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National Agricultural  
Marketing Council  
Promoting market access for South African agriculture

# Markets and Economic Research Centre and Directorate of International Trade



# TRADEPROBE

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This issue of *TradeProbe* covers the following topics:

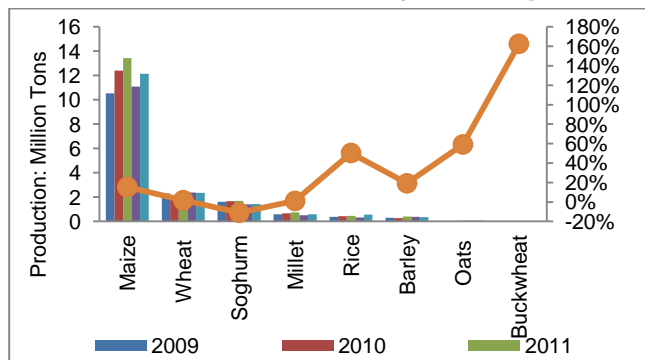
- **Product profile: Cereal crops in the SADC region**
- **Trade profile: Agricultural trade for SACU countries**
- **Evaluating South Africa's export performance drivers**
- **Democratic government (1994 onwards) attitude to agricultural subsidies in South Africa – is this an inherited problem or own creation?**
- **Structural change analysis in South African agriculture**

## 1. Product profile: Cereal crops in the Southern African Development Cooperation (SADC) region

Cereal crops are known to have high potential for the economy in achieving broad-based growth as well as household food security and poverty alleviation in rural areas. Within the SADC region, cereals are an important staple food for the entire population and most cereals are grown under dry-land conditions. This makes the region's cereal production vulnerable to issues of climate change, mainly drought, which increases the risk of food insecurity in the region.

The trend in regional cereal production has been noted to have stagnated in the past four years. The stagnated production was mainly a result of the shortfall in Namibia, South Africa, Zambia and Zimbabwe. This has resulted in cereal shortfalls that have to be met by imports or crop substitution with other non-cereal crops, such as cassava, which is a staple food in parts of Angola, DRC, Malawi, Mozambique, the United Republic of Tanzania and Zambia (SADC, 2014).

The FAO reported that the SADC region produced about 15 million tons of cereal crops in 2013 and, most of these were produced in Tanzania and South Africa. Maize was the largest crop produced, with about 12 million tons of maize in 2012. Sorghum and millet were among the top three cereal crops produced in the region (see **Figure 1**).



**Figure 1:** SADC cereal production, 2009–2011

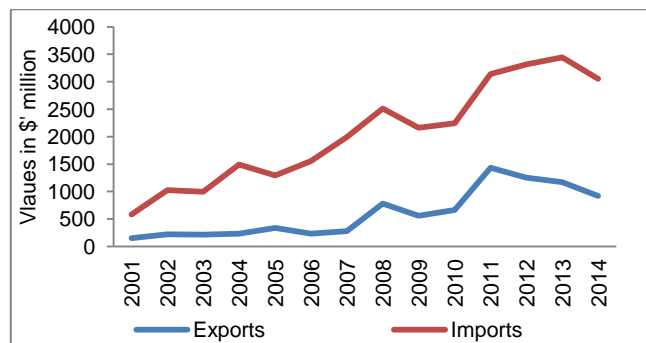
Source: FAOSTAT, 2014

Given the current drought challenges facing cereal production in the SADC region, this article seeks to assess how regional trade in these products has performed over the past 13 years. Throughout the reviewed period, South

Africa was the largest producer of cereal crops in the region.

## Cereal trade performance in the SADC region

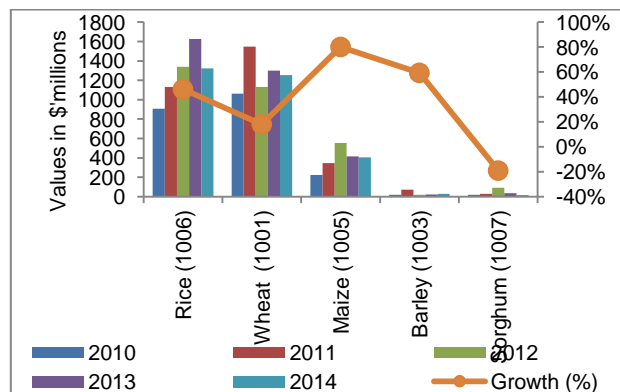
The SADC region has been a net importer of cereal products over the past 13 years. In 2014, SADC exported and imported a value of \$919 million and \$3.1 billion respectively (see **Figure 2**). The growth of cereal imports has been increasing since 2010, with a slight decline for both imports and exports during 2014. The large quantity of cereal imports in the SADC region is a result of high consumption, which exceeds local production in the region and also its important role in people's daily diet.



**Figure 2:** SADC cereal trade performance

Source: Trademap, 2015

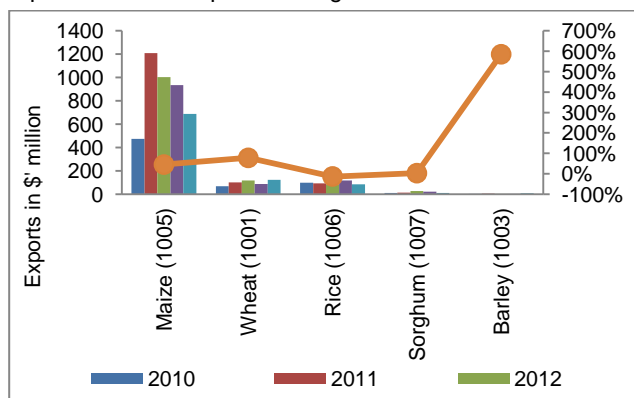
**Figure 3** shows the main cereal products imported by the SADC region between 2010 and 2014. Rice (HS 1006) was the top imported grain product, valued at \$1.14 billion in 2014. The major suppliers of rice to the region were Thailand, India, Pakistan, South Africa and Viet Nam, with a share of 42.6 %, 16.6 %, 25.9 %, and 5.6 % respectively in 2014. Wheat (HS 1001) was the second largest imported grain product, and the top three suppliers were Russia, with a market share of 36.6 %, Germany, with a share of 11.4 %, and South Africa, with a share of 10.4 %. Maize (HS 1005) was the third most imported cereal product in 2012. The top three suppliers of maize were South Africa, Zambia, and Argentina, with shares of 64.5 %, 12.4 % and 6.2 % respectively.



**Figure 3:** Main imported cereal crops in the SADC, 2010–2014

Source: Trademap, 2014

**Figure 4** shows the most exported cereal products from the SADC region. Maize (HS 1009) was the most largely produced cereal and was ranked as the most largely exported product in 2014. Maize exports showed a growth of 25 % between 2010 and 2014, although they showed a significant decline in 2013 and 2014. The main destination for maize exports is basically located in the SADC region, although Chinese Taipei was the largest destination for maize in 2014. It has been noted also the growth of wheat exports has been on the rise, with a growth of 78 %. The growth of exports in this region was mainly fuelled by expansion of fields for production both in South Africa and Zambia. Rice and sorghum were among the top four exported cereal crops in the region.



**Figure 4:** Main exported cereal products  
**Source:** Trademap, 2014

With the minimal trade among the SADC countries, it has been noted South Africa has capacity for producing most cereal crops and is therefore able to supply the countries in the region, given the limitations of border issues and infrastructure in the region. The trade chilling method was used to determine products that can be traded by SA to the region.

### Trade chilling method

DAFF (2012) defined trade chilling as a concept/method used to indicate which products have the highest potential to be traded between countries, if current trade flows are excluded. Because current trade flows are excluded, this refers to trade widening, rather than to trade deepening as in the Trade Potential Index (TPI). Sandrey (2006) also identified trade chilling as a fruitful method that focuses on current trade flows by tracing future export opportunities. The method will be employed to identify future possibilities that South Africa has to trade cereal products within the SADC region.

**Table 1 (Appendix A)** identifies cereal crop products demanded by the SADC which South Africa exports to the rest of the world but not to SADC countries. The threshold for SADC total imports from the world and South African total exports to the world was set at an export value of above R500 thousand (i.e. any value below R500 thousand is treated as non-trade), while the threshold of SADC imports from South Africa and South Africa's exports to SADC was set at a value below R500 thousand (i.e. any

value above R500 thousand is treated as existing trade). However, this was done so as to identify the products most demanded by the SADC region and the products most exported by South Africa so as to show the potential that exists for South Africa to export and increase exports to the SADC region. Thus **Table 1 (Appendix A)** presents all the cereal products that South Africa can potentially export to Africa so as to increase intra-regional trade, which is identified as a driver of economic development.



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## 2. Trade profile: Agricultural trade for SACU countries

The Southern African Customs Union (SACU) is a customs union agreement between South Africa, Botswana, Lesotho and Swaziland that was established in 1910. The 1969 Customs Union Agreement between South Africa, Botswana, Lesotho and Swaziland replaced the 1910 agreement, and Namibia became a contracting party from 1969. The members of these states renegotiated the terms of agreement in the mid-1990s, which culminated in its signing on 21 October 2002. The aim of this agreement was to allow free access to the trade of goods, non-preferential rules of origin and contingency trade remedies

SACU member countries comprised about 56 million of the world's population in 2014. **Table 2 (Appendix A)** shows that the combined Gross Domestic Products of SACU countries were \$774 billion (PPP), with South Africa as largest contributor of trade among the SACU countries. Given the political and economic status of this customs union, this article gives a review of intra-trade among SACU member states. Trade between each member state and South Africa will be analysed in order to see South Africa's trade position within the SACU.

### SACU intra-trade

Intra-SACU trade is measured in terms of the aggregate transactional value of imports and exports, which increased by 14 % under the reviewed period. Of the total trade in the SACU region, about 17 % of agricultural products were traded in 2014. It can be noted that the total agricultural trade showed a decline of 9 % under the reviewed period. **Tables 3 and 4 (see appendix A)** presents agricultural trade performance in the SACU region between 2010 and 2014. It can be noted that the SACU countries trade mostly sugars and grains. Grains in the region are regarded as a staple crop that contributes towards household food security. Cane sugar was ranked as the largest imported agricultural product, remaining at an average share of

10.3 % under the reviewed period. Maize, beer malt, and wheat were among the top four imported products, with an average share of 3.59 %, 5.62 % and 2 % respectively between 2010 and 2014. On the other hand SACU countries exported a total of about 49.93 % share between 2010 and 2014, with cane sugar as the largest exported product. Maize, beer malt and sugar confectionery were among the top four exported agricultural products, with a share of 4.8 %, 4.2 % and 3.2 % respectively in 2014 (see Table 2).

## South Africa's trade performance among BLNS countries

It has been noted South Africa's trade was about 50 % among the SACU countries given the free access among the BLNS countries. This section reviews South Africa's contribution for all the BLNS countries. It has been reported that South Africa is the gateway due to excess supply and the improved infrastructure in the country.

Table 5 gives an evaluation of South African exports destined for Botswana, Lesotho, Namibia and Swaziland (BLNS). According to the International Trade Centre, South Africa is the largest exporter of agricultural products to these countries. In 2014, Botswana commanded the largest share of SA imports among the BLNS countries, although it was reported not to be stable over the reviewed period (see Table 5). The share of South Africa's exports of all products to Namibia showed a decline in market share under the reviewed period, with an average share of 8.2 %. Lesotho and Swaziland made the least contribution to South Africa's export performance, with a steady decline starting from 2012 (see Table 5).

**Table 5:** Share of South Africa's exports to BLNS

Countries	2010	2011	2012	2013	2015
Botswana	8.2 %	7.7 %	7.8 %	8.3 %	8.3 %
Lesotho	4.2 %	4.7 %	5.0 %	4.1 %	4.0 %
Namibia	8.6 %	8.5 %	8.2 %	8.0 %	7.7 %
Swaziland	4.28 %	3.53 %	3.60 %	3.10 %	3.02 %

Source: Trademap, 2014

Table 6 shows South Africa's imports from BLNS. Botswana was the largest contributor in terms of agricultural supplies among the BLNS countries. It was reported that the Botswana held a share of 11 % in 2014, which shows a decline from a share of 19 % in 2010. Namibia was the second largest contributor of imports; however in 2014 it lost its share to Swaziland, commanding a share of 4.22 % in 2014. The share of SA imports from Swaziland showed an increase from 3.85 % in 2013 to 4.22 % in 2014, Lesotho was the smallest contributor to South Africa's agricultural imports, commanding an average share of 0.8 % under the reviewed period.

**Table 6:** SA agricultural imports from BLNS

Countries	2010	2011	2012	2013	2014
Botswana	19 %	18 %	21 %	11 %	11 %
Lesotho	0.6 %	0.5 %	1 %	0.9 %	1 %
Namibia	6.7 %	6.3 %	5.2 %	5.2 %	4.0 %
Swaziland	4.54 %	3.84 %	3.65 %	3.85 %	4.22 %

Source: Trademap, 2015

## Conclusion

It has been noted that trade within the SACU has been increasing under the reviewed period. Botswana was the largest contributor of both imports and exports between 2010 and 2014.



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## 3. Evaluating South Africa's export performance drivers

### Introduction

With the dawn of democracy South Africa became a member of the World Trade Organisation (WTO) and this led to the country reducing its tariff rates significantly. South Africa liberalised its trade so as to create an open and export oriented economy that could allow an improvement for agricultural markets and sustainable growth productivity. Following these trade reforms, the country become involved in a number of bilateral and regional trade agreements, which since 1994 have included free trade areas (FTAs), preferential trade agreements (PTAs) and regional trade. South Africa first entered into a trade development and cooperation agreement with the European Commission in the late 1990s. This trade agreement has increased South Africa's trade with the European Union markets (Cassim and Seventer, 2004).

South African has also increased its trade beyond the European Union and has recently been focusing on African and Asian markets. The country's trade grew from R221 billion in 2001 to over R906 billion in 2014, which is equivalent to an annual average rate of 13 %. The agricultural sector's exports have increased even faster, recording an annual growth rate of 14 % between 2001 and 2014. Agricultural exports account for nearly a 10 % share in the country's total exports. There are various factors that can be attributed to the positive growth in exports, including but not limited to the trade relations that the country has established since the dawn of democracy, and improved competitiveness, which has made South African products attractive in the global markets, the growing world population, which demands more products, the political relations that the country has established, as well as improving world technology and transport systems, which stimulate trade and reduce export costs.

This section seeks to review the trade performance of South Africa between 2001 and 2014, with a special focus on agricultural exports. An analysis of the factors driving exports are explored and discussed.

## Literature review on trade

International trade theory justifies the movement of goods and services (between countries) and more extensively outlines the laws that govern these movements (from multilateral treaties, to regional, bilateral and unilateral). The evolution of trade theory can be traced back to the 16th century, which was dominated by a mercantilist<sup>1</sup> philosophy (Sen, 2010). The mercantilist's views on restricting imports were later challenged by Adam Smith in 1776, who advocated free trade based on the theory of absolute advantage (Dima, 2010). This theory posited that when nations specialise in industries where they have absolute factor advantages, gains from trade come to every nation.

Ricardo (1817) further developed Smith's theory when he put forward the theory of comparative advantages. Ricardo's theory argued that mutually beneficial trade could be attained even when one nation was relatively efficient in the production of all goods, because nations specialise in industries where they have lower opportunity cost (Patrick & Lattimore, 2009). A common feature of these concepts and theories (absolute advantage and comparative advantage) was their call for free trade. This regime of high import tariffs and poor coordination of international trade laws led to the development and adoption of the General Agreement on Tariffs and Trade (GATT) in 1947.

GATT was developed as a tool to coordinate and enforce international trade rules. Between 1940 and 1980, tariffs were major barriers to the free movement of goods and services across borders. GATT was very successful in lowering these tariffs. The first six multinational trade negotiations under GATT reduced world average tariffs from over 50 % in 1950 to 12 % in 2000 (Smith, 2014 and Patrick & Lattimore, 2009). In the 1990s, GATT became a World Trade Organization (WTO) agreement, which expanded its trade rules to govern non-tariff measures including sanitary and phyto-sanitary rules as well as technical barriers to trade. The WTO and its predecessor, the GATT, are heralded as among the most successful multilateral institutions post-World War II, that have helped promote free international trade (Bagwell and Staiger, 2002). The new trade theory advocates industrialisation to promote competitiveness and trade (Anderson and Van Wincop, 2004). The new trade theory serves as the engine that finances development and economic growth among the nations. Trade theory finds a strong relationship between trade development and economic growth. Focus and Mold (2008) find that trade development in the world has resulted in increased GDP.

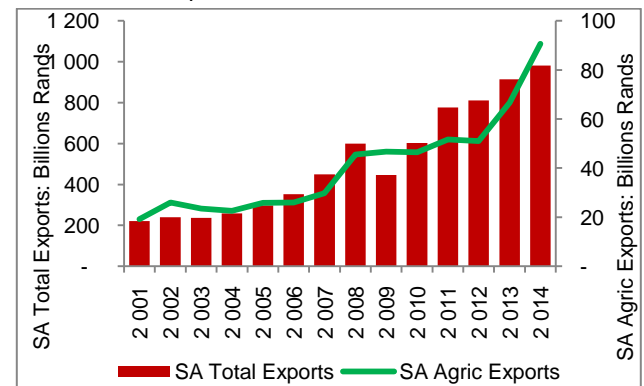
There is silence around international movements of goods and services across, whether the matter is influenced by economics alone or politics. It seems from very simple neoclassical trade theory that a free-market system determines the movement of goods. The concept of

<sup>1</sup> The mercantilist trade theory promoted the belief of high level government intervention in international trade, which encouraged nations to export.

regional grouping (on the basis of geography and politics and geo-politics) has had a trade diverting or creation component worldwide. South Africa has adopted an open trade policy since it became a democratic state in 1994. The trade policy reformation was aimed at creating access for South African goods to global markets. The country has reduced its tariffs to low levels has since it entered into various trade agreements (see **Appendix B** for a full list of the trade agreements the country has reached since 1994). This paper seeks to understand whether these trade agreements have been a driver of the country's recent trade growth. The objective of this section is to provide insight whether South Africa's trade growth follows trade agreements or they are stimulated by other factors.

## South African trade performance review

South Africa has enjoyed sustained positive trade growth since the early 2000s. **Figure 5** shows that the country's total exports have been growing at an average rate of 13 % per annum throughout the measured period to reach a R906 billion export value in 2014. **Figure 5** also shows the agricultural exports, which have been growing at an average rate of 14 % per annum to reach a total of R92 billion in 2014. South African exports, especially agricultural exports, experienced strong growth in the early 2000s (i.e. between 2001 and 2003), driven by weaker exchange rates and the deregulation of the agricultural industry. The second significant period was between 2007 and 2008 when the world suffered a global recession. During this period, South African exports experienced a sharp increase as global demand increased significantly. The third period is from 2012 to the present, which is regarded as a global financial recovery period. Strong signs of world recovery from the recession are observed from steadily increasing world demand which has triggered a further growth of South African exports to the world.

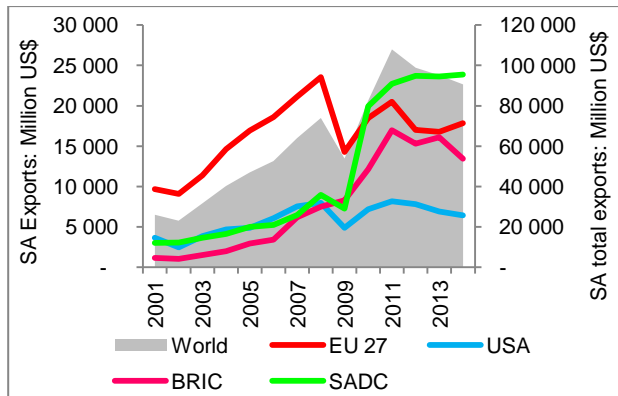


**Figure 5:** South African exports growth between 2001 and 2014  
**Source:** ITC-TradeMap, 2014

**Figure 6** provides insight into where South African commodities are exported. The European Union was always a major market destination for South African commodities until the global recession that took place in 2008. South Africa-EU trade relations are governed by the TDCA agreement (see **Appendix B** for more details). Since 2009, the EU has become the third largest market destination, behind the SADC and AGOA markets. South African-SADC trade relations are governed by the SADC

agreement. It is clear that the SADC has generated strong trade growth for South Africa, as exports to the SADC market increased from US\$3.1 billion in 2001 to over US\$24 billion in 2014, which is equivalent to a 681 % growth rate in exports. The bulk of South African exports to the SADC market are dominated by agricultural products, including grains, prepared food and fruits.

The BRIC market is steadily increasing its market share of South Africa's exports, having grown from US\$1.1 billion in 2001 to over US\$13 billion export value in 2014. South African exports to the BRIC market are dominated by steel, mining commodities, machinery, forestry products and raw agricultural products. South African exports to the United States of America (USA) have remained relatively low throughout the measured period.



**Figure 6:** South African exports per market destination  
**Source:** ITC-Trademap, 2014

**Table 7** shows the markets that are increasingly claiming a major share of South Africa's exports. The export share of EU markets decreased from 37 % in 2001 to 20 % in 2014 as the country shifted its focus to African and Asian markets. This is evident when evaluating the export share of BRIC and SADC markets. The former increased from 4 % to 15 % during the measured period while the latter increased from 12 % to 26 % during the same period.

**Table 7:** Market growth and share in South Africa's total exports

Market growth	Export share in 2001: %	Export share in 2014: %
EU 27	37 %	20 %
USA	14 %	7 %
BRIC	4 %	15 %
AGOA	12 %	27 %
SADC	12 %	26 %
<b>Collective share of SA exports</b>	<b>79 %</b>	<b>95 %</b>

**Source:** ITC-Trademap, 2014

### Drivers of South African trade

This section evaluates South Africa's trade performance between 2001 and 2014, with a special focus on agricultural exports. The analysis reveals that the bulk of South Africa's agricultural exports are still destined for European Union markets. However, the EU's share is steadily decreasing at the expense of Asian and African markets. An analysis of factors behind trade growth indicates that the country follows those nations with improving economic environments, i.e. countries with

improving GDP, infrastructure and sustained growth. An analysis of the political landscape reveals that the country has adopted a wider friendship approach, where it has good relations with all regions of the world. The section concludes that South African exports are mainly driven by economic factors such as GDP growth in destination markets, consumer size growth, and retail evolution and consumer preference for South African products.

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### 4. Democratic government (1994 onwards) attitude to agricultural subsidies in South Africa – is this an inherited problem or own creation?

- *Whose decision was it to liberalise agricultural trade at the rate we did? Was it the democratic government policy direction or the policies of the apartheid government?*
- *Was it wise for South Africa to take developed country commitments following the signing of the Uruguay*

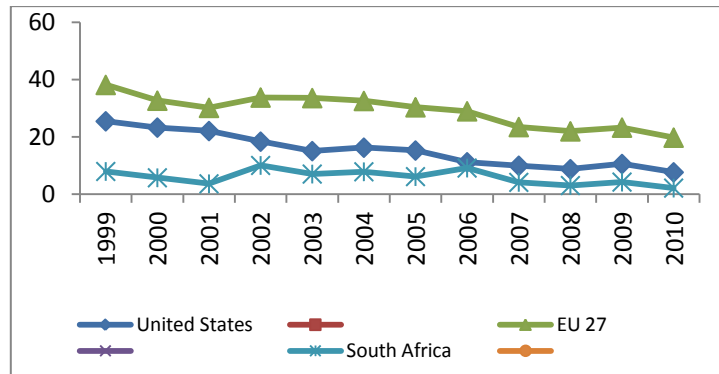
Round Agreement and the subsequent deregulation of the marketing environment?

- What can be done to reverse the losses that may have come from the two policy changes while not reversing the gains?

## Introduction

Correctly or incorrectly, commentary about agriculture in South Africa normally compares South Africa to the European Union (EU) and/or United States of America (USA), and lately to Brazil, Argentina, Chile, China, Indonesia or India. Whether or not that comparison is justified (in terms of productive capacity, productivity and trade openness/protection) is not a focus for this section. Here we look specifically at South Africa's agricultural support or lack thereof provided or not to the agricultural sector in perspective of the same sector in the EU and USA. From a helicopter view it seems South Africa was very fast to reduce subsidies and reduce tariffs while the EU and USA took moderate stances. Other than the preferential access under the Trade, Development and Cooperation Agreement (TDCA) and the Africa Growth Opportunity Act (AGOA), it is very difficult to access the European and USA markets for agricultural products on the basis of their stringent sanitary and phytosanitary (SPS) measures. South Africa acted decisively; following the re-admission to the multilateral trading negotiations (then the General Agreement on Tariff and Trade – GATT and now the World Trade Organisation – WTO), and what is concerning is the fact that South Africa rejoined as a developed country (having recognised herself as a developed country from the formation as a founding member). The re-admission was then followed by rapid overall removal of the tariff protection on agricultural products (tariff structure simplification) and the removal of subsidies as well as a change of the marketing regime (deregulation of the market). This article ponders the question: What has been happening in the EU and USA pertaining to support for agriculture?

The Producer Support Estimates – PSE (calculated as a percentage of gross farm receipts) for the OECD declined from 35 % in 1999 to approximately 18.8 % in 2011 – with a smooth decline experienced over this period. In **Figure 7** below it can also be seen that the PSE for both the USA and the EU has been in decline since 1999, by about 25 % and 38 % respectively (OECD, 2012). **Figure 7** provides information up to 2010 and a reconsideration of the calculation of agricultural support to the decoupled method emerges. For the purposes of this section, the PSE information was used.



**Figure 7: Producer Support Estimate (1999–2010)**  
Source: OECD (2012)

## Country overviews (the United States of America, the European Union and South Africa)

**Agricultural support in the USA** outlined by OECD (2006) shows that the producer support estimate stood at 20 % for USA agriculture in 2005. According to Folsom, America has moved from a position of not supporting agriculture before 1930 to a highly supported sector post the Great Depression. In this, Folsom noted that even during the time when America's unemployment reached unprecedented levels of 18 % in the mid-1890s government focused on cutting budgets (under Secretary J. Sterling Morton). The appetite for agricultural support emerged following the Great Depression and has not changed since then. The subsidisation of agriculture is argued to have had unintended consequences, such as the low prices of wheat and cotton as a result of flooding of farmers towards production of these products, which in turn resulted in government having to buy and sell to global markets (as food aid). This then led to the promulgation of the Agriculture Adjustment Act that legislated the payment of farmers not to produce and fixing of prices (setting the floor price). This Act (Nestle, undated) was promulgated for production control and later ruled to be unconstitutional in 1936 by the Supreme Court. In 1938 amendments to that Act were made to ensure that it complied with the Court Ruling and ended up including Conservation Law and the new Commodity Act. Then the Farm Bill was promulgated, and has evolved tremendously (increased in value) from the 1930s, from food aid to include a food stamp programme recently. Even with the most recent review of the Farm Bill, support seems to have shifted towards environmental issues.

**Agricultural support in the EU** presented by the OECD (2006) outlines that the producer support estimate for the EU was 34 % in 2005 with the most highly supported products being sugar (23 %) and mutton (13 %). After the Second World War it was argued that Europe depended mainly on food imports and food aid from America, and during this period the EU suffered from hunger and malnutrition. The Common Agricultural Policy (CAP) introduced in the early 1960s (first implemented in 1963) was aimed at increasing Europe's self sufficiency and increase food production (through increased labour and

land productivity) – and, according to Reichert (2006), the CAP met all its original objectives. The formation of export subsidies in the EU followed rapid increases in production, resulting in conflicts with traditional food exporters and importing countries. In early 2000 a review of the CAP resulted in the extension of the objectives to cover environmental and consumer protection, an extension that seem contradictory to the original objectives. This led to the establishment of the European Agricultural Fund for Rural Development to fund the bulk of rural development initiatives, with a quarter of available funds set aside for agriculture. The argument, in 2006, was that the EU continued to export at prices lower than production prices especially in grains and milk products, displacing farmers of their domestic markets in importing countries.

**Agricultural support in South Africa** presented by the OECD (2006) shows that South Africa's producer support estimate stood at 5 % in 2005. The Reconstruction and Development Programme (RDP), in articulating South Africa's trade policy, argues for the alignment of the country's trade with GATT, thus simplifications of the tariff structure and revision of export incentives. In arguing for support to the commercial sector (which was identified as very important), the document calls for the removal of unnecessary levies and unsustainable subsidies (maybe this is where a decision to remove the support started). Understandably, the document also advocated for the shift of support from commercial farmers (noted as expensive and inefficient – a free market argument) including the reformation of marketing boards (deregulation) – to small-scale farmers. Interestingly, the RDP policy document argues that every additional unit of capital investment in the agricultural sector yields higher job opportunities (labour multiplier) than any other sector (except construction) – and yet the budget allocation to the Department of Agriculture, Forestry and Fisheries (DAFF) is still less than 1 % (at about R6 billion) of the National budget (standing around R1 trillion) to-date (National Treasury, 2015). This is in spite the Continental Commitment under Comprehensive Africa Agriculture Development Programme (CAADP) of allocating 10 % of National Budgets to agriculture to achieve 6 % growth (NEPAD Foundation, 2015).

## Concluding remarks

The overall support to agriculture in the USA and EU was not completely removed following conclusion of the Uruguay Round Agreement on Agriculture (URAOA). Meanwhile South Africa reduced the support drastically through tariff structure simplification and reduced applied rates. The views of the RDP on agricultural subsidies seem to be in line with the subsequent government policies. While other countries seem to have found better/alternative ways to comply with the WTO agreement, South Africa reduced its support to agriculture (a sector not associated with goodwill in the mid 1990s).

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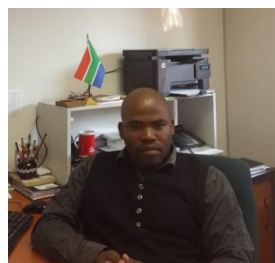
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## 5. Structural change analysis in the South African agriculture

### Background

The agricultural sector contributed about 2.5 % to South Africa's economy as measured by the Gross Domestic Product (GDP) in 2014. In the same year the sector accounted for a 9 % share in total exports as well as 5 % in total imports. About 650 000 people are employed in agriculture, which is equivalent to a 5 % share of formal employment (StatsSA, 2014). This phenomenon is not unique to South Africa, as most developing and developed countries have a relatively low agricultural share in the economy and trade (World Bank, 2015). Despite the fact that agriculture accounts for less than 10 % of world trade and around 2 or 3 % of GDP in developed and developing countries, agriculture remains the most significant sector in



the economy as it provides food, employment and intermediate goods to secondary sectors.

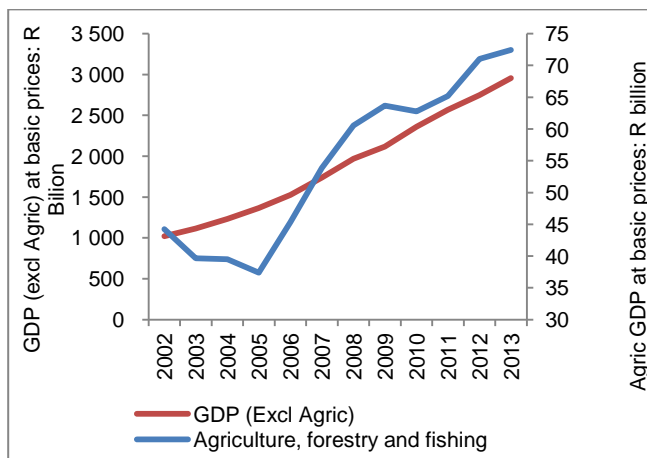
This section uses a single country Computable General Equilibrium (CGE) database for South Africa, which was developed based on 2011 data. The CGE database contains three sets of information, namely:

- **Coefficients** which are computed from the Supply-Use Tables published by Statistics South Africa. These coefficients represent the basic flows of commodities between users, commodity taxes paid by users, and margin flows that facilitate the flow of commodities.
- **Behavioural parameters** which are elasticities that influence the degree to which economic agents change their behaviour when relative prices change.
- **Government accounts**, which are South African accounts with the rest of the world and industry-specific capital stocks and depreciation rates.

These information sets are sourced from various documents, including but not limited to the Supply-Use Tables, Social Accounting Matrix, Labour Force Quarterly Survey and the South African Reserve Bank Quarterly Bulletin, as well as sector-specific data reports such as agricultural abstracts and StatsSA agricultural large sample surveys.

### Structural changes analysis

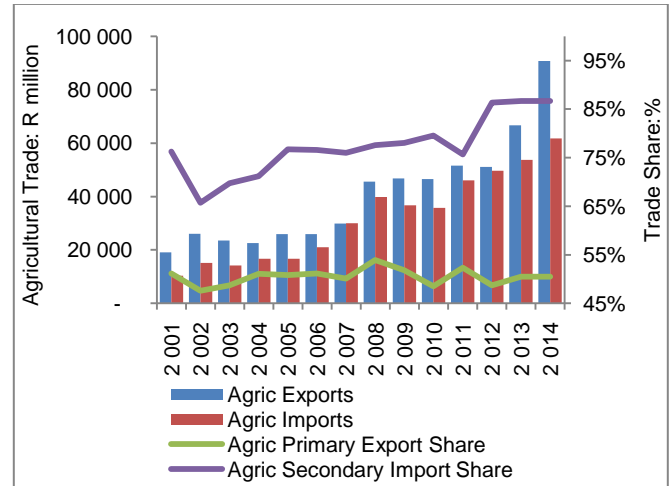
In assessing the structural changes in agriculture, this study commenced by evaluating the sector's contribution to GDP over the past 12 years. **Figure 8** shows that the contribution of agriculture to the country's GDP has been steadily declining from over 4 % in the early 2000s to less than 2.5 % in 2013. The declining share can be attributed to the faster growth rate experienced by other sectors in comparison with the agricultural sector. Industries such as business, manufacturing and transport have grown faster than agriculture and as a result their contribution to the GDP has expanded over the years.



**Figure 8:** Gross domestic product (GDP) growth between 2002 and 2013

**Source:** StatsSA, 2014

In continuing to look at the structural changes, the study narrows its focus to the agricultural sector. Evaluating agricultural trade reveals that the sector maintained a positive trade balance between 2001 and 2014; however, exports are still dominated by unprocessed agricultural commodities. **Figure 9** indicates that the share of unprocessed agricultural commodities remained at around 52 % on average during the measured period. Interestingly, the share of processed agricultural commodities for total agricultural imports has increased from 66 % in 2002 to 87 % in 2014. It appears that South Africa is exporting raw materials and increasingly importing processed agricultural products.



**Figure 9:** Agricultural trade evolution

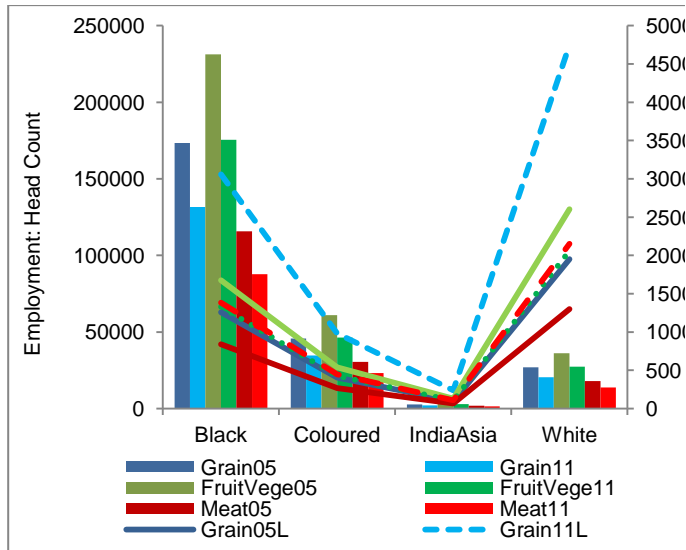
**Source:** WTA, 2014

Thirdly, the study evaluated the structural changes in agricultural employment. The National Development Plan (NDP) identifies agriculture as one of the strategic sectors to create jobs for the country. Comparing data between 2005 and 2011, the study finds that employment in agriculture decreased from 830 189 in 2005 to 630 140 people in 2011, which is equivalent to 24 % job losses. The main loser is the fruit and vegetable industry, which lost over 81 000 people, followed by the grain industry with 60 000 people losing their jobs. Although agricultural employment overall declined by 174 989 people, the wage bill increased from R12 billion to R20 billion between 2005 and 2011, which is a growth rate of 61 % in just 6 years. Interestingly, the grain industry increased its overall wages the fastest, recording a 143 % growth, followed by the meat industry, with a 65 % growth. Ironically, the fruit and vegetable industry is lowering both its wage bill and people employed. The fruit and vegetable industry wage bill declined by 21 % between 2005 and 2011.

This decreasing wage bill and employment in the fruit and vegetable industry can be explained by the findings of Conradie (2007) and Theron (2008), that labour casualisation of farm work is rising in the fruit industry. They find that casualisation lowers the farm workers' income and reduces employment as labour is only demanded during critical seasonal periods such as harvesting, pruning and canopy management. Given the

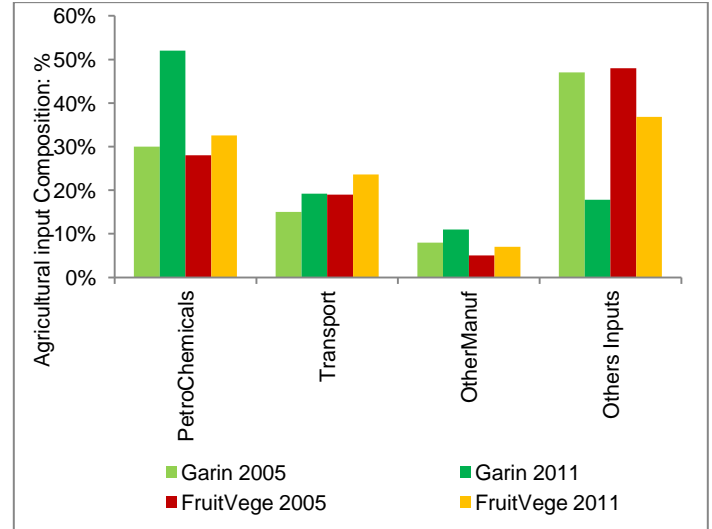
findings of Conradie (2007) and Theron (2008), the database indicates a strong shift to casualisation of labour in the fruit and vegetable industry, mirrored by declining wage bill and employment.

**Figure 10** further provides critical information regarding agricultural employment across population groups. The study finds that the black population accounts for 70 % of agricultural employment and earns 34 % of the total agricultural wage bill. The white population group accounts for 11 % of employment and earns 61 % of the total wage bill. These figures have not changed significantly from those observed in 2005, which indicates that the agricultural sector's employment has not reformed significantly.



**Figure 10:** Agricultural employment changes  
Source: Author

The last indicator of structural changes evaluated by the paper is input composition used by various agricultural industries. The study finds that all agricultural industries are shifting towards mechanical inputs as the share of machinery, fuels and chemicals are increasing while those of other inputs including labour are declining. For example, in the grain industry, the input share for petrol, diesel and chemicals increased from 30 % to 52 % between 2005 and 2011, and the machinery share increased from 15 % to 19 % during the same period (see **Figure 11**). These two inputs are an indication of a steady increase in machinery usage. A similar phenomenon is observed when evaluating the input composition of the fruit and vegetable industry, as well as the meat industry.



**Figure 11:** Agricultural input composition  
Source: Author

**Conclusion and recommendations**

The study has contributed to CGE modeling literature by developing a comprehensive agricultural focused database that is compatible with CGE models. The database created disaggregates the agriculture and food industries into 17 agricultural industries. These detailed and disaggregated data allow researchers to analyse the impact of various policies on specific industries and determine the interlinkages with other industries.

Using the database created, the study assessed structural changes in the agricultural sector. The study finds that the sector is still a net exporter of agricultural commodities, but the sector exports unprocessed agricultural commodities and imports processed agricultural commodities. Employment in the sector is declining and the fruit and vegetables industry is the biggest loser. As mentioned, the fruit and vegetables industry is shifting towards labour casualisation, which not only decreases employment but also lowers farm workers' incomes. The study further finds that agricultural industries are shifting away from labour-intensive agricultural practices as the share of labour in total input is declining while that of machinery and petrochemicals is increasing.

Driven by the aforementioned findings, the study recommends a review of the impact of labour regulations such as minimum wages, as it seems to benefit farm workers in the grain and meat industries, but disadvantages farm workers in the fruit and vegetables industry. A review of agricultural labour laws will also address the issue of unbalanced earnings, where the white minority population groups earns 61 % of the sector wage bill whilst the majority of the black population earns a disappointing 31 % of the agricultural wage bill.

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## Appendix A

**Table 1:** South Africa's cereal export potential to SADC

HS	Product description	SADC imports	SADC imports from SA	SA exports	SA exports to SADC
100119	Durum wheat	175 731	0	22 844	9 359
100610	Rice in the husk	18 438	0	6 033	7 190
100191	Seed of wheat and meslin	1 411	0	1 400	647

Source: Trademap, 2014

**Table 2:** Economic indicators in the SACU members of states

Economic indicators	South Africa	Namibia	Lesotho	Botswana	Swaziland
Population (million)	48.4	2.1	1.9	2.2	1.4
Real GDP (\$bn)	683.1	23.8	5.6	33.6	8.7
GDP growth rates (%)	1.5	5.3	4.3	4.4	2.1
Agriculture as % share in GDP	2.4	6.2	7.5	1.9	7.2

Source: Central Intelligence Agency, 2014

**Table 3:** SACU intra-imports products

HS code	Product description	2010	2011	2012	2013	2014
1701	Cane sugar	10.54 %	10.08 %	10.48 %	9.81 %	10.55 %
1005	Maize	2.92 %	2.49 %	2.80 %	4.83 %	4.89 %
2203	Beer malt	6.28 %	6.60 %	5.64 %	5.27 %	4.32 %
1001	Wheat	1.54 %	1.37 %	0.88 %	2.87 %	3.34 %
1704	Sugar confectionery	3.80 %	3.85 %	3.58 %	3.53 %	3.22 %
2402	Cigars	2.61 %	3.85 %	3.77 %	4.08 %	3.01 %
2009	Fruit & vegetable juices	3.02 %	2.89 %	2.69 %	2.76 %	2.92 %
2309	Animal feed preparations	2.90 %	2.79 %	3.71 %	3.44 %	2.83 %
1604	Prepared fish & caviar	1.77 %	1.56 %	2.22 %	1.94 %	2.44 %
1512	Sunflower	2.43 %	2.68 %	2.45 %	2.60 %	2.39 %

Source: International Trade Centre

**Table 4:** Intra-exports from SACU

HS code	Product description	2010	2011	2012	2013	2014
1701	Cane sugar	9.2 %	8.9 %	9.8 %	10.1 %	10.4 %
1005	Maize	4.0 %	3.7 %	4.6 %	4.8 %	4.8 %
2203	Beer malt	5.5 %	5.5 %	5.3 %	5.3 %	4.2 %
1704	Sugar confectionery	3.4 %	3.1 %	3.0 %	3.4 %	3.2 %
1001	Wheat	1.5 %	2.5 %	2.5 %	2.4 %	3.2 %
2402	Cigars	4.0 %	4.2 %	3.8 %	3.8 %	3.0 %
2009	Fruit & vegetable juices,	2.6 %	2.6 %	2.6 %	2.6 %	2.9 %
2309	Animal feed preparations	2.3 %	2.3 %	3.0 %	2.9 %	2.8 %
1604	Prepared fish & caviar	1.9 %	1.9 %	2.0 %	1.9 %	2.4 %
1512	Sunflower	2.1 %	2.5 %	2.3 %	2.5 %	2.3 %

Source: International Trade Centre

## Appendix B: South African trade agreements

Trade agreement	Type of agreement	Countries involved	Main objective	Products involved	Year
Trade Development and Cooperation Agreements (TDCA)	Free trade Agreement	South Africa and European Union (EU)	The aim of the trade agreement was to increase trade, and improve South Africa's economic integration in the global market. The South African market agreed to liberalise about 95 % of EU imports and the EU agreed to liberalise about 86 % of SA imports	There is currently a review of the agreement under way, which is aimed at broadening the scope of product coverage. This is taking place under the auspices of the Economic Partnership Agreement (EPA) negotiations between the SADC and the EU	1999
Southern African Customs Union (SACU)	Customs Union	South Africa, Botswana, Lesotho, Namibia and Swaziland	The main aim of this agreement was to allow duty-free movement of goods with a common external tariff on goods entering any of the countries from outside the SACU	All products	1910
SADC	FTA	Between all 12 member states	The main aim was allow free movement of goods among the 16 member countries. Therefore, this FTA allowed about 85 % duty-free trade achieved in 2008 and 15 % of trade, constituting the "sensitive" list was liberalised from 2009 to 2012 when the SADC attained the status of a fully-fledged FTA with almost all tariff lines traded duty free.	Most products	2000
SACU-Southern Common Market (MERCOSUR) PTA	Preferential Trade Agreement (PTA)	SACU countries, Argentina, Brazil, Paraguay and Uruguay	The aim was the reduction of tariff duties on selected goods.	About 1 000 product lines on each side of the border	2009
PTA with USA through AGOA	Unilateral assistance measure	Granted by the USA to 39 sub-Saharan African (SSA) countries	To allow preferential access to the US market through lower tariffs or no tariffs on some products	Duty-free access to the US market under the combined AGOA/GSP programme stands at approximately 7 000 product tariff lines	2002
EFTA-SACU free trade agreement	FTA	SACU and the European Free Trade Association (EFTA) - Iceland, Liechtenstein, Norway and Switzerland	To allow tariff reductions on selected goods	Industrial goods (including fish and other marine products) and processed agricultural products. Basic agricultural products are covered by bilateral agreements with individual EFTA State	2008
Zimbabwe/South Africa bilateral trade agreement	Bilateral PTA	SA and Zimbabwe	To allow preferential rates of duty, rebates and quotas on certain goods traded between the two countries	Selected goods. The most recent version of the agreement was signed in August 1996, which lowers tariffs and quotas on textile imports into South Africa.	

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Generalised System of Preferences (GPS)	This is a unilateral system of preferences granted under the enabling clause of the WTO that are not contractually binding upon the benefactors	Offered to South Africa as developing country by the EU, Norway, Switzerland, Russia, Turkey, the US, Canada and Japan	To allow preferential market access on products from developing countries as to qualify access to developed countries.	Specified industrial and agricultural products	1995
Trade and investment Framework Agreement (TIDCA)	Cooperative framework agreement	SACU and USA	Makes provision for the parties to negotiate and sign agreements relating to sanitary and phyto-sanitary measures (SPS), customs cooperation and technical barriers to trade (TBT). It also establishes a forum of engagement of any matters of mutual interest, including capacity-building and trade and investment promotion	None	2008
Trade and Investment Framework agreement	Bilateral agreement	SA and USA	Provides a bilateral forum for the two countries to address issues of interest, including AGOA, TIDCA, trade and investment promotion, non-tariff barriers, SPS, infrastructure and others	None	2008
SACU-India PTA	PTA	SACU and India	Tariff reductions on selected goods	SACU and India are in the process of exchanging tariff requests	Still under negotiation
SADC-EAC-COMESA	FTA	26 countries with a combined GDP of US\$860 billion and a combined population of approximately 590 million people	The Tripartite Framework derives its basis from the Lagos Plan of Action and the Abuja Treaty establishing the African Economic Community (AEC), which requires rationalisation of the continent's regional economic communities. The FTA will be negotiated over the next three years, with the possibility of an additional two years for completion.	The Tripartite initiative comprises three pillars that will be pursued concurrently, in order to ensure an equitable spread of the benefits of regional integration: market integration, infrastructure development and industrial development. The FTA will, as a first phase, cover only trade in goods; services and other trade-related areas will be covered in a second phase	Still under negotiation

Source: DTI and DAFF, 2013

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