars crushing less than 100 tonnes annually in 2013, and can generally be considered boutique winemakers. However, the number of private wine cellars has more than doubled from 218 in 1996 to 493 in 2013.
- **Producer cellars:** Producer cellars consist of co-operatives and ex-co-operatives (co-operatives that have formalised their structure e.g. forming a shareholding company), these producers are generally large operators, with 34 of the 50 producer cellars consisting of operations with an ability to crush over 10 000 tons of grapes annually.
- **Wholesalers:** Wholesalers can be sub-divided into export-only, general wholesalers and producer wholesalers. In general, wholesalers will buy wine in bulk from producers and private wine cellars and market, distribute or export the wine either in packaged or bulk form. A key distinction for a producer wholesaler is that this type of wholesaler will both produce their own wine and buy wine in from either producer cellars or private wine cellars. Producer wholesalers may also have a small number of their own vineyards. Producer wholesalers are also responsible for the bulk of exports.
- **Retailers:** The final level of the wine distribution chain is the distributing/marketing agents and retail outlets from which consumers make purchases. Supermarkets handle between 35% and 39% of all off-trade wine consumption (by value) in South Africa, while discounters (such as Massmart and Metcash, which can also be referred to as “big box” stores) handle about 41%. On-consumption obviously is mainly found in restaurants, hotels, B&Bs etc., generally referred to as the hospitality trade. The remainder is done through bottle stores, specialists and direct sales (including cellar door sales).

##### 3.1.1 Other Institutional Aspects

The institutional chain that forwardly links all the participants in the whole economic process of beneficiation is shown in table 1 on page 9.



Although the major portion of actual economic value added through the process of beneficiation takes place in the Western Cape, a substantial part thereof will realise in other parts of the country, mainly through the wholesale and retail components. (This aspect will be dealt with in more detail in Part II of this study).

At the retail level a large portion of the sale of wine is directed at the organised leisure market, i.e. people visiting restaurants, hotels, clubs, etc. This is also where the tourism market is becoming increasingly important. In relation to the wine industry, the impact of tourism on demand can be categorised in two parts, viz:

- Tourists' direct consumption of wine at hotels, restaurants, etc.
- Tourists visiting the Western Cape with the specific aim of visiting the Wine Routes and also purchasing wine.

**Schedule 1: Wine Industry Structure in 2008 (2013 in brackets)**

	Tons	Number of Producers	Production Category
Primary Grape Producers			
	1-100	1544 (1249)	
	101-500	1423 (1216)	
	501-1000	498 (429)	
	1001-5000	367 (416)	
	5001-10000	7 ((13)	
Total Number of Primary Grape Producers		3839 (3323)	
Wine Cellars which Crush Grapes			
		58 (50)	Producer Cellars
		504 (493)	Private Wine Cellars
		23 (21)	Producer Wholesalers
Total Number of Wine Cellars which Crush Grapes		585 (564)	
Bulk Wine Buyers			
		47	Wholesalers (including producer wholesalers)
		71	Exporters (buy wine for export only)
Total Number of Bulk Wine Buyers		118 (103)	

Source: SAWIS – Statistics Publication.

It is interesting to notice from the above Schedule 1 that since the 2009 report, a measure of consolidation has taken place. This was actually foreseen given the declining trend in local wine demand, coupled with rising production costs. Especially the smaller producers bear the brunt whilst on the other hand, the number of larger primary producers actually increased. Private wine cellars

increased sharply over the past decade or so, but this trend also seems to have turned the corner.

**Table 1: Economic Structure of the Beneficiation Process in the Wine Industry in 2013 (R million, 2013 prices) (a)**

	Market Segment Economic Sector	= (2) + (3)	(2)	(3)	(4)
		<b>Turnover</b>	<b>Exports (b)</b>	<b>Domestic Sales</b>	<b>Current Import Level (c)</b>
A.	<b>Primary</b>				
	Primary Agricultural	3 247	975	2 272	-
	Cellars	1 573	472	1 101	-
	<b>Total Primary</b>	<b>4 820</b>	<b>1 447 (d)</b>	<b>3 373</b>	<b>-</b>
B.	<b>Manufacturing, Wholesale and Retail Trade</b>				
1	Manufacturing (e)	6 510	2 103	4 407	(590) (f)
2	Trade, Catering & Accommodation (g)	10 227	4 964	5 263	
3	Taxes (VAT and Excise) (h)	4 802	-	4 802	
	<b>Total manufacturing, Wholesale, Retail and Transport</b>	<b>21 539</b>	<b>7 067</b>	<b>14 472</b>	
C	<b>Sub-total (A+B)</b>	<b>26 359</b>	<b>8 514</b>	<b>17 845</b>	
D	<b>Tourism (i)</b>				
1	Foreign	4 848	-	4 848	
2	Local	1 124	-	1 124	
	<b>Total Tourism</b>	<b>5 972</b>	<b>-</b>	<b>5 972</b>	
	<b>GRAND TOTAL (C+D)</b>	<b>32 331</b>		<b>23 817</b>	

Source: SAWIS Data unless otherwise indicated

. Additional Footnotes to the above table:

- a Including the Orange River Region.
- b Data obtained from SARS - verified by SAWIS.
- c Data obtained from SARS - verified by SAWIS.
- d For the purpose of correctly modelling the system, it was necessary to "impute" exports at each of the value chain stages. It is important to note that the sum of exports denoted at each stage must add up to the official amount of total exports that moved through customs.
- e Defined as processing, packaging, bottling and labelling (including grape juice).

- f The import figure is given at cif value (i.e. including cost, insurance and freight charges, as well as import taxes). This is just for illustrative purposes, as these figures, together with transport and trade margins and indirect taxes, are already incorporated in local sales values.
- g Trade and Transport Margins were obtained from the 1993 Input-Output Table (Central Statistical Services)  
These margins were verified as still applicable to recent times.
- h The 2013 figures were obtained from SAWIS book of Statistics 2014; Table 11.4, page 42).
- i Data based on structures and tourist movements provided by SA Tourism on its website. [www.southafrica.net/research](http://www.southafrica.net/research).

### 3.2 Overall Economic Status of the Wine Industry in 2013

The above Table 1 contains the monetary values of each successive stage of the beneficiation process of wine making and selling for the year 2013 (in 2013 prices). The data is classified according to the main economic sectors and market segments involved. This table does not deal directly with the regional impact (except for international trade), which will be dealt with in Part II of this study.

Table 1 shows that the value of the total turnover of the wine alcohol industry in 2013 amounted to R26 359 million. Of that amount R8 514 million was exported directly. Imports amounted to R590 million (i.e. cif values [cost insurance and freight] plus import taxes). In actual fact, added value to the tune of R21 539 was added to primary agricultural output valued at R4 820 million. A ratio of beneficiation downstream amounting to  $\pm 4.5$  times the initial value of the raw materials was achieved. Put another way, in this process total income (consisting of the remuneration of both labour and capital) to the tune of R26 359 million was directly and indirectly generated in the RSA and overseas (via imports). Furthermore, it is estimated that an additional amount of R5 972 million was generated indirectly through tourism.

**Table 2: Growth Rates: 2008-2013; Main Economic Aggregates (current prices)**

Economic Sector	2008	2013	Percentage Change
Primary Production	3 320	4 820	45.2%
Total Turnover (Local Wine Output)	19 164	26 359	37.5%
Exports	6 272	8 514	35.7%
Taxes/Excise	3 459	4 802	38.8%
Local Sales	12 882	17 845	38.4%

The figures in Table 2 above indicate the somewhat higher growth in primary producers' income and the still escalating tax haul by government. However, something not shown here is that the volume of exports jumped by 18% in 2013 and now constitutes 57.4% of wine production (in volume terms). Local wine consumption (in volume terms) increased by 1.8% in 2013 and was only 3.8% above the 2008 level, i.e. 5 years ago. Brandy sales are still in a declining mode, ending 28% lower in 2013 compared to 2008.

## 4 TOURISM IN 2013

In the previous studies (1999, 2004 and 2008) an attempt was made to measure the impact on the Western Cape economy of tourists visiting the Western Cape but also spending some of their time visiting the Cape Wine Routes. The key to the whole exercise was to come up with a reasonably trustworthy figure of the number of tourists who actually venture into the winelands – i.e. visitors from overseas and of course South Africans that visit the winelands. Unfortunately such data still is not readily available unless direct survey methods are employed, and therefore indirect methods again had to be employed to obtain useable figures.

### Local Tourism

A whole range of useful tourist information can be gleaned from publications of South African Tourism, the official state sponsored body to promote tourism in South Africa. The following interesting data was extracted from their reports:

- Total local tourist movements decreased by 21% in 2013. (Caused by depressed economic conditions).
- In 2013 the Western Cape attracted 8% of local tourists.
- In 2013 ±R6.6 billion was spent by local tourists visiting the Western Cape.
- About 13% of these tourists visited so-called “natural attractions, cultural, heritage and historical sites” (Probably including cellars and travelling through the vineyards).
- On average spend 6 bed nights.
- Another important aspect of local tourists is that more than 80% stay with friends and relatives and use own transport.
- Holiday travellers spend on average R1 910 per day; by business travellers R1 640 and the rest on average R780 per day.
- It should be borne in mind that the Western Cape includes the Garden route/Klein Karoo areas which attracts part of the Western Cape total.

If an assumption is made that visitors spend roughly 13% of their time on visits to the wine routes *inter alia* also visiting historical, cultural sites, then a figure of R1billion as a benchmark figure for wine tourism is possible.

### Foreign Tourism

- Overseas tourists to South Africa increased by 15% in 2012 and 7% in 2013.
- In 2013 15% of all overseas tourists visited the Western Cape (± 1.4 million people).
- The Western Cape captured 25% of bed nights required by overseas tourists which indicate they stay longer periods in the Western Cape, compared to other provinces.

- Direct spending by tourists in the Western Cape amounted to ±R35 billion in 2013.
- They also tend to stay an average of 8 nights in the Western Cape (that includes all kinds of visitors, those coming for holidays tend to remain somewhat longer periods.)

**Table 3: Activities of Foreign Tourists**

Activities by Purpose of visits for 2013									
	Holiday	Shopping (Personal)	Shopping (Business)	Business Traveler	Business Tourist	Medical	VFR	Religion	Other
Shopping	96%	99%	90%	90%	88%	71%	96%	93%	92%
Night life	92%	63%	49%	81%	78%	0%	65%	75%	81%
Theme Parks	22%	2%	3%	6%	5%	1%	8%	0%	11%
Trading	1%	3%	60%	3%	3%	0%	1%	0%	1%
Visits to Casino	15%	3%	1%	6%	6%	0%	7%	0%	6%
Sport Competition	2%	0%	0%	6%	0%	0%	1%	0%	2%
Sport Attending	3%	0%	0%	1%	0%	0%	1%	0%	11%
Business	3%	0%	2%	76%	68%	0%	1%	0%	3%
Cultural, Historical and Heritage	43%	3%	15	12%	13%	1%	19%	0%	17%
Wildlife	53%	1%	0%	14%	9%	1%	9%	0%	15%
Visiting Natural Attractions	64%	2%	0%	19%	14%	2%	20%	0%	23%
Beach	42%	1%	2%	13%	0%	2%	13%	0%	20%
Social	34%	35%	11%	14%	14%	37%	90%	40%	0%
Medical	2%	1%	0%	0%	0%	81%	3%	0%	1%
Health	1%	0%	0%	0%	0%	13%	1%	0%	1%

Source: SA Tourism: 2013 Annual Report.

From the above table one can see the importance foreign tourists attach to various activities when they arrive in South Africa. The table indicates that for those on holiday, 64% will visit a natural attraction, 43% will visit cultural, historical and heritage sites. It is assumed that somewhere in between these visits an amount of time and money is spent by foreign tourists on visits to the winelands in particular. The majority will most probably not stay in accommodation in the Wine Areas but will travel from the Cape Peninsula.

For the sake of assumption, if the tourists on average devote one day (i.e. 1 of 8) of their stay in the Western Cape visiting the Wine Routes and other cultural and heritage sites, an amount of R4.8 billion can indirectly be linked to them. A recent survey in New Zealand found that 13% of all foreign tourists will visit wine related activities. Some further research is required to find out exactly on what so called “wine tourists” exactly spend their money.

## 5 PART II: INTRODUCTION

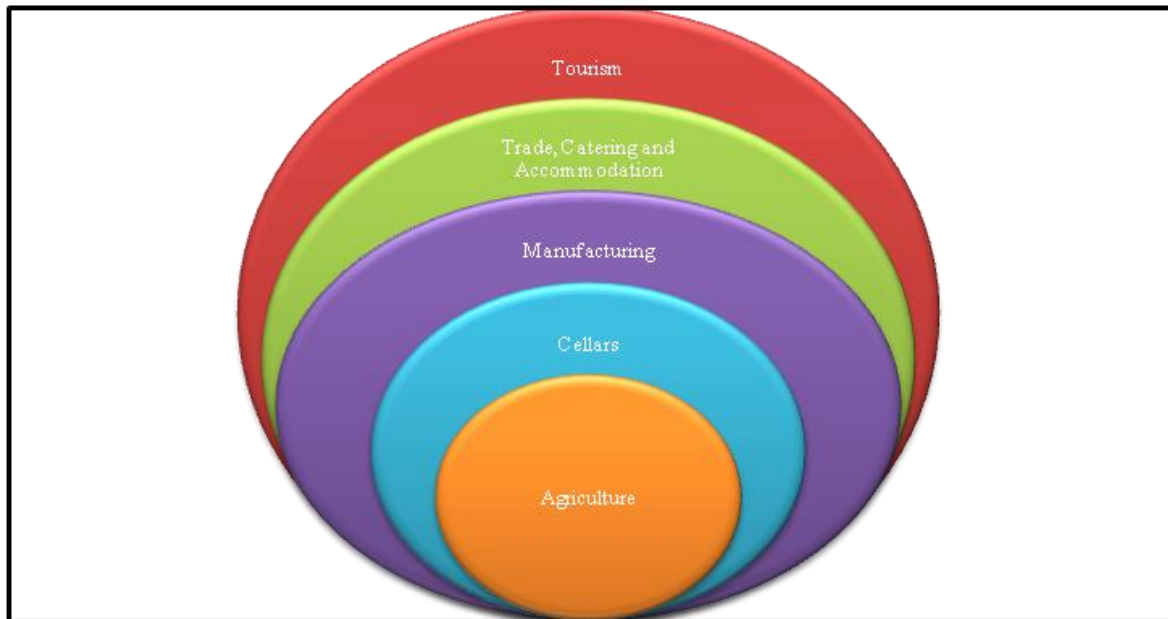
In Part I of this report, a description of the nature and magnitude of the wine industry's direct contribution towards the overall national economic activity levels was provided for the year 2013. Part II represents a more detailed and a further breakdown of the total (i.e. direct, indirect and induced) macro-economic impact of the wine industry via various economic aggregates. Although a large part of the macro-economic impact of the wine industry relates to the national economy, it was also imperative to capture and depict the impacts on the Western Cape economy in particular. This is due to the known fact that a major part of the wine industry is situated in the Western Cape. For analytical purposes the macro-economic impact of the wine industry on the Western Cape's and national economy, was based on the so-called "value added trail" viz starting with primary agriculture production progressing through to the retail sale of finished products. This represents the so-called value chain linkages emanating from the various stages of wine making as presented in Part I (Table 1). These value chains/stages of refinement are the following:

- Agriculture (production at farm level)
- Cellars
- Manufacturing
- Trade, Catering and Accommodation
- Tourism

The economic impacts of each of these stages are quantified and discussed separately thereby illustrating the individual contribution that each of these components of the wine industry make towards the economy of South Africa and specifically that of the Western Cape. When these stages are added together, the total economic impact is determined. This build-up effect till the final unit of production is ready for consumption (for example a bottle of wine) can be illustrated with the aid of the following diagram.



**Diagram 1: Wine Industry Illustrated by means of the Cost Build-Up of a Production Unit**



As indicated before, the total economic impact of each phase of refinement, including packaging, distribution, transport and retail will be quantified by the models (in other words the direct, indirect and induced economic effects will be quantified). Even the secondary tourism effects, i.e. the impacts on industries acting as suppliers of the tourism industries affected by people going on the wine routes, will be calculated. The composition of the total “bottle-of-wine” GDP-effect on a sectoral basis is shown in Diagram 1 above.

The quantified total impact of each value adding activity of the wine industry, as stated above, will be presented in terms of economic aggregates such as Gross Domestic Product (GDP), Employment Creation, Capital Utilisation (investment in fixed assets) and Income Distribution. The impacts are not only provided in terms of absolute levels of the macro-economic indicators, such as GDP or employment, but are also presented in terms of the relative efficiency of investment in the wine industry. For instance, how many employment opportunities are expected to be created per R1 million invested in the wine industry – or in a specific part of the beneficiation process?

The scope of the macro-economic impact assessment is provided in the subsequent section.

## 6 SCOPE OF MACRO-ECONOMIC IMPACT ASSESSMENT

The macro-economic impact assessment pertaining to this study was conducted for the 2013 calendar year and in 2013 prices. As was the case with previous studies of this nature, it is important to define in exact terms the geographical dimensions of the study focus area. In this regard the project focus area comprises of the following wine producing regions:

- Bredekloof
- Little Karoo
- Malmesbury
- Orange River
- Olifants River
- Paarl
- Robertson
- Stellenbosch
- Worcester

For this study, the client proposed that nine wine producing regions be identified as part of the analysis, contrary to the previous study (2003) whereby only eight regions were singled out (however, the original total wine producing region under investigation remained intact).

By using a macro-economic impact model, with the Social Accounting Matrix (SAM) as basis, the so-called direct, indirect and induced effects on the economy emanating from the various levels of value adding i.e. at primary agriculture, manufacturing, etc. levels are quantified. A more detailed technical description of the Social Accounting Matrix (SAM) and its analytical attributes are provided in Appendix A to Part II.

The direct impact occurs in the various wine producing and selling components for instance through intermediate inputs into production, payment of remuneration to employees and profit (savings) generation. The indirect impacts refer to impacts on industries that provide inputs to the wine industry components and other backward linkages. The induced effect or income effect refers to a further round of economic activity that takes place in the economy because of additional consumer spending as a result of the additional salaries and wages paid throughout the economy and also the Western Cape in particular. These impacts are defined in more detail in Appendix B to Part II.

The impact analysis will be based on the following standard economic parameters that are also used to calculate the so-called performance criteria of the wine industry. The results will be presented under the following headings:

- Impact on Gross Domestic Product (GDP)
- Impact on Capital Utilisation (Fixed investment)

- Impact on Employment Creation
  - Skilled labourers
  - Semi-skilled labourers
  - Unskilled labourers
- Impact on Households' Income (Income distribution)
- Impact on Balance of Payments, as a result of Imports and Exports
- Efficiency Criteria

A brief overview of the definitions of each of these indicators is given in Appendix C to Part II.

As indicated before, the impact analyses will mainly focus on the South African economy but the regional impact on the Western Cape economy will also be dealt with.

In the following section the methodology employed to conduct the range of macro-economic impact analyses is explained in more detail.

## 7 METHODOLOGY

### 7.1 Overall Macro-economic Modelling

As indicated, the purpose of the study is to estimate the impact of the wine industry on the South African economy as well as to give an indication of the impact it has on the economy of the Western Cape. For purposes of the analysis Conningarth Economists has compiled a SAM for South Africa and the Western Cape which formed the basis of the macro-economic impact model. This SAM was compiled under the auspices of a National Technical Steering Committee consisting *inter alia* of Statistics South Africa, Department of Provincial and Local Government; Development Bank of Southern Africa; National Treasury and South African Reserve Bank. The model based on the above-mentioned SAMs quantifies the direct, indirect and induced impacts of the wine industry through its various stages of beneficiation based on 2013 levels of production and consumption.

The provincial SAMs compiled by Conningarth Economists were converted into user-friendly macro-economic impact model which can be used by provinces to calculate the economic impact of “interventions” by way of programmes and projects on the economy of the relevant province.

The model makes use of Excel spreadsheets and is driven by a set of “Macros”. For a specific project or intervention, the model provides the size of macro-economic impacts which is then also used to calculate key macro-economic performance (or efficiency) indicators at national, provincial and local government level.

It is also important to highlight the fact that the macro-economic impact model is robust enough to cater for varying degrees of input data qualities. For instance, if the impacts are required at local government level, the model is tailor-made to adjust relevant provincial coefficients to suit the situation at lower levels.

### 7.2 Technical Content of the Model

Due to the technical nature of the macro-economic impact model it was not deemed expedient for the purpose of this study to go into detail regarding this aspect in this part of the report. However, a broad outline of the SAM’s technical structure is given in Appendix A to Part II.

To apply the macro-economic model based on the SAM, the so-called model base i.e. (I-A)<sup>-1</sup> was divided into an endogenous and exogenous portion. The model, (I-A), is according to the Input-Output theory known as the Leontief Inverse. This is determined by developing a coefficient matrix (A) by the endogenous portion which is then subtracted from a unity matrix (I). This (I-A) matrix is then inverted to form the model (I-A)<sup>-1</sup>. The coefficients matrix *inter alia* represents the intermediate input structure of the production of the various sectors as well as the consumption expenditure structures of the different household groups defined in the SAM.

By multiplying the inverse matrix,  $(I-A)^{-1}$ , with the exogenous stimulus the total impact can be calculated. The following formula provides a brief explanation of this process.

$$(I - A)^{-1} \times \textit{Exogenous Stimulus} = \textit{Economic Impact}$$

The exogenous stimuli putting the model in motion starts off with the monetary values attached to each of the phases of beneficiation in the wine industry identified in Part I. These values are then further disaggregated into the following three components to facilitate “kicking” the model into motion (also referred to as exogenous inputs):

- Firstly, the demand for goods and services as inputs into the production processes, for example in the case of primary agriculture, its demand for fertiliser, fuel and pesticides will serve as inputs into its production process.
- The second component refers to the expenditures on salaries and wages. This is also part of the cost of production at every stage of beneficiation. For analytical purposes this component is further divided into various race and occupation groups.
- The third component is the Gross Operating Surplus (GOS) generated by business enterprises. GOS consists of depreciation, interest paid and net profit, the latter comprising the cost/return of capital.

In practical terms it was necessary to determine the monetary values (for 2013) of each of the three exogenous stimuli referred to above and for each of the five stages of value added (beneficiation), namely Primary Agriculture; Cellars; Manufacturing; Trade, Catering and Accommodation and Tourism, on a wine region basis. This translates into 45 exogenous vectors (i.e. 9 regions per component). An example of one of these exogenous vectors, for primary agriculture in Stellenbosch, is given in Appendix F to Part II.

Therefore, to put the model in motion, the five components of the wine industry (including tourism) was stimulated from outside the model as final demand components, as mentioned above. The implication of this is that a final demand vector for every detail aspect of the model had to be compiled. Each of these components had to be disaggregated on a detailed basis, such as turnover/output, intermediate demand on a product basis, salaries and wages per skilled labour levels, gross operating surplus, number of workers per skill level, portion of goods and services to be exported, etc. For purposes of this detailed analysis the data supplied by SAWIS and VinPro was heavily relied upon. The data used include farming cost structures of each of the wine regions, cost structures of selected cellars and also the producer income for various wine products on a wine region basis. For certain of the input structures, such as manufacturing and trade, catering and accommodation, the Western Cape SAM input structures were used. This is given in a more detailed basis in Appendix G to Part II.

## 8 PRIMARY DATA AND DATA SOURCES

The main data source that was used by Conningarth Economist for inputs into the model was *South African Wine Industry Statistics* published by SAWIS.

Very important data that needed to structure the model onto the levels of the wine producing regions is shown in the table below. These are the geographic distribution of South African wine grape vineyards per wine region during 2013 as well as the total tonnage of wine grapes produced in each of the wine regions.

**Table 4: Geographic Distribution of Wine Grape Vineyards and Wine Grape Tonnages per Wine Region during 2013**

Wine Region	Area Hectares 2013	Tonnage
Breedekloof	12 878 (12 361)	254 791 (223 366)
Little Karoo	2 637 (2 956)	46 718 (40 980)
Malmesbury	13 509 (14 567)	127 178 (131 049)
Orange River	4 652 (5 029)	146 840 (171 664)
Olifants River	10 116 (9 996)	248 885 (220 703)
Paarl	16 106 (16 891)	147 980 (156 015)
Robertson	14 676 (13 898)	237 335 (204 619)
Stellenbosch	16 294 (17 137)	125 049 (121 346)
Worcester	8 814 (8 490)	163 925 (155 871)
<b>Total</b>	<b>99 680 (101 325)</b>	<b>1 498 701 (1 425 612)</b>

Source: SAWIS Report; Table 5.2 page 9 and Table 6.4(b) page 16

Note: Figures in brackets relates to 2008 figures.

## 9 MACRO-ECONOMIC IMPACT RESULTS

### 9.1 Total Economic Impacts on South African and the Western Cape Economies

As mentioned before, the macro-economic impacts emanating from the wine industry in South Africa have been measured in terms of a number of standard macro-economic performance indicators. The tables below show the total impacts on Gross Domestic Product, Employment Creation, Capital Utilisation, Income Distribution, the Fiscal Impact and the Balance of Payments for both South Africa as well as for the Western Cape.

**Table 5: Total Macro-economic Impact of the Wine Industry on the South African Economy [Rand millions; 2013 prices]**

Macroeconomic Indicators	Rand millions
<b>Impact on GDP</b>	36 145 (26 223)
<b>Impact on Capital Investment</b>	62 277 (49 768)
<b>Impact on Household Income</b>	23 579 (17 124)
· <b>Low Income</b>	3 994 (2 908)
· <b>Medium Income</b>	4 945 (3 598)
· <b>High Income</b>	14 640 (10 618)
<b>Fiscal Impact</b>	11 598 (8 517)
· <b>National Government</b>	10 809 (7 945)
· <b>Provincial Government</b>	106 (76)
· <b>Local Government</b>	684 (496)
<b>Impact on Balance of Payments</b>	17 783 (12 704)
	<b>Numbers</b>
<b>Impact on Employment</b>	289 151 (275 606)
· <b>Impact on Skilled Employment</b>	43 644 (36 551)
· <b>Impact on Semi-Skilled Employment</b>	84 769 (78 310)
· <b>Impact on Unskilled Employment</b>	160 738 (160 745)

Note: Figures in brackets relates to 2008 figures.

**Table 6: Total Macro-economic Impact of the Wine Industry on the Western Cape [Rand millions; 2013 prices]**

Macroeconomic Indicators	Rand millions
Impact on GDP	19 287 (14 214)
Impact on Capital Investment	33 458 (29 055)
Impact on Household Income	11 511 (8 478)
· Low Income	2 050 (1 528)
· Medium Income	2 509 (1 852)
· High Income	6 952 (5 098)
Fiscal Impact	4 809 (3 566)
· National Government	4 407 (3 273)
· Provincial Government	70 (51)
· Local Government	331 (242)
	<b>Numbers</b>
Impact on Employment	167 494 (168 102)
· Impact on Skilled Employment	22 559 (19 427)
· Impact on Semi-Skilled Employment	49 857 (48 392)
· Impact on Unskilled Employment	95 077 (100 283)

Note: Figures in brackets relates to 2008 figures.

Even though the main focus of this study is directed at the wine industry's impact on South Africa as a whole the impact on the Western Cape as such requires special attention. This is because the wine industry per se is mainly located in the Western Cape. In the rest of this section the impact of the wine industry on the Western Cape's economy as such is discussed and is also compared with how the rest of South Africa is affected.

The impact of the wine industry on the Western Cape and RSA differs for three reasons, namely:

- The Orange River region does not form part of the Western Cape Province. Its impact has for this study's purposes been included in the total RSA impact.
- A major portion of the trade, catering and accommodation activities involving wine falls outside the Western Cape area.
- A significant portion of the indirect and induced impacts occur in the rest of South Africa due to import leakages from the Western Cape as well as the fact that the major portion of the market for wine is outside the Western Cape.

Some of the more salient features of the macro-economic impact measured in terms of GDP, Capital Utilisation and Employment Creation of the wine industry



are presented below. The detailed macro-economic impacts originating from the various wine producing areas of the Western Cape are depicted in Appendix D to Part II.

From the Employment figures it is important to note the estimated decrease of the impact on unskilled employment of 100 283 to 95 077 from 2008 to 2013 in the Western Cape (see Table 6). This can be attributed to a change in the skills component between unskilled and semi-skilled, or it could also be due to the fact that farmers use less unskilled labour, replaced by capital equipment. Furthermore, there is only a slight decrease in estimation of the total employment impact in the Western Cape caused by the Wine Industry, from 168 102 (2008) to 167 494 (2013). This is the net outcome of a decrease of labour in the Primary Agriculture and Cellars Industry segments relative to an increase in the other segments of the Wine Industry.

### 9.1.1 Impact on Gross Domestic Product (GDP) at market prices

According to the above tables, in 2013, the wine industry ultimately added R19 287 million in GDP terms to the Western Cape economy. This amounted to approximately 4.6% of the total provincial GDP of the Western Cape<sup>1</sup>. When assessing the contribution that was made to the national economy's GDP, an amount of R36 145 million or 1.2% was added to the South African economy<sup>2</sup>.

### 9.1.2 Impact on Capital Utilization (Investment in Fixed Assets)

Productive capital assets are required to support or generate any given amount of economic activity (i.e. GDP). These capital assets, together with labour and entrepreneurship, form the basic productive factors needed for production. Obviously the effectiveness and efficiency with which these factors are combined will determine the overall level of productivity and profitability of such assets. The latter will in turn depend on a whole array of factors, of which the appropriate technology and skills content of the labour force are important. The above tables indicate the following:

- The overall capital base needed to sustain the present level of wine production in the Western Cape amounted to R33 458 million.
- R62 277 million is needed in the South African economy to sustain the present level of wine production at all the value chain stages.

### 9.1.3 Impact on Employment Creation

As indicated previously, capital together with labour and entrepreneurship form the primary productive factors needed for wine production, distribution and

<sup>1</sup> Provincial GDP (Estimated Gross Value added at basic prices - 2013) for the Western Cape = R434 614 million. Adjusted from market prices to basic prices. Statistical Release P0441, 3<sup>rd</sup> Quarter 2014.

<sup>2</sup> GDP (Gross Value added at basic prices - 2013) for South Africa = R3 030 263 million - South African Reserve Bank, Quarterly Bulletin, September 2014 (p. S-107).

selling. The manpower requirements (man years, also providing for seasonal workers), in terms of people employed in the wine industry are shown in the tables above. The model provided for the total impacts for every level of beneficiation as well as for each production area from which it originates. From the tables above it can be seen that the wine industry's operations are supporting about 167 494 and 289 151 jobs in the Western Cape and South Africa, respectively. This employment impact represents about 7.5% of the total employment in the Western Cape and about 2% of the total employment in South Africa<sup>3</sup>. It is important to note that these percentages are higher than those of GDP mainly because of variations in capital intensities of production and labour structures between Western Cape and total South Africa.

#### 9.1.4 Comparison between Impacts on the Western Cape and South Africa

About 53% of the total impacts of the wine industry, taking into account all backward linkages, falls in the Western Cape and 47% fall within the rest of South Africa. The results for the various components are shown in the Table 7 and Table 8 below, respectively.

**Table 7: Total Impact of Different Phases of the Wine Producing and Selling Chain inside the Western Cape and outside the Region (GDP)**

Economic Sector	Western Cape	Rest of South Africa
Primary Agriculture	66%	34%
Cellars	53%	47%
Manufacturing	72%	28%
Wholesale and Retail Trade	39%	61%
Tourism	54%	46%
Total	53%	47%

<sup>3</sup> Quarterly Labour Force Survey, Quarter 4, 2013.

**Table 8: Impact of Different Phases of the Wine Producing and Selling Chain Inside the Western Cape and Outside the Region (Labour)**

<b>Economic Sector</b>	<b>Western Cape</b>	<b>Rest of South Africa</b>
<b>Primary Agriculture</b>	79%	21%
<b>Cellars</b>	63%	37%
<b>Manufacturing</b>	72%	28%
<b>Wholesale and Retail Trade</b>	47%	53%
<b>Tourism</b>	59%	41%
<b>Total</b>	58%	42%

As is to be expected the impact on the Western Cape in many instances is significantly higher than on South Africa, for both GDP and labour. In the case of labour it is even more so. This again demonstrates the economic significance of the wine industry for the Western Cape.

#### **9.1.5 Comparison of Impact between Provinces**

As already explained the wine industry makes use of various inputs directly and indirectly such as fertilizer, fuel and other intermediate inputs. Even consumer products bought by workers involved in one or other way in the value chain of the wine industry are taken into consideration. Some of these inputs will be supplied from within the Western Cape; whilst several of these inputs will be sourced from outside of the Western Cape. Obviously, the part of the demand sourced from outside the Western Cape will prompt economic activity in other provinces of South Africa. In this section an estimate is given of the provincial impact of the total wine industry (total "bottle-of-wine" as described previously).

The table below provides estimates of the impact that the wine industry has had on the various provinces through its backward linkages emanating from all the phases of the wine making and selling activities.

**Table 9: Provincial Impacts**

Provinces	GDP R/Million	GDP Percentages	Employment Number	Employment Percentages
Eastern Cape	3 440	10%	23 580	8%
Free State	1 529	4%	11 224	4%
Gauteng	5 355	15%	38 471	13%
KwaZulu-Natal	2 445	7%	18 514	6%
Limpopo	644	2%	4 458	2%
Mpumalanga	677	2%	4 948	2%
Northern Cape	2 427	7%	17 795	6%
North West	343	1%	2 667	1%
Western Cape	19 287	53%	167 494	58%
<b>Total</b>	<b>36 145</b>	<b>100%</b>	<b>289 151</b>	<b>100%</b>

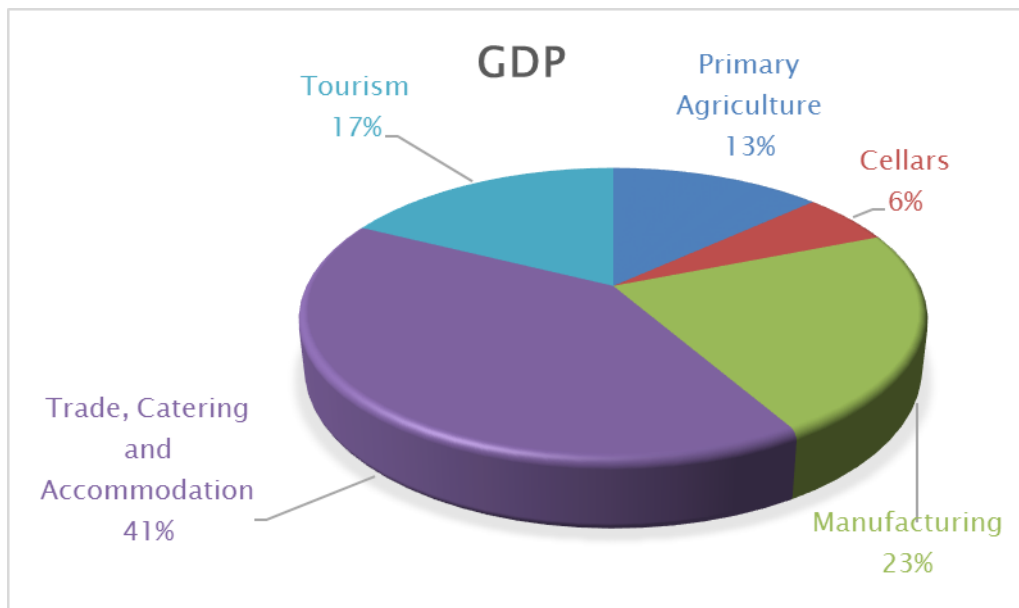
The above table indicates that, in 2013 with regard to the wine industry's impact on the rest of South Africa, Gauteng benefitted the most, followed by the Eastern Cape. The provincial impacts were estimated by making use of a gravity model on a commodity basis with regard to the intermediate demand for certain products. A gravity model is based on two variables, namely the size of an industry as well as the distance between the origin of the product demand, and the possible supplier of the product.

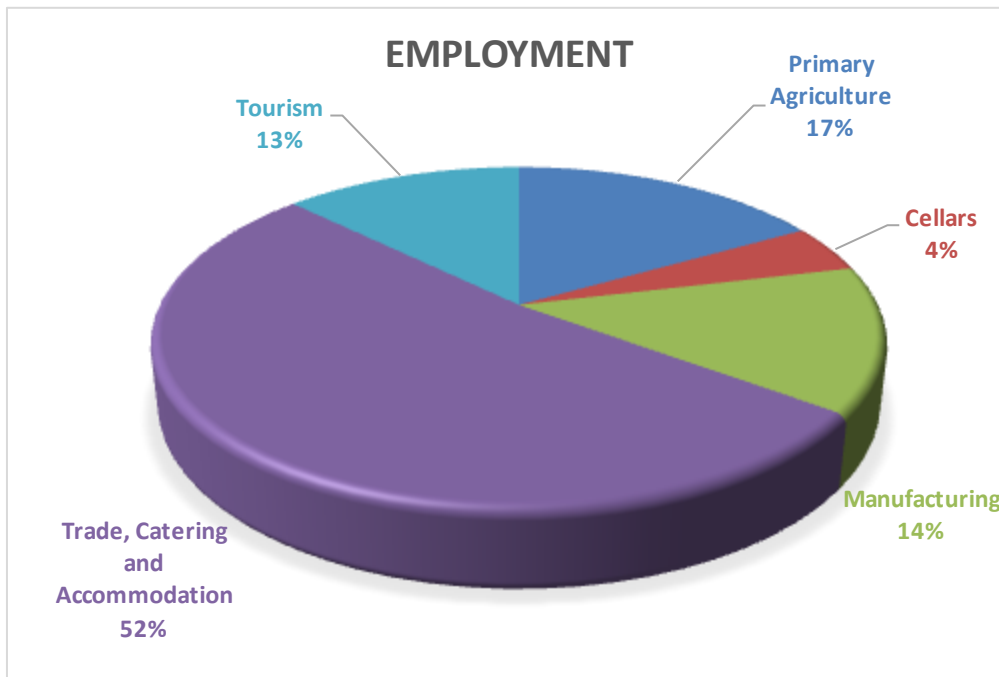
## 10 ECONOMIC IMPACTS OF THE COMPONENTS OF THE DIFFERENT STAGES OF BENEFICIATION OF THE WINE INDUSTRY IN SOUTH AFRICA

The analyses of the components of the wine industry actually focuses on the value chain, which constitutes the production, distribution and selling of wine locally and abroad. As indicated above, a major portion of actual economic value added through the process of beneficiation takes place in the Western Cape, but a substantial part thereof will also occur in other parts of the country, mainly through the trade and accommodation components.

At the retail level a large portion of the sale of alcoholic beverages is directed at the organised leisure market, i.e. people visiting restaurants, hotels, clubs, etc. This is also where the tourism market is becoming increasingly important.

**Chart 1: Value Chain of Wine Dependent GDP in South Africa**



**Chart 2: Value Chain of Wine Dependent Employment in South Africa**

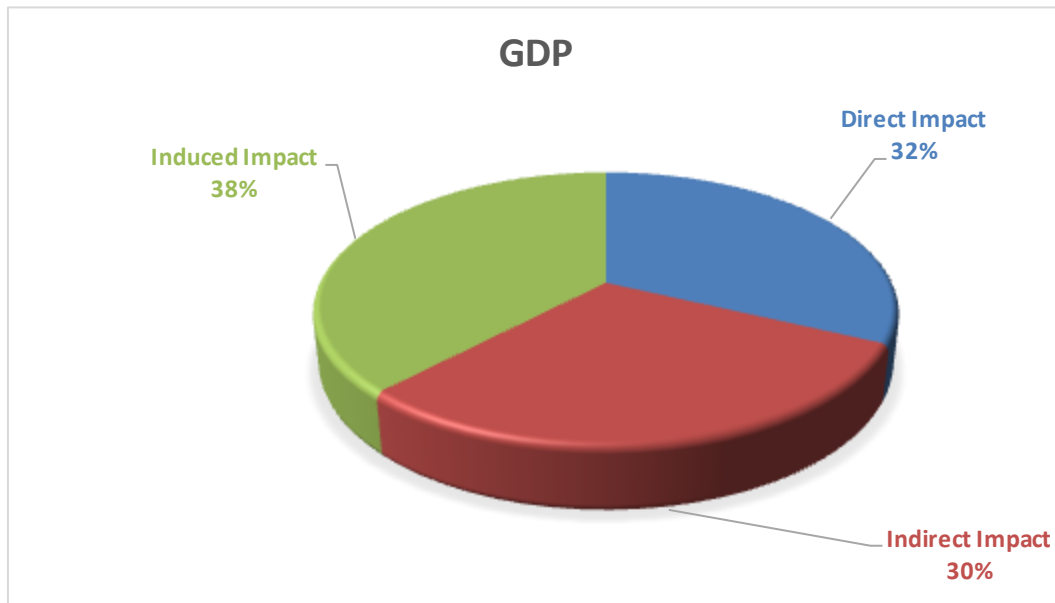
From these pie-charts a few interesting deductions can be made, namely:

- Although the impact at farm level is important, the largest impact on GDP and even more on employment is from the higher levels of value added such as trade, catering and accommodation and to a lesser extent tourism.
- On the other hand, the relative importance of the primary sector in terms of employment creation is also visible if the importance of the primary sector in terms of employment creation is compared to GDP, i.e. 17% and 13% respectively. This is attributable to the relatively more labour intensive nature of the farming component in the value chain of the industry.
- The manufacturing sector (mainly bottling, packaging, labelling etc.) also plays an important role when looking at employment creation compared to GDP, 14% and 23% respectively. These figures are an indication that in the manufacturing part of the wine producing sector, a relatively greater demand for more skilled workers is prevalent.

## 11 BACKWARD LINKAGES (DIRECT, INDIRECT AND INDUCED) OF THE WINE INDUSTRY IN SOUTH AFRICA BASED ON THE GDP IMPACT

The figure below presents a proportional breakdown of the wine industry's direct, indirect and induced impacts.

**Chart 3: Wine Industry's Direct, Indirect and Induced GDP Impact**



The importance of a multiplier effect through its linkages with other sectors in the economy in terms of the buying of input materials, the paying of salaries and wages and the resulting expenditure on consumer goods are evident from the above chart. The direct effect constitutes about 32% of its overall contribution relative to the 30% that resulted from the indirect effects. The induced effect constitutes the biggest impact.

## 12 SECTORAL IMPACT OF THE VARIOUS COMPONENTS OF THE WINE INDUSTRY IN SOUTH AFRICA

The sectoral impact analysis measures the nature and magnitude of the wine industry's impact on all the economic sectors in the South African economy such as the agricultural sector, mining, manufacturing, etc. Table 10 below shows the total (direct, indirect and induced) GDP impact on the 9 main sectors in the economy. More detailed information is given in Table 24, Appendix E to Part II of this report. These tables reflect how GDP creation in each sector is impacted upon by production activities in the wine industry in South Africa.

A few important characteristics with regard to the sectoral impacts need to be noted, and are as follows:

### **Primary Agriculture**

The primary agriculture impact depicts the impact that will occur on the farm itself as well as in the industries which supply inputs directly and indirectly to the grape producers. This refers to products like fertilizer; electricity; fuel, etc. as well as expenditures by workers working on the farms, on consumer products and services. Private Consumption expenditures by workers will directly and indirectly effect people that work in businesses like bakeries and clothing factories that are indirectly impacted upon the primary agricultural sector through the payment of salaries.

### **Cellars**

Cellars are the main wine making concerns. They have a big so-called intra impact, reflecting the process of the beneficiation of wine "in-house" to reach a level ready for further distribution and consumption.

### **Manufacturing**

The manufacturing part of the wine industry has a more evenly spread backward linkage structure than cellars, reflecting a more varied sequence of activities pertaining to the preparation of wine and brandy for distribution and ultimate consumption (more capital intensive and technology driven). As can be expected, the largest impact is on the manufacturing sector itself, again reflecting the large measure of value added that takes place within the wine and brandy making process itself (distilling, packaging, labelling, bottling, , etc.).

### **Trade, Catering and Accommodation**

The sector's impact structure portrays the classic business activity relating to trade. For example, 40.75% of the GDP impact is within the sector itself, again reflecting the whole range of "in-house" value added activities (including some of the activities listed under manufacturing, including, for instance, marketing) that takes place in the trade and accommodation sectors.



## **Tourism**

The tourism GDP impact is much more widespread over the sectoral range in the economy, the largest impact being on trade and accommodation activities as well as transport, which is understandable.

## **Total**

In its totality, the wine industry's sectoral impact structure reflects the "weighted average" of all the sub-sectors combined. It is important to note that the GDP impact coefficients allow for import "leakages" from overseas. The sectoral impacts therefore only reflect the impacts on the domestic production of supplying sectors.

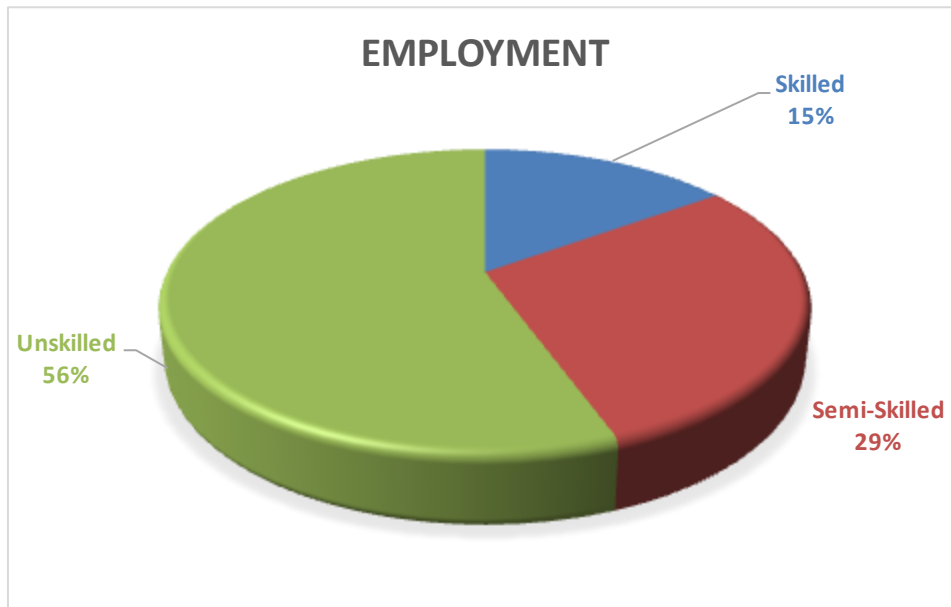
**Table 10: GDP: The Wine Industry's Total Sectoral Impact on the South African Economy [Rand millions; 2013 prices]**

	Rand Millions						Percentages					
	Primary Agriculture	Cellars	Manufac- turing	Trade, Catering and Accommoda- tion	Tourism	Total	Primary Agriculture	Cellars	Manufac- turing	Trade, Catering and Accommoda- tion	Tourism	Total
<b>Agriculture</b>	2 051	587	3 684	5 605	350	12 276	43%	28%	45%	38%	6%	34%
<b>Mining</b>	76	38	76	152	99	440	2%	2%	1%	1%	2%	1%
<b>Manufacturing</b>	557	321	1 025	1 450	1 085	4 437	12%	15%	12%	10%	17%	12%
<b>Electricity and Water</b>	192	81	137	254	185	848	4%	4%	2%	2%	3%	2%
<b>Construction</b>	122	37	87	227	87	560	3%	2%	1%	2%	1%	2%
<b>Trade and Accommodation</b>	440	209	833	1 467	1 328	4 277	9%	10%	10%	10%	21%	12%
<b>Transport and Communication</b>	276	164	541	1 470	1 168	3 619	6%	8%	7%	10%	18%	10%
<b>Financial and Business Services</b>	820	534	1 473	3 385	1 577	7 789	17%	26%	18%	23%	25%	22%
<b>Community Services</b>	233	105	365	722	474	1 899	5%	5%	4%	5%	7%	5%
<b>Total</b>	4 766	2 076	8 220	14 731	6 353	36 145	100%	100%	100%	100%	100%	100%

### 13 TOTAL EMPLOYMENT IMPACT PER SKILL CATEGORY OF THE WINE INDUSTRY IN SOUTH AFRICA

Table 5 shows that the wine industry's activities in South Africa sustained about 289 151 employment opportunities during 2013. The figure below reflects a breakdown of these employment opportunities by skill category.

**Chart 4: Employment Creation by Skill Category, 2013**



The figure above indicates that a sizeable number of employment opportunities were created as a result of the wine industry's impact on the South African economy. Of these, 56% were in the unskilled category, with a further 29% being in the semi-skilled category, and the remaining 15% in the skilled category.

The high impact that the wine industry has on unskilled labour should be viewed positively given the high unemployment rate in South Africa, especially with regard to unskilled people. The main reason for this is the large number of unskilled farm workers involved, as well as the salaries generated at all levels of the economy and the indirect impact this again has on sectors that are relatively labour intensive.

## **14 FIXED CAPITAL INVESTMENT IN SOUTH AFRICA SUPPORTING ALL THE LEVELS OF THE WINE INDUSTRY (VALUE ADDED - AND SUPPLY CHAIN)**

An aspect that has to be well understood when the effectiveness and efficiency of investment in a particular sector is considered is that an additional amount of capital has to be invested by other sectors in the economy to sustain the supply of materials and other goods and services to the sector in question (in this case the wine industry). The primary agriculture sector's required direct investment is estimated at about R5 211 million, to sustain the entire downstream system of sectors that is dependent on the agriculture sector. Through the supply chain and the value added components attached to it, a total capital investment of about R62 277 million is required in the economy at large, which translates to a capital multiplier of more than 10. One Rand of capital directly invested in the wine grape producing part of agriculture will lead to about ten Rand capital investment in the economy.

**Table 11: Capital Impact on South Africa [Rand millions; 2013 prices]**

Economic Sector	Values				Percentage			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
<b>Primary Agriculture</b>	5 211	2 067	3 648	10 926	48%	19%	33%	100%
<b>Cellars</b>	1 080	1 564	1 674	4 318	25%	36%	39%	100%
<b>Manufacturing</b>	1 741	2 975	6 012	10 728	16%	28%	56%	100%
<b>Trade, Catering and Accommodation</b>	4 057	7 857	11 483	23 398	17%	34%	49%	100%
<b>Tourism</b>	0	8 041	4 866	12 907	0%	62%	38%	100%
<b>Total</b>	12 089	22 505	27 683	62 277	19%	36%	44%	100%

## 15 IMPACT ON POVERTY ALLEVIATION PER PHASE OF BENEFICIATION OF THE WINE INDUSTRY IN SOUTH AFRICA

One of the crucial objectives of any macro-economic impact assessment in South Africa is to determine whether it has a positive impact on poverty alleviation. The extent to which poverty alleviation is in fact accomplished by the wine industry is measured by way of its impacts on household incomes, specifically how the low income households will benefit.

The impact on low income households in South Africa is presented in the table below.

**Table 12: Impact on Poverty Alleviation per Wine Beneficiation Component in South Africa [Rand millions; 2013 prices]**

Economic Sector	Low	Medium	High	Total
Primary Agriculture	558	678	1 874	3 110
Cellars	238	301	889	1 429
Manufacturing	858	1 085	3 187	5 130
Trade, Catering and Accommodation	1 649	2 027	6 094	9 770
Tourism	691	854	2 596	4 141
<b>Total</b>	<b>3 994</b>	<b>4 945</b>	<b>14 640</b>	<b>23 579</b>

In the table it is shown that R23 579 million from the wine industry is channelled to households in South Africa in the form of labour remuneration. Of this amount approximately R3 994 (17%) million went to low-income households.

## 16 THE WINE INDUSTRY'S BALANCE OF PAYMENTS IMPACTS FOR THE NATIONAL ECONOMY

It is estimated that the positive impact of the wine industry on South Africa's Balance of Payments amounts to approximately R17 704 million. The methodology used for these calculations is relatively crude, but does at least indicate whether a positive or negative impact on the Balance of Payments can reasonably be expected. It is important to note that in this context, exports and imports are considered at a national level, and comprise all transactions across the boundaries of South Africa.

The Table below gives a summary of the impact on the Balance of Payments of the National Economy.

**Table 13: Impact on the Balance of Payments of the National Economy [Rand millions; 2013 prices]**

<b>Import substitution</b>	14 547
<b>Exports</b>	12 982
<b>Minus: Direct Imports</b>	-79
<b>Minus: Indirect Imports</b>	-9 746
<b>Balance of Payments</b>	17 704

Table 13 provides the broader definition of the impact on the balance of payments, which in some cases is not easy to digest due to the fact that, in this specific case import substitution is also included in the impact on the balance of payments. A more acceptable definition would be to take exports only as a positive effect on the balance of payments and imports only as a negative effect. The direct imports in Table 13 refer to wine that is imported as a final product and the indirect imports represent all the intermediate materials that are imported to sustain the production of wine. These imports, however, include, for example, petroleum which is directly imported, which also includes the imports of crude oil since petroleum is produced in South Africa, which needs crude oil as a base material in the production process.

The import substitution effect reflects the magnitude of additional imports that would have to take place to satisfy the demand that is currently fulfilled by the local production. The above figure is probably an underestimation of the effect since South Africa produces cheaper wines than internationally available, which means that additional imports will also bring about an increase in prices.

## 17 EFFICIENCY LEVELS OF THE WINE INDUSTRY

In order to provide some indication of the efficiency with which the wine industry employs scarce productive resources, the table below provides a number of criteria that can be used to compare the efficiency of investments in the wine industry with the same amounts invested in other economic sectors. The particular efficiency ratios used are:

- A GDP/Capital ratio, which measures the additional GDP that could be generated from the investment of R1 million in capital in each of the various sectors.
- A Labour/Capital ratio, which measures the number of additional employment opportunities that can be created from fixed capital investments of R1 million, in the various other sectors in the economy.
- The Percentage of total Income accruing to Low Income Households.

The data in the following table indicates that a unit of investment in the wine industry is slightly more efficiently utilized than the average for the total economy, as far as GDP and household income are concerned, but much higher in terms of labour. For labour it gives a ratio of 4.64 for the wine industry compared to 2.94 for the entire South Africa. Compared to agriculture in general, it also compares favourably.



**Table 14: Efficiency of the Impact of the Wine Industry on the National Economy in terms of Capital Utilization and Poverty Alleviation**

			<b>Low Income</b>
	<b>GDP/Capital</b>	<b>Labour/Capital</b>	<b>Households/Total</b>
	<b>Ratio</b>	<b>Ratio</b>	<b>Household Ratio</b>
<b>Total Wine Industry Impact on South Africa</b>	0.58	4.64	0.17
<b>Impact in the event that a similar amount, as invested in the wine industry, is invested in the main sectors</b>			
• <b>Agriculture, Hunting, Forestry and Fishing</b>	0.43	4.54	0.17
• <b>Mining and Quarrying</b>	0.45	2.18	0.18
• <b>Manufacturing</b>	0.47	2.88	0.17
• <b>Electricity, Gas and Water</b>	0.24	1.13	0.17
• <b>Construction</b>	0.59	5.99	0.18
• <b>Wholesale and Retail Trade</b>	0.57	4.52	0.17
• <b>Transport, Storage and Communication</b>	0.35	1.95	0.17
• <b>Financial, Insurance, Real Estate and Business Services</b>	0.44	2.24	0.15
• <b>Community, Social and Personal Services</b>	0.78	4.45	0.15
<b>National Economy</b>	<b>0.45</b>	<b>2.94</b>	<b>0.16</b>

## 18 CONCLUSION

### 18.1 Overall Developments

In Part I it was indicated that the local demand for red wine did not increase to the same extent that was foreseen earlier. This led to downward pressures on producer prices, especially for red wine grapes, which compounded the financial bind that producers found themselves in. Fortunately for the wine industry, white wine prices held up well and exports of white wine increased significantly in terms of volume.

The export part of the winemaking business continuously has to contend with strong competition from other “new world” exporters who find themselves in much the same position. In addition, South African producers also have to contend with the volatile Rand exchange rate, which has, fortunately for the wine industry, trended lower, in favour of local producers.

Tourism plays an important role in an indirect way supporting the wine industry and is expected to grow much more in future, especially in terms of foreign tourists who not only stay longer in the Western Cape than local tourists, but also spend a lot more. However, concerning the wine industry, much more research is needed to calculate the impact and actually unlock this potential income source.

### 18.2 Impact Results

In this study the consultants made use of a macro-economic impact model that is believed to be more suitable for impact analyses. The model is also based on the new South African and Western Cape Social Accounting Matrices (SAMs) compiled for 2006. Together with the National SAM and SAM's for all the other provinces, it was in a much better position to measure impacts on South Africa and the Western Cape's economy.

Important impacts on the Western Cape and the national economy:

- The total capital asset base (directly, indirectly and induced) of the wine industry is estimated at R62 277 million. The corresponding number of employment opportunities sustained by the wine industry amounts to a significant 289 151. The major part of course to be found in the trade, catering and accommodation and transport sectors.
- In terms of GDP, the annual total impact (direct, indirect and induces) of the wine industry in the Western Cape amounts to R19 287 million (Table 6 and 15), which is 4.6% of the Western Cape's GDP in 2013.

- In South Africa, the wine industry generates an amount of R23 579 (Chapter 9, Table 5) million private disposable income of which about 17% is destined for the low income household component.
- A unit of investment in the wine industry is slightly more efficiently utilized than the average for the total economy, as far as GDP is concerned, but much higher in terms of labour. For labour it gives a ratio of 4.64 (See Table 14) for the wine industry compared to 2.94 for South Africa. When compared to agriculture in general, it also compares favourably.
- From the Employment figures it is important to note the estimated decrease of the impact on unskilled employment of 100 283 to 95 077 from 2008 to 2013 (see Table 6). This can be attributed to a change in the skills component between unskilled and semi-skilled, or it could also be due to the fact that farmers use less unskilled labour, replaced by capital equipment.
- Furthermore, there is only a slight increase in estimation of the total employment impact in the Western Cape caused by the Wine Industry, from 168 102 (2008) to 167 494 (2013). This is the net outcome of a decrease of labour in the Primary Agriculture and Cellars Industry segments relative to an increase in the other segments of the Wine Industry.
- Lastly, concerning the regional distribution of the wine industry's economic impact it was interesting to find that as far as the GDP is concerned, the Western Cape/rest of South Africa economy ratio is 53. In the labour field the ratio is more in the region of 58 (Table 9 refers). The higher Western Cape/South Africa ratio, as far as labour is concerned, stems from the labour intensity of the primary agriculture, which is inherent to the Western Cape.

In summary one can say that the impact study again demonstrates the ability of the wine industry to adapt to a fast changing production and marketing environment and to survive financially. The major export drive was essential in this regard. However, there are signs already that conditions will still be tough ahead and that the industry would need extra drive and vision to maintain its competitive edge locally and overseas.

## APPENDICES TO PART II

### 19 APPENDIX A: SOCIAL ACCOUNTING MATRIX (SAM)

#### 19.1 The SAM

A SAM is a comprehensive, economy-wide database, which contains information on the flow of resources that take place between the different economic agents that exist within an economy (i.e. business enterprises, households, government, etc.) during a given period of time – usually one calendar year.

When economic agents in an economy are involved in transactions, financial resources change hands. The SAM provides a complete database of all transactions that take place between these agents in a given period, thereby presenting a “snapshot” of the structure of the economy for that time period. As a system for organising information, a SAM presents a powerful tool in terms of which the economy can be described in a complete and consistent way:

- Complete in the sense that it provides a comprehensive accounting of all economic transactions for the entity being represented (i.e. country, region/province, city, etc.).
- Consistent in that all incomes and expenditures are matched.

Consequently, a SAM can provide a unifying structure within which the statistical authorities can compile and present the national accounts.

Like the traditional Input-Output Table, the SAM reflects the inter-sectoral linkages in terms of sales and purchases of goods and services, as well as the remuneration of production factors that forms the essence of any economy’s functioning. What is also of importance is that a SAM reflects the economic related activities of households in some detail. Households are responsible for decisions that have a direct and indirect effect on important economic variables such as private consumption expenditures and savings. These economic aggregates are important drivers of the economic growth processes and ultimately the creation of employment opportunities and wealth. Private consumption expenditure, for example, comprises approximately 60% of total gross final domestic spending in the economy. By combining households into meaningful categories, such as a range of income levels, the impact on these households’ welfare of a changing economic environment is made possible by the SAM.

It is clear from the above that because of the intrinsic characteristics of the SAM, once compiled, it renders itself as a useful tool for analytical purposes. Especially, based on the mathematical traits of the matrix notations that describe its structure, a SAM can be transformed into a powerful econometric tool/model. For example,

the model can be used to quantify the probable impact on the economy of a new infrastructural project such as a new power station – both the construction phase and the operational phase will be modelled.

Thus apart from serving as an extension to a country's National Accounts, the SAM in its model form opens up many opportunities for the economic analyst to conduct rigorous policy and other impact analyses for the purpose of ensuring optimal benefit to the stakeholders concerned.

## 19.2 Application of the SAM

The development of the SAM is very significant as it provides a framework within the context of the International System of National Accounts (SNA) in which the activities of all economic agents are accentuated and prominently distinguished. By combining these agents into meaningful groups, the SAM makes it possible to clearly distinguish between groups, to research the effects of interaction between groups, and to measure the economic welfare of each group. There are two key reasons for compiling a SAM:

- Firstly, a SAM provides a framework for organising information about the economic and social structure of a particular geographical entity (i.e. a country, region or province) for a particular time period (usually one calendar year).
- Secondly, to provide a database that can be used by any one of a number of different macro-economic modelling tools for evaluating the impact of different economic decisions and/or economic development programmes.

Because the SAM is a comprehensive, disaggregated, consistent, and complete data system of economic entities that captures the interdependence that exists within a socio-economic system, it can be used as a conceptual framework for exploring the impact of exogenous changes in such variables as exports, certain categories of government expenditure, and investment on the entire interdependent socio-economic system. The SAM, because of its finer disaggregation of private household expenditure into relatively homogenous socio-economic categories that are recognisable for policy purposes, has been used to explore issues related to income distribution.

The SAM's main contribution in the field of economic policy planning and impact analysis is divided into two categories:

### a. As a Primary Source of Economic Information

As a detailed and integrated national and regional accounting framework consistent with officially published socio-economic data, a SAM instantly projects

a picture of the nature of a country or region's economy. It lends itself to both descriptive and structural analysis.

**b. As a Planning Tool**

Due to its mathematical/statistical underpinnings it can be transformed into a macro-econometric model that can be used to:

- Conduct economic forecasting exercises/scenario building.
- Conduct economic impact analysis both for policy adjustments at a national and provincial level and for large project evaluation.
- Conduct self-sufficiency analysis i.e. gap analysis to determine, with the help of the inter industry and commodity flows contained in the provincial SAM, where possible investment opportunities exist.
- Calculate the inflationary impacts on provincial level of price changes instigated at national level (i.e. administered prices, VAT, etc.).

To summarise, the SAM mechanism provides a universally acceptable framework within which the economic impact of development projects and policy adjustments can be reviewed and assessed at both national and provincial/regional levels. It serves as an extension to the official National Accounts of a country's economy and, therefore, provides a wealth of additional information, especially when disaggregated to more detailed levels.

### 19.3 Detailed structure of the SAM for the Western Cape Province

As stated in Section 19.1 above, when economic institutions in an economy are involved in transactions, financial resources change hands. A SAM provides a complete database of all transactions that take place between these institutions in a given period, thereby presenting a "snapshot" of the structure of the economy for that time period.

The exact structure of a SAM depends on various considerations, including the geographical area for which it is developed, the availability of data pertaining to that particular area of jurisdiction, and the purpose for which it is developed. Thus, whilst a SAM has a more or less standard structure, the specific structure of an individual SAM tends to differ as a result of data availability and research needs.

As discussed in the previous section, SAMs incorporate six major accounts, each of which can be sub-divided into numerous sub-accounts. These major accounts are:

- Activity (Production) Accounts
- Commodity Accounts

- Factor Accounts (Labour and Capital (Gross Operating Surplus [GOS]))
- Institutional Accounts (Enterprises, Households and Government)
- Capital Accounts
- Trade Accounts (RoW)

## 19.4 The Western Cape Province SAM

The framework depicted in Table 15 on the following page, which conforms to the SNA, illustrates the matrix structure of a SAM, as well as the circular flow and double-entry bookkeeping system that exists between all of the economic agents<sup>4</sup>. This highly aggregated version of the SAM distinguishes between the different kinds of accounts present in a SAM, and is commonly referred to as an aggregate National Accounts Matrix (NAM)<sup>5</sup>. This is the framework that has been used to compile the SAM for Western Cape.

It should be noted that this framework differs slightly from the 1998 National SAM. Changes have been made so that the Western Cape SAM can be used to facilitate macroeconomic impact modelling. The National Technical Steering Committee that governed the process of compiling provincial SAMs agreed that the current National SAM for 1998 would be reconfigured so that it aligns with the framework depicted in Table 15.

This was done in order to verify that the NAM structure reflected in Table 15 can produce a framework that depicts the important macroeconomic variables, and that the national accounts still balance. This exercise has been successfully completed, and it can be confirmed that the national accounts do balance when this framework is used. Once again, it is important to reiterate that there are many alternative ways to laying out a SAM, none of which is necessarily absolutely right or wrong. The final structure that is used must be fit for purpose, and be capable of being applied in the required way.

---

<sup>4</sup> The glossary which follows directly after this diagram will assist the reader in understanding the framework and the inter-linkages that exist between the different entities in the Western Cape economy.

<sup>5</sup> National accounts can be presented in matrix format. At the highest level of account aggregation, this matrix is known as a NAM. When the accounts in a NAM are disaggregated, the matrix becomes a SAM. A detailed description of the Western Cape NAM can be found in Section 4 of this report

Table 15: Western Cape SAM Framework

Expenditures		Activities	Commodities	Factors payments		Enterprises	Households	Government	Capital Account	RoW	Total
				Labour	Capital						
Receipts		1	2	3	4	5	6	7	8	9	
Activities	1	-	P	-	-	-	-	-	-	-	G
Commodities	2	X	-	-	-	-	C	G	I	E	Q
Factor Payments - Labour	3	Wa	-	-	-	-	-	Wg	-	We	e <sub>L</sub>
Factor Payments - Capital	4	Fa	-	-	-	-	-	Fg	-	Fe	e <sub>c</sub>
Enterprises	5	-	-	-	Q <sub>e</sub>	-	-	Trg <sub>E</sub>	-	-	Z <sub>u</sub>
Households	6	-	-	L	-	Q <sub>v</sub>	Trh <sub>H</sub> <sup>1</sup>	Trg <sub>H</sub> <sup>1</sup>	-	Trr <sub>H</sub>	Z <sub>H</sub>
Government	7	Ti	Ta	-	Tf	Tu	Td	Trg <sub>G</sub>	-	Trr <sub>G</sub>	Z <sub>G</sub>
Capital Account	8	-	-	-	-	Q <sub>uv</sub>	Sh	Sg	-	-	Z <sub>C</sub>
RoW	9	-	M	W <sub>l</sub>	Q <sub>r</sub>	-	Trh <sub>H</sub> <sup>2</sup>	Trg <sub>H</sub> <sup>2</sup>	Sa	-	Z <sub>A</sub>
<b>Total</b>		g	q	e <sub>L</sub>	e <sub>c</sub>	Z <sub>U</sub>	Z <sub>H</sub>	Z <sub>G</sub>	Z <sub>C</sub>	Z <sub>A</sub>	



**Table 16: Glossary of SAM Framework Terms**

<b>Columns</b>	<b>Description of each matrix/vector</b>
<b>Column 1: Activities Account (Production)</b>	X: Intermediate consumption; commodities required by activities as inputs. Wa: Remuneration of Labour. Fa: Remuneration of Capital. Ti: Indirect Taxes raised on Activities
<b>Column 2: Commodities Account (Goods and Services)</b>	P: Production of commodities by each activity. Ta: Indirect taxes on products (VAT). M: Imports from the a) Rest of RSA b) RoW
<b>Columns 3 &amp; 4: Factor Account – Labour and Capital (GOS)</b>	Q: Dividends and interests to enterprise in Western Cape. L: Salaries and wages to Households in Western Cape. Tf: Indirect taxes (tax on Capital and Labour) to Government. Wl: Salaries and wages to Households in the a) Rest of RSA b) RoW Qr: Dividends and interest to enterprises from the a) Rest of RSA b) RoW
<b>Column 5: Enterprises (Institutional Account)</b>	Qv: Profits distributed to Households. Tu: Enterprise taxes Quv: Undistributed Profits
<b>Column 6: Households (Institutional Account)</b>	C: Private consumption expenditure by Households. TrhH1: Transfers between Households. Td: Direct taxes and transfers paid to the Government. Sh: Household savings. TrhH2: Transfers from Households to Households in the a) Rest of RSA b) RoW
<b>Column 7: Government (Institutional Account)</b>	G: Government consumption expenditure Wg: Remuneration of government employees. Fg: Remuneration of government capital. TRgE: Transfers to Enterprises. TRgH1: Transfers to Households in Western Cape. TRgG: Transfers to Government. Sg: Government savings TRgH2: Transfers to households in the a) Rest of RSA b) RoW
<b>Column 8: Capital Account</b>	I: Gross investment Sa: Capital flow from/to a) Rest of RSA b) RoW
<b>Column 9: RoW (Trade Account)</b>	E: Exports from Western Cape to a) Rest of RSA b) RoW We & Fe: Factor payments from Western Cape to the a) Rest of RSA b) RoW TrrH: Transfers from households in Western Cape to households in the a) Rest of RSA b) RoW TrrG: Transfers from the government in Western Cape to the a) Rest of RSA b) RoW

A brief explanation is given in the following sections of the composition and contents of each of the six accounts that support the overall SAM system of circular flow and double-bookkeeping.

#### 19.4.1 Activity (Production) Accounts

The activity accounts record transactions by the productive activities (sectors) in an area such as Western Cape, and provide information regarding the generation of value added within the system. The column entries depict purchases of

intermediate goods and services (domestic and imported), the costs of factors of production (i.e. labour and capital) and taxes and subsidies pertinent to production. The latter two constitute gross value added, remuneration of employees, GOS and net indirect tax (indirect tax, minus subsidies).

Thus, production by each activity comprises the following cost components:

$$\begin{array}{rcl}
 & \text{Intermediate consumption (Demand for materials)} & \\
 + & \text{Remuneration of employees} & \left. \vphantom{\begin{array}{l} \text{Intermediate consumption (Demand for materials)} \\ \text{Remuneration of employees} \\ \text{GOS} \\ \text{Net indirect tax} \end{array}} \right\} \text{Value Added} \\
 + & \text{GOS} & \\
 + & \text{Net indirect tax} & \\
 = & \text{Production (Output of each activity)} & 
 \end{array}$$

Entries in the rows of each activity show the commodities (goods and services) produced by each activity, and destined for consumption elsewhere.

The specific activity accounts that are included in a SAM will determine whether it will be representative of the economy under investigation or not. Any activities with distinct or drastically different production techniques should be identified separately, along with any strategic sectors that must be included. The availability of data obviously also plays a role in determining the accounts that are included in a SAM.

#### 19.4.2 Commodity (Goods and Services) Accounts

A commodity account records the demand for and supply of commodities in the economy – both those that are produced domestically, and those that are imported. The account rows identify the distribution of commodities between intermediate and final demand. Intermediate commodity demands are the values of the commodities (both domestically produced and imported) that are used in the production processes of the different activities identified for a specific economy. Final demand for commodities is divided between domestic final demand emanating from institutions (i.e. enterprises, households and the government), and investment. Exports of goods and services to the foreign countries are shown separately.

Once again, the rules of double-entry bookkeeping require that the total demand for each commodity is equal to the total supply of each commodity (i.e. that the row and column totals are equal). As such, the commodity accounts trace out the sources and destinations of commodities in the economic system, and provide a complete description of the flow of goods and services through the economy.

#### 19.4.3 Factor Accounts (Labour and Capital)

Factor Accounts reflect income flows to factors of production from their employment by domestic activities. These may also include payments to foreign

factors of production used in the production process. The former constitutes Gross Domestic Product, whilst Gross National Product is derived when the international flow of labour and capital remuneration is brought into account between domestic and foreign-based owners of these factors. The payments for factor services to the foreign countries are mainly in respect of capital services.

Typically, households own all labour services. Consequently, payments to domestically based labour are distributed across the different types of households as labour income and distributed profits.

#### 19.4.4 Institutional Accounts

One of the main attributes of the SAM, as compared to I-O Tables, is that it provides information on how the institutional set-up and other preferences of society are linked into the accounting system – activities, commodities, and factors.

The institutional accounts include households, firms and the government. Incomes to institutions are recorded as row entries, whilst expenditures are depicted as column entries.

- **Households:** Households receive income from a variety of sources, although their principle source of income is from the sale of labour services. Household expenditures are distributed between direct taxes paid to government, savings, transfers (domestic and foreign) and, most importantly, consumption expenditure (i.e. money spent on the consumption of goods and services).
- **Enterprises:** The main reason for including enterprises is the treatment of “undistributed profits” of activities, which is usually a major source of income.
- **Government:** The government accounts provide details about the revenue from all of the tax instruments available to and used by the government.

#### 19.4.5 Capital Accounts

This account reflects, in aggregate terms, the size of investment, as well as its funding. Income to the capital account comes from savings by the different institutions (i.e. households, enterprises and the government) and inflows from overseas. Expenditures by this account record investments.

#### 19.4.6 Trade Accounts with the Rest of the World

These accounts record trade transactions with the RoW, which are important if trade policy issues are being analyzed. These include current and capital accounts, as well as visible and invisible trade. Imports are reflected as an income (i.e. a row entry) because they represent an income to foreign countries that are associated

with expenditures by domestic agents. Exports are reflected as expenditures by foreign countries and, hence, represent an income to the domestic accounts.

### 19.5 Defining SAM Accounts to Conform to the Structure of the Western Cape Economy

The major accounts contained in Table 17 can each be disaggregated into a set of sub-accounts. For instance, when reference is made to the “Activities Account”, this is a collective term that refers to a number of different sub-accounts that, together, make up the activities that have been identified for the purpose of compiling a SAM for Western Cape.

At the start of the process of identifying the disaggregated accounts to be included in the Western Cape SAM, all of the activities that are reflected in the SU-Tables published by Stats SA were taken into consideration. This complete list was then edited to include only those activities that are relevant for this province. In certain cases, accounts had to be disaggregated into sub-accounts, whilst other activities were omitted due to the fact that they were not relevant for Western Cape.

After thorough investigation, 50 formal economic activities have been included in the Western Cape SAM. Following a decision by the National Technical Steering Committee that the informal sector should be separately dealt with in the provincial SAMs, an additional 7 informal sector activities have been included in the Western Cape SAM. These are:

- Informal agriculture
- Informal handcrafts and curios
- Other informal manufacturing
- Informal construction
- Informal trade, entertainment and accommodation, and
- Taxi transport

Although official information on the nature and magnitude of the informal sector is limited, it was regarded as important to include these activities in the SAM in order to provide a more complete, detailed overview of the economy of the Province. A detailed list of the formal and informal activities included in the Western Cape SAM is provided in the table below.

**Table 17: Accounts and Activities included in the Western Cape SAM**

Sector		Activities
<b>Agriculture</b>	1	Table Grape Farming
	2	Wine Grape Farming
	3	Other Fruit Farming and Citrus
	4	Vegetable Farming
	5	Cereal Farming
	6	Livestock Farming
	7	Ostrich and Game Farming
	8	Dairy Farming
	9	Fishing
	10	Other Agriculture - Commercial
	11	All Informal Agriculture
<b>Mining</b>	12	Mining and Quarrying
<b>Manufacturing</b>	13	Meat, Fish, Fruit, Vegetables, Oils and Fat Products
	14	Dairy Products
	15	Grain Mill, Bakery and Animal Feed Products
	16	Other Food Products
	17	Wine
	18	Other Beverages and Tobacco
	19	Textiles, Clothing, Leather Products and Footwear
	20	Wood and Wood Products
	21	Furniture
	22	Paper and Paper Products
	23	Publishing and Printing
	24	Petroleum
	25	Chemicals and Chemical Products (incl. Plastic Products)
	26	Fertilizer and Pesticides
	27	Rubber Products
	28	Non-Metallic Mineral Products
	29	Basic Metal Products
	30	Structural Metal Products
	31	Other Fabricated Metal Products
	32	Machinery and Equipment
	33	Electrical Machinery and Apparatus
	34	Communication, Medical and Other Electronic Equipment
	35	Manufacturing of Transport Equipment
	36	Handcrafts and Curio - Informal
	37	Other Manufacturing and Recycling
	38	Other Manufacturing - Informal
	<b>Tertiary</b>	39
40		Water
41		Building and Other Construction
42		Construction - Informal
43		Trade
44		Accommodation
45		Trade, Accommodation and Entertainment - Informal
46		Transport Services
47		Transport - Taxis
48		Communications
49		Finance and Insurance
50		Real Estate
51		Business Activities
52		General Government
53		Personal and Health Services
54		Other Services - Informal

With regard to commodities, 54 commodities have been included in the Western Cape SAM. These correspond to the goods and services produced by the various activities reflected in Table 17 above.

In terms of the remuneration of labour that is reflected in the Labour Account for Western Cape, four population groups (i.e. Blacks/Africans, Coloureds, Indians and Whites) have been specified in the Western Cape SAM, along with twelve

occupation groups, which is similar to the structure used in the national SAM published by Stats SA.

This classification is a fair reflection of the different skill levels employed in the provincial economy:

- Legislators
  - Professionals
  - Technicians
  - Clerks
  - Service workers
  - Skilled agricultural workers
  - Craft workers
  - Plant and machine operators
  - Elementary occupations
  - Domestic workers
  - Occupation unspecified
- } Skilled labourers
- } Semi-skilled labourers
- } Unskilled labourers

With regard to the remuneration of Capital (Factor Account [Capital]) and Enterprises in Western Cape, the same composition is used for both of these entities, i.e.:

- Public enterprises
- Private business enterprise
- Taxi enterprise
- Informal business

The Household Account has been sub-divided into 48 different household types, corresponding to the four population groups and twelve income categories per group. The following household categories were included in the Western Cape SAM:

1	Blacks - P1	25	Asians/Indians - P1
2	Blacks - P2	26	Asians/Indians - P2
3	Blacks - P3	27	Asians/Indians - P3
4	Blacks - P4	28	Asians/Indians - P4
5	Blacks - P5	29	Asians/Indians - P5
6	Blacks - P6	30	Asians/Indians - P6
7	Blacks - P7	31	Asians/Indians - P7
8	Blacks - P8	32	Asians/Indians - P8
9	Blacks - P9	33	Asians/Indians - P9
10	Blacks - P10	34	Asians/Indians - P10
11	Blacks - P11	35	Asians/Indians - P11
12	Blacks - P12	36	Asians/Indians - P12
13	Coloureds - P1	37	Whites - P1
14	Coloureds - P2	38	Whites - P2
15	Coloureds - P3	39	Whites - P3
16	Coloureds - P4	40	Whites - P4
17	Coloureds - P5	41	Whites - P5
18	Coloureds - P6	42	Whites - P6
19	Coloureds - P7	43	Whites - P7
20	Coloureds - P8	44	Whites - P8
21	Coloureds - P9	45	Whites - P9
22	Coloureds - P10	46	Whites - P10
23	Coloureds - P11	47	Whites - P11
24	Coloureds - P12	48	Whites - P12

The Government Account has been sub-divided into National, Provincial (Education, Health, Welfare, and Other) and Local Government structures.

The RoW account has been sub-divided between:

- the Rest of the RSA, and
- The RoW.

The following is an inventory of the number of constituent components that make up each entity:

• Activities	-	54 components (including the informal sectors)
• Commodities	-	54 components
• Factor payments: Labour	-	44 components
• Factor payments: Capital	-	4 components
• Enterprise	-	4 components
• Households	-	48 components
• Government	-	6 components (Expenditure side)
• Capital account	-	2 components
• Foreign Trade	-	6 components

The accounts specified above serve as the structure of the Western Cape SAM that has been compiled for this province. The following section reflects a detailed description of the structure of this Western Cape SAM.

### 19.6 Integration of the South African SAM and the Western Cape Province SAM

As already explained in the methodology chapter, a user-friendly macro-economic impact model was developed to estimate the macro-economic impact of the wine industry on the South African economy. This model simultaneously activates the South African SAM and the Western Cape province SAM, with the same exogenous stimuli. It is important to note that the rest of the world account (RoW) has been subdivided for the Western Cape province SAM into:

- a) The Rest of the RSA.
- b) The RoW.

Therefore, the Western Cape Province SAM also takes into account the import leakages to the other provinces of South Africa. The impact of the wine industry will, therefore, be smaller in the Western Cape Province than the RSA, due to the fact that the import leakage in the RSA SAM is less than that of the Western Cape Province SAM.

This technique differs from a full two-region SAM approach, which is normally described in text books and that was applied by Conningarth with regard to the eThekweni Kwazulu-Natal Natal SAM. This approach was chosen and accepted by the National Technical Steering Committee (Department of Provincial and Local Government; Development Bank of Southern Africa; National Treasury and Statistics South Africa), for all the provincial SAMs, due to its less data intensive nature, but without really reducing its accuracy. Furthermore, not only the trade flows amongst the various regions were balanced, but all the various Provincial accounts, adding up to the RSA national accounts. In other words to avoid double counting, SAMs were compiled for the national economy and the various provinces simultaneously.



## 20 APPENDIX B: MAGNITUDE OF LINKAGES

Formally, economists distinguish between direct, indirect and induced economic effects. Indirect and induced effects are sometimes collectively called secondary effects. The total economic impact is the sum of direct, indirect and induced effects within a region. Any of these impacts may be measured in terms of gross output or sales, income, employment or value added.

### **Direct Impacts**

The direct impacts refer to the effect of the activities that take place in the wine industry. It refers to the income and expenditure that is associated with the everyday operation of each of the components of the wine industry. For instance if the cellar component is taken as an example the direct impacts refer to the total production/turnover of the cellars; the intermediate goods bought by the cellars; the salaries and wages paid by the cellars; the profits generated by the cellars.

### **Indirect Impacts**

The indirect impacts refer to economic activities that arise in the sectors that provide inputs to the wine industry components and other backward linked industries. For example, if the primary agriculture sector uses fertilizer, the indirect impacts refer to the activity (paying of salaries and wages; and profit generation) that occurs in the fertilizer sector as well as the sectors that provide materials to the fertilizer sector.

### **Induced Impacts**

Induced impacts refer, inter alia, to the economic impacts that result from the payment of salaries and wages to people who are (directly) employed at the various consecutive stages of beneficiation of the wine industry. In addition the induced impact also includes the salaries and wages paid by businesses operating in the sectors indirectly linked to the wine industry through the supply of inputs. These additional salaries and wages lead to an increased demand for various consumable goods that need to be supplied by other sectors of the economy that then have to raise their productions in tandem with the demand for their products and services.

These induced impacts can then be expressed in terms of their contributions to GDP, employment creation and investment or other useful macro-economic variables.

Added together, the direct, indirect and induced impacts provide the total impact that the wine industry will have on the RSA and Western Cape economies.

## 21 APPENDIX C: DEFINITIONS OF MACRO-ECONOMIC AGGREGATES

Impact analysis will be based on a number of standard economic parameters and the results will be presented under the following headings:

- Impact on Gross Domestic Product (GDP)
- Impact on Capital Utilisation
- Impact on Employment Creation
  - Skilled labourers
  - Semi-skilled labourers
  - Unskilled labourers
- Impact on Households Income (Income distribution)
- Impact on Balance of Payments, as a result of Imports and Exports
- Efficiency Criteria

The following is a brief overview of the definition of each of these economic parameters.

### A. Impact on Gross Domestic Product (GDP)

The impact on GDP reflects the magnitude of the value added to the wine industry from activities within the industry. Value added is made up of three elements, namely:

- Remuneration of employees.
- Gross operating surplus (which includes profit and depreciation).
- Net indirect taxes.

### B. Impact on Capital Utilisation

For an economy to operate at a specific level of activity, investment in capital assets (i.e. buildings, machinery, equipment, etc.) is needed. Capital, together with labour and entrepreneurship, are the basic factors needed for production in an economy.

The effectiveness and efficiency with which these factors are combined influence the overall level of productivity/profitability processes, bearing in mind that productivity is affected by an array of factors of which appropriate technology and skill level of the labour force are two important elements.

### C. Impact on Employment Creation

Labour is a key element of the production process. The study will determine the number of new employment opportunities that will be created by investment in

the wine industry. These employment opportunities will be broken down into those created directly by a particular project and those indirectly created and induced throughout the broader economy. Furthermore, a distinction will be made between skilled, semi-skilled and unskilled labourers.

#### **D. Impact on Household Income**

One of the elements of the additional value added (i.e. GDP) which will result from the proposed expansion is remuneration of employees, which, in turn, affects households income.

The SAM measures the magnitude of changes that will occur to both household income and spending/savings pattern. As such, the study will highlight the impact of the wine industry on the low-income households as this can be used as an indicator of the extent to which the wine industry contributed to poverty alleviation throughout the economy.

#### **E. Impact on the Current Account of the Balance of Payments**

The wine industry will have direct, indirect and induced impacts on the exports and imports of goods and services that will take place across all of the various economic sectors that are affected by the wine industry. Imports consist of direct and indirect material imports, as well as goods consumed by households that are imported as a result of the induced impact.

#### **F. Effectiveness Criteria**

The macro-economic impact of a project is evaluated in terms of effectiveness criteria that measure the extent to which the project utilises resources efficiently. Since capital is a scarce resource in the Western Cape and South Africa, the effectiveness of the utilisation of capital in terms of labour (i.e. new job opportunities) and GDP creation in relation to the total South African economy, is used as a measure of economic effectiveness. These effectiveness criteria are the most reliable indicators as to whether the wine industry is effective or not.

In order to make these comparisons, two key multipliers/ratios are calculated i.e.

- The Gross Domestic Product (GDP)/Capital ratio (GDP/Capital ratio).
- The Labour/Capital ratio.

Using these ratios, the contribution towards economic growth and job creation relative to the capital employed in the process can be established. If the decision maker considers continuous, long-term economic growth to be more important than job creation in the short-term, then the GDP/Capital ratio is the more important one of the two measures of macro-economic effectiveness. On the other hand, if job creation, particularly in the short-term, has priority, the Labour/Capital ratio is more important.

## 22 APPENDIX D: DETAILED MACRO-ECONOMIC IMPACT OF THE WINE INDUSTRY

**Table 18: GDP Generated in the Western Cape through the Backward Linkages of each phase of the Wine making and selling Industry of the Western Cape [Rand millions; 2013prices]**

GDP	Little		Olifants		Orange					
	Breedekloof	Karoo	Malmesbury	River	River	Paarl	Robertson	Stellenbosch	Worcester	Total
<b>A. Primary Agriculture</b>										0
- Direct Impact	389	29	167	275	0	264	351	239	268	1 982
- Indirect Impact	85	20	21	80	0	90	102	81	61	541
- Induced Impact	114	14	42	86	0	98	113	94	78	640
- Total Impact	588	64	231	441	0	452	566	415	407	3 163
<b>B. Cellars</b>										
- Direct Impact	63	17	58	98	0	69	83	54	44	484
- Indirect Impact	45	12	46	78	0	55	60	43	31	371
- Induced Impact	32	8	31	52	0	37	42	29	22	253
- Total Impact	140	37	135	228	0	161	185	125	97	1 108
<b>C. Manufacturing</b>										
- Direct Impact	276	136	258	205	0	874	421	909	316	3 394
- Indirect Impact	114	56	106	85	0	359	174	373	130	1 397
- Induced Impact	91	45	85	68	0	286	138	297	104	1 113
- Total Impact	481	237	449	357	0	1 520	733	1 579	550	5 905
<b>D. Trade Catering and Accommodation</b>										
- Direct Impact	253	124	235	188	0	796	385	827	288	3 095

<b>GDP</b>		<b>Little</b>		<b>Olifants</b>	<b>Orange</b>					
	<b>Breedekloof</b>	<b>Karoo</b>	<b>Malmesbury</b>	<b>River</b>	<b>River</b>	<b>Paarl</b>	<b>Robertson</b>	<b>Stellenbosch</b>	<b>Worcester</b>	<b>Total</b>
<b>- Indirect Impact</b>	107	52	99	80	0	332	162	345	121	1 298
<b>- Induced Impact</b>	106	52	98	79	0	330	160	343	120	1 287
<b>- Total Impact</b>	465	228	432	347	0	1 458	706	1 515	529	5 680
<b>E. Wine Industry = (A+B+C+D)</b>										
<b>- Direct Impact</b>	981	306	718	765	0	2 002	1 239	2 028	916	8 956
<b>- Indirect Impact</b>	351	140	273	323	0	837	498	843	343	3 607
<b>- Induced Impact</b>	342	119	256	285	0	751	454	763	324	3 293
<b>- Total Impact</b>	1 673	566	1,246	1 373	0	3 591	2 191	3 634	1 582	15 856
<b>F. Tourism</b>										
<b>- Direct Impact</b>	0	0	0	0	0	0	0	0	0	0
<b>- Indirect Impact</b>	213	106	201	158	0	683	327	710	246	2 642
<b>- Induced Impact</b>	64	32	60	47	0	204	98	212	73	789
<b>- Total Impact</b>	276	138	260	205	0	886	424	922	319	3 431
<b>G. Grand Total = (E+F)</b>										
<b>- Direct Impact</b>	981	306	718	765	0	2 002	1 239	2 028	916	8 956
<b>- Indirect Impact</b>	564	246	473	481	0	1 519	824	1 553	588	6 249
<b>- Induced Impact</b>	405	151	315	332	0	955	552	975	397	4 082
<b>- Total Impact</b>	1 949	703	1 507	1 577	0	4 477	2 615	4 556	1 901	19 287

**Table 19: GDP Generated in South Africa through the Value Chain and Backward Linkages of the Wine Industry [Rand millions; 2013 prices]**

GDP		Little		Olifants	Orange					
	Breedekloof	Karoo	Malmesbury	River	River	Paarl	Robertson	Stellenbosch	Worcester	Total
<b>A. Primary Agriculture</b>										
- Direct Impact	390	30	168	275	76	265	352	240	268	2 063
- Indirect Impact	137	31	35	124	46	143	161	130	94	900
- Induced Impact	295	42	104	223	88	280	300	271	201	1 804
- Total Impact	821	103	307	622	209	687	812	642	564	4 766
<b>B. Cellars</b>										
- Direct Impact	64	17	58	98	75	69	83	54	44	561
- Indirect Impact	72	19	74	125	96	88	96	69	50	688
- Induced Impact	89	24	87	147	114	104	120	81	61	827
- Total Impact	224	60	219	370	286	261	299	203	155	2 076
<b>C. Manufacturing</b>										
- Direct Impact	276	136	258	205	161	874	421	909	316	3 557
- Indirect Impact	133	65	123	100	77	414	201	430	151	1 693
- Induced Impact	232	114	216	173	135	728	353	756	264	2 970
- Total Impact	641	314	597	478	373	2 016	975	2,095	731	8 220
<b>D. Trade Catering and Accommodation</b>										
- Direct Impact	422	207	392	314	245	1 326	641	1 378	481	5 406
- Indirect Impact	288	139	265	216	167	888	434	922	324	3 642
- Induced Impact	446	217	413	333	259	1 390	675	1 444	505	5 682
- Total Impact	1 155	563	1 070	862	670	3 605	1 751	3 744	1 310	14 731

<b>GDP</b>		<b>Little</b>		<b>Olifants</b>	<b>Orange</b>					
	<b>Breedekloof</b>	<b>Karoo</b>	<b>Malmesbury</b>	<b>River</b>	<b>River</b>	<b>Paarl</b>	<b>Robertson</b>	<b>Stellenbosch</b>	<b>Worcester</b>	<b>Total</b>
<b>E. Wine Industry = (A+B+C+D)</b>										
<b>- Direct Impact</b>	1 151	389	876	892	557	2 534	1 498	2 581	1 109	11 587
<b>- Indirect Impact</b>	629	254	496	564	386	1 533	892	1 551	619	6 923
<b>- Induced Impact</b>	1 061	397	820	877	595	2 501	1 447	2 553	1 032	11 283
<b>- Total Impact</b>	2 842	1 040	2 192	2 333	1 538	6 568	3 837	6 684	2 760	29 793
<b>F. Tourism</b>										
<b>- Direct Impact</b>	0	0	0	0	0	0	0	0	0	0
<b>- Indirect Impact</b>	304	151	286	225	177	974	466	1 012	350	3 945
<b>- Induced Impact</b>	185	92	175	137	108	594	285	618	214	2 408
<b>- Total Impact</b>	489	243	461	362	285	1 568	751	1 630	564	6 353
<b>G. Grand Total = (E+F)</b>										
<b>- Direct Impact</b>	1 151	389	876	892	557	2 534	1 498	2 581	1 109	11 587
<b>- Indirect Impact</b>	933	405	782	788	563	2 506	1 358	2 563	969	10 868
<b>- Induced Impact</b>	1 247	489	994	1 014	703	3 096	1 732	3 170	1 246	13 691
<b>- Total Impact</b>	3 331	1 284	2 653	2 694	1 823	8 136	4 587	8 314	3 324	36 145

**Table 20: Capital Needed in the Western Cape to Support the Value Chain and Backward Linkages of the Wine Industry [Rand millions; 2013 prices]**

Capital		Little		Olifants	Orange					
	Breedekloof	Karoo	Malmesbury	River	River	Paarl	Robertson	Stellenbosch	Worcester	Total
<b>A. Primary Agriculture</b>										
- Direct Impact	707	145	532	652	0	775	811	872	477	4 971
- Indirect Impact	235	62	54	242	0	249	300	210	175	1 527
- Induced Impact	258	33	95	195	0	222	256	212	177	1 448
- Total Impact	1 200	239	681	1 090	0	1 245	1 367	1 295	829	7 946
<b>B. Cellars</b>										
- Direct Impact	192	35	87	181	0	107	179	95	106	983
- Indirect Impact	130	35	135	227	0	160	174	125	90	1 075
- Induced Impact	72	19	70	118	0	83	96	65	50	572
- Total Impact	394	89	292	527	0	351	449	284	245	2 630
<b>C. Manufacturing</b>										
- Direct Impact	310	56	141	292	0	173	289	153	170	1 584
- Indirect Impact	207	101	193	154	0	651	315	676	236	2 533
- Induced Impact	206	101	192	153	0	647	313	673	235	2 519
- Total Impact	723	258	525	600	0	1 471	917	1 502	641	6 637
<b>D. Trade Catering and Accommodation</b>										
- Direct Impact	434	78	197	409	0	242	404	214	238	2 217
- Indirect Impact	283	138	262	211	0	884	429	918	321	3 446
- Induced Impact	240	117	222	179	0	750	364	779	272	2 922



Capital		Little		Olifants	Orange					
	Breedekloof	Karoo	Malmesbury	River	River	Paarl	Robertson	Stellenbosch	Worcester	Total
- Total Impact	956	333	682	798	0	1 876	1 197	1 911	831	8 584
<b>E. Wine Industry = (A+B+C+D)</b>										
- Direct Impact	1 644	314	957	1 535	0	1 298	1 684	1 334	990	9 755
- Indirect Impact	854	336	643	835	0	1 944	1 217	1 930	822	8 581
- Induced Impact	774	270	579	645	0	1 702	1 029	1 729	734	7 461
- Total Impact	3 272	920	2 179	3 014	0	4 944	3 930	4 992	2 546	25 797
<b>F. Tourism</b>										
- Direct Impact	0	0	0	0	0	0	0	0	0	0
- Indirect Impact	473	236	446	351	0	1 516	726	1 576	546	5 870
- Induced Impact	144	72	136	107	0	463	222	481	167	1 791
- Total Impact	618	308	582	457	0	1 978	948	2 057	713	7 661
<b>G. Grand Total = (E+F)</b>										
- Direct Impact	1 644	314	957	1 535	0	1 298	1 684	1 334	990	9 755
- Indirect Impact	1 328	572	1 089	1 185	0	3 460	1 943	3 505	1 368	14 451
- Induced Impact	919	342	715	751	0	2 165	1 250	2 210	900	9 252
- Total Impact	3 890	1 228	2 761	3 472	0	6 922	4 878	7 049	3 259	33 458

**Table 21: Capital needed in South Africa to support the Value Chain and Backward Linkages of the Wine Industry [Rand millions; 2013 prices]**

Capital	Little		Olifants		Orange		Paarl	Robertson	Stellenbosch	Worcester	Total
	Breedekloof	Karoo	Malmesbury	River	River						
<b>A. Primary Agriculture</b>											
- Direct Impact	708	145	532	653	234	776	812	874	477	5 211	
- Indirect Impact	312	76	73	298	103	324	383	277	221	2 067	
- Induced Impact	596	85	211	452	177	565	606	549	407	3 648	
- Total Impact	1 616	306	816	1 403	514	1 665	1 801	1 699	1 105	10 926	
<b>B. Cellars</b>											
- Direct Impact	193	35	88	182	96	108	180	95	106	1 080	
- Indirect Impact	163	44	168	284	219	200	218	156	113	1 564	
- Induced Impact	180	48	176	298	230	210	242	164	124	1 674	
- Total Impact	535	127	432	764	545	518	639	415	343	4 318	
<b>C. Manufacturing</b>											
- Direct Impact	311	56	141	293	154	173	290	153	170	1 741	
- Indirect Impact	234	114	216	175	136	727	354	755	265	2 975	
- Induced Impact	470	230	436	350	273	1 474	714	1 531	535	6 012	
- Total Impact	1 015	400	794	818	563	2 374	1 357	2 439	970	10 728	
<b>D. Trade Catering and Accommodation</b>											
- Direct Impact	724	130	329	682	359	404	675	357	397	4 057	
- Indirect Impact	619	300	571	463	359	1 919	935	1 993	699	7 857	
- Induced Impact	901	439	834	673	523	2 809	1 365	2 918	1 021	11 483	
- Total Impact	2 244	870	1 734	1 818	1 240	5 133	2 975	5 268	2 117	23 398	

<b>Capital</b>		<b>Little</b>		<b>Olifants</b>	<b>Orange</b>					
	<b>Breedekloof</b>	<b>Karoo</b>	<b>Malmesbury</b>	<b>River</b>	<b>River</b>	<b>Paarl</b>	<b>Robertson</b>	<b>Stellenbosch</b>	<b>Worcester</b>	<b>Total</b>
<b>E. Wine Industry = (A+B+C+D)</b>	0	0	0	0	0	0	0	0	0	0
- Direct Impact	1 935	366	1 090	1 810	843	1 461	1 956	1 478	1 150	12 089
- Indirect Impact	1 328	533	1 028	1 220	817	3 170	1 890	3 180	1 298	14 463
- Induced Impact	2 146	802	1 658	1 773	1 203	5 059	2 927	5 162	2 087	22 817
- Total Impact	5 409	1 702	3 776	4 803	2 862	9 689	6 773	9 820	4 535	49 370
<b>F. Tourism</b>										
- Direct Impact	0	0	0	0	0	0	0	0	0	0
- Indirect Impact	619	309	583	459	361	1 983	950	2 062	714	8 041
- Induced Impact	375	186	353	277	218	1 201	575	1 248	432	4 866
- Total Impact	994	495	936	736	580	3 184	1 525	3 310	1 147	12 907
<b>G. Grand Total = (E+F)</b>	0	0	0	0	0	0	0	0	0	0
- Direct Impact	1 935	366	1 090	1 810	843	1 461	1 956	1 478	1 150	12 089
- Indirect Impact	1 947	842	1 611	1 679	1 178	5 153	2 840	5 242	2 012	22 505
- Induced Impact	2 521	989	2 011	2 050	1 421	6 259	3 502	6 411	2 520	27 683
- Total Impact	6 403	2 197	4 712	5 539	3 442	12 873	8 298	13 131	5 682	62 277

**Table 22: Labour Needed in the Western Cape to Support the Value Chain and Backward Linkages of the Wine Industry [Rand millions; 2013 prices]**

Employment		Little		Olifants	Orange					
	Breedekloof	Karoo	Malmesbury	River	River	Paarl	Robertson	Stellenbosch	Worcester	Total
<b>A. Primary Agriculture</b>										0
- Direct Impact	3 045	668	4 022	2 271	0	5 915	3 628	8856	1 855	30 260
- Indirect Impact	544	118	137	457	0	567	627	543	364	3 358
- Induced Impact	787	100	292	595	0	684	785	657	542	4 443
- Total Impact	4 377	887	4 452	3 324	0	7 166	5 039	10 055	2 762	38 060
<b>B. Cellars</b>										
- Direct Impact	847	153	385	798	0	473	789	417	464	4 325
- Indirect Impact	264	71	273	461	0	325	353	253	183	2 183
- Induced Impact	219	59	213	361	0	254	294	198	152	1 750
- Total Impact	1 330	282	871	1 620	0	1 052	1 436	869	799	8 259
<b>C. Manufacturing</b>										
- Direct Impact	2 201	397	1 000	2 075	0	1 229	2 052	1 084	1 207	11 245
- Indirect Impact	808	398	754	601	0	2 553	1 232	2 653	924	9 923
- Induced Impact	630	309	586	469	0	1 981	958	2 058	718	7 711
- Total Impact	3 640	1 103	2 341	3 145	0	5 763	4 243	5 795	2 849	28 879
<b>D. Trade Catering and Accommodation</b>										
- Direct Impact	10 524	1 896	4 781	9 919	0	5 876	9 810	5 183	5 769	53 758
- Indirect Impact	673	328	623	502	0	2 097	1 019	2 179	763	8 183
- Induced Impact	723	353	670	540	0	2 258	1 096	2 346	821	8 807
- Total Impact	11 919	2 577	6 073	10 961	0	10 232	11 926	9 707	7 352	70 748

<b>Employment</b>		<b>Little</b>		<b>Olifants</b>	<b>Orange</b>					
	<b>Breedekloof</b>	<b>Karoo</b>	<b>Malmesbury</b>	<b>River</b>	<b>River</b>	<b>Paarl</b>	<b>Robertson</b>	<b>Stellenbosch</b>	<b>Worcester</b>	<b>Total</b>
<b>E. Wine Industry = (A+B+C+D)</b>										
- Direct Impact	16 617	3 114	10 188	15 063	0	13 493	16 279	15 539	9 295	99 589
- Indirect Impact	2 289	914	1 787	2 022	0	5 542	3 231	5 627	2 233	23 647
- Induced Impact	2 360	821	1 762	1 966	0	5 178	3, 133	5 259	2 233	22 711
- Total Impact	21 266	4 849	13 737	19 051	0	24 213	22 643	26 426	13 761	145 947
<b>F. Tourism</b>										
- Direct Impact	0	0	0	0	0	0	0	0	0	0
- Indirect Impact	1 304	649	1 227	964	0	4 177	2 000	4 343	1 504	16 168
- Induced Impact	434	216	408	321	0	1 390	665	1 445	500	5 379
- Total Impact	1 738	865	1 636	1 285	0	5 567	2 666	5 788	2 004	21 547
<b>G. Grand Total = (E+F)</b>										
- Direct Impact	16 617	3 114	10 188	15 063	0	13 493	16 279	15 539	9 295	99 589
- Indirect Impact	3 593	1 563	3 014	2 986	0	9 720	5 232	9 970	3 737	39 815
- Induced Impact	2 793	1 037	2 171	2 286	0	6 567	3 798	6 704	2 733	28 090
- Total Impact	23 004	5 713	15 373	20 336	0	29 780	25 309	32 214	15 765	167 494

**Table 23: Labour Needed in South Africa to Support the Value Chain and Backward Linkages of the Wine Industry [Rand millions; 2013prices]**

Employment		Little		Olifants	Orange					
	Breedekloof	Karoo	Malmesbury	River	River	Paarl	Robertson	Stellenbosch	Worcester	Total
<b>A. Primary Agriculture</b>										
- Direct Impact	3 049	669	4 025	2 274	2 459	5 919	3 632	8 860	1 858	32 745
- Indirect Impact	792	175	202	671	257	823	912	780	531	5 144
- Induced Impact	1 703	243	604	1 292	509	1 621	1 732	1 572	1 163	10 439
- Total Impact	5 544	1 087	4 831	4 238	3 225	8 362	6 277	11 213	3 552	48 328
<b>B. Cellars</b>										
- Direct Impact	848	153	385	799	421	474	790	418	465	4 753
- Indirect Impact	374	100	384	650	501	457	499	357	259	3 581
- Induced Impact	513	138	503	851	657	599	690	467	355	4 774
- Total Impact	1 736	391	1 272	2 300	1 579	1 530	1 980	1 242	1 078	13 107
<b>C. Manufacturing</b>										
- Direct Impact	2 203	397	1 001	2 077	1 093	1 230	2 054	1 085	1 208	12 349
- Indirect Impact	826	402	764	617	479	2 574	1 251	2 674	936	10 525
- Induced Impact	1 341	656	1 246	999	779	4 207	2 038	4 371	1 526	17 164
- Total Impact	4 370	1 456	3 012	3 693	2 351	8 012	5 343	8 130	3 670	40 038
<b>D. Trade Catering and Accommodation</b>										
- Direct Impact	17 543	3 161	7 970	16 536	8 704	9 796	16 353	8 640	9 617	98 320
- Indirect Impact	1 572	761	1 447	1 178	910	4 856	2 372	5 043	1 772	19 911
- Induced Impact	2 568	1 251	2 378	1 918	1 490	8 009	3 891	8 319	2 912	32 735
- Total Impact	21 684	5 173	11 794	19 631	11 104	22 661	22 616	22 001	14 301	150 966

<b>Employment</b>		<b>Little</b>		<b>Olifants</b>	<b>Orange</b>					
	<b>Breedekloof</b>	<b>Karoo</b>	<b>Malmesbury</b>	<b>River</b>	<b>River</b>	<b>Paarl</b>	<b>Robertson</b>	<b>Stellenbosch</b>	<b>Worcester</b>	<b>Total</b>
<b>E. Wine Industry = (A+B+C+D)</b>										
<b>- Direct Impact</b>	23 644	4 380	13 381	21 686	12 676	17 419	22 830	19 003	13 148	148 167
<b>- Indirect Impact</b>	3 565	1 438	2 798	3 116	2 148	8 711	5 034	8 854	3 498	39 161
<b>- Induced Impact</b>	6 125	2 289	4 730	5 060	3 434	14 436	8 352	14 730	5 956	65 112
<b>- Total Impact</b>	33 334	8 107	20 909	29 862	18 258	40 566	36 216	42 586	22 602	252 439
<b>F. Tourism</b>										
<b>- Direct Impact</b>	0	0	0	0	0	0	0	0	0	0
<b>- Indirect Impact</b>	1 760	876	1 657	1 302	1 025	5 638	2 700	5 862	2 029	22 849
<b>- Induced Impact</b>	1 067	531	1 005	790	622	3 421	1 638	3 557	1 231	13 863
<b>- Total Impact</b>	2 827	1 407	2 662	2 092	1 647	9 060	4 338	9 419	3 261	36 712
<b>G. Grand Total = (E+F)</b>										
<b>- Direct Impact</b>	23 644	4 380	13 381	21 686	12 676	17 419	22 830	19 003	13 148	148 167
<b>- Indirect Impact</b>	5 325	2 313	4 454	4 417	3 173	14 349	7 734	14 716	5 527	62 009
<b>- Induced Impact</b>	7 192	2 820	5 735	5 850	4 056	17 857	9 990	18 287	7 187	78 976
<b>- Total Impact</b>	36 161	9 513	23 570	31 953	19 905	49 625	40 554	52 006	25 862	289 151

## 23 APPENDIX E: DETAILED SECTORAL IMPACT

Table 24: Sectoral Impact of GDP on detailed sectors [Rand millions; 2013prices]

	Rand Millions						Percentages					
	Primary Agriculture	Cellars	Manufacturing	Trade Catering and Accommodation	Tourism	Total	Primary Agriculture	Cellars	Manufacturing	Trade, Catering and Accommodation	Tourism	Total
Agriculture	2 051	587	3 684	5 605	350	12 276	43%	28%	45%	38%	6%	34%
Mining	76	38	76	152	99	440	2%	2%	1%	1%	2%	1%
Meat, Fish, Fruit, Vegetables, Oils and Fat Products	29	13	48	89	123	302	1%	1%	1%	1%	2%	1%
Dairy products	7	7	13	24	34	86	0%	0%	0%	0%	1%	0%
Grain Mill, Bakery and Animal Feed Products	18	8	30	56	77	189	0%	0%	0%	0%	1%	1%
Other food products	10	10	24	32	33	109	0%	0%	0%	0%	1%	0%
Beverages and tobacco products	33	15	344	99	131	622	1%	1%	4%	1%	2%	2%
Textiles, Clothing, Leather Products and Footwear	19	13	32	64	68	197	0%	1%	0%	0%	1%	1%
Wood and Wood Products	11	11	15	30	17	84	0%	1%	0%	0%	0%	0%
Furniture	15	7	25	51	32	130	0%	0%	0%	0%	1%	0%
Paper and Paper Products	23	18	49	88	48	226	0%	1%	1%	1%	1%	1%
Publishing and Printing	12	14	28	102	24	179	0%	1%	0%	1%	0%	0%
Chemicals & Chemical Products (incl. Plastic Products)	201	111	175	362	229	1 079	4%	5%	2%	2%	4%	3%
Rubber Products	4	6	7	16	10	45	0%	0%	0%	0%	0%	0%
Non-Metallic Mineral Products	20	11	36	58	33	158	0%	1%	0%	0%	1%	0%
Basic Metal Products	28	12	29	57	27	153	1%	1%	0%	0%	0%	0%



<b>Structural Metal Products</b>	6	3	6	13	4	32	0%	0%	0%	0%	0%	0%
<b>Other Fabricated Metal Products</b>	14	10	25	34	22	106	0%	0%	0%	0%	0%	0%
<b>Machinery &amp; Equipment</b>	29	12	34	64	37	176	1%	1%	0%	0%	1%	0%
<b>Electrical Machinery &amp; Apparatus</b>	15	8	17	36	18	94	0%	0%	0%	0%	0%	0%
<b>Communication, Medical and other Electronic Equipment</b>	4	2	6	18	7	37	0%	0%	0%	0%	0%	0%
<b>Manufacturing of Transport Equipment</b>	34	14	48	94	47	236	1%	1%	1%	1%	1%	1%
<b>Other Manufacturing &amp; Recycling</b>	24	15	33	64	65	201	1%	1%	0%	0%	1%	1%
<b>Electricity</b>	144	54	103	204	154	660	3%	3%	1%	1%	2%	2%
<b>Water</b>	47	27	34	50	31	189	1%	1%	0%	0%	0%	1%
<b>Building &amp; Construction</b>	122	37	87	227	87	560	3%	2%	1%	2%	1%	2%
<b>Trade</b>	411	196	786	1 348	933	3 674	9%	9%	10%	9%	15%	10%
<b>Accommodation</b>	29	13	46	119	395	602	1%	1%	1%	1%	6%	2%
<b>Transport</b>	140	85	310	571	891	1 998	3%	4%	4%	4%	14%	6%
<b>Communication</b>	136	79	230	898	277	1 620	3%	4%	3%	6%	4%	4%
<b>Finance &amp; Insurance</b>	386	262	655	1 286	570	3 160	8%	13%	8%	9%	9%	9%
<b>Real Estate</b>	246	129	525	1 112	513	2 525	5%	6%	6%	8%	8%	7%
<b>Business Services</b>	187	143	294	987	493	2 104	4%	7%	4%	7%	8%	6%
<b>Community, Social and Personal Services</b>	233	105	365	722	474	1 899	5%	5%	4%	5%	7%	5%
<b>Total</b>	4 766	2 076	8 220	14 731	6 353	36 145	100%	100%	100%	100%	100%	100%

## 24 APPENDIX F: EXOGENOUS VECTOR FOR PRIMARY AGRICULTURE IN STELLENBOSCH

The table below gives an example of the exogenous vector for the primary agriculture in Stellenbosch. These figures are used as the inputs for the operational phase of the model.

**Table 25: Exogenous Vector for Primary Agriculture in Stellenbosch**

		Values	Percentages
<b>1</b>	<b>Production/Turnover per annum (Rand millions; 2013 prices)</b>	2647.653	
		0.000	
<b>2</b>	<b>Number of Labourers (Numbers, 2013)</b>	0.000	
	· Skilled Labourers	2823.826	
	· Semi-skilled Labourers	5132.623	
	· Unskilled Labourers	6526.651	
		0.000	
<b>3</b>	<b>Apportionment of Production</b>	0.000	
	<b>Total Production in terms of:</b>	0.000	
	· Domestic Sales	1438.324	54%
	· Exports	1209.329	46%
	<b>Total</b>	2647.653	100%
		0.000	
<b>4</b>	<b>Split of Production between Economic Entities</b>	0.000	
	· Intermediate Demand	1526.436	58%
	· Labour Remuneration	593.064	22%
	· Gross Operating Surplus	528.153	20%
	<b>Total</b>	2647.653	100%
<b>5</b>	<b>Split of Intermediate Demand between Commodities</b>		
	· Agriculture	2.650	0%
	· Mining	0.000	0%
	· Meat, Fish, Fruit, Vegetables, Oils & Fat Products	68.337	4%
	· Dairy Products	5.841	0%
	· Grain Mill, Bakery & Animal Feed Products	19.281	1%
	· Other Food Products	4.584	0%
	· Beverages & Tobacco Products	170.719	11%
	· Textiles, Clothing, Leather Products & Footwear	26.678	2%

		Values	Percentages
	· Wood & Wood Products	5.332	0%
	· Furniture	6.933	0%
	· Paper & Paper Products	15.087	1%
	· Publishing & Printing	20.921	1%
	· Chemicals & Chemical Products (incl. Plastic Products)	130.302	9%
	· Rubber Products	3.284	0%
	· Non-Metallic Mineral Products	1.302	0%
	· Basic Metal Products	2.430	0%
	· Structural Metal Products	0.248	0%
	· Other Fabricated Metal Products	4.202	0%
	· Machinery & Equipment	11.040	1%
	· Electrical Machinery & Apparatus	5.921	0%
	· Communication, Medical & Other Electronic Equipment	0.082	0%
	· Manufacturing of Transport Equipment	12.002	1%
	· Other Manufacturing & Recycling	15.917	1%
	· Electricity	33.899	2%
	· Water	19.926	1%
	· Buildings and Other Construction	29.848	2%
	· Trade	104.488	7%
	· Accommodation	171.054	11%
	· Transport Services	273.092	18%
	· Communications	90.673	6%
	· Insurance	38.308	3%
	· Real Estate	130.105	9%
	· Business Activities	73.107	5%
	· Community, Social and Personal Services	28.844	2%
	<b>Total</b>	<b>1526.436</b>	<b>100%</b>
<b>6</b>	<b>Split of Labour Remuneration between Labourers</b>		
	· Africans - Skilled	46.746	8%
	· Africans - Semi-Skilled	96.845	16%
	· Africans - Unskilled	47.106	8%
	· Coloureds - Skilled	34.489	6%
	· Coloureds - Semi-Skilled	89.267	15%
	· Coloureds - Unskilled	56.114	9%

		<b>Values</b>	<b>Percentages</b>
	· <b>Asians/Indians - Skilled</b>	12.228	2%
	· <b>Asians/Indians - Semi-Skilled</b>	8.310	1%
	· <b>Asians/Indians - Unskilled</b>	2.058	0%
	· <b>Whites - Skilled</b>	109.304	18%
	· <b>Whites - Semi-Skilled</b>	77.817	13%
	· <b>Whites - Unskilled</b>	12.780	2%
	<b>Total</b>	593.064	100%

## 25 APPENDIX G: PRIMARY DATA

**Table 26: Farming Production Cost for Wine Grapes for each of the Wine Regions for 2013 (Cost Items as Rand per Hectare)**

		Breedekloof	Little Karoo	Malmesbury	Olifants River	Orange River	Paarl	Robertson	Stellenbosch	Worcester	Total
<b>A. Direct Costs</b>	- Seed	131	425	94	16	8	95	57	205	82	1 114
	- Fertilizer	1 321	1 130	863	2 122	1 327	932	2 005	768	1 908	12 375
	- Organic Material	904	250	47	560	224	192	205	48	164	2 594
	- Pesticide Control	2 028	1 347	1 477	1 769	747	1 615	2 057	2 206	1 758	15 004
	- Herbicide Control	714	248	466	404	458	559	651	625	677	4 801
	- Repair and Building Material	430	423	195	267	179	348	325	586	608	3 361
	<b>Total Direct Costs</b>	<b>5 528</b>	<b>3 823</b>	<b>3 141</b>	<b>5 139</b>	<b>2 944</b>	<b>3 742</b>	<b>5 298</b>	<b>4 438</b>	<b>5 197</b>	<b>39 250</b>
<b>B. Labour Cost</b>	- Supervision	1 903	1 273	760	1 135	1 125	1 110	1 616	3 676	1 073	13 671
	- Permanent Labour	5 983	5 125	3 495	4 911	5 924	6 090	5 023	7 979	6 056	50 587
	- Seasonal Labour and Contract Work	1 287	1 309	3 548	1 517	6 225	2 883	2 246	5 110	1 006	25 131
	<b>Total Labour Cost</b>	<b>9 174</b>	<b>7 707</b>	<b>7 802</b>	<b>7 563</b>	<b>13 275</b>	<b>10 083</b>	<b>8 886</b>	<b>16 766</b>	<b>8 135</b>	<b>89 390</b>
		0	0	0	0	0	0	0	0	0	0
<b>C. Mechanization</b>	- Fuel	2 416	2 766	1 749	2 659	3 377	2 158	1 934	2 383	2 268	21 711
	- Repair, Parts and Maintenance	2 123	3 456	1 509	2 592	2 115	1 652	2 902	2 705	1 919	20 973
	- License and Insurance	472	365	354	735	709	374	483	471	484	4 446
	- Transport Hired	221	251	886	502	408	534	189	141	134	3 264

		Breedekloof	Little Karoo	Malmesbury	Olifants River	Orange River	Paarl	Robertson	Stellenbosch	Worcester	Total
	<b>Total Mechanization Cost</b>	5 232	6 837	4 498	6 488	6609	4 717	5 508	5 700	4 804	50 393
<b>D. Fixed Improvements</b>	<b>- Repair and Maintenance</b>	911	150	500	527	400	537	549	781	679	5 034
	<b>- Insurance</b>	273	189	145	711	484	159	167	200	254	2 582
	<b>Total Fixed Improvement Cost</b>	1 184	339	644	1 238	884	696	716	981	933	7 616
<b>E. General Expenditure</b>	<b>- Electricity</b>	2 689	1 490	665	2 818	1 384	1 896	3 024	1 855	2 137	17 959
	<b>- Water Costs</b>	211	1 838	674	2 050	1 288	574	984	791	1 450	9 861
	<b>- Land, Property and Municipal Taxes</b>	225	125	108	287	288	191	179	452	177	2 032
	<b>- Administration</b>	1 224	1 032	804	1 200	1 131	1 310	1 263	2 269	1 105	11 337
	<b>Total General Expenditure</b>	4 349	4 486	2 251	6 355	4 090	3 971	5 450	5 367	4 869	41 188
<b>F. Provision for Renewal</b>	<b>- Vineyards</b>	5 491	5 432	4 590	5 077	5 313	5 442	5 487	5 347	5 635	47 814
	<b>- Fixed Improvements</b>	884	646	586	1 040	564	634	905	1 149	838	7 246
	<b>- Loose Assets or Production Means</b>	2 703	2 692	1 785	4 681	2 852	1 954	2 726	2 639	2 688	24 720
	<b>Total Renewal Cost</b>	34 546	31 963	25 297	37 580	36 531	31 240	34 976	42 386	33 098	307 617
	<b>Total Expenditure (Rand per ha)</b>	60 012	55 155	43 634	64 363	64 332	54 450	60 834	75 637	57 036	535 453

Source: <http://www.vinpro.co.za>

**Table 27: Expenses Attributable to Bulk and Packaged Wine for 2013 (Cost per Rand per Ton)**

Total Expenditure of Cellars (2013)	Total Bulk Wine	Total Packaged	Total
Permanent Labour	190,77	1,05	192
Temporary Labour	25,86	0,02	26
Insurance	15,69	0,04	16
Marketing and Sales Expenses	36,71	3,05	40
Bottling and Packaging Costs	16,63	7,39	24
Chemicals, Cleaning and Filtration Materials	199,21	0,09	199
Distribution Costs	42,22	0,82	43
Sundry Administration Expenses	71,30	0,89	72
Sundry Cellar Expenses	84,51	0,55	85
Electricity and Water	71,90	0,07	72
Finance Charge	88,58	0,21	89
Rent Paid	14,29	0,05	14
Repairs, Maintenance and Cellar Consumables	80,47	0,14	81
Telephone and Postage	3,99	0,04	4
Depreciation	116,07	0,16	116
Total	1 058	15	1 073

Source: PricewaterhouseCoopers - The South African Wine Industry; Section 3.1 - Income Statement: Expense Analysis

## 26 LIST OF INFORMATION SOURCES

- National Agricultural Marketing Council (NAMC). Input Cost Monitoring. Cost of Wine Grape Production and Producer Profitability – 2012, March 2013.
- National Agricultural Marketing Council (NAMC). Input Cost Monitoring. Cost of Wine Grape Production and Producer Profitability – 2013, May 2014.
- Pretoria News, Grape Expectations for EU Trade Pact, 9 August 2014.
- PricewaterhouseCoopers: Benchmarking Survey, September 2013.
- South African Reserve Bank Bulletin, June 2014.
- Statistics South Africa; Food and Beverages Industry. Publication no. 64-20-01, 2014.
- Statistical Release P0441, 3rd Quarter 2014.
- South African Reserve Bank, Quarterly Bulletin, September 2014 (p. S-107).
- Statistics South Africa; Gross Domestic Product, 26 November 2013.
- SAWIS; South African Wine Industry Statistics, 2014.
- SAWIS Annual Report, 2014.
- South African Producer/Co-Operative Wineries, January 2014.
- The South African Wine Industry Insights Survey, September 2013.
- Quarterly Labour Force Survey, Quarter 4, 2013.
- Wesgro – Cape Town & Western Cape Research, 2014.
- Websites used for information retrieved:
  - VinPro: [www.vinpro.co.za](http://www.vinpro.co.za)
  - Wines of South Africa (WOSA): [www.wosa.co.za](http://www.wosa.co.za)
  - South African Tourism: [www.southafrica.net/research](http://www.southafrica.net/research)
  - StatsSA interactive data retrieval: [www.statssa.gov.za](http://www.statssa.gov.za)
  - SAWIS: [www.sawis.co.za/statistics](http://www.sawis.co.za/statistics)
  - Wynboer: [www.wynboer.co.za/recentarticles](http://www.wynboer.co.za/recentarticles)
  - [www.agriworldsa.com](http://www.agriworldsa.com)