The African Continental Free Trade Area (AfCFTA): Opportunity or pipedream for South Africa's Agricultural Exports

by

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Declaration

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Abstract

The conclusion of the Uruguay Round of multi-lateral trade talks gave rise to a new era of agricultural trade that is more fair and competitive, globally (UNCTAD, 2020). However, failure to achieve set deadlines to further liberalise total trade (agricultural and other) on a global scale shifted the goal posts for countries to focus more on Preferential Trade Agreements. Between 2012 and 2021, the number of Regional Trade Agreements on the African continent increased from 28 to 45, focused on structural reforms designed to aid in opening up economies to execute export-orientated policies, which are more market driven, competitive and democratic. The African Continental Free Trade Area is the most recent addition to the Free Trade Agreements on the African continent.

Africa is characterised by rapid Gross Domestic Product growth, population expansion, urban migration, changing dietary patterns, and a growing working-age population (Ekobena, Coulibaly, Keita and Pedro, 2021; van Berkum, 2021). Additionally, it is forecast that agribusiness trade is expected to grow by up to 30% by 2050 (Moyo, 2020). However, Africa's share in receiving South Africa's agricultural exports has been decreasing. Therefore, the research question is whether the African Continental Free Trade Area presents an opportunity for South Africa to further expand agricultural exports into the continent, or is it just a pipedream?

To address this question, various trade indices were used to analyse the nature of trade between countries in different Regional Economic Communities (REC's) on the African continent. The indices used in this study include, the Regional Trade Introversion index, the Intra-Industry Trade coefficient, the Regional Orientation Index and Gini-Index and lastly the import Gini-Hirschman Index. A grouping of agricultural products (processed and unprocessed) that belong in both South Africa's top 80% agricultural exports to the world and in the top 80% imports of each respective Regional Economic Community from the world was used. Through the combined used of these trade indices, the identification of countries that represent an opportunity for South Africa's agricultural export sector was done.

It was found that the level of trade introversion among the Regional Economic Communities varies greatly, and the level of introversion for the selected processed agricultural products tended to be larger than that of the unprocessed agricultural

products. The results for unprocessed products show that several Regional Economic Communities are highly dependent or becoming more dependent on extra-regional trade (e.g., Arab Maghreb Union (AMU), Common Market for Eastern and Southern Africa (COMESA), Economic Community of West African States (ECOWAS), Community of Sahel Saharan States (CEN-SAD), Economic Community of Central African States (ECCAS), Intergovernmental Authority on Development (IGAD)), except the East African Community (EAC). The high level of trade introversion for processed agricultural products in all Regional Economic Communities suggests that South Africa could experience difficulties in exploiting market opportunities despite tariff reductions, but the opposite is true for unprocessed agricultural products, except perhaps in the EAC. Overall, the unprocessed agricultural products show the highest potential for market expansion, supported by the Intra-Industry Trade values and the trade balances of the respective products, including maize, fresh apples, fresh or chilled potatoes and frozen, boneless meat of bovine animals.

South Africa's regional orientation shows that exports of the selected agricultural products are strongly oriented towards SADC. South Africa's Regional Orientation Index for certain exports of unprocessed agricultural products were highest for the ECOWAS and CEN-SAD Regional Economic Communities, which implies that trade creation effects would be higher than trade diversion effects from increased exports into those Regional Economic Communities due to reduced tariffs.

The high Gini coefficients show South Africa's exports of the selected agricultural products into Africa are highly concentrated in a few markets, mainly SADC. The AMU Regional Economic Community has the lowest import concentration for imports from South Africa of the selected agricultural products implying that South Africa has a minimal market share in the region.

A Composite Country Priority Index was also developed to identify potential export markets for South Africa to prioritise on the African continent. The Composite Country Priority Index is composed from three dimensions that affect the trade potential of an export destination, namely (i) Market Conditions, (ii) the Business Environment, and (iii) the Logistical Conditions of each country. The results show that (i) South African exports of processed and unprocessed agricultural products into different countries are not prioritised in the same manner, (ii) different regions pose different levels of

opportunities for trade expansion, and (iii) export volumes to some countries are far greater than what is suggested by the Composite Country Priority Index. The latter point can be explained by, among other things, the proximity of certain countries to South Africa, the competitiveness of South Africa's products as opposed to imports from elsewhere, and the availability of products within the home country. The results of the Composite Country Priority Index analysis emphasise that the Composite Country Priority Index and its comparison with trade values should be used as a basis to further investigate the appropriateness of an identified export market.

Finally, this study shows there is no conclusive evidence that the African Continental Free Trade Area is a pipedream for South African agricultural exports, but it is certainly not a silver bullet to significantly expand agricultural exports, at least not in the short to medium term. Furthermore, tariff reductions alone will not lead to notable export increases if Africa's non-tariff barriers are not resolved. This applies to destination countries and transit countries, as the latter act as the pathway for South Africa's agricultural exports into Africa.

Keywords: Preferential Trade Agreements, Africa Regional Trade, Trade Integration; African Continental Free Trade Area; Agricultural exports, Composite Index

Opsomming

Die afsluiting van die Uruguay-ronde van multilaterale handelsgesprekke het gelei tot ’n nuwe era van billiker en mededingende landbouhandel wêreldwyd (UNCTAD, 2020). Die versuim om vasgestelde sperdatums te haal om die totale handel (landbou en ander) op wêreldwye skaal verder te liberaliseer, het egter die doelpale verskuif vir lande om meer op voorkeurhandelsooreenkomste te konsentreer. Tussen 2012 en 2021 het die aantal streekshandelsooreenkomste op die vasteland van Afrika toegeneem van 28 tot 45, met die fokus sterk op strukturele hervormings wat ontwerp is om ekonomieë oop te maak om uitvoergeoriënteerde beleide uit te voer, wat meer markgedrewe, mededingend en demokraties is. Die Afrika Kontinentale Vryhandelsgebied is die mees onlangse toevoeging tot die vryhandelsooreenkomste op die vasteland van Afrika.

Afrika word gekenmerk deur ’n snelgroeiende bruto binnelandse produk, bevolkingsgroei, stedelike migrasie, veranderende dieetpatrone en ’n groeiende bevolking van werkende ouderdom (Ekobena, Coulibaly, Keita en Pedro, 2021; van Berkum, 2021). Boonop word daar voorspel dat handel deur landboubesighede teen 2050 na verwagting met tot 30% sal groei (Moyo, 2020). Daar was egter ’n afname in Afrika se aandeel in Suid-Afrika se landbou-uitvoere. Bied die Afrika Kontinentale Vryhandelsgebied dus ’n geleentheid vir Suid-Afrika om landbou-uitvoere na die vasteland uit te brei, of is dit net ’n pypdroom?

Om ’n antwoord hierop te verkry, is verskeie handelsindekse gebruik om die aard van handel tussen lande in verskillende streeksekonomiese gemeenskappe op die vasteland van Afrika te ontleed. Die indekse wat in hierdie studie gebruik is, sluit in, die streekshandelinversie-indeks, die intra-industriële handelskoëffisiënt, die streeksoriëntasieindeks en Gini-indeks en laastens die invoer Gini-Hirschman-indeks. ’n Groepering van landbouprodukte (verwerkte en onverwerkte) wat in beide Suid-Afrika se top 80% landbou-uitvoere na die wêreld en in die top 80% invoere van elke onderskeie ekonomiese gemeenskap in die Afrika-streek uit die wêreld hoort, is gebruik. Deur ’n kombinasie van dié handelsindekse te gebruik kan lande geïdentifiseer word wat ’n geleentheid vir Suid-Afrika se landbou-uitvoersektor bied.

Daar is gevind dat die vlak van handelsintroversie onder die streeksekonomiese gemeenskappe baie verskil, en die vlak van introversie vir die geselekteerde verwerkte

landbouprodukte is geneig om groter te wees as dié van die onverwerkte landbouprodukte. Die resultate vir onverwerkte produkte toon dat verskeie streeksekonomiese gemeenskappe hoogs afhanklik is of meer afhanklik word van buite-streekshandel (byvoorbeeld AMU, COMESA, ECOWAS, CEN-SAD, ECCAS, IGAD), behalwe die EAC. Die hoë vlak van handelsintroversie vir verwerkte landbouprodukte in alle streeksekonomiese gemeenskappe dui daarop dat Suid-Afrika probleme kan ervaar om markgeleenthede te ontgin ondanks tariefverlagings, maar die teenoorgestelde geld vir onverwerkte landbouprodukte, behalwe miskien in die EAC. Oor die algemeen sluit die onverwerkte landbouprodukte wat die grootste potensiaal vir markuitbreiding toon, ondersteun deur die intra-industriële handelswaardes en die handelsbalanse van die onderskeie produkte, mielies, vars appels, vars of verkoelde aartappels en bevrore, beenlose vleis van beeste in.

Suid-Afrika se streeksoriëntasie toon dat uitvoere van die geselekteerde landbouprodukte sterk op die SAOG gerig is. Suid-Afrika se streeksoriëntasieindeks vir die uitvoer van sekere onverwerkte landbouprodukte was die hoogste vir die ECOWAS- en CEN-SAD streeksekonomiese gemeenskappe wat impliseer dat handelskeppingseffekte hoër sou wees as handelsafleidingseffekte van verhoogde uitvoere na daardie ekonomiese streeksgemeenskappe as gevolg van verlaagde tariewe.

Die hoë Gini-koëffisiënte toon dat Suid-Afrika se uitvoere van die geselekteerde landbouprodukte na Afrika hoogs gekonsentreer is in enkele markte, hoofsaaklik SAOG. Die AMU ekonomiese streeksgemeenskap het die laagste invoerkonsentrasie vir invoere uit Suid-Afrika van die geselekteerde landbouprodukte wat impliseer dat Suid-Afrika ’n minimale markaandeel in die streek het.

’n Saamgestelde Land Prioriteitsindeks is ook ontwikkel om potensiële uitvoermarkte vir Suid-Afrika te identifiseer om op die Afrika-vasteland te prioritiseer. Die Saamgestelde Land Prioriteitsindeks bestaan uit drie dimensies wat die handelspotensiaal van ’n uitvoerbestemming beïnvloed, naamlik (i) Marktoestande, (ii) die Besigheidsomgewing en (iii) die Logistieke toestande van elke land. Die resultate toon dat (i) Suid-Afrikaanse uitvoere van verwerkte en onverwerkte landbouprodukte na verskillende lande nie op dieselfde wyse geprioritiseer word nie, (ii) verskillende streke verskillende vlakke van geleenthede vir handelsuitbreiding inhou, en (iii)

uitvoervolumes na sommige lande veel groter is as wat deur die Saamgestelde Land Prioriteitsindeks voorgestel word. Laasgenoemde punt kan verklaar word deur onder meer die nabyheid van sekere lande aan Suid-Afrika, die mededingendheid van Suid-Afrika se produkte in teenstelling met invoere van elders, en die beskikbaarheid van produkte binne die spesifieke land. Die resultate van die Saamgestelde Land Prioriteitsindeks-analise beklemtoon dat die Saamgestelde Land Prioriteitsindeks en sy vergelyking met handelswaardes as basis gebruik moet word om die toepaslikheid van ’n geïdentifiseerde uitvoermark verder te ondersoek.

Laastens toon hierdie studie dat daar geen afdoende bewyse is dat die Afrika Kontinentale Vryhandelsgebied ’n pypdroom vir Suid-Afrikaanse landbou-uitvoere is nie, maar dit is beslis nie ’n silwer koeël om landbou-uitvoere aansienlik uit te brei nie, ten minste nie op kort tot medium termyn nie. Tariefverlagings alleen sal ook nie tot noemenswaardige uitvoerverhogings lei as Afrika se nie-tariefhindernisse nie opgelos word nie. Dit geld vir bestemmingslande en transitolande, aangesien laasgenoemde as die weg vir Suid-Afrika se landbou-uitvoere na Afrika dien.

Trefwoorde: Voorkeurhandelsooreenkomste, Afrika-streekshandel, Handelsintegrasie; Afrika Kontinentale Vryhandelsgebied; Landbou-uitvoere, Saamgestelde indeks

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List of Acronyms

AAMP	Agricultural and Agro-Processing Master Plan
AfCFTA	African Continental Free Trade Area
AGOA	African Growth and Opportunity Act
AMU	Arab Maghreb Union
AoA	Agreement on Agriculture
ARII	African Regional Integration Index
ARIMA	Autoregressive Integrated Moving Average
ASEAN	Association of Southeast Asian Nations
AU	African Union
AVE	Ad-Valorem Equivalent
BFAP	Bureau for Food and Agricultural Policy
BLNE	Botswana, Lesotho, Namibia, Eswatini
BRIC	Brazil, Russia, India, China
BRICS	Brazil, Russia, India, China, South Africa
BTT	Board on Tariffs and Trade
CAGR	Compound Annual Growth Rate
CAI	Country Attractiveness Index
CC	Compliance Costs
CCPI	Composite Country Priority Index
CCU	Continental Customs Union
CEN-SAD	Community of Sahel-Saharan States
CEPII	Centre d'Etudes Prospectives et d'Informations Internationales
CET	Common External Tariff
CFTA	Continental Free Trade Area
CGE	Computable General Equilibrium
COMESA	Common Market for Eastern and Southern Africa
CPI	Country Priority Index
DALRRD	Department of Agriculture, Land Reform and Rural Development
DRC	Democratic Republic of the Congo
DSM®	Decision Support Model ®
DTIC	Department of Trade, Industry and Competition
EAC	East African Community

EAC CU	East African Community Customs Union
ECCAS	Economic Community of Central African States
ECOWAS	Economic Community of West African States
EMIA	Export Marketing and Investment Assistance Scheme
EPA	Economic Partnership Agreement
ERP	Effective Rate of Protection
EU	European Union
FAO	Food and Agricultural Organization
FDI	Foreign Direct Investment
FTA	Free Trade Area
GATT	General Agreement on Tariffs and Trade
GCI	Global Competitive Index
GDP	Gross Domestic Product
GEIS	General Export Incentive Scheme
GHI	Gini-Hirschman Index
GPI	Growth Potential Index
GTAP	Global Trade Analysis Project
GVC	Global Value Chain
HDI	Human Development Index
HE	Extra-Regional Trade Intensity
HHI	Herfindahl-Hirschman Index
HI	Intra-Regional Trade Intensity
H-O	Heckscher-Ohlin
HS	Harmonized System
ICT	Information Communication Technology
IGAD	Intergovernmental Authority on Development
IIT	Intra-Industry Trade
IMF	International Monetary Fund
IORA	Indian Ocean Rim Association
ISI	Import-Substituting Industrialisation
ITC	International Trade Centre
LPI	Logistical Performance Index
MAI	Market Attractiveness Index
MFN	Most Favoured Nation

NAMC	National Agricultural Marketing Council
NDP	National Development Plan
NEDP	National Exporter Development Programme
NES	National Export Strategy
NPC	National Planning Committee
NPDF	National Policy Development Framework
NTB	Non-Tariff Barrier
NTM	Non-Tariff Measure
OECD	Organisation for Economic Co-operation and Development
OMOI	Overall Market Opportunity Index
PACCI	Pan-African Chamber of Commerce and Industry
PTA	Preferential Trade Agreement
QR	Quantitative Restriction
RCA	Revealed Comparative Advantage
REC	Regional Economic Community
REER	Real-Effective Exchange Rate
ROI	Regional Orientation Index
RoO	Rules of Origin
RoW	Rest of the World
RSA	Republic of South Africa
RSF	Revenue Sharing Formula
RTA	Regional Trade Agreement
RTI	Regional Trade Introversion Index
SACU	Southern African Customs Union
SADC	Southern African Development Community
SADCC	Southern African Development Coordination Conference
SAFEX	South African Futures Exchange
SARS	South African Revenue Service
SEIAS	Socio-Economic Impact Assessment System
SMART	Software for Market Analysis and Restrictions on Trade
SPS	Sanitary and Phyto-Sanitary
SSA	Sub-Saharan Africa
TDCA	Trade, Development and Cooperation Agreement
TFTA	Tri-Partite Free Trade Area

TIA	Trade Invest Africa
TIER	Taiwan Institute for Economic Research
TRALAC	Trade Law Centre
UK	United Kingdom
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UR	Uruguay Round
USA	Unites States of America
USD	United States Dollar
WCDoA	Western Cape Department of Agriculture
WEF	World Economic Forum
WGI	World Governance Indicators
WITS	World Integrated Trade Solutions
WSU	Walter Sisulu University
WTO	World Trade Organization

Chapter 1:
Introduction

1.1 Background

The global trade in agricultural products plays a major role in providing livelihoods for farmers and those employed along the food supply/value chain, and it also allows for alleviation of food insecurity and for a larger basket of food products (OECD, 2022). An important step towards enhancing agricultural trade that is fairer and more competitive, on the global scale, was achieved through the formulation of the Agreement on Agriculture (AoA), which came into effect in 1995, at the closure of the Uruguay Round of GATT (General Agreement on Tariffs and Trade) negotiations (UNCTAD, 2020).

However, in following years, failures to achieve set deadlines to further liberalise total trade (agricultural and other) on a global scale shifted the goal posts for countries to focus more on Preferential Trade Agreements (PTAs). According to Gupta and Yang (2005), renewed enthusiasm for PTAs was sparked after the "failure to launch a new round of multilateral trade talks in Seattle in 1999, their short-lived recovery after the Doha ministerial meeting in 2001, and an impulsive breakdown in Cancún in 2003". The result has been an increased propensity towards creating Regional Economic Communities (RECs)[1] and Free Trade Agreements (FTAs) that are aimed at increasing trade among member states (WTO, 2011). Between 2012 and 2021, the number of Regional Trade Agreements (RTAs)[2], globally, has increased from 238 to 353 (WTO, 2022b), representing a Compound Annual Growth Rate (CAGR) of over 4%.

1 In this thesis, an REC will be defined as the following, 'a grouping of countries whose main purpose is to facilitate regional integration between its member states'. This definition is based on the definitions for an REC supplied by the AU (2022a) and ARII (2022),and covers reductions in tariff and non-tariff barriers as well as other measures designed to integrate a regional bloc. Therefore, this definition goes beyond that of a PTA that is concerned only with preferential treatment with respect to reduction or removal of tariff barriers (WTO, 2022c). In addition, it goes beyond that of an FTA, as an FTA is defined by the WTO (2022c) as a situation in which "trade within the group is duty free but members set their own tariffs on imports from non-members"; this definition is not applicable to an REC as some RECs apply Common External Tariffs (CETs). When referring to aspects that apply to RECs, PTAs, RTAs and FTAs, the umbrella term 'Regional Trade Bloc' will be used unless reference is specifically given to a specific form of integration.

2 An RTA is defined by the WTO (2022d) as a reciprocal PTA between two or more partner nations.

Accompanying the proliferation in RTAs, Van Berkum (2021) and the OECD (2022) mention that trade in agricultural products has been on a rapid rise for the past two decades, with the expansion in trade occurring at the global level across various Global Value Chains (GVCs).

Van Berkum (2021) argues that rising global agricultural trade is the source of various opportunities and challenges that differ from product to product, country to country, and from continent to continent. According to Van Berkum (2021), countries experience several challenges when it comes to taking advantage of the opportunities associated with increased agricultural trade, which include food production challenges, land use difficulties, water availability and environmental quality. Opportunities include increased trade promotion, regional economies of scale, greater market access, the counter seasonality of production and welfare gains (Coulibaly, 2007; Ngepah and Udeagha, 2018).

Africa in particular, because of the generally low-income nature of the continent and relatively poor state of the economies on the continent, is, over and above the challenges mentioned, also susceptible and vulnerable to external shocks. Such shocks are attributable to a dependency on food imports, uncompetitive local production, unregulated and uncompetitive informal markets, infrastructural and logistical challenges, limited Information Communication Technologies (ICT), political instability, conflict and neo-protectionist tendencies, and highly fragmented markets (Oluwusi and Punt, 2019; Dewberry, 2020; Moyo, 2020; Mude, 2020; Steenkamp and Ferreira, 2020; BFAP, 2021; Van Berkum, 2021).

African countries have responded to the advent of increased regionalism by various countries across the world by forming many RTAs within Africa and improving the established RTAs, being motivated by the continent's ambitions to encourage economic expansion through regional cooperation (Gupta and Yang, 2005). This desire to promote the creation of RTAs is emphasised by the fact that, in 2012, countries within Africa were involved in 28 RTAs, and by 2021, the number had reached 45 (WTO, 2022b). New regionalism is now focused on structural reforms designed to aid in opening up economies to execute export-orientated policies, which are more market driven, competitive and democratic (Moyo, 2020; Steenkamp and Ferreira, 2020). Economic growth, population growth, an under-exploited export

potential, rising per capita incomes, a growing middle class, evolving dietary patterns, and increasing demand for convenience create strong drivers to transform demand and trade patterns for agricultural products on the continent (Morokong and Pienaar, 2019; BFAP, 2020; Moyo, 2020; Van Berkum, 2021).

The African Continental Free Trade Area (AfCFTA) is the most recent addition to the FTAs on the African continent. The AfCFTA, which came into effect as of January 2021, is seen as providing an opportunity to promote internal trade and economic integration within the continent, and, according to the OECD and FAO (2021), will effectively consolidate 55 African countries into one single market. On the 31st of March 2021, 54 out of the 55 eligible African countries signed the AfCFTA, creating the largest FTA in the world (Ekobena *et al*., 2021). The AfCFTA not only takes the trade in goods into consideration, but also considers the trade in services, intellectual property rights and competition policy, and also aims to 'foster' structural transformation, human development, and industrialisation to increase competitiveness in commodity production (Bizcommunity, 2018; Moyo, 2020; Van Berkum, 2021).

Considering Africa's growing potential as an export market, a key question is whether the AfCFTA presents South Africa with an opportunity to expand market access into the continent for the export of agricultural products into the different African countries.

1.2 Problem statement

Various authors who have investigated the impact of FTAs, more specifically RTAs, argue that they provide a real opportunity for developing countries in Africa to gain benefit from the increased promotion of trade, specialisation, regional economies of scale, and increased market access. All this will allow for sustained development and growth that will result in net positive welfare gains and overall better economic performance (Coulibaly, 2007; Guei, Mugano and Le Roux, 2017; Ngepah and Udeagha, 2018; Steenkamp and Ferreira, 2019; Jansen van Rensburg, Viviers, Cameron and Parry, 2019; Moyo, 2020; Charles, 2021; Van Berkum, 2021).

However, cognisance must be taken of the point that, at a global level, consensus has still not been reached on whether RTAs are beneficial in the sense that trade creation effects overpower those of trade diversion, or whether the opposite is true. Various authors have referred to the fact that different studies that investigate the benefits of

FTAs have produced conflicting results, despite the use of multiple methodologies (Gupta and Yang, 2005; Coulibaly, 2007; Plummer, Cheong and Hamanaka., 2010; Heo and Tran, 2012; Sorgho, 2016; Baier, Yotov and Zylkin, 2019). There are also discrepancies between the effects that the trade agreements have on higher income countries, as opposed to lower income countries.[3] Coulibaly (2007), Heo and Tran (2012), and Ngepah and Udeagha (2018) found that some RTAs proved to be beneficial, whereas others proved to have a net trade diversion effect on the trade among member countries and the Rest of the World (RoW).

It has also been found that there is a breach between ex-ante and ex-post assessments of FTAs and RECs. Generally, ex-ante studies (methods used to predict the possible future outcomes of an agreement) tend to overestimate the positive benefits of an FTA, whereas ex-post studies (methods that investigate the historical performance of an FTA) portray a less positive outcome of a regional trading bloc (Grumiller, 2014; Baier *et al*., 2019). This leads to overconfidence being placed in the positive effects of regional trading blocs and could potentially explain the proliferation of trade agreements around the globe in recent decades, which should result in scepticism over many ex-ante studies (Grumiller, 2014). Oluwusi and Punt (2019), for example, found that, after Nigeria's inclusion in the Economic Community of West African States (ECOWAS), the trade gains were lower than had been expected after trade liberalisation.

According to the National Planning Commission (NPC) (2011) and Mlambo and Adetiba (2020), Sub-Saharan Africa (SSA) will be less economically unipolar in the future, which calls for the need for South Africa to foster cooperation and collaboration between nations, and to rid itself of the perception of being a "bully" in the region. It is therefore no surprise that South Africa has followed the global trend of increased inclusion in trade agreements, with the aim of achieving economic unity (Karoly and Panis, 2004; Sorgho, 2016; Ngepah and Udeagha, 2018), which is testament to the

3 DiCaprio, Santos-Paulino and Sokolova (2017) found that lower-income countries tend to benefit less when involved in RTAs with higher-income countries. They point out that, as globalisation has advanced, inequality has inflated by many measures, as gains attributed to trade are directed mostly to skilled workers (DiCaprio *et al.*, 2017). The result is that increased liberalisation leads to absolute poverty reduction in a lower-income country, but there are ambiguous impacts on household inequality (DiCaprio *et al.*, 2017; Songwe, 2019).

efforts being made by South Africa towards achieving collaboration and economic integration.

South Africa's National Development Plan (NDP) is aimed at eradicating poverty and lessening inequality by 2030, and highlights the fact that Africa is recognised as an important strategic market for South African trade, including agricultural trade (Morokong and Pienaar, 2019). In Chapter 7 of the NDP, one of the aims for South Africa is to become "a leader in expanding regional African trade and investment based on improved collaboration and co-operation on the continent" (Morokong and Pienaar, 2019). However, Africa's import share of South Africa's total agricultural exports has decreased in the past decade (see Chapter 2), despite Africa's potential for being a large export market (Morokong and Pienaar, 2019; Moyo, 2020, Ekobena *et al.*, 2021, Van Berkum, 2021).

One particular question arises for consideration, given the nature of South Africa's agricultural exports into Africa (which in 2020 contributed 35.4% towards South Africa's overall agricultural exports), as well as the rapidly growing African economies and populations, and the country's desire to be a leader in expanding African trade. Thus, the research question to be addressed is whether the AfCFTA presents an opportunity for South Africa to expand agricultural exports into the continent, or whether it is just a pipedream.

1.3 Objectives

The primary objective of this study is to determine if the AfCFTA will provide the South African agricultural export sector with increased market access into the African continent. To achieve this principal objective, several secondary objectives will need to be met. These are listed as follows:

i. Conduct a literature review on the theory pertaining to international trade to form a contextual framework for the analysis of trade within the African continent,

ii. To conduct a preliminary analysis of the levels of integration among the African RECs, as well as a review on South Africa's trade policy stance to identify South Africa's stance on exporting agricultural products into Africa;

iii. Analyse aggregate trade in agricultural products on the African continent, as well as between South Africa and the different RECs;

iv. To identify the countries in which opportunities lie for South Africa's agricultural exports by using several trade indices;

v. To develop and investigate the value of using a composite index to identify potential countries for trade relations with South Africa.

1.4 Methodology and data

To identify potential export markets, various trade indices will be applied that are aimed at analysing the nature of trade between countries, thereby achieving objective iv. In addressing objective v, a composite index will be compiled that will identify those countries that South Africa should prioritise for agricultural exports. As this thesis is centred on South Africa's agricultural exports[4] into Africa under the AfCFTA, to achieve objective ii the analysis will be carried out per REC and at the country level in some instances. The reason that the analysis is carried out at the REC level is to make the analysis more practical as there is much diversity among African RECs and once export opportunities are identified in respective RECs the analysis can then disaggregate opportunities at the country level. To do this for each African REC, a grouping of products that belong in both South Africa's top 80% agricultural exports to the world and in the top 80% imports of each respective REC from the world, will be compiled.

A recent study by Dewberry (2020) determined the impacts that the trade logistics performances of an exporting and of an importing country have on the intra-African trade in agricultural goods. That study was conducted at the HS2 level of aggregation and excluded products such as tobacco products and other agricultural products not fit for human consumption. This study is conducted at the HS6 level of aggregation to

4 The WITS agricultural list is a commonly applied grouping of total agricultural products and is often used in WITS-SMART model simulations (Kwaramba, Kwenda-Magejo and Rankin, 2015; Punt and Sandrey, 2016; Guei *et al.*, 2017; Oluwusi and Punt, 2019; Pasara and Diko, 2020; Shinyekwa *et al.*, 2020). Therefore, it was decided that the WITS agricultural list would be used as the list of all (processed and unprocessed) agricultural commodities. To select a grouping of processed agricultural products, the TradeMap grouping of 'Processed food and agro-based products' was extracted from the TradeMap website and compared with the WITS agricultural products list. From the consolidated list, a group of processed and unprocessed agricultural products was created.

identify specific agricultural export opportunities for South Africa, and includes all agricultural products classified as unprocessed and processed.

Using the identified exports and imports, a multitude of trade indices will be applied to identify the nature of trade between South Africa and each REC. Indices used include:

- The Regional Trade Introversion (RTI) index, which is used to measure the relative intensity of regional trading versus trading with outsiders (Plummer *et al.*, 2010);
- The Intra-Industry Trade (IIT) coefficient, which shows the extent to which a country exports and imports the same product (Grubel and Lloyd, 1975);
- The Regional Orientation Index (ROI) and Gini-Index will be used in tandem: the ROI shows whether a country's exports of a particular product are more regionally oriented or extra-regionally oriented, while the Gini index shows the concentration of trade, together the indices will help to gain an understanding of where South Africa focuses its current export efforts on, and in which products (Haughton and Khandker, 2009; Plummer *et al.*, 2010; Heo and Tran, 2012), and lastly;
- The Gini-Hirschman Index (GHI) that shows the concentration in trade, will allow for an understanding of each REC's dependence on South Africa for imports of agricultural products (Erkan and Sunay, 2018).

Through the combined used of the trade indices mentioned, the identification of countries that represent an opportunity for South Africa's agricultural export sector will be made possible, thereby achieving objective iv. After this, a Composite Country Priority Index (CCPI) will be developed to identify potential export markets for South Africa to prioritise on the African continent. This will assist in determining and displaying the usefulness of a composite index when identifying potential trading partners for South Africa, achieving objective v. Important factors or indicators that need to be considered include population size, GDP size and growth forecasts, the Human Development Index (HDI), logistical performance, governance in the destination market, and border control, and others. These and other indices and variables will be used to design and compile a CCPI. A detailed look into the CCPI and its results will be provided in Chapter 5.

The various data sources that will be employed include the IMF databases, the United Nations Commodity Trade (UN Comtrade) database, World Bank databases, the ITC, the UNCTAD, the Department of Agriculture, Land Reform and Rural Development (DALRRD), and Statistics South Africa (Stats SA).

1.5 Outline of the study

Chapter 2 of this study will provide an overview of trade patterns pertaining to South Africa's agricultural trade in recent years, and in particular South Africa's trade in Africa. Additionally, Chapter 2 will provide a review regarding the trade theory that underpins RECs and international trade. Chapter 3 of the study will provide a detailed discussion of the methodologies applied in this thesis. Chapter 4 discusses the results of the application of the various trade indices that provides insights regarding potential trade opportunities for the South African agricultural export sector in different RECs. Chapter 5 will provide a detailed overview into the formation and usefulness of the CCPI, as well as the results of the CCPI's application to this thesis. Lastly, Chapter 6 will provide the reader with a summary of the findings of the thesis, together with conclusions and recommendations.

Chapter 2:
International Trade Theory, South Africa's Trade Policy, and African Regional Economic Communities (RECs)

2.1 Introduction

It is crucial to identify South Africa's stance on trade policies in the context of Africa, with special attention being given to the agricultural sector, to gain an understanding of how South Africa is positioned to face the many challenges and opportunities that arise as a result of regionalism. It will also be beneficial to ascertain the outcomes of the various trade agreements that South Africa has been involved with so far, prior to the AfCFTA. This will help in gauging the possible outcomes that the AfCFTA may have on South Africa's agricultural export sector in the coming years.

Section 2.2 of this chapter provides a review of the theory pertaining to international trade, as well as regional trade. Section 2.3 follows with an overview of global agricultural trade, Africa's agricultural trade, and South Africa's role therein. Section 2.4 provides an understanding of South Africa's trade relationship with SADC, SACU and the AfCFTA, as South Africa is a member state of these regions. The way in which trade was affected and was predicted (in previous studies) to be affected by these regions is also provided in section 2.4. In addition, the remaining seven African RECs are briefly introduced to assess their level of regional integration, and the tariff rates applied on non-member nations. Lastly, section 2.5 provides an overview of South Africa's overall trade policy stance with specific references made to South Africa's agricultural trade policy stance. The different sections discussed in this chapter will jointly address objectives i and ii.

2.2 The theoretical basis for trade and regional integration

Various authors and economists throughout the centuries have conceptualised the theoretical foundations of international trade. These theories are aimed at unravelling the multitude of drivers that allow for the phenomenon of international trade to take place and analysing what the effects are on economies. They aim to explain why different countries export differentiated products and products of a similar nature, what gives a country 'the edge' when trading in certain products, what is the best way to

maximise the national utility gained through trade, what the true effect of trade is, and so forth. In turn, various authors have disputed the findings of others and created 'new' trade theories that try to better explain what was being observed. At the same time, some authors added to previous work done in the field, which led to the formation of more complex and advanced theories of international trade theory. In essence, international trade theory is continuously evolving and adapting.

In this section, the evolution of international trade theory will be given a brief overview to develop an understanding of the reasons why international trade occurs, and what drives the different trade patterns observed between different nations. After this, the international trade theory from a regional perspective will be provided. This will provide the reader with an understanding of the effects that regional trade integration has on trade patterns and the mechanisms that allow for increased trade to occur.

2.2.1 The theoretical underpinnings of international trade

This thesis is centred around the opportunities that may arise for South Africa's agricultural export sector because of the AfCFTA. Therefore, an understanding of the literature pertaining to international trade theory is important and necessary for the interpretation of the results obtained in this thesis.

Dating back to the 1500s, international trade theory was largely based upon the opinion that, for a country to benefit (or rather, to gain wealth) from the effects of international trade, one or other nation would have to be disadvantaged through international trade (Du Plessis, 1987). This train of thought was described as mercantilism. The mercantilists believed in government control that fed into promoting exports through incentivisation techniques, such as export subsidisation, and the reduction of imports through the use of tariffs and other NTMs such as prohibiting the imports of luxury goods and encouraging domestic consumers to buy local (Du Plessis, 1987; Gounder and Prasad, 2011). The central tenet to mercantilism was that the real source of material well-being was achieved through a country's stock of precious metals, particularly gold and silver (Du Plessis, 1987)

Moving forward to 1776, Adam Smith in his "An inquiry into the nature and causes of the wealth of nations", or more widely known as "The Wealth of Nations", challenged the mercantilist way of thinking and advocated for increased freedom of, and an easing

of government control over, trade (Smith, 1776). Smith (1776) believed that international trade needed to occur without the influence of government, as countries would trade in the products that they themselves have the absolute advantage in producing. According to Smith (1776), if a particular country boasts an absolute advantage in the production of a good, the country will export that good to a country that has an absolute disadvantage in the production of that good. This would occur for different countries that all have absolute advantages and disadvantages in the production of various goods. Through this specialisation, the countries would then realise increased gains that would be distributed through international trade (Smith, 1776). The absolute advantages held by countries were explained by differentiating levels of input factors between countries, such as natural endowments and human capital (Smith, 1776; Myint, 1977).

David Ricardo, however, disagreed with the theory of absolute advantage. Ricardo (1817) explained that, if a country boasts an absolute disadvantage in the production of a good, the country will still export that good. This led to the formation of 'comparative advantage', a theory that became integral to the thought process behind neoclassical economic theory (Costinot, Donaldson, Vogel and Werning, 2015). Comparative advantages originate from differences in the levels of technology and productivity between countries (Ricardo, 1817). If a country is less efficient in the production of both goods A and B, for example, than another country is, there is still space for trade to be mutually beneficial (Ricardo, 1817). When referring to a single good, for example, good A, if a country is more efficient in the production of good A than another is, it has an absolute advantage. However, if the opportunity cost involved in producing good A is higher than that experienced by the country with an absolute disadvantage in the production of good A, then the country with the absolute advantage in the production of good A should not specialise in the production of good A, and the country with a comparative disadvantage should specialise in the production of good A. In other words, in a world that is characterised by free trade, member countries would shift factors of production, such as labour, into areas in which the countries have a comparative advantage, realising, as a result, welfare gains that are accrued to efficiency gains (Burfisher, Robinson, Thierfelder, 2003).

The Heckscher-Ohlin (H-O) model attempts to find the reasons behind the comparative advantages experienced by countries, a question that Ricardo (1817) did

not explicitly investigate (Du Plessis, 1987). The model includes two homogenous goods with constant returns and two factors of production, as well as two countries that have no technological differences but do have differences in the levels of factor endowments, it is assumed that they are perfectly competitive and that demand conditions are the same in each country (Du Plessis, 1987; Gounder and Prasad, 2011; Dewberry, 2020). According to the H-O model, each country will produce and export the good that utilises the country's most abundant factor the most (Gounder and Prasad, 2011). The reason that international trade occurs is due to the price ratios between the two countries (Du Plessis, 1987). For example, a country abundant with gold, will be able to supply gold at a lower price than a country without an abundance of gold, therefore the latter will import the gold from the former. In essence, comparative advantages are experienced between different countries because of the relative factor abundance that any country has.

However, the H-O theorem was criticised for its sub-prime explanation of trade patterns due to its assumption of equal technological standings between countries, a situation that in practical terms does not exist (Feenstra, 2003). Leontief stumbled upon the Leontief Paradox whilst testing the H-O model (Leontief, 1953). Leontief found that the United States of America (USA), a capital abundant nation at the time, was importing capital abundant goods and exporting labour-intensive goods, going against the theorem of the H-O model (Leontief, 1953). Leontief (1953) postulated that America, although rich in capital, had a surplus of productive labour that was used to produce goods that use relatively less capital than other more capital-intensive goods and used foreign trade to save on capital expenses and dispose of its surplus of labour.

In the 1930s, the world was seized with the great economic depression, mostly impacting upon countries that operated through free markets (Jahan, Mahmud and Papageorgiou, 2014). Smith and Ricardo's classical economic theory failed to give any answers as to how to deal with the collapse of the free markets (Jahan *et al.*, 2014). This led to John Keynes developing what is known as Keynesian Economics. The tenet central to this way of thinking is that, through government spending, the government can stabilise an economy, as free markets on their own would not be able to adjust to an economic collapse in any short period of time (Jahan *et al.*, 2014). The reason government spending would quicken the pace of economic recovery is that, without it, insufficient overall demand could result in lengthened periods of high

unemployment levels (Jahan *et al.*, 2014). Keynes therefore called for government intervention through fiscal and monetary policy aimed at reducing unemployment and increasing productivity (Jahan *et al.*, 2014).

However, this theory was criticised, as with other theories before its time. In the 1970s, through a series of literature submissions, Milton Friedman advocated for privatisation and stated that the great depression experienced in the 1930s was because of poor monetary policy (Dewberry, 2020). This led to the birth of supply-side economics, which advocates for deregulation and corporate tax reduction.

In 1961, a demand-based economic hypothesis, called the "Country Similarity Theory", was put forward by Steffan Linder to explain the phenomenon of intra-industry trade (Mariadoss, 2018). Linder hypothesised that consumers from different countries, who are at similar levels of development, would have similar preferences (Mariadoss, 2018). This is a firm-based theory, as opposed to the country-based theories already discussed. Linder suggests that a company will produce a new good for domestic production and will then explore exports of that good (Mariadoss, 2018). The reason for the trade of similar goods would be quality differentiation between the respective goods. In a similar period, the 1960s, the "product life cycle theory"[5] was introduced by Raymond Vernon (Vernon, 1966). He postulated that developed countries invested heavily into product development and that, in general, they developed labour-saving goods (Mullor-Sebastian, 1983). Vernon stated that, with the creation of a new product, that product will only be made in the respective country of origin, and only when the product has reached maturity, would production be shifted to LDCs (Less-Developed Countries) to save on costs (Vernon, 1966). This leads to a shift in export destinations; firstly, exports are sent to LDCs, and once the production of those goods moves to LDCs, exports are redirected from the LDC to the more-developed countries.

Paul Krugman and Kelvin Lancaster, in the 1980s, brought to light the Global Strategic Rivalry theory. They stated that a multi-national firm, to succeed, would need to follow a competitive strategy geared at creating a competitive advantage for the firm that would put it in the lead against other global firms (Mariadoss, 2018). This line of thinking strayed from that of comparative advantage (Gounder and Prasad, 2011).

5 The life cycle of a product consists of three stages: (i) new product, (ii) maturing product and (iii) standardized product (Vernon, 1966).

After the work done by Paul Krugman and Kelvin Lancaster in the 1980s, Michael Porter contributed influential work to the new firm-based theoretical economics. Porter (1990) believed that the ability of a firm to evolve and innovate on a continuous basis determined the competitiveness of the firm. Therefore, as opposed to the endowments of a country, according to Porter (1990), the way in which firms behave dictates the competitiveness of the respective industry at the national level, which in turn affects the export performance of the country. Porter (1990) listed four determinants of national competitive advantage. Figure 2.1 shows the four determinants of Porter's national competitive advantage theory, and how they are related. Each determinant represents the following:

- Factor conditions: the endowment of a nation's factors used in production, including skilled labour and the infrastructure that allows an industry the ability to compete;
- Demand conditions: the characteristics of domestic demand for the specific industry's service or product;
- Related and supporting industries: the presence of supplying industries and related industries that are competitive at the international level in the domestic market; and
- Firm strategy, structure, and rivalry: how the nation governs the formation, coordination, and management of companies, and the nature of competition domestically (Porter, 1990).

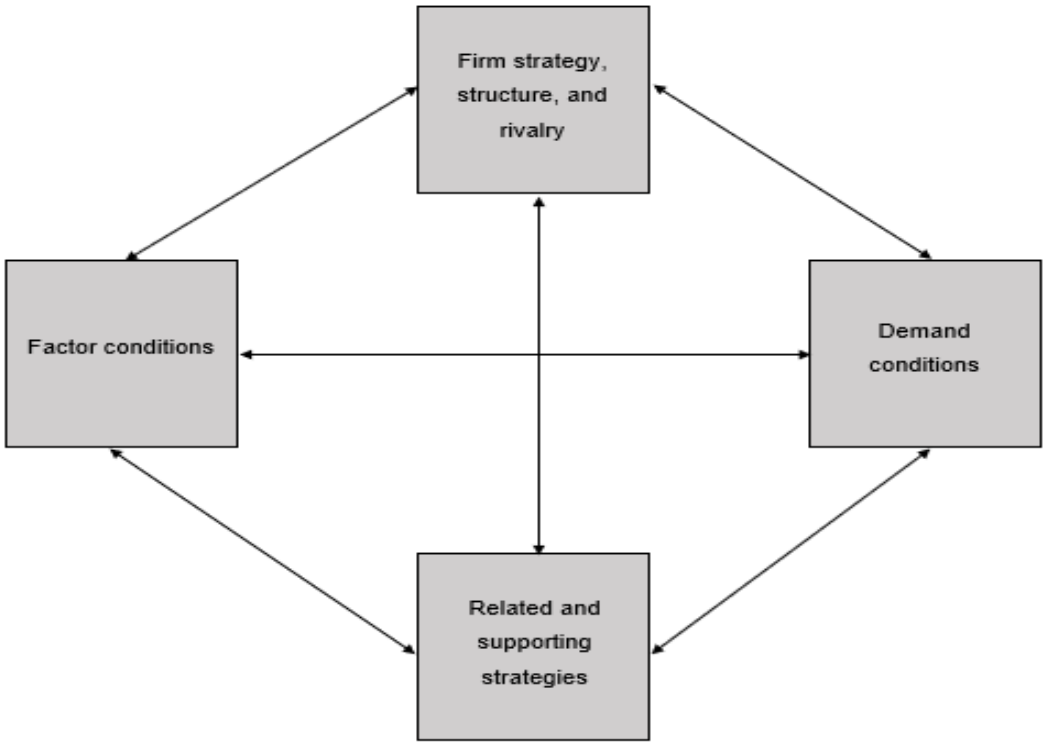


Figure 2.1: Porter's determinants of national competitive advantage
Source: Porter (1990)

2.2.2 The trade theory behind regional integration

An understating of the trade theory that interprets regional integration is necessary to form a basis of knowledge behind the intricacies and nuances involved with trading intra- and extra-regionally. This is particularly important within the ambit of this thesis as the thesis is concerned with the formation of a continental regional trading bloc, the AfCFTA. Regional integration occurs at different levels or stages. To initiate the overview of regional integration, these different levels/stages are summarised below (Du Plessis, 1987; Wu, 2004; TRALAC, 2017);

1. Preferential Trade Area/Agreement (PTA): a PTA allows for the preferential access of certain products for member nations through the reduction in tariff rates with the goal of forming a Free Trade Area (FTA), the member nations are still able to charge their desired tariff rates on non-member countries,
2. Free Trade Area (FTA): an FTA is a trading bloc that strives for the complete removal of tariffs, quotas and other government inspired impediments to trade among member nations but still allows member nations to charge their desired tariff rates and quotas on non-member trade,

3. Customs Union: a Customs Union is similar to an FTA; however, a Customs Union applies a Common External Tariff (CET) on imports from non-member nations, thereby enhancing the negotiating capabilities of the bloc,
4. Common Market: a Common Market is a trade bloc that allows for the free movement of production factors such as capital and labour, as well as services, and most probably include the adoption of related norms and regulations across the trade bloc,
5. Economic Union: an Economic Union is the highest form of integration and includes characteristics of both a Customs Union and a Common Market, but also includes the adoption of a common currency as well as common economic policies (fiscal and monetary, amongst others).

A consensus on the true effects arising as a consequence of the formation of regional trading agreements has not yet been reached. The trade relations shared by countries in regional trading blocs are closely linked to the economic relations: trade can lead to improved welfare for both trading countries (Gounder and Prasad, 2011). The research undertaken to investigate the gains and/or losses of regional trading agreements have largely investigated two questions (Gounder and Prasad, 2011), namely:

- Can the agreement increase trade and raise welfare, or is the opposite true?
- Is the agreement a step forwards or a barrier to multilateral trade liberalisation?

The initial point is concerned with static analysis, while the second point is, as referred to by Bhagwati (1991), concerned with dynamic path questions.

One of the first steps taken to measure the static effects of regional trading agreements was taken by Viner (1950). Viner (1950) coined the terms ‘Trade Creation’ and ‘Trade Diversion’; two terms that are now commonplace when referring to regional trade agreements. Viner’s (1950) model of Trade Creation as well as Trade Diversion highlight the different impacts that trade agreements can have and raises the argument that not all impacts are necessarily positive. Trade creation effects concern the “displacement of less efficient domestic production with more efficient partner-country production and trade diversion is the displacement of more efficient non-partner imports with less efficient partner-country imports” (Viner,1950; Clausing, 2001; Lloyd and Maclaren, 2004; Plummer *et al.*, 2010; Punt and Sandrey, 2016;

Sorgho, 2016; Ngepah and Udeagha, 2018; Steenkamp and Ferreira, 2020). Trade diversion effects are believed to have undermined regional integration on the African continent (Steenkamp and Ferreira, 2020).

The next four paragraphs are in reference to Figure 2.2. Prior to the formation of a potential FTA, producers in a specific country (from now on referred to as the 'host country') will supply a certain volume of good A to the host consumers (Q_{S1}), and in turn, the host consumers will consume a certain volume of good A (Q_{D1}). The shortfall in supply is represented by the volume of imports of good A from outsider countries that are not part of the potential FTA ($Q_{D1} - Q_{S1}$). These countries can supply good A at a cheaper price than partner countries as well as the host country that fall into the potential FTA. The volume of imports is determined by the price that the outsider exporter can supply to the market and the import tariff imposed on the exporter (Outsider's price + tariff). If an FTA is formed, a partner country, which prior to the FTA's formation was producing at a cost higher than that of an outsider (Partner's price), could then export into the host country at a cheaper price than the outsider because of the tariff removal. As a result, the host consumers would then consume a higher volume of good A at a lower price (Q_{D2}). The now lowered domestic price means that host producers would reduce their production to Q_{S2}. All the imports into the host country would, as a result, be imported from the FTA partner country, as the Outsider's price plus the tariff would be higher than the Partner's price without the tariff. The result is increased consumption.

For trade creation to occur, domestic production must be replaced by cheaper and more efficient imports (Plummer *et al.*, 2010). This is clearly the case in the above scenario. The trade creation effect is represented by $(Q_{D2} - Q_{S2}) - (Q_{D1} - Q_{S1})$. However, trade diversion, in the scenario above, also occurs as more-efficient non-partner production ($Q_{D1} - Q_{S1}$) is replaced by less-efficient partner country production, and a loss is represented by reduced tariff revenue represented by the sum of the rectangles *a* and *c* on the volume of imports. To explore the welfare impacts of the trade agreement, the net effect of trade creation and diversion, as well as the effects on consumer and producer surpluses, should be calculated.

Reduced producer surplus is represented by the trapezoid *a*, while consumer surplus gains are represented by the total sum of *a*, *b*, *c* and *d*. Considering all of the changes

discussed, the overall welfare effect as a result of a formation of a FTA, is represented by (*b* + *d* − *e*). The sum of areas *b* and *d* would need to be larger than area e for the net welfare effect to be positive. The triangle *b* shows the gains from substituting higher-cost host country consumption with lower-cost partner country imports. Triangle *d* shows the gains associated with higher consumption volumes arising as a result of the FTA.

In a situation where partner-country imports are cheaper than outsider imports prior to the formation of a FTA, then only trade creation can result as inefficient host production is replaced by efficient partner production (Plummer *et al.*, 2010). Therefore, consumers could consume good A in greater volumes and no Trade Diversion could possibly occur, as there were no imports originating from outsider countries. The Vinerian model can be 'relaxed' and manipulated in different ways to further the theoretical discussion. An example of this includes the removal of a discriminatory tariff that is placed on partner/outsider countries before the formation of an FTA.

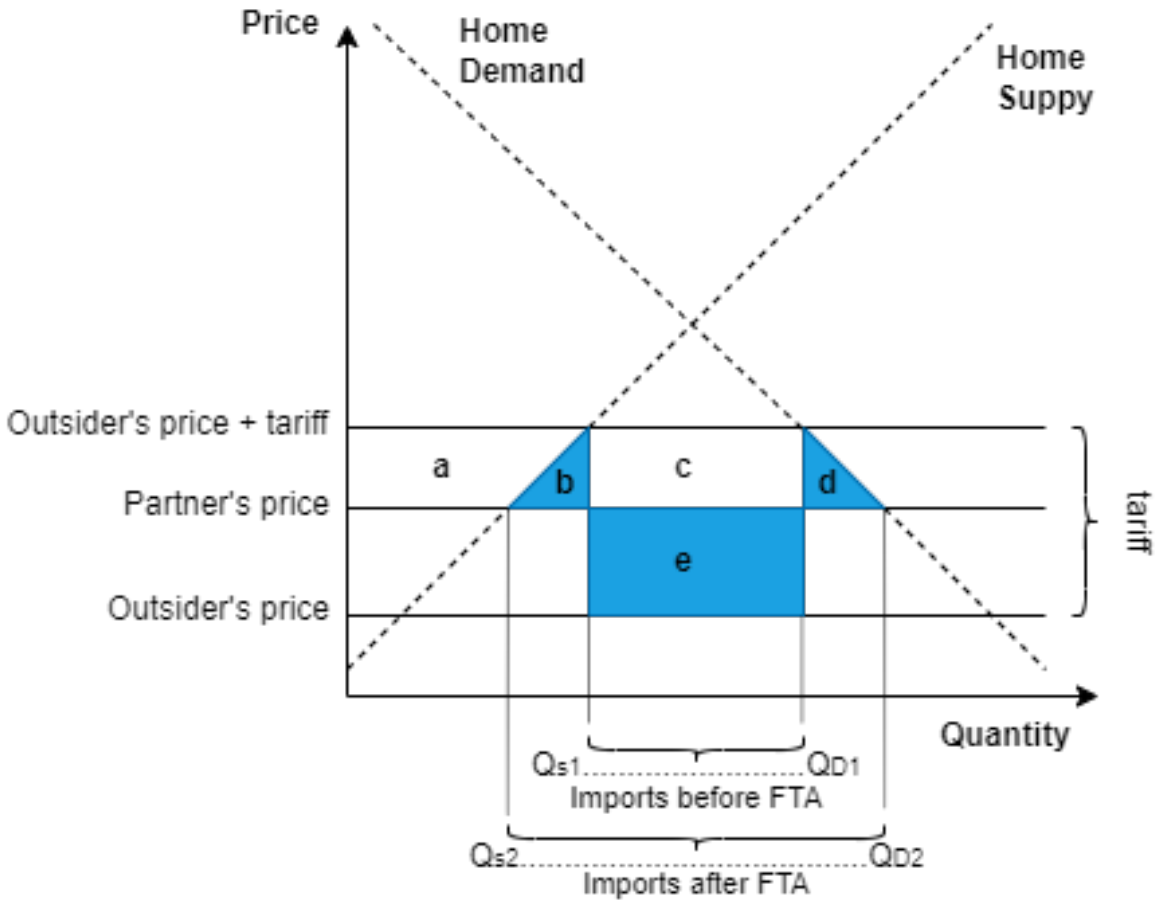


Figure 2.2: The Vinerian model of an FTA
Source: Plummer et al. (2010)

Viner's analysis has important implications for policy creation, especially when considering whether to join an FTA for a certain sector. As was shown above, the net welfare effects hinge on the efficiency gains (*b* + *d*) and losses (*e*) associated with joining an FTA. The factors that influence the magnitude of the values of *b*, *d* and *e* are: the difference in price between partner and outsider countries (the closer the price, the more likely trade creation effects will be dominant); the import tariff (an originally high tariff will be better for realising net trade creation effects); the magnitude of outsider imports that will be forgone as opposed to the additional imports of the partner country; and how sensitive the host country's supply and demand are to price reduction (Plummer *et al.*, 2010).

Viner's analysis is now part of a wider theory that is known as "the theory of the second best", originating from Lipsey and Lancaster (1956). Lipsey and Lancaster's (1956) theory postulates that, within an economy that is riddled with distortions, removing a specific group of distortions gives no guarantee that the welfare of the economy will increase, if the remaining distortions are not changed. For example, if, for an FTA, only selected tariffs are removed, this may not lead to improved welfare for individual countries or the RoW, as certain tariffs are still in place (Plummer *et al.*, 2010).

As noted by Gounder and Prasad (2011), although straying from Vinerian theory, various authors argue that if regional trading agreements are formed between natural trading partners, trade creation will be most prominent. This view was argued by Panagariya (1996) and Bhagwati and Panagariya (1996). These two authors showed that an initially large amount of trade between members could lead to a large loss for a member country owing to a redistribution of tariff revenue between the member countries that a PTA entails. In addition, the initial high volume may not be a result of the two countries being natural trading partners, but rather, the volumes could be the result of an already existing trade agreement or system of preferences (Bhagwati and Panagariya, 1996).

Krugman (1991) and Frankel, Stein and Wei (1995) are proponents of FTAs and argue that a reduction in transport costs attributable to close proximity should be characteristic of beneficial natural trading partners. In Africa's case, the logistical

concerns on the continent in terms of both hard and soft infrastructure[6] may raise concerns over the points raised by Krugman (1991) and Frankel *et al.* (1995). In addition, Bhagwati and Panagariya (1996) found that the creation of an RTA with a country or region that is further away can prove to be more beneficial than with a neighbouring country. They constructed an example in which it was more beneficial for a country to form a PTA with a distant country, as opposed to a neighbouring and identical country (Bhagwati and Panagariya, 1996).

In addition, the 'spaghetti bowl' effect describes the disorder that is created because of the complexity and interconnectedness of multiple trade agreements that different countries belong to. The 'spaghetti bowl' effect is a term used to describe the multiple, inter-related regional trade agreements and their own characterising tariff rates, rules of origin, schedules and other requirements and benefits (Gupta and Yang, 2005; Coulibaly, 2007; Sorgho, 2016). Africa, in particular, has eight RECs that have multiple countries belonging to several different RECs with their own characteristic features. Sorgho (2016), using Viner's model of trade creation and diversion, found that trade diversion effects can occur through the amplification of regional trading blocs and the involvement of nations from one agreement entering into another separate agreement, which leads to overlapping trade rules and other trade distorting effects that increase transaction costs involved. This speaks to both trade creation and diversion, as well as the 'spaghetti bowl' effect.

The phenomenon of IIT discussed in Section 2.4.1 is not explained by comparative advantage. The principal question was as to how/why countries that have similar economies and that do not have comparative advantages in trade, nevertheless, trade among themselves (Ferreira, 2020). Krugman (1980), Lancaster (1980), and Helpman (1981) postulated that crucial factors affect the international patterns of trade, namely economies of scale and network effects that reveal themselves in important sectors/industries. If, for example, the opportunity cost between a pair of countries is the exact same at a specific time, and one of the countries decides to focus on the performance of a specific industry, then there is potential to form economies of scale and separate networks that can be benefited because of the specialisation (Gaspar,

6 Encompassing both soft and hard infrastructure. Hard infrastructure, according to Mevel and Karingi (2013), includes roads, railways, ports, and airports, whereas soft infrastructure includes communication technologies and legal, regulatory and financial systems (Mevel and Karingi, 2013).

2020). This allows for the consumer to have more choices between different goods, and the variation present, as well as the economies of scale, allow for the countries to produce varied goods, in turn increasing trade (Gaspar, 2020). This signifies the early phase of New Trade Theory (NTT).

NTT postulates that already established firms most often have the advantage over newer firms, as the already established firms have already achieved economies of scale that inhibit, to some extent, the ability of the new firms to compete (Ferreira, 2020). The result is that the more profitable industries reside in countries that are more capital abundant (Gaspar, 2020). This has implications for the effects of globalisation and the way in which LDCs have trailed behind the more developed countries. This ties in with the "product life cycle theory" of Vernon (1966), in the sense that, with the creation of a new product (establishing a firm/industry), prices and, as a result, revenue will be high, and when the market becomes more saturated and prices drop, production only then shifts to LDCs. When prices are higher, entering into the market to compete for the specific product for a firm in a less capital-intensive country may prove difficult.

2.3 Agricultural trade trends for the World, Africa and South Africa

In alignment with objective iii, section 2.3 provides an overview of the aggregate trade in agricultural products in the African continent, as well as between South Africa and the different African RECs. In addition, a brief overview of agricultural trade trends globally is provided to form a benchmark for comparison to the agricultural trade trends within Africa.

Globally, agricultural exports and imports have been rising over the past twenty years, with some fluctuations. Figure 2.3 shows that the value of global agricultural imports increased from USD$482 billion to USD$1 820 billion between 2002 and 2021, or by 377%. This equates to a Compound Annual Growth Rate (CAGR) of 6.9%. Global agricultural exports increased from USD$457 billion to USD$1 774 billion in the same 2002 to 2021 period, representing a CAGR of 7.02%. The global economic crises during 2008 and 2009 depressed import demand. Similarly, economic slowdown in

countries such as China, a recession in Brazil, falling oil prices and volatility in major currencies pushed imports lower during 2015 and 2016 (WTO, 2016)

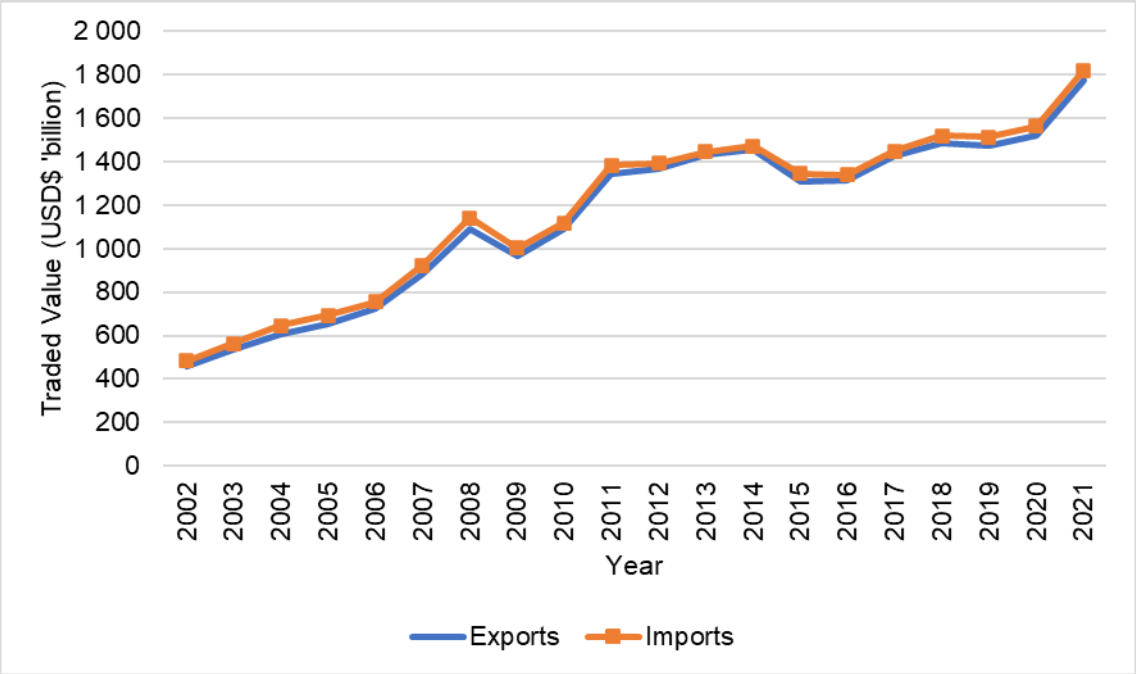


Figure 2.3: Global agricultural trade (2002 to 2021)
Source: Own calculations based on data from ITC (2022).

Figure 2.4 shows the export value (USD billion) of South Africa's top 80% agricultural exports to the world and the EU-28[7], as well as Africa, between 2012 and 2021 in value terms. In 2021, the top 80% agricultural exports exported into the EU-28 by South Africa amounted to USD 2.88 billion, whereas into Africa, they amounted to USD 3.57 billion. Therefore, in value terms, the top 80% of South Africa's agricultural exports into Africa are larger than into the EU-28. However, on average 33 products (at the HS6 level) contributed to South Africa's top 80% of agricultural exports into the EU-28, whilst into Africa, the top 88 products contributed to the same figure.

7 The EU-28 is a group of countries created by the ITC and used to download the data from TradeMap. The United Kingdom has now left the EU-28 aggregation.

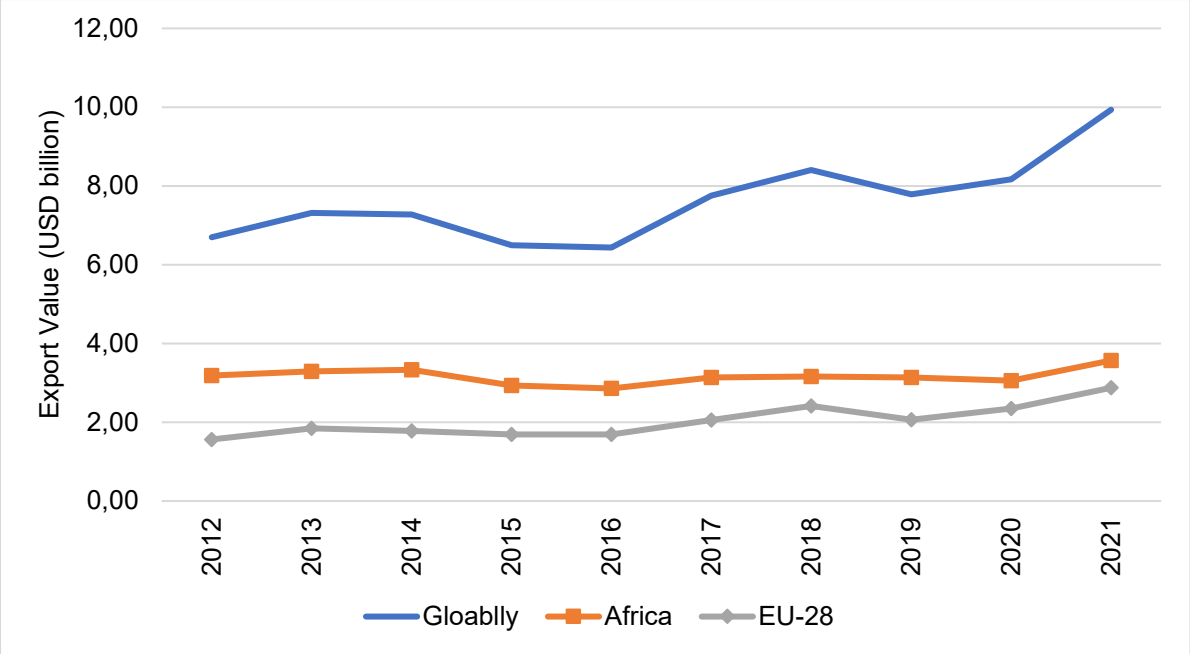


Figure 2.4: South Africa's top 80% agricultural exports into Africa, the EU-28, and the World (2012-2021)

Source: Own calculations based on data from ITC (2022).

The composition of the agricultural exports being exported into the African continent comprises lower-value, commodity-type agricultural products like grains. The top 10 different types of agricultural exports exported into Africa, the EU28 and the World are shown in Table 2.1. The higher-valued agricultural products are destined to the EU-28.

Table 2.1: South Africa's top 10 agricultural exports and their HS[8] (Harmonized System) 6 Codes in 2021 into Africa, the EU28, and the world.

World	Africa	EU28
Product Description and HS Code		
Fresh or dried oranges ('080510)	Maize (excluding seed for sowing) ('100590)	Fresh grapes ('080610)
Maize (excluding seed for sowing) ('100590)	Fresh apples ('080810)	Fresh or dried oranges ('080510)
Fresh grapes ('080610)	Food preparations, n.e.s. ('210690)	Wine of fresh grapes ('220421)
Fresh or dried mandarins ('080521)	Preparations of a kind used in animal feeding ('230990)	Fresh or dried mandarins ('080521)
Wine of fresh grapes ('220421)	"Groats and meal of maize " ('110313)	"Fresh or dried lemons " ('080550)
Fresh apples ('080810)	Cane or beet sugar ('170199)	Fresh apples ('080810)
"Fresh or dried lemons " ('080550)	Cigarettes ('240220)	Fresh cranberries, bilberries and other fruits ('081040)
Crude groundnut oil ('150810)	Preparations for sauces and prepared sauces (210390)	Wine of fresh grapes, incl. fortified wines ('220429)

8 HS codes are an internationally standardized nomenclature system, developed by the World Customs Organization (WCO).

World	Africa	EU28
Product Description and HS Code		
Greasy shorn wool ('510111)	Waters ('220210)	Fresh or dried avocados ('080440)
Fresh or dried macadamia nuts, shelled ('080262)	Wine of fresh grapes ('220421)	Raw cane sugar, in solid form ('170114)

Source: ITC (2022)

South Africa's agricultural exports into Africa have been experiencing a declining share of South Africa's total agricultural exports to the World in more recent years. Figure 2.5 shows the value of South Africa's agricultural exports into Africa as percentage of the value of South Africa's total agricultural exports, globally. The value of South Africa's agricultural exports to Africa as a percentage of the total value of agricultural exports to the World decreased from nearly 47% in 2012 to 36% in 2021. It can be postulated that the outbreak of the COVID-19 pandemic is largely to blame for the poor trade performance globally since 2019, because of border closures, business shutdowns, and a multitude of other measures designed to impede the spread of the virus during 2020 (Obayelu, Edewor and Ogbe, 2021). Although Africa's share of South Africa's total agricultural exports declined, the value of agricultural exports into the continent between 2012 and 2021[9] increased by approximately USD 219 million, representing a CAGR of 0.51% (this is shown in Figure 2.4.

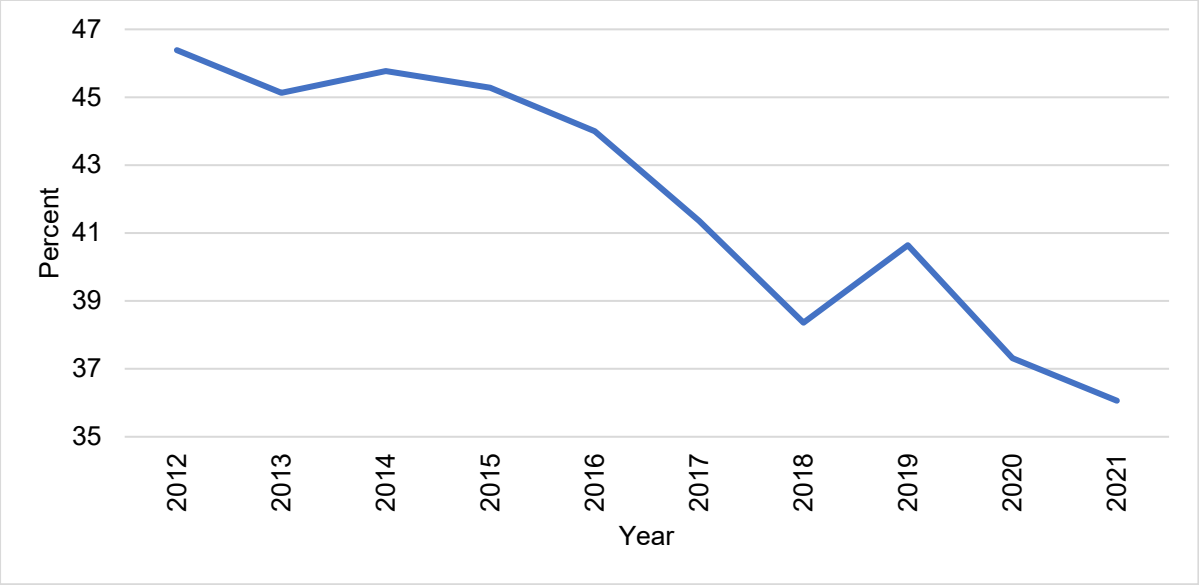


Figure 2.5: Africa's share in the total value of agricultural exports by South Africa

Source: Own calculations based on data from ITC (2022).

9 It is important to note that prior to 2010, the ITC did not include South African exports into the SACU region. For this reason, only a ten-year period, spanning between 2012 and 2021, was used for the range (Sanganza, 2021; ITC, 2022).

The declining share of Africa in the value of South Africa's total agricultural trade is reason for concern, since Africa has the potential to be a large market for South African agricultural exports. The continent is projected to experience changes in various factors that may increase the demand for agricultural commodities and foodstuffs, some of which factors are listed as follows.

- African GDP is projected to reach USD 2.5 trillion by 2050, and since 2007, the average annual growth of Africa's GDP has been 4.3%, only being bested by Asia (Morokong and Pienaar, 2019; Moyo 2020).
- The continental population is expected to increase from 1.2 to 2.5 billion people by the year 2050, with 26% of the world's population of a working age living in Africa (Moyo, 2020; Ekobena *et al.*, 2021).
- Agribusiness trade is projected to increase between 25% and 30% by the year 2050 (Moyo, 2020).
- Rapid urbanisation is occurring, which is resulting in increased per capita incomes, changing diets, and lower reliance on subsistence agriculture (Morokong and Pienaar, 2019; van Berkum, 2021).

Table 2.2 shows Africa's (excluding South Africa) average top 10 agricultural imports from the RoW between 2017 and 2021 in value terms. Africa imports a large value of Durum wheat (excluding seed for sowing), Wheat and meslin (excluding seed for sowing, and durum wheat), Maize (excluding seed for sowing), Semi-milled or wholly milled rice, Broken rice, Cane or beet sugar, and Raw cane sugar. These products, with the exception of maize, are not major exports of South. Additionally, Africa is not a major importer of citrus, one of South Africa's largest agricultural export earners in value terms. This can potentially explain South Africa's reduced share of agricultural exports into Africa.

Table 2.2: Africa's average top 10 agricultural imports from the RoW (2017 to 2021)

Product HS Code	Product Description	Average (2017-2021)
'100119	Durum wheat (excluding seed for sowing)	5 677 160
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)	5 619 750
'100590	Maize (excluding seed for sowing)	4 277 563
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed	4 121 605
'151190	Palm oil and its fractions, whether or not refined (excluding chemically modified and crude)	3 276 170

Product HS Code	Product Description	Average (2017-2021)
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...	2 660 733
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...	2 241 853
'100640	Broken rice	1 686 174
'040221	Milk and cream in solid forms, of a fat content by weight of > 1,5%, unsweetened	1 618 479
'240220	Cigarettes, containing tobacco	1 523 550

Source: Own calculations based on data from ITC (2022)

2.3.1 South Africa's trade with Africa

Noting the nature of Africa's agricultural trade with the world discussed in section 2.3, an overview of South Africa's role in Africa's agricultural trade is discussed in this sub-section. Intra-regionally, South Africa plays a strong role in trade (Stern and Ramkolowan, 2021). Figure 2.6 shows the value (in USD billions) of South Africa's total agricultural exports into the 54 other AU recognised member nations. The CAGR over the period 2017–2021 for the value of South Africa's total agricultural exports into Africa was 1.55%, and in 2021, reached a value of over USD 4.4 billion; this is higher than the preceding 10 year period. However, over the same period, South Africa's agricultural exports into Africa, as a share of Africa's total agricultural imports (processed and unprocessed), decreased from 5.7% to 5.26%, with a negative CAGR of 1.83%. Between 2017 and 2021, Africa's (excluding South Africa) imports of agricultural products experienced a CAGR of 3.44%.

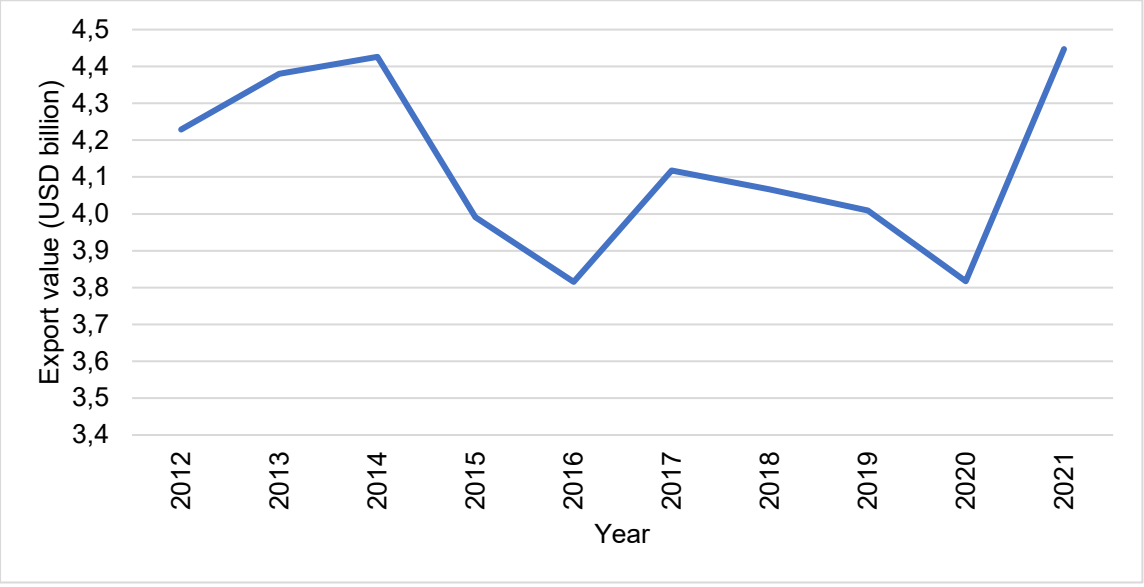


Figure 2.6: South Africa's total agricultural exports into Africa

Source: Own calculations based on data from ITC (2022)

Figure 2.7 shows the contribution that processed and unprocessed agricultural products made towards the value (USD billion) of South Africa's total exports of agricultural products into Africa between 2012 and 2021. South Africa's processed agricultural exports into Africa have consistently contributed to more than 65% of South Africa's total agricultural exports into the continent, by value (USD billion) over the period 2012–2021, and in 2021, contributed 69% towards the total agricultural export value into Africa. From 2017 to 2021, the share of processed agricultural exports towards total agricultural exports increased, with a CAGR of 0.26%. In value terms, South Africa's exports of agricultural products into Africa are dominated by processed agricultural products.

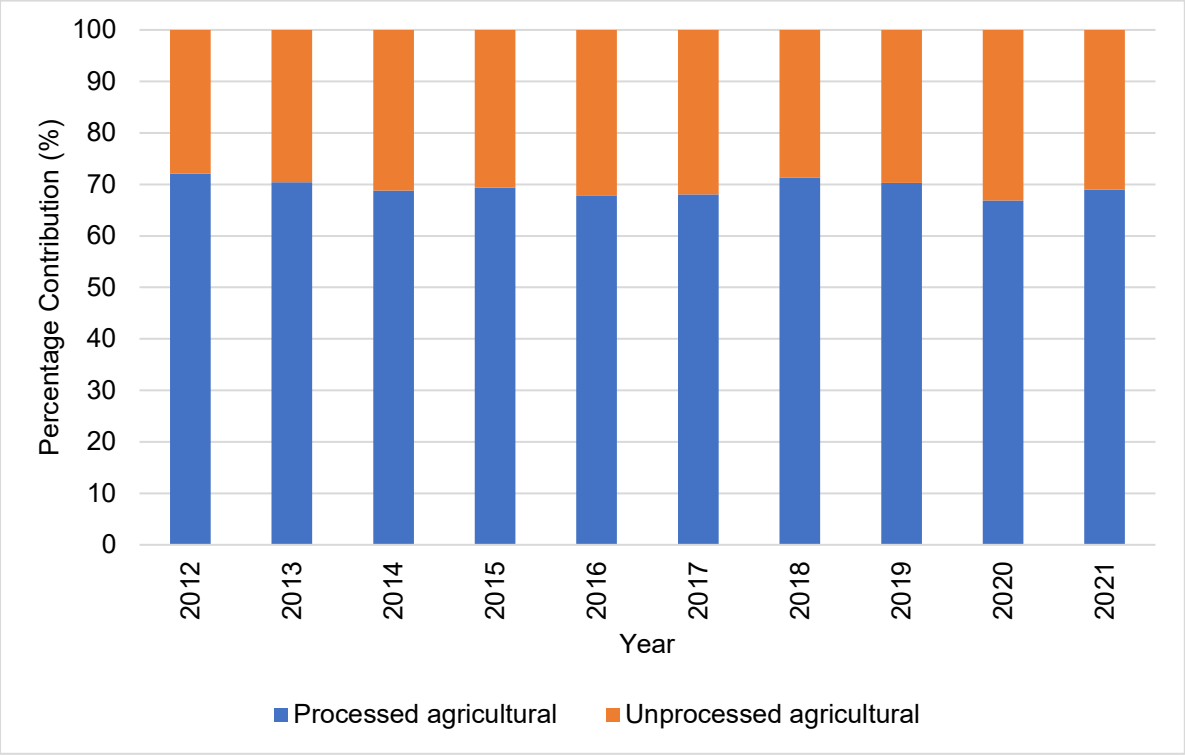


Figure 2.7: The composition of South Africa's agricultural exports
Source: Own calculations based on data from ITC (2022)

2.3.2 South Africa's agricultural trade with three African RECs

The three African regions that South Africa is a member of[10] appear to play an important role for South Africa's agricultural exports. By disaggregating South Africa's agricultural exports into the different regions, it can be shown what portions of the

[10] Namely, SADC, SACU and the TFTA. It is important to note that multiple countries belong to either two or three of the regions listed.

exports are sent to the respective regions. Figure 2.8 shows that SACU forms a major export market for South African agricultural exports into Africa. South Africa's agricultural exports into SACU made up 49% of South Africa's total agricultural exports into the continent in 2020. This has been the case since at least 2010, when SACU made up 53% of South Africa's total agricultural exports into the continent.

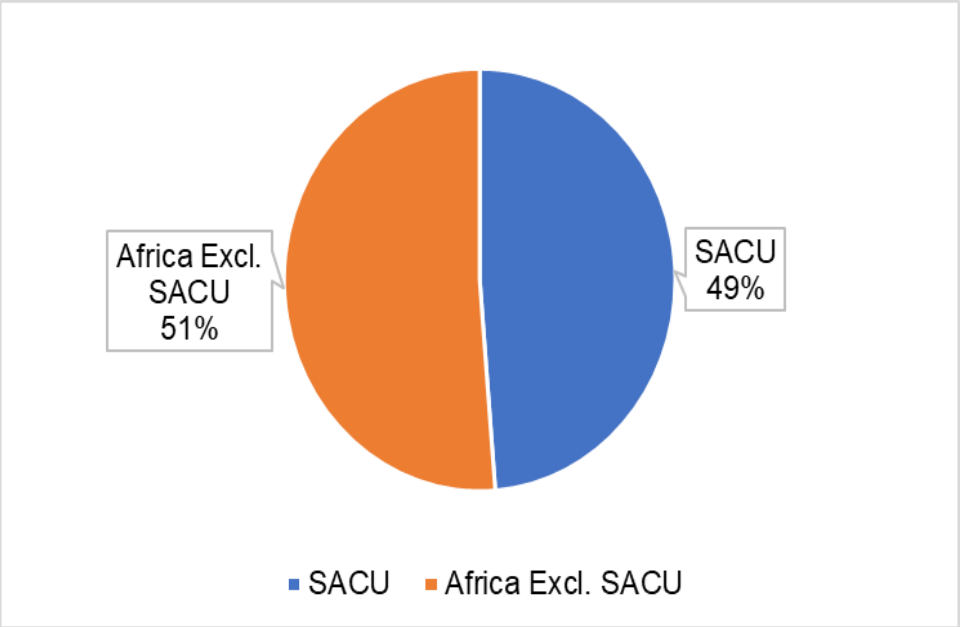


Figure 2.8: South Africa's agricultural exports into SACU as a percentage of South Africa's agricultural exports into Africa (2020)

Source: Own calculations based on data from ITC (2022)

SADC takes an even larger share of exports. Figure 2.9 shows South Africa's agricultural exports into the SADC region as a percentage of South Africa's total agricultural exports into the continent in 2020. The SADC region absorbed 89% of the total value of South Africa's agricultural exports into Africa. This can be expected, as SADC is comprised of all SACU nations, as well as 11 other additional countries. SADC's share of South Africa's agricultural exports to the continent has remained stable since 2010.

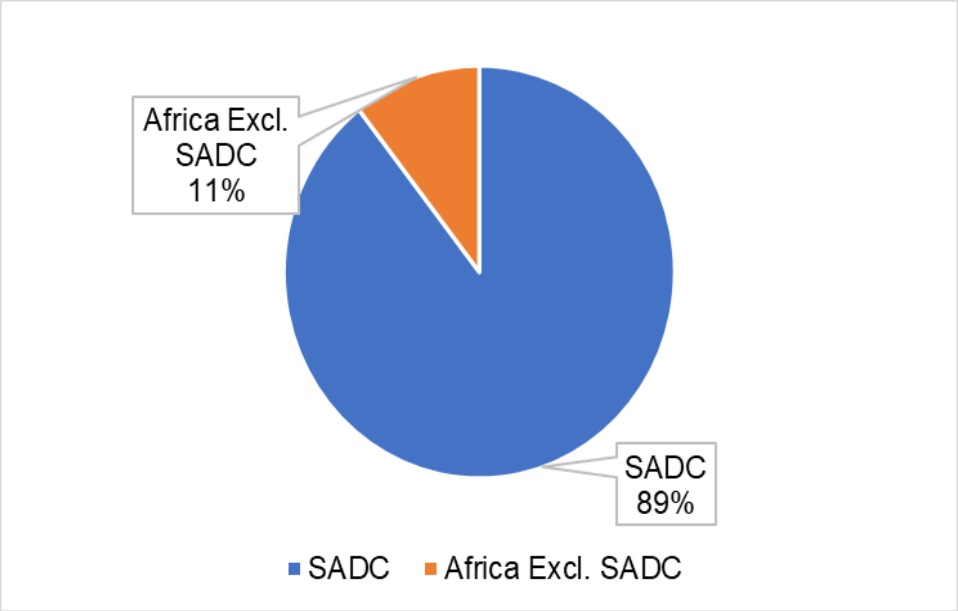


Figure 2.9: South Africa's agricultural exports into the SADC region as a percentage of South Africa's agricultural exports into Africa (2020)

Source: Own calculations based on data from ITC (2022)

Agricultural exports by South Africa into the Tri-Partite Free Trade Area (TFTA), which includes nations belonging to COMESA, EAC and SADC, accounted for 90% of South Africa's total agricultural exports into the continent in 2020 (see Figure 2.10), reaching a value of USD 3,49 billion (ITC, 2022). Cognisance must be taken of the fact that the TFTA was only signed by South Africa in 2017. When considering agricultural exports by South Africa in 2010 and 2015, the TFTA countries accounted for 91% and 89% of South Africa's total agricultural exports into Africa, respectively. This, as well as the formation of the AfCFTA, raises the question as to the relevancy of the TFTA.

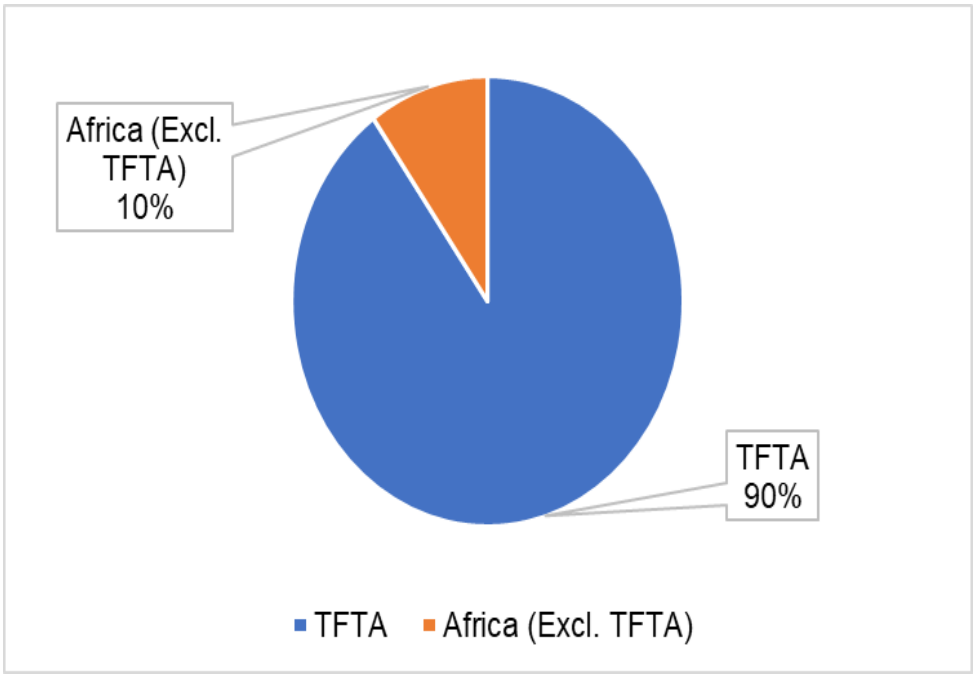


Figure 2.10: South Africa's agricultural exports into the TFTA as a percentage of South Africa's agricultural exports into Africa (2020)

Source: Own calculations based on data from ITC (2022)

2.4 Overview of selected African RECs

This section provides an overview of selected African RECs. More specific information, including trade, is provided for SACU and SADC since they are the only regional trading blocs, prior to the TFTA and AfCFTA, that South Africa is a direct member of within the African continent[11]. The trade relationship between South Africa and the remaining seven African RECs is analysed in Chapter 4, but a brief background to the RECs is provided in this section. A review of the literature on the AfCFTA is also provided to gain knowledge on previous research efforts that have tackled trade on the continent and the formation of a continental free trade area. This will assist in gaining insight into the various techniques and approaches previously used to assess trade impacts within Africa as well as an insight into the different factors that have so far affected trade within Africa.

11 SACU is not a recognised REC by the AU (2022a) but given the importance of SACU in South Africa's agricultural exports, it was deemed fit to carry out a review of the literature pertaining to South Africa's trade with SACU. Moreover, with the formation of the AfCFTA, the relevance of the TFTA has been brought into speculation, and so the TFTA was not included in the literature review, or the analyses carried out in Chapter 4.

2.4.1 SACU

Map 2.1: SACU

The SACU agreement materialised on the 11th of December 1969, when South Africa, Botswana, Lesotho, Namibia, and Eswatini (at the time, 'Swaziland') signed a Customs Union Agreement. The agreement created a unified trading process for the member nations. There are no tariff barriers between members and all members share a CET on imports into SACU (Jooste, Kruger and Kotze, 2003, as noted in Bahta, 2004). By 2002, SACU had achieved the deepest level of integration in the Sub-Saharan Africa (SSA) region when the 'new' SACU agreement was signed (Vink, Tregurtha and Kirsten, 2002; Vink and Sandrey, 2009).

With an uninterrupted trade in goods between the SACU nations, the customs union collects the import levies from the Rest of the World (RoW) and distributes collected income to members according to an agreed-upon formula (SACU, 2022). In 2002, the SACU agreement was updated and specifically addressed three outstanding issues (Vink and Sandrey, 2009; Stern and Ramkolowan, 2021; SACU, 2022). These included the following:

- Joint decision-making process: As stipulated in Article 3, a secretariat in charge of administration was set to oversee SACU that was also independent of member nations. Article 7 formed various institutional bodies[12] that were independent as well. One such body included the SADC Tariff Board (SACU, 2022).
- A new Revenue Sharing Formula (RSF): The RSF was revised to account for a customs excise and development component (SACU, 2022).
- Question of Extra-SACU trade: It was agreed that there was a necessity to create strategies that improve the political, economic, social and cultural regional integration, while imposing no risk on the smaller states' economies

12 The institutions were created to achieve a more fair participation from the member nations. In 2002, the agreement also made reservations for agricultural, industrial, competition, and unfair trade practice policy coordination (Vink and Sandrey, 2009; SACU, 2022). Additionally, in 2002, reservations were made for the protection of infant industries (Vink and Sandrey, 2009; SACU, 2022).

(SACU, 2022). This was a result of the BLE (BLS at the time) states claiming that South Africa continuously signed new preferential agreements that only benefited one of the SACU members (SACU, 2022).

The main provisions that were retained from the 1969 Agreement were as follows:

- Zero duties on goods made locally,
- The freedom of goods movement after customs clearance,
- CETs,
- BLNE nations receiving protection for infant industries,
- Full absence of intra-SACU restrictions,
- Similar legislation regarding customs and excise,
- Each member state would retain import control and regulations,
- Transitory freedom and non-discriminating transit duties (Bahta, 2004).

The adjustments made in 2002 meant that, with the creation of the Tariff Board, South Africa no longer controlled tariff setting for the SACU region (Bahta, 2004). Tariffs aimed at protecting local industries that held minor benefits for member nations under the old RSF would no longer distort trade in the region (Bahta, 2004).

2.4.1.1 Overview of trade in the SACU region

SACU's trade flows mostly consist of South African trade flows, and in the last 20 years, internal tariff rates in SACU have been considerably lowered on agricultural products (Behar and Edwards, 2011; Ngepah and Udeagha, 2018).

Behar and Edwards (2011) pointed out that, from the 1990s through to the early 2000s, the growth in SACU's exports into the SADC region and globally were mediocre, when compared with the RoW and other developing countries. However, in 2002, exports grew rapidly in dollar value, mainly because of the improved terms of trade, accompanied with a global commodity price rise (Behar and Edwards, 2011). This was also experienced for the SADC region's trade. Behar and Edwards (2011) found that between 80 and 90% of SADC imports were sourced from SACU (predominantly South Africa), and that between 60 and 70% of SADC exports to SADC were sold to SACU. This demonstrates large asymmetries in trade flows in the SADC region, and positions South Africa as a strong exporter to the region, considering South Africa's important role in trade in the SACU region.

Sunde and Ogbokor (2018) assessed the direct effects of exports on growth of economies within the region. Using panel data econometric techniques covering the period from 1980 to 2016, they found exports to have had a positive effect on the per capita GDP within SACU. Sunde and Ogbokor (2018) also found that heterogeneity effects were noteworthy and that "time effects are not significant in explaining the relationship between exports and economic growth". The implications of the findings are that institutional, political, economic policy systems, and others, play a significant role in explaining growth developments in the region (Sunde and Ogbokor, 2018). They also cite various authors who give supporting evidence of the positive link between export-led growth strategies and economic growth in multiple countries around the world.[13] In conclusion, Sunde and Ogbokor (2018) found that SACU countries have experienced increasing returns to scale in the past few decades in terms of the effects of increased exports on economic growth.

To contradict the findings of Sunde and Ogbokor (2018), Manwa, Wijeweera and Kortt (2019) found little persuasive evidence that liberalisation of trade had led to positive growth effects on the economies of SACU in the past three decades. Their paper included over three decades of panel data and had the aim of investigating the potential relationship between liberalising trade and growth in the economy (Manwa *et al.*, 2019). In their work, Manwa *et al.* (2019) used several indicators of trade liberalisation, namely tariffs, Real Effective Exchange Rates (REERs), trade ratios and adjusted trade ratios, to test the link between trade openness and growth.

Manwa *et al.* (2019) suggest that, as opposed to the management of tariffs and exchange rates to increase economic growth in the region, different frameworks should be considered. These frameworks can involve deeper levels of integration through the creation of policies that support the development of regional human capital, private sector business networks, and the support of GVCs in industries that have competitive advantages (Manwa *et al.*, 2019).

According to SACU (2020), intra-SACU trade had been on an upward trajectory from 2004 through to 2018. This is believed to represent a strong and deep level of

13 Authors include Michealy (1977), Balassa (1978), Ocran and Biekpe (2008), Kundu (2013), Biyase and Zwane (2014), and Mosikari, Senosi and Eita (2016). The authors provide evidence, through their own research, that supports the export-led growth strategy to improve on economic growth globally, as well as in SSA and SADC regions.

integration among member states (SACU, 2020). According to SACU (2020), intra-SACU trade contributed 14% towards total SACU trade between 2004 and 2018, which is a performance that compares well against other African RECs. However, SACU (2020) also noted a decline in total intra-SACU trade in recent years. On the export side, South Africa accounted for an average of 72.5% of total intra-SACU exports between 2004 and 2018, and on the import side, South Africa only imported an average of 15.6% of total intra-SACU imports in the same period. This highlights the trade imbalances in the region and South Africa's strong position as an exporter in SACU.

Safaeimanesh and Jenkins (2021) attempted to quantify the potential effect on annual economic welfare gains that may stem from reforms created to reduce the cost of trade compliance in the SACU region, trade compliance costs include border and documentary Compliance Costs (CCs). These CCs are found to be particularly high in SSA countries, and if SSA countries are to benefit from incumbent policy measures that are designed to stimulate growth through increased international trade, these high CCs need to be reduced (Safaeimanesh and Jenkins, 2021). Safaeimanesh and Jenkins (2021) concluded that, if the SACU region were to reduce excess CCs for imports and exports, the region would experience an economic gain of between 0.54% and 0.90% of the SACU countries' annual GDP. However, Stern and Ramkolowan (2021) found that both SADC and SACU are falling behind in relation to creating more efficient cross-border trade processes.

2.4.1.2 SACU trade in agricultural products

Kargbo (2007) found that, in Rand terms, SACU agricultural exports increased by R14.86 billion between 1995 and 2003, whilst agricultural imports had increased by R7.01 billion in the same period. On this premise, Kargbo (2007) stated that the trade reforms (trade liberalisation and exchange rate policies) had been gaining success. This success was accompanied by a growing commercial agricultural sector, increased output, and farm productivity, as well as agricultural export expansion in South Africa (Kargbo, 2007).

Vink and Sandrey (2009) have highlighted trends in South Africa's agricultural trade with SACU. Through an import and export analysis of intra- and extra-SACU trade, Vink and Sandrey (2009) came to some important conclusions as to the nature of trade

that the five SACU countries exhibited from the early 1960s through to 2008. Their main conclusions, of relevance to this research study, were the following:

- Only South Africa managed to maintain a positive growth in the per capita output from agriculture between 1990 and 2008 (although below global average increases);
- South Africa made the most "relative and absolute contribution to poultry production" in the region,[14] whereas Namibia and Botswana made the largest relative contributions to beef production;
- SACU countries had not successfully increased their competitiveness in 'new' agricultural markets, but had instead focused on traditional export sectors, such as fruit and wine in the case of South Africa; and
- Lastly, South Africa was found to contribute 92% towards SACU's regional economy, 70% towards the regional economy of SADC, and 40% towards the Sub-Saharan Economy (Vink and Sandrey, 2009).

Figure 2.11 shows South Africa's total agricultural exports into the SACU region from 2012 to 2021. As can be seen in Figure 2.11, South Africa's agricultural exports to the SACU region have been varied over the past ten years. The CAGR for the period from 2012 to 2021 was 0.4%. As of 2020, shown in Figure 2.8, SACU made up 49% of South Africa's total agricultural exports into the continent in value terms, pointing to the importance of SACU as an export destination for South African agricultural exports (ITC, 2022).

14 According to Vink and Sandrey (2009), South Africa had consistently produced more than 97% of the region's total poultry production from the 1960s to 2008.

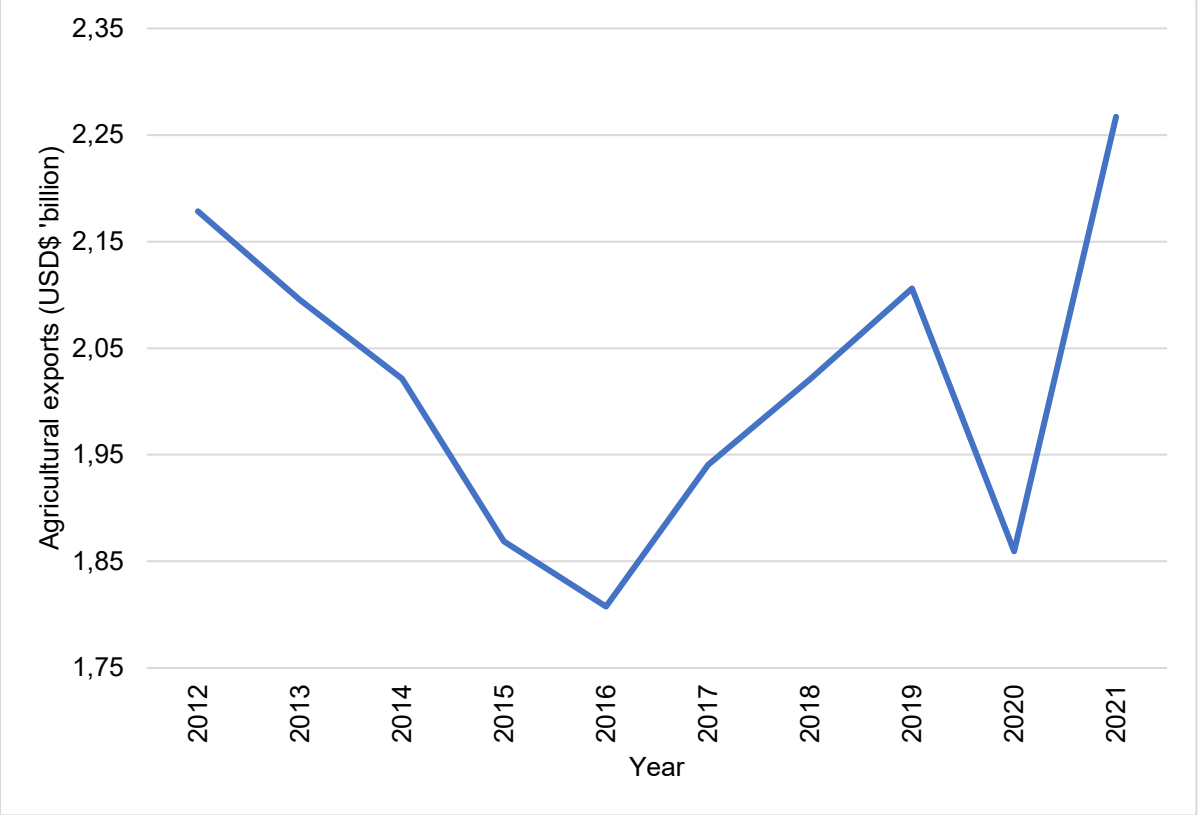


Figure 2.11: South Africa's total agricultural exports to the SACU region (2012-2021)
Source: Own calculations based on data from ITC (2022)

2.4.2 SADC

According to Moyo (2020)[15] and Behar and Edwards (2011)[16] the SADC region is found to be one of the most integrated regions on the continent, which contradicts the region's ARII score that states that the SADC's mean score

Map 2.2: SADC

[15] Using United Nations data, Moyo (2020) calculated an index that demonstrated the SADC regions level of integration as opposed to the seven other African RECs. SADC scored a value of 85% whereas the nearest competitor, COMESA, scored a value of 60% (Moyo, 2020).

[16] Behar and Edwards (2011) find that, controlling for GDP and other variables, the SADC region is well integrated and intra-SADC trade accounts for more trade than extra-SADC trade and that the level of openness in the region is commendable. However, the tariff structures complexity and the geography of SADC, amongst other things, still make trade costly and impede intra-SADC trade to some extent.

for integration regionally is low[17] (Moyo, 2020; ARII, 2022). The Declaration and Treaty establishing the SADC region was signed at the Summit of the Heads of State or Government in July of 1992 in Windhoek, Namibia, and succeeded the Southern African Development Coordination Conference (SADCC) (Bahta, 2004). The SADC protocol on trade was signed by South Africa in 1996 and came into operation in 2001, after a brief delay to allow for countries to deposit their instruments of ratification (Kalaba, Kirsten and Sacolo, 2016).

In the early 2000s, there was much speculation concerning the SADC region's attempts at integration. Reference is made to the complexity of the different tariff reduction schedules, lack of NTB reduction plans, and the poor infrastructure that would lead to the diversion of industrial development and FDI (Bahta, 2004). Many of these hurdles represent supply-side constraints, characteristic of regional integration in Africa. Furthermore, Vink *et al.* (2002) referred to the trade patterns at the time and raised the point that the less-developed industrial sectors in the SADC nations exemplified inherent structural issues, inclusive of insufficient infrastructure service, poorly developed financial systems as well as a lower than optimal level of human resource and technology necessities.

In the second half of the 2000s, the SADC agreement began to implement a free trade protocol that called for a 99% reduction of tariffs on all SADC country imports (Fadeyi, Bahta, Ogundeji and Willemse, 2014; Gitau, 2019; Stern and Ramkolowan, 2021). South Africa and other SACU members were to implement the tariff reductions by 2005, with other SADC members only having to achieve the same goal by 2012 (Kalaba *et al.*, 2016; Stern and Ramkolowan, 2021). Special consideration was given to Botswana, Lesotho, Namibia and Eswatini (BLNE, being the other four SACU states), in the sense that, under their SACU offer, they would be allowed to retain all the preferences they had benefited from in trading with non-SACU SADC states, for example augmented access to markets for specific products of export significance (Bahta, 2004). This was attributable to their lower levels of development, when compared with South Africa. The SADC FTA principally envisaged up to 85% of intra-SADC trade flows becoming free of duty, with the remaining 15% being comprised of

17 According to the ARII (2022), nine SADC members perform near the mid-point for regional integration. SADC's average score is brought down mainly by the regional infrastructure dimension and is brought up by SADC's free movement of people score (ARII, 2022).

sensitive products that were to be liberalised by 2012 (Fadeyi *et al.*, 2014). Member states of the SADC FTA can be seen in Table 2.3.

Table 2.3: SADC FTA member nations[18]

Member	Member
Botswana	Namibia
Eswatini	Seychelles
Lesotho	South Africa
Madagascar	Tanzania
Malawi	Zambia
Mauritius	Zimbabwe
Mozambique	

Source: Gitau (2019).

To date, with some deviations, most SADC countries have implemented the tariff reductions, and all trade should occur free of duty throughout SADC (Stern and Ramkolowan, 2021). There are, however, still some restrictive Rules of Origin (RoO), as in wheat flour for example, that prevent trade in some sectors, as well as other NTBs that affect trade (Stern and Ramkolowan, 2021). Table 2.4 identifies the 16 member nations of the SADC region.

Table 2.4: Member nations of the SADC region

Member	Member	Member
Angola	Madagascar	Seychelles
Botswana	Malawi	South Africa
Comoros	Mauritius	Tanzania
DRC	Mozambique	Zambia
Eswatini	Namibia	Zimbabwe
Lesotho		

Source: SADC (2022)

2.4.2.1 Overview of trade in the SADC region

There are numerous studies on the SADC region and its potential affects and subsequent effects on trade, as well as observed trade patterns. Coulibaly (2007) found that, in the five years leading up to the official implementation date of the SADC agreement, internal trade flows had increased. This trend was estimated to continue in an increasing and positive direction. However, exports as well as imports to and from the RoW were estimated to be slightly negative (Coulibaly, 2007).

18 Angola, in 2020, submitted an offer to accede to the SADC FTA.

Behar and Edwards (2011), through extensive use of various specifications of a gravity model and benchmarking of SADC trade to other regions globally, found the growth in SADC trade throughout the 1990's to be 'mediocre' when compared with the RoW and other developing countries (Behar and Edwards, 2011). From 2002, trade rose strongly, particularly in exports, which can mainly be attributed to a rise in commodity prices, globally (Behar and Edwards, 2011). However, SADC did experience a marginalisation in world exports when compared with developing countries; the contribution of SADC trade in developing-country real exports decreased from 7.1 to 2.9% between 1990 and 2008 (Behar and Edwards, 2011).

Intra-SADC trade was found to have tripled between 1990 and 1995, but then only grew from 9.9% to 12.2% between 1995 and 2008 (Behar and Edwards, 2011). The trade in the region also appeared to divide member countries into two groups. Group 1 was composed of Malawi, Mozambique, Zambia and Zimbabwe, being countries that depended the most on SADC, mostly for imports. Group 2 consisted of the remaining SADC countries that had firmer trade relationships with the RoW.[19] South Africa was found to be a major source of imports for the region, but not a major market for exports. Behar and Edwards (2011) concluded that, as a region, SADC was quite well integrated, intra-SADC trade was high, and trade internally consisted of a larger variety of products, as opposed to SADC trade with the RoW. However, they also found that there were a variety of impediments to trade (other than tariff barriers), such as the geographical situation of the countries (land-locked countries, especially), the timeliness of trucks arriving at their assignees was poor, and the infrastructure in countries was poor (Behar and Edwards, 2011). These all lead to the difficulty and costliness of intra-SADC trade being high in comparison with regions such as Asia (Behar and Edwards, 2011).

Ngepah and Udeagha (2018) found that internal trade increased roughly seven-fold between SADC member nations, and that external trade with non-members increased by about 55% between 1995 and 2014. Interestingly, Ngepah and Udeagha (2018), through the introduction of time trends to determine the dynamic effects of RTAs, found that, over time, trade increased in the SADC region by 0.0002%, implying that

19 Group 1 countries imported around 50% of their imports from the SADC region and exported more than 20% of their exports to SADC. The SACU region, which resided in Group 2, only sourced 5,6% of their imports from SADC, and exported 10,5% of their exports to SADC, leading to large trade imbalances between SACU and SADC (Behar and Edwards, 2011).

most trade gains happened immediately, and that trivial additional gains with time can be expected.

2.4.2.2 SADC trade in agricultural products

Through an extensive literature review, Mokoena (2011) found that various authors had come to different conclusions on the agricultural trade effects of the SADC region. Cassim (2001), as well as Chauvin and Gaulier (2002), in Mokoena (2011), found through using gravity models, that in South Africa's case, the potential agricultural exports were significantly lower than its actual agricultural exports in the SADC region were. However, Poonyth, Esterhuizen, Ngqangweni, and Kirsten (2002), in Mokoena (2011), found, also through using gravity models, that due to the SADC FTA, South African potential agricultural exports to the region were far higher than those that were being realised. Mokoena (2011) also discovered that different authors[20] concluded that trade creation effects that outweigh trade diversion effects would be greatest for those countries that have a comparative advantage in agricultural production in the region, and those with a comparative disadvantage would experience greater trade diversion. Lewis (2001), in Mokoena (2011), found that a SADC FTA would benefit every participant, but because of the SADC's minute size relative to the global economy, as well as imbalances in trade among its members, trade expansion in the medium term would most likely not be expansive.

Fadeyi *et al.* (2014) assessed the impact that the FTA had on South African agricultural trade (with a focus on the beef and maize sub-sectors). They found, using a gravity model, that the trade-creating effects of the intra-SADC FTA on the beef and maize sub-sectors of the South African agricultural industry outweighed the trade-diverting effects (Fadeyi *et al.*, 2014). They also found that exports into markets would tend to increase under the following conditions: for a higher GDP of a market, closer proximity to the market, and if a market shares a common language with South Africa (Fadeyi *et al.*, 2014). On the contrary, if a market has a larger population[21] and doesn't share a border with South Africa, positive trade-creation affects would be smaller.

20 Computable General Equilibrium (CGE) models were used by Lewis (2001) and Lewis, Robinson, and Thierfelder (2002) to determine the impact of an FTA on SADC economies.

21 The rationale behind this is that, if a country has a larger population, then the country is less likely to trade internationally, and more likely to rely on domestic commerce (Fadeyi *et al.*, 2014).

Kalaba *et al.* (2016) observed, and made comparisons of, the growth rates of agricultural imports into the SADC region. They found that, between 2000 and 2011, intra-SADC imports averaged at a value of USD 2,58 billion, while extra-SADC imports into the region were more than double that value (USD 5,58 billion) (Kalaba *et al.*, 2016). On average, extra-SADC imports into SADC expanded at an average rate of 13% per annum, while intra-SADC imports only grew at an average rate of 11%, annually (Kalaba *et al.*, 2016). They also found that, between 2000 and 2004, intra-SADC imports increased at an average rate of 22%, annually, while non-SADC imports increased at an average rate of 13%, annually. This coincides with the period during which SACU decreased its tariffs as a result of the phase-down process discussed in previous sections (Kalaba *et al.*, 2016). When the rest of the SADC countries began the phase-down of tariffs, the intra-SADC imports grew at a far slower pace of 4%, annually (Kalaba *et al.*, 2016). Therefore, SADC was still importing mostly from non-SADC countries.

Through further analysis, Kalaba *et al.* (2016) ascertained that, between 2000 and 2010, average agricultural tariffs reduced from 15% to 5%, while intra-SADC imports, as a share of total imports, actually decreased. Kalaba *et al.* (2016) concluded that the poorer than expected trade performance can be attributed, somewhat, to the increased use on Non-Tariff Measures (NTMs)[22] on agricultural products by individual countries (and private stakeholders) throughout the period. The NTMs were found to have been mainly implemented by SACU countries, being those countries that had to implement tariff phasedowns before other countries in the region did. The NTMs used were mostly Sanitary and Phyto-Sanitary (SPS) restrictions that directly affected agricultural imports by increasing the cost to trade, thereby affecting the competitiveness of different sectors in the industry (Kalaba *et al.*, 2016).

Figure 2.12 shows South Africa's agricultural exports to SADC from 2012 to 2021. Over the period 2012 to 2021, the CAGR of South Africa's agricultural exports to SADC was less than half a percent (0.39%). However, as shown in Figure 2.9, as of 2020,

22 NTMs were defined by Kalaba *et al.* (2016) as being any measure, other than tariffs, that distort trade. The key difference between NTBs and NTMs is that "NTBs include quotas, tariff-rate quotas, licensing regimes, import and export bans, and price bands", while NTMs concern all measures that distort trade (Kalaba *et al.*, 2016).

SADC made up 89% of South Africa's total exports into the African continent (ITC, 2022).

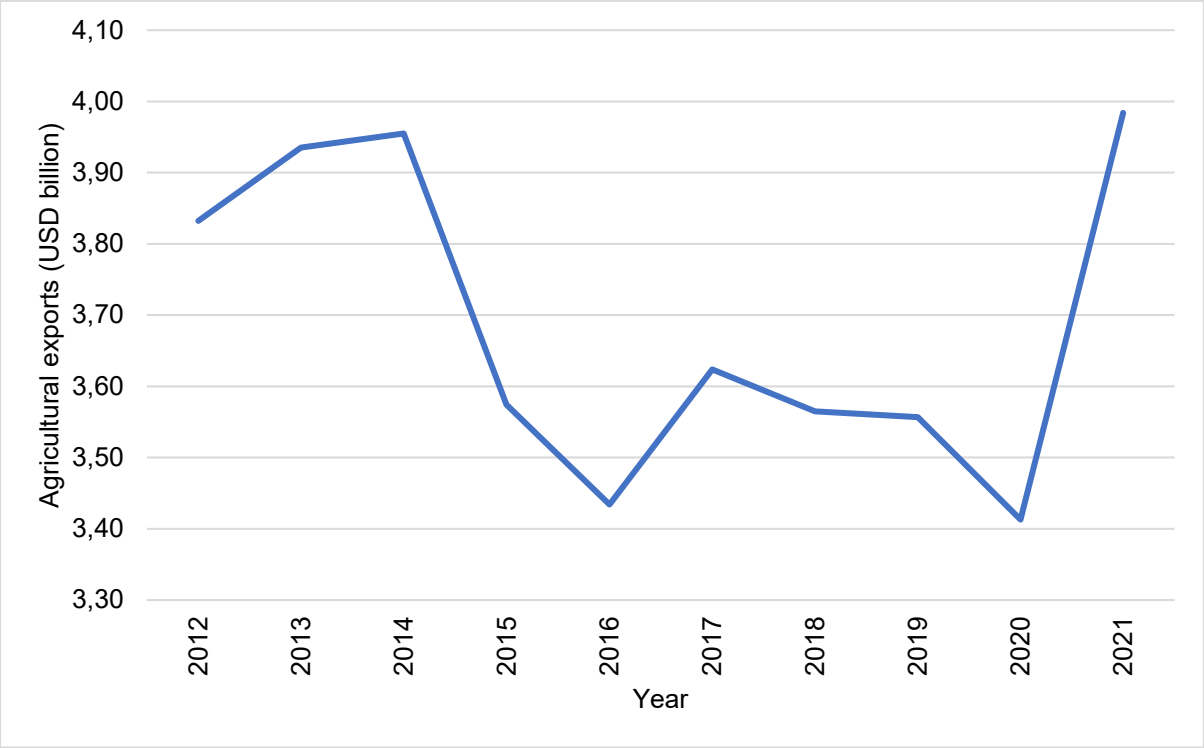


Figure 2.12: South Africa's total agricultural exports to the SADC region (2012-2021)
Source: Own calculations based on data from ITC (2022)

2.4.3 The remaining African RECs

In the following sub-sections, the seven remaining recognised African RECs of the AU will be given a brief overview. The overviews will be aimed at providing a background on each REC's conception and their aims, as well as their intra- and extra-regional tariff rates on imports. This will aid in identifying those regions that are either well integrated or not and will also assist in identifying those RECs with high tariff rates on imports form non-member countries, the latter point has specific implications on tariff rate reductions and ease of market access under the AfCFTA.

The ARII, as was used to show SADC's level of integration, will be used to compare each REC's level of integration. The ARII has five dimensions, namely the "Trade Integration", "Productive Integration", "Macroeconomic Integration", "Infrastructural Integration", and "Free Movement of People" dimensions (ARII, 2022). Together, the five dimensions apply 16 indicators that determine the magnitude to which each member is integrated within the respective RECs (ARII, 2022). With this information,

the member party's commitment to integration, as well as the REC's commitment to integration as an entirety, will be reflected. This will give a deeper understanding of the potential opportunities or obstacles that may lie ahead for South Africa's exports of agricultural products into the African continent under the ambit of the AfCFTA, thereby assisting in achieving objective i.

2.4.3.1 The Arab Maghreb Union (AMU)

Map 2.3: AMU

The AMU has only five member nations, namely Algeria, Libya, Mauritania, Morocco, and Tunisia, making it one of the smallest RECs on the continent. The AMU was founded in February 1989 as a result of the Treaty of Marrakech (World Bank, 2010; Dewberry, 2020). The treaty lists three main objectives, with the end goal of establishing an economic union (World Bank, 2010). The formation of an economic union requires the creation of an FTA, including the elimination of all tariffs and NTBs to trade, a customs union with a CET with the RoW, and lastly, a common market with no restrictions on the movement capabilities of production factors (World Bank, 2010). However, as of 2019, the AMU region had yet to achieve an FTA or a customs union, both of which are planned (Dewberry, 2020).

As a region, the AMU is large in terms of land area, but only a small portion of that land is arable due to a large portion of the land being desert (World Bank, 2010). Morocco and Tunisia, however, do have relatively large areas of land under cultivation (World Bank, 2010). In terms of resource endowments, Algeria and Libya are both resource rich, with Algeria having an abundance of labour and Libya being a net importer of labour. The remaining three countries are well endowed with labour, but are resource poor (World Bank, 2010).

Despite the varied endowment levels in both resources and labour, intra-regional trade is low, and the REC trades mostly with the RoW, with the EU being the REC's largest trading partner (World Bank, 2010; IMF, 2018). The World Bank (2010) listed several reasons that are potentially behind the poor levels of intra-regional trade flows, including high barriers to trade (including high tariff levels and the use of NTMs), a lack

of diversification of the production base, logistical bottlenecks (as a result of insufficient regional infrastructure), and lastly, political inefficiencies. Consequently, total intra-regional trade is less than 5% of the region's total trade (IMF, 2018).

The AMU's efforts at integration extra-regionally have been directed largely towards European nations[23]. However, all five countries are members of the AU and are also signatories to the AfCFTA, while Mauritania has a free trade agreement with ECOWAS, and Mauritania, Morocco, and Tunisia are also members of the WTO[24] (IMF, 2018). Tariff protection in the AMU, however, is still prohibitively high, with the average tariff rates at around 12%, with Algeria's being at 19%, making it the most protected country in the AMU (Barth, 2019). In addition, the import duty on agricultural products going into Morocco is 28%, and into Tunisia at 31% (Barth, 2019).

The AMU scores moderately when it comes to its level of integration (ARII, 2022). The AMU is different to other African RECs in the sense that it scores poorly in the free movement of people dimension (ARII, 2022). However, its performance is bolstered by its relatively good performance with regard to the macroeconomic policies dimension (ARII, 2022).

2.4.3.2 Common Market for Eastern and Southern Africa (COMESA)

COMESA's[25] history can be traced back to December 1994, when it was created to replace the former PTA that began its existence in 1981 (COMESA, 2022). The central tenet of the COMESA region is the creation of a "large economic and trading unit that is capable of overcoming some of the barriers that are faced by individual states" (Dewberry, 2020; COMESA, 2022). Therefore, the approach being

Map 2.4: COMESA

23 One of the issues hindering intra-regional trade growth, raised by Barth (2019), is that the AMU tends to apply lower tariffs to European countries (such as those in the EU) than it does to members of the AMU, which leads to the orientation of each country's trade towards larger economic powers, as opposed to each other.

24 Algeria applied in 1987 to join the WTO but has yet to accede. Libya applied in 2004 but is yet to take further actions towards negotiations in regard to its acceptance (IMF, 2018).

25 Member states include Burundi, Comoros, the Democratic Republic of the Congo, Djibouti, Egypt, Eswatini, Eritrea, Ethiopia, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Somalia, Sudan, Tunisia, Uganda, Zambia and Zimbabwe (COMESA, 2022).

taken towards regional integration by COMESA is development oriented (Dewberry, 2020). The COMESA region is one of the largest on the continent, as it has 21 member nations and a combined population of over 583 million, with a GDP of USD 805 billion (COMESA, 2022). In addition, COMESA's global exports and imports of goods are worth USD 324 billion (COMESA, 2022). The economic size of the region affords it the ability to negotiate trade deals that individual states would otherwise be unable to negotiate on their own (Dewberry, 2020).

The COMESA FTA was achieved on the 31 October 2000, with nine member nations[26] eliminating all tariffs on products originating from other COMESA members (COMESA, 2022). This was the result of a tariff reduction schedule adopted in 1992 (COMESA, 2022). The eleven countries that now form part of the COMESA FTA are also working towards the elimination of quantitative restrictions to trade, as well as other NTBs (COMESA, 2022). As of 2019, the formation of a customs union was in progress, and a single market and a monetary union were being planned by COMESA (Dewberry, 2020). Despite the integration so far achieved in the COMESA region, 10 countries were found to have higher bilateral trade costs within the COMESA region, as opposed to the trade costs associated with the RoW (Valensisi, Lisinge and Karingi, 2016).

It was found that member states of the COMESA agreement have experienced 2.9 times more trade among member states when compared with non-member states, and that the agreement resulted in roughly 33% more trade between its members and the RoW between 1995 and 2014 (Ngepah and Udeagha, 2018).

The COMESA customs union calls for a CET to be initiated for member nations, and this CET will be harmonised with that of the EAC so that member nations of both RECs will not need to choose between the two memberships (COMESA, 2022). Member nations were to submit their lists of products with the tariff rates that are equal to those under the CET, being 0%, 10% and 25%, with sensitive products being afforded the latitude to maintain the currently applied tariff rates for a period of three years (with a maximum of period of five years) before they need to equal the CET rates (COMESA, 2022).

26 Member nations that achieved FTA status include Djibouti, Kenya, Madagascar, Malawi, Mauritius, Sudan, Zambia and Zimbabwe, with Burundi and Rwanda joining the FTA on the 1st of January 2004 (COMESA, 2022).

According to the ARII (2022), COMESA's average for regional integration is low. The trade integration dimension is COMESA's best performing dimension, whereas the most improvement is necessary for the productive dimension (ARII, 2022). With one exception, no COMESA country scores more than moderately high in the "trade, productive, macroeconomic, and infrastructural integration" dimensions (ARII, 2022).

2.4.3.3 Economic Community of West African States (ECOWAS)

ECOWAS came into existence on 28 May 1975 and is comprised of 15 member nations[27], all taking part in the ECOWAS FTA (Oluwusi and Punt, 2019; Dewberry, 2020). The motivation behind the formation of the ECOWAS region "was for an economic cooperation and integration scheme" to exist among its members (Oluwusi and Punt, 2019). As of 2019, the ECOWAS region had an FTA and a customs union, and was planning a single market as well as a monetary union (Oluwusi and Punt, 2019; Dewberry, 2020). In 2016, the ECOWAS region ranked third according to the highest levels of intra-regional trade, with an intra-regional trade value of over USD 11 billion, being bested by SADC (USD 34.7 billion) and CEN-SAD (USD 18.7 billion) (Moyo, 2020). Despite the integration achieved in the ECOWAS region, Valensisi *et al.* (2016) found a similar pattern to that found for the COMESA region, being that bilateral trade costs between member countries tend to be higher than with the RoW.

Map 2.5: ECOWAS

On 25 October 2013, all 15 member states of the ECOWAS region adopted the ECOWAS CET (ECOWAS, 2016). The CET has five categories, each with its own CET. These are shown in Table 2.5. ECOWAS (2016) has highlighted several advantages to the creation of a CET, as follows:

- Increased trade intra-regionally;
- Guaranteed trade stability and predictability, leading to increased FDI;

27 Member nations include Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo (ECOWAS, 2016).

- An enlarged domestic market, leading to increased turnover;
- Increased economies of scale, and so greater domestic industrial capacity;
- Increased production as well as productivity; and
- Discouraged smuggling as a result of common tariffs across the region that dis-incentivise smuggling activities.

In addition to the CET, several accompanying trade defence measures were included, such as safeguard and anti-dumping measures, anti-subsidy and countervailing measures, and additional protection measures (i.e. an import adjustment tax and a supplementary protection tax) (ECOWAS, 2016). However, the implementation of the CET is up to the member states, which may lead to poor application or other issues (ECOWAS, 2016).

Table 2.5: Five categories for CETs enforced by the ECOWAS region

Category	Type of Goods	CET
0	Basic social goods	0%
1	Basic goods, raw, goods, capital goods	5%
2	Inputs and semi-finished goods	10%
3	Finished goods	20%
4	Specific goods for economic development	35%

Source: ECOWAS (2016)

The ECOWAS REC scores relatively well on the regional integration dimension, but poorly for the productive dimensions, implying that major improvements could be achieved through investments that are geared towards complementary, productive capacities (ARII, 2022). The best performing dimension for the region is the free movement of people dimension (ARII, 2022).

2.4.3.4 Community of Sahel-Saharan States (CEN-SAD)

Map 2.6: CEN-SAD

The CEN-SAD region[28], established on the 4th of February 1998, was initiated with the goal of encouraging economic, social, political, and cultural integration (Pan African Chamber of Commerce and Industry (PACCI), 2022). However, the CEN-SAD region only became an REC during the 36th ordinary session of the Conference of Heads of State and Government of the Organization of African Unity in July of 2000 (PACCI, 2022). CEN-SAD is another large African REC, with 29 member states, and has planned the formation of an FTA and a customs union (Dewberry, 2020). In 2021, total exports and imports out of and into the REC were valued at USD 223 billion and USD 305 billion, respectively, showing the economic magnitude of the region with regard to trade (ITC, 2022).

The priority objective of the CEN-SAD region is to create a comprehensive economic union, founded upon the execution of a community development plan that supplements the local development initiatives of the member nations, and which encompasses the maintained, socio-economic development of the agricultural, industrial, energy, social, culture, and health fields (AU, 2022d; PACCI, 2022). Market integration is at the core of the CEN-SAD objectives for member state cooperation (PACCI, 2022). The ordinary session of the Conference of Leaders of Heads of State aims at achieving accelerated regional integration, as well as economic development, through the harmonisation of policy initiatives (PACCI, 2022). The strategy includes trade liberalisation that targets the reduction of NTBs, as well as including other trade-promoting activities as part of the proposed FTA (PACCI, 2022). However, the FTA is yet to be implemented (PACCI, 2022).

Despite the intentions of the CEN-SAD region, the ARII rates the level of integration in the region at low levels, with the highest achiever only slightly over the mid-point (ARII, 2022). The CEN-SAD region performs poorly with regard to the productive and

28 Member nations include Benin, Burkina Faso, Central African Republic, Chad, Comoros, Cote d'Ivoire, Djibouti, Egypt, Eritrea, Gambia, Ghana, Guinea Bissau, Libya, Mali, Mauritania, Morocco, Niger, Nigeria, Senegal, Sierra Leone, Somalia, Sudan, Togo and Tunisia (AU, 2022a).

infrastructural dimension but does relatively well in the free movement of people dimension (ARII, 2022). Côte d'Ivoire, Senegal, and Morocco are the most integrated countries in the CEN-SAD region (ARII, 2022).

2.4.3.5 The East African Community (EAC)

In 1999, the EAC[29] was created as a regional intergovernmental organisation (Dewberry, 2020). The primary objective of the EAC was to increase regional trade integration through the trade polices of individual member states (Dewberry, 2020). The EAC is already an FTA, a customs union (and as such applies CETs on imports from non-member nations) and a single market, and it plans to create a monetary union. It is also the only African REC recognised by the AU, which intends to create an economic union (Dewberry, 2020; Shinyekwa, Bulime and Nattabi, 2020; EAC Customs Union (EAC CU), 2022). It is noteworthy that, given the AfCFTA's intentions to work with already established African RECs, the EAC is negotiating as a single trade bloc (Shinyekwa *et al.*, 2020).

Map 2.7: EAC

According to the ARII (2022), the EAC is relatively well integrated and does well in the free movement of people and macroeconomic dimensions. However, EAC countries do perform poorly on the productive dimension, which is best explained by the poor performances of Burundi and South Sudan (ARII, 2022). When referring to trade, the EAC does not score very high, despite the eliminations of intra-regional tariffs, which can be explained by the low share of regional exports (ARII, 2022).

The formation of the TFTA will have implications for the EAC's CET applied on imports from South Africa (as South Africa is a member of the SADC region). However, the TFTA is yet to be implemented, and before the agreement can come into force, 14 countries are needed to ratify it, although only eight countries had ratified the agreement by 2020 (Dewberry, 2020). In addition to this, the AfCFTA is seen to raise questions about the relevance of the TFTA.

29 Member nations include Burundi, the Democratic Republic of the Congo, Kenya, Rwanda, South Sudan, Tanzania and Uganda (EAC, 2022).

2.4.3.6 Economic Community of Central African States (ECCAS)

The ECCAS region[30] was established on the 18th of October 1983 to promote the social development agenda and, at the same time, to improve livelihoods within the ECCAS region (Dewberry, 2020; ECCAS, 2022). The region began functioning in 1985, although it was not active for some years because of financial troubles and political instabilities (ECCAS, 2022). The ECCAS region is home to 11 member nations and aims at creating an FTA and a customs union; however, the planned FTA and customs union are yet to enter into force (Dewberry, 2020).

Map 2.8: ECCAS

According to the ARII (2022), the ECCAS region is 'moderately integrated', and dissimilar to other RECs, ECCAS performs exceptionally well on the macroeconomic dimension. However, it does poorly on the productive dimension (a similarity it shares with most African RECs) (ARII, 2022).

2.4.3.7 Intergovernmental Authority on Development (IGAD)

The IGAD REC[31] was formed in 1996, after having acted as the "Intergovernmental Authority on Drought and Development" since 1986 (Dewberry, 2020). The REC was established to create joint strategies and to achieve policy harmonisation between member nations (Dewberry, 2022). The REC has eight member states and so is one of the smaller African RECs (IGAD, 2022). The IGAD region aims to improve regional cohesiveness in "three priority areas of food security and environmental protection, economic

Map 2.9: IGAD

30 Member nations include Angola, Burundi, Cameroon, Central African Republic, Chad, Congo, the Democratic Republic of the Congo, Equatorial Guinea, Gabon, Rwanda and Sao Tome and Principe (ECCAS, 2022).

31 Member nations include Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan and Uganda (IGAD, 2022).

cooperation, regional integration and social development peace and security" (IGAD, 2022). One of the many aims of the IGAD region is to "create an enabling environment for foreign, cross-border and domestic trade and investment" (IGAD, 2022).

The IGAD region performs at slightly under half of its full potential, according to the ARII (2022). The region scores best on the free movement of people dimension, although the productive dimension, as with many other African RECs, is where improvement is needed (ARII, 2022).

2.4.4 Tariff rates applied to non-member nations by the African RECs

Table 2.6 shows the average Most Favoured Nation (MFN) Ad-Valorem Equivalent (AVE) tariffs applied by the eight African RECs, as of 2022. The COMESA region applies the highest average AVE MFN tariff rates for processed agricultural products, at 25.56%, followed by IGAD (24.87%) and CEN-SAD (24.73%). The IGAD region applies the highest average AVE MFN tariff rates for unprocessed agricultural products, at 21.49%, followed by the AMU (20.17%) and the EAC (17.68%). For overall agricultural trade, the average AVE MFN tariff rates applied by the COMESA are the highest, at 20.86%, followed by the EAC (19.98%) and the CEN-SAD region (19.80%).The average AVE MFN tariff rates for imports of processed and unprocessed agricultural products into the EU-28 (including the United Kingdom) for 2022 sit at 16.29% and 8.28% respectively, whilst the average AVE MFN tariff rate for total agricultural imports is a value of 11.55% (Market Access Map, 2022). Therefore, in comparison to the EU-28, a major export destination of South Africa's agricultural sector, the tariff rates enforced by the eight African RECs are all higher (with the exception processed agricultural imports into SADC) than those enforced by the EU-28 (United Kingdom included).

Table 2.6: Average ad-valorem equivalent import tariff rates applied by the African RECs on non-member countries[32]

REC	Processed Agricultural Products	Unprocessed Agricultural Products
SADC	15,84%	11,47%
AMU	21,85%	20,17%
COMESA	25,56%	15,10%

32 The average tariff rates are based on MFN tariff rate data at the HS6 level for imports of processed and unprocessed agricultural products into each country within each REC.

REC	Processed Agricultural Products	Unprocessed Agricultural Products
ECOWAS	17,05%	14,44%
CEN-SAD	24,73%	16,36%
EAC	23,30%	17,68%
ECCAS	20,79%	17,54%
IGAD	24,87%	21,49%

Source: Own calculations based on data from Market Access Map (2022)

2.4.5 The African Continental Free Trade Area (AfCFTA)

At the start of 2018, 44 countries from Africa met in Kigali, Rwanda, and committed themselves to the creation of a common African goods and services market that would harmonise the various trade liberalisation activities ongoing within Africa, while at the same time boosting regional integration (Abrego, Amado, Gursoy, Nicholls, and Pieter-Saiz, 2019; Shinyekwa *et al*., 2020; TRALAC, 2021; Fusacchia, Balie and Salvatici, 2021). This led to the inception of the AfCFTA, a trade agreement tasked with bringing 55 AU countries together (Shinyekwa *et al.*, 2020). By May of 2019, the treaty was brought into force as 22 countries ratified the treaty (Shinyekwa *et al.*, 2020). This activated some of the AfCFTA's various Protocols, specifically the Protocols regarding "Trade in Goods, Trade in Services and Rules and Procedures for Settlement of Disputes" (Shinyekwa *et al.*, 2020).

The AfCFTA has several general and specific objectives. Abrego *et al.* (2019) and TRALAC (2022) highlight these objectives. The broad objectives underlined for the AfCFTA are to:

- Form a liberalised goods and services market through continuous negotiation rounds;
- Aid in the movement of capital and natural persons, and to create a conducive environment for investments through building on the initiatives and developments in the State Parties and the RECs;
- Set the foundations for a Continental Customs Union at a later stage, and to promote and achieve sustainable as well as inclusive socio-economic development, gender equality and structural transformation at the level of State Parties;
- Increase the competitiveness of the economies of State Parties; and

- Resolve the challenges of multiple and overlapping memberships and accelerate the regional and continental integration processes.

Abrego *et al*. (2019) and TRALAC (2021) also list the AfCFTA's specific objectives, which are to:

- Progressively repeal tariffs and NTBs to the trade in goods;
- Progressively liberalise the trade in services, and cooperate on investment, competition policy, and intellectual property rights;
- Cooperate on all trade-related areas, including matters involved with customs and the implementation of trade-facilitation measures;
- Create a trade dispute settlement mechanism; and
- Establish and maintain an institutional framework for the AfCFTA for both the administration and the implementation of the agreement (Abrego *et al*., 2019; TRALAC, 2021).

According to TRALAC (2021), the implementation, facilitation, administration, and monitoring of the AfCFTA is the responsibility of the Assembly, the Council of Ministers, the Committee of Senior Trade Officials, the Secretariat, and various technical committees. The Committee on Trade in Goods is the most applicable within the ambit of this thesis. The Committee on Trade in Goods has various sub-committees responsible for different aspects of the AfCFTA. These include the Trade Facilitation Sub-Committee, Customs Cooperation and Transit Sub-Committee, the NTBs Sub-Committee, the Trade Remedies Sub-Committee, the Sanitary and Phyto-Sanitary Sub-Committee, the Technical Barriers to Trade Sub-Committee, and the Rules of Origin Sub-Committee (Afreximbank, 2018; TRALAC, 2022).

Trade under the ambit of the AfCFTA was intended to start on the 1st of July in 2020, but only commenced in January of 2021 because of disruptions experienced as a result of the global COVID-19 pandemic (SARS, 2021; Stern and Ramkolowan, 2021; AU, 2022b). With trade under the AfCFTA having commenced, several countries, as of February 2022, were yet to ratify the AfCFTA agreement.[33] Addis Ababa, Ethiopia, hosted the 35th Ordinary Session of the Assembly of the African Union, where countries were called upon to ratify the agreement to increase the volume of trade as

33 Those countries comprise Benin, Botswana, Comoros, Eritrea, Guinea Bissau, Libya, Liberia, Madagascar, Morocco, Mozambique, Somalia, Sudan, and South Sudan (AU, 2022c).

well as the size of the AfCFTA market[34] (AU, 2022c). However, despite the slow signing by some countries, 43 countries submitted their tariff offers under the Protocol on Trade in Goods, which were welcomed by the Assembly (AU, 2022c). South Africa is one of these 43 countries. With the tariff offer submissions received, the Assembly decided that the dismantling of tariffs should be based on yearly cuts in tariffs, starting from the 1st of January 2021 (AU, 2022c).

South Africa's stance on AfCFTA negotiations is similar to the pro-development and industrialisation approach taken during the negotiations pertaining to SADC and the TFTA, thereby advocating for high Rules of Origin (RoO) thresholds across key sectors with the goal of promoting regional value chains[35] (Stern and Ramkolowan, 2021). This is in line with South Africa's export-led growth strategy that is centred on growth in its industrial sectors.

2.4.5.1 Effects of the liberalisation of overall trade in Africa

As with the SACU and SADC regions, several studies focused on quantifying and qualifying the potential effects that the AfCFTA may have on trade within the continent. There are also studies that investigate the ramifications that the AfCFTA may have on already established RECs on the African continent.

Mevel and Karingi (2013) reviewed the major trade-related constraints hampering Africa and explored the extent to which the formation of a Continental Free Trade Area (CFTA) and subsequently a Continental Customs Union (CCU) would assist Africa in overcoming limitations to fulfil the AU Member States' objective with respect to the simulation of intra-African trade. Their study applied a MIRAGE CGE model and found the following:

- Increased exports, as well as real income and wages,
- Increased share of intra-African trade would grow by 5.3% between 2010 and 2020, growing from 10.2% to 15.5%,
- South Africa, in particular, was expected to realize a change in real income of 0.7%, an increase in tariff revenue of 5.9%, and improvement in the terms of trade of 1.2% (Mevel and Karingi, 2012).

34 From now on, referred to as 'the Assembly'.
35 This will be discussed further in section 2.5.

However, Mevel and Karingi (2012) note that NTBs, such as lengthy customs procedures, SPS measures, standards, geographic indicators or poor infrastructure are considerable limitations to trade within the African continent.

In a report released by Afreximbank (2018), the AfCFTA was seen to have large welfare and macroeconomic benefits for the continent. This was found to be the case if both tariffs and NTBs were to be lowered altogether, as opposed to the removal of only tariff barriers (Afreximbank, 2018). The joint removal of tariffs and NTBs was expected to increase South Africa's GDP by 3.74% and to improve household utility by 1.33% (Afreximbank, 2018).

Abrego *et al.* (2019), using a multi-country and sector general equilibrium model, estimated the welfare effects on 45 African countries belonging to AfCFTA. Assessing the impacts of three varied model specifications comprised of perfect as well as monopolistic competition, included the total removal of import tariffs and a partial but considerate reduction in NTBs (35% reduction), and the combined effect of a full elimination in tariffs and a substantial reduction in NTBs, their results can be summarised as follows: (Abrego *et al.*, 2019).

- Under perfect competition,
    - Welfare gains attributed to tariff elimination only, were small, representing an increase in welfare of 0.05% for the continent and 0.07% for SSA.
    - The reduction in NTBs had a much stronger effect with welfare increasing by 1.7% for the continent and 2.1% for SSA.
    - The combination of tariff elimination and a reduction of NTBs resulted in an increase in welfare of 2.1% for the continent, with SSA experiencing an increase of 2.6% in welfare.
    - The manufacturing and agricultural[36] sectors were the main drivers of estimated changes in income for most of the countries.
- Under imperfect competition,
    - Estimated welfare gains for most countries were lower than the baseline, partly attributed to the fact that "under imperfect competition, with prices not being equal to marginal costs, from the theory of the second best, a

36 The agricultural sector was seen to contribute to about 16% of the overall increase in income.

reduction in import tariffs does not necessarily raise welfare, regardless of the presence of terms of trade effects" (Abrego *et al.*, 2019).

- With both tariff elimination and NTB reduction, welfare for the continent increases 1.9% compared to the 2.1% under perfect competition.

Ekobena *et al.* (2021), evaluated the possible impacts that the application of the AfCFTA's tariff modalities would have on tax revenue, industrial production, trade flows, welfare, and consumption for seven Central African countries. They did their long- and short-term analysis using a CGE model as well as a Partial Equilibrium (PE) model and concluded that the decrease in tariff barriers would lead to short-term tariff revenue losses in some Central African countries and that depending on a country's import composition and/or tariff profile, the effects differ per country. Ekobena *et al.* (2021) made the following observations from their study:

- A country with high intra-African import tariffs and large import volumes from African countries would suffer the greatest tariff revenue losses, e.g. the DRC is one such country with high import volumes originating from Africa (mostly from South Africa), and relatively high tariff levels; and
- In the long-term, tariff revenue losses would be mostly counterbalanced by the socio-economic benefits created by the implementation of the agreement under every scenario that they had envisaged.

2.4.5.2 Effects of the liberalisation of agricultural trade in Africa

Sandrey and Jensen (2015), using the Global Trade and Analysis Project's (GTAP) CGE model, ran various scenarios in which Africa experienced a 100% reduction in tariffs, a 50% reduction in NTMs, and a 'willing participants' tariff reduction to 0% at the same time as a 50% reduction in NTMs. They also constructed a baseline scenario implementing trade policy commitments, projected to the year 2025 (Sandrey and Jensen, 2015). They found that the gains derived from reducing NTBs and intra-African tariffs were forecast to be lower than gains realised through reductions in transit time delays at customs and terminals, and also in internal land transportation (Sandrey and Jensen, 2015). South Africa, in particular, was forecasted to be a major gainer in the secondary agriculture market and was also forecast to realise an increase in the need for skilled and unskilled labour (Sandrey and Jensen, 2015).

Chauvin, Ramos and Porto (2016) provided a thorough and cohesive analysis of the probable effects of a continental free-trade area in six different African countries. They considered four incremental scenarios, being:

- The elimination of tariffs on agricultural goods;
- An elimination of tariffs on manufactured goods;
- A 50% lowering of NTMs; and lastly
- A 30% reduction in transaction costs that are liked to time (Chauvin *et al.*, 2016).

The outcome of the study by Chauvin *et al.* (2016) can be summarised as follows:

- The gains associated with a reduction in NTMs in goods and improved trade facilitation conditions are much larger than the expected gains from intra-African tariff elimination,
- The gains to smaller African economies that are more protected, are expected to be larger than for those larger, more open economies,
- The trade shares between Nigeria and South Africa are expected to rise,
- The terms of trade gains were forecast to increase due to the elimination of tariffs, and South Africa is, over and above the rest, also expected to experience capital accumulation gains.

According to Songwe (2019), the AfCFTA has the potential to raise intra-African trade in agricultural products by a margin of between 20 and 30% by 2040, with “sugar, vegetables, fruit, nuts, beverages, and dairy products” realising the largest gains (Songwe, 2019).

Pasara and Diko (2020) applied the World Integrated Trade Solution, Software for Market Analysis and Restrictions on Trade (WITS-SMART) model to estimate the potential effects of the AfCFTA on cereals trade in the SADC region. The findings of their study can be summarised as follows (Pasara and Diko, 2020):

- Only four[37] SADC countries would realise a positive outcome from the AfCFTA, with the rest of the member nations remaining unchanged,

37 Countries include Angola, the DRC, Madagascar, and Namibia (Pasara and Diko, 2020).

- In general, more closed economies, such as those not involved in an FTA or another form of deeper arrangement, are the economies that benefit most from the creation of a FTA, such as the AfCFTA,
- The AfCFTA will provide little additional value in terms of food security, and
- The gross value gains will probably be larger when all food categories are accounted for in the simulations.

Shinyekwa *et al.* (2020) estimated how the AfCFTA would likely affect EAC member countries. Their analysis was delivered in two parts and included a trend analysis of trade between Africa and the RoW, using the ITC Trade Map database, as well as the WITS-SMART analytical framework (Shinyekwa *et al.*, 2020). The findings by Shinyekwa *et al*. (2020) can be summarised as follows:

- The agricultural commodities largely exported by the EAC would not readily be absorbed by African nations, due to Africa's heavy dependence on external markets for exports and imports,
- The trade effects are mixed among EAC member countries with all EAC member countries incurring tariff revenue losses that vary in absolute amounts as well as proportions, and
- Uganda and Burundi experience positive welfare effects, whereas the opposite is true for Kenya, Tanzania, and Rwanda.

Fusacchia *et al.* (2021) analysed the likely effects of trade liberalisation regionally on production fragmentation and networks with the use of a global CGE model that was tailored to consider international trade's value-added structure. They state that their analysis goes beyond other studies, as it focuses on agricultural and food integration of partner countries within regional and GVCs, not only through backward linkages, but also through forward linkages (Fusacchia *et al.*, 2021). The results of the study by Fusacchia *et al.* (2021) can be summarised as follows:

- The AfCFTA may have a considerable impact on trade patterns with regards to the value-added structure as well as the extra- and intra-regional destination,
- The reduction in intra-regional trade costs will have a larger impact on agriculture and food backward intra-regional integration as opposed to forward participation, with varied results from country-to-country,

- When considering the income generated within each sector as opposed to accounting for gross exports, the AfCFTA translates into more widely spread benefits,
- With the tariff reductions envisioned by the AfCFTA, South Africa has the potential to realize an increase in gross as well as value-added exports of food and agricultural products of 7.5%, only being bested by Tanzania (13.2%), Zambia (11.4%) and Nigeria (9.9%); and
- The elimination of tariff barriers within Africa will lead to an increase in gross agri-food exports, an increase larger in magnitude than the overall export change, suggesting that the manufacturing sector would be most affected by reduced NTBs and trade facilitation measures.

Within the ambit of the above, this thesis contributes to the existing literature by using multiple trade indices that are applied and aimed at identifying specific country and product combinations that provide an opportunity for South Africa's agricultural exports under the ambit of the AfCFTA. Therefore, as opposed to quantifying the macro-economic impacts of trade integration, this thesis rather ascertains to identify specific export opportunities in which to capitalise on within the African continent.

2.5 South Africa's trade policy

In fulfilment of objective i, this section aims to develop an understanding of South Africa's trade policy stance going forward. This will prove valuable in determining whether the South African agricultural policy space is geared towards expanding agricultural exports into the African continent or not. In addition, the history of South Africa's policy stances on trade is provided to gain an understanding of the general trend in which South Africa has been showing with respect to trade policy over the decades.

The trade policies adopted by countries around the globe affect the nature and the creation of Preferential Trade Agreements (PTAs). Countries, both developed and developing, apply different policies to different sectors in their economies (DiCaprio *et al.*, 2017; Day, 2018). Protectionist policies, for example, aimed at protecting local industries or sectors, are still being used and applied by various countries. In recent years, events such as Brexit and the trade battle between the USA and China, are

influencing global trade flows and attitudes towards trade agreements (BFAP, 2021). In Europe, environmental protection laws as well as SPS regulations are becoming stricter, in turn influencing transaction costs and the competitiveness of local and foreign producers (BFAP, 2021). In Africa, trade is also influenced by protectionist policies, as well as high transaction costs and ad hoc policy application (Kalaba *et al*., 2016; Mude, 2020; BFAP, 2021). In Nigeria, for example, protectionist policies and bureaucratic problems have led to a rise in informal trade at the sub-regional level, resulting in trade flows appearing lower than they truly are (Oluwusi and Punt, 2019). This uncertainty has been found to negatively influence the growth of trade in goods and services (Constantinescu, Mattoo and Ruta, 2020). In South Africa, there are sectors that still face high Effective Rates of Protection (ERP), making it more difficult for international firms to enter the South African market, and which incentivise South African firms to sell to the protected domestic market[38] (Stern and Ramkolowan, 2021).

South Africa is an internationally integrated economy, while at the same time being a relatively small economy (Stern and Ramkolowan, 2021). The country has a high dependence on imports that are used to quench domestic demand and relies heavily on the export sector to provide employment as well as a means to carry production (Stern and Ramkolowan, 2021). South Africa's GDP growth is, as a result, seen to be tracked closely by how open South Africa's economy is to trade (Stern and Ramkolowan, 2021).

In the national economic policy framework for South Africa, Bahta (2004) highlights the point that trade policy entails both direct and indirect government controlled actions and programmes that guide the development and expansion of trade. The composition and aggregated growth of South Africa's trade is largely influenced by the trade policy applied (Vink *et al*., 2002; Edwards and Lawrence, 2006; Stern and Ramkolowan, 2021). In recent decades, South Africa's growth in exports has fallen behind the RoW, which has likely constrained overall economic growth in the country (Stern and Ramkolowan, 2021).

38 This is in reference to all products as well primary and manufacturing products (Stern and Ramkolowan, 2021).

2.5.1 South Africa's trade policy stance: past and present

Throughout the 1960s and 1970s, the trade regime adopted by South Africa was not aligned with global economies and the domestic concord concerning the effect that trade plays on the growth and development of a nation's economy (Kusi, 2002). During this period, South Africa's agricultural sector (as well as other sectors) was influenced by trade distorting measures that included quantitative restrictions, price controls, subsidies directly linked to production quantities, high tariffs, formula[39] duties, import surcharges, direct controls, and so forth (Vink *et al.*, 2002; Viljoen, 2004; Mokoena, 2011). Agricultural policies were aimed at reinforcing commercial farm incomes, promoting self-sufficiency in food production, and stabilization of prices (Mokoena, 2011). This had massive retardation effects on all forms of trade (Edwards and Lawrence, 2006).

The first signs of liberalisation appeared in the 1970's, and by 1998, the liberalisation process had been essentially completed (Vink *et al*., 2002; Cassim, Onyango and Van Seventer, 2004). The liberalisation of total trade, including agricultural trade, came in "episodes" (Cassim *et al.*, 2004). The first episode ran from 1972 through to 1977 and was first indicated by the Reynder's Commission of Inquiry into South Africa's export trade (Kusi, 2002; Cassim *et al.*, 2004). The main recommendations of this commission were that South Africa should introduce an "export development assistance scheme" to encourage exports, and that the Quantitative Restrictions (QRs) that were being enforced should be replaced by tariffs with lower implications than those implied by the QRs (Cassim *et al.*, 2004; Viljoen, 2004). This led to the creation of export incentives in the 1970s that came in the form of export subsidies, cash grants, tax allowances on export revenue and profits, rebates and withdrawals of custom duties, and freight concessions (Kusi, 2002; Cassim *et al.*, 2004). The creation of the various incentives designed to increase exports were made in an effort to alleviate the anti-export bias that was implied through the multitude of import restrictions in place throughout the 1960s and 1970s (Kusi, 2002).

39 According to Kusi (2002), the standard definition for a formula duty is, the greater between (i) the specified ad valorem, and (ii) the reference price minus the inverse of the ad valorem duty. Kusi (2002) goes on to state that, as a result, "the cost to the importer inclusive of duty was at least equal to the reference price, and the ad valorem equivalent of the duty could be extremely high."

The first episode of liberalisation was only modest, as a “boom” in gold exports led to an increased value of the Rand, thereby mostly nullifying the effects of liberalisation (Cassim *et al.*, 2004). This Rand appreciation meant that the competitiveness of South African manufacturers was reduced, and increased demands for protection resulted (Cassim *et al.*, 2004). The realisation of the greater importance that the management of the exchange rate, as well as the demand level, as being pertinent determinants of the levels of exports came to light (Cassim *et al.*, 2004; Kargbo, 2006). However, direct import controls remained in place through to the mid-1980s, amid a global recession.

Financial sanctions were heavily imposed on the South African Apartheid government in 1985, and a balance of payment squeeze began to halt and even reverse the liberalisation of trade (Bahta, 2004). In turn, 1983 was identified as the beginning of a more-intense period of total trade liberalisation. In 1985, an import surcharge of 10% was introduced to curb the growing balance of payments issue. This surcharge was increased to 60% in 1986 on various imports to slow the import demand (Bahta, 2004). These import controls affected 74% of the agricultural tariff lines (Kusi, 2002). Towards the end of the 1980s, the Board on Tariffs and Trade (BTT) began to harden its position with regard to calls from the private sector for protection (Cassim *et al.*, 2004). Export promotion was enhanced in 1989 due to the introduction of several structural adjustment programmes (Cassim *et al.*, 2004).

With the advent of the 1990s, the momentum of liberalisation picked up rapidly (Kusi, 2002). In April of 1990, the General Export Incentive Scheme (GEIS) was initiated to aid exporters in different industries and sectors in offsetting the low prices in international markets that South African exporters had to compete in, which included that originating from the anti-export bias of the import protection system (Kusi, 2002; Cassim *et al.*, 2004). Although much more comprehensive, the GEIS was not very different to the schemes used for export incentivisation in the 1980s, as it too attempted to address anti-export bias on the export incentive side of the equation, instead of liberalising imports (Bahta, 2004).

Shortly after the introduction of the GEIS, in June of 1990 a study compiled by the Industrial Development Corporation (IDC) was published. The IDC report brought to light the fact that Import-Substituting Industrialisation (ISI) was no longer a viable option for expanding South Africa’s total export performance and recommended that

Export-Orientated Industrialisation (EOI) be adopted (Cassim *et al.*, 2004). The report was contrasted against the structural reforms envisioned by the BTT, and rather advocated for a far lower tariff scheme that was more uniform in nature (Cassim *et al.*, 2004). The report recommended that lower levels of protection through the implementation of specific anti-dumping measures, as opposed to formula duties be used, and that a reduction in tariffs to a set level over a period between four and five years, with a few industry-specific exceptions[40]be carried out (Cassim *et al.*, 2004).

In 1994 South Africa's first democratic government was elected (Viljoen, 2004). A reorientation of the economy was introduced by the government, which included a move from a strategy of import substitution to a strategy of export-leg growth (Vink *et al.*, 2002). South Africa's agricultural offer to the WTO included a tariff cutback and rationalisation programme that would span over five years and called for the reduction of over 100 tariff categories to a total of six different categories (Mokoena, 2011). The tariffication of QRs was the first step taken towards liberalisation in the agricultural sector, which was followed by a reduced diversity of ad valorem tariffs (Cassim *et al.*, 2004). The major differences between the South African tariff structure of 1990 and 1999 are shown in Table 2.7. As shown in Table 2.7, between 1990 and 1999 the number of tariff lines declined by 4 757 and the unweighted mean tariff rate fell 27.5% to 7.1%.

Table 2.7: South Africa's tariff structure from 1990 to 1999[41]

Item	All rates 1990	All rates 1996	All rates 1999
Number of lines	12 500	8 250	7 743
Number of bands	200	49	47
Minimum rate (%)	0	0	0
Maximum rate (%)	1 389	61	55
Unweighted mean rate (%)	27,50	9,50	7,10

Source: Adapted from Lewis (2001) as cited in Bahta (2004)

As the economy grew between 1990 and 2008, trade increased proportionately with GDP (Stern and Ramkolowan, 2021). Favourable trade conditions allowed for export expansion to contribute to GDP growth, and for GDP growth to allow for increased

40 These exceptions applied to industries that, at the time, qualified for protection at levels close to those existing in already established industries (Cassim *et al*, 2004).
41 Today, South Africa has 6 650 tariff lines (SARS, 2021).

levels of imports (Edwards and Lawrence, 2008; Stern and Ramkolowan, 2021). The result was a reduction in the anti-export bias in South Africa, and because of lower tariff rates, the profits involved with exporting rose dramatically in relation to selling in the local market (Stern and Ramkolowan, 2021). However, since 2012, trade openness and GDP growth have fallen considerably in South Africa, and it is probable that the two are interlinked in both directions (Stern and Ramkolowan, 2021). South Africa's growth rate for exports, between 2010 and 2019, more than halved, and when compared with middle-income and SSA countries, exports have grown at a far slower pace (Stern and Ramkolowan, 2021). Added to this, South Africa's share of imports around the world has fluctuated over the past thirty years, and in 2019, it was slightly less than in 1990 (Stern and Ramkolowan, 2021).

Table 2.8 shows the major trade policy interventions that South Africa has undertaken in the past thirty years, within the African continent. Trade reforms inside Africa have experienced a slowdown in the last ten years. Average weighted tariffs, since 2014, have risen, and South Africa's tariffs on primary products are far smaller than those on primary goods are, which points to the possibility of ERPs being higher in certain sectors (Stern and Ramkolowan, 2021).

Table 2.8: Major trade policy interventions between 1990 and 2021 that impacted on South Africa's trade with Africa[42]

Year	South African trade policy interventions
1910	Southern African Customs Union (SACU) is created.
1990	Introduction of the General Export Incentive Scheme (GEIS)
1990	Phase out of Import surcharges
1994	South Africa's re-integration into the global economy
1994	Import surcharges on capital and intermediated goods are phased out
1994	Conversion from quantitative restrictions to tariffs is complete
1995	Remaining import surcharges are eliminated
1995	South Africa's General Agreement on Tariffs and Trade (GATT) Uruguay Round mandate is enacted
1996	The new Tariff Rationalization Process is formulated
1996	A new bilateral trade agreement in signed between South Africa (SA) and Zimbabwe
1996	The Southern African Development Community (SADC) Free Trade Protocol is signed
1997	Export subsidies provided under GEIS are terminated
2000	SADC Free Trade Protocol is implemented
2002	New Southern African Customs Union (SACU) agreement is implemented
2008	Tripartite FTA (TFTA)negotiations commence between SADC, East African Community (EAC), and Common Market for Eastern and Southern Africa (COMESA)

42 There are a number of trade policy interventions carried out by South Africa that were not included in Table 2.7 as they do not concern South Africa's trade with Africa directly. Examples include, but are not limited to, the Trade, Development and Cooperation Agreement (TDCA) between South Africa and the EU, the Brazil, Russia, India, China and South Africa (BRICS) partnership, and also the preferential access granted to South African products by the United States of America under the African Growth and Opportunity Act (AGOA).

Year	South African trade policy interventions
2010	South African Trade Policy and Strategy Framework is launched
2015	COMESA-EAC-SADC TFTA is launched
2015	African Continental Free Trade Area (AfCFTA) negotiations launch
2019	AfCFTA comes into force
2019	SACU + Mozambique EPA is signed
2021	SACU + Mozambique EPA comes into force
2021	AfCFTA implemented

Source: Adapted from Jonsson and Subramanian (2001); Farrel (2001); Malefane (2018); SARS (2020) and Stern and Ramkolowan (2021)

Table 2.9 shows the average weighted tariff rate for all of South Africa's products, as well as for manufacturing and primary products. From Table 2.9, South Africa's increased trade openness effects on tariff rates can be seen, from 1990 through to 2014, in the form of reduced average-weighted tariff rates. However, the tariff increases in the past decade can also be seen in the form of the increased average-weighted tariff rates. As of 2020, the average weighted tariff rate for all products imported into South Africa sits at 4.0% (World Bank, 2022c).

Table 2.9: Average weighted tariff rates for certain sectors in South Africa

Sector	1990	1999	2006	2014	2018
Average for all products	10,50%	5,47%	5,29%	3,87%	4,32%
Manufacturing	11,41%	6,13%	6,61%	5,28%	5,32%
Primary products	4,80%	2,67%	2,07%	1,24%	1,91%

Source: Quantec Easy Data (2020) as cited in Stern and Ramkolowan (2021)

However, it is crucial to take cognisance of the fact that slowing trade reforms are not the sole contributor to South Africa's poorer export performance in recent years. There are many factors that contribute to the export performance of a country, and in South Africa's case, the Rand value and the country's geographic and product concentration are thought to have had some influence on the country's poor export performance in recent years (Day, 2018).

If a currency depreciates, exports should benefit owing to the increased buying power in foreign markets, and imports should decrease owing to weaker buying power in the domestic market (Du Plessis, 1987). The opposite is true of an appreciation, in the value of a currency. To assess the effects of currency movements in a country, it is necessary to also examine the changes in prices internally in countries, as these might counteract currency variations (Stern and Ramkolowan, 2021). This calls for the use of the Real Effective Exchange Rate (REER). Through their work, Stern and Ramkolowan (2021) found that South Africa's REER has trended downwards over the

last three decades, which implies an increased competitiveness of South African exports. However, the downward REER has not elicited any obvious export response over the past 30 years, and therefore the relationship between South Africa's REER and the country's exports is unclear (Stern and Ramkolowan, 2021).

2.5.2 South Africa's agricultural trade policy reforms from 1994 to the present day

The speed of agricultural trade liberalisation quickened following the Uruguay Round (UR) of the GATT and the formation of the WTO in 1994, in which South Africa signed onto the Marrakech agreement (Vink *et al.*, 2002; Viljoen, 2004; Mokoena, 2011; Stern and Ramkolowan, 2021). This led to the inclusion of agriculture in the multilateral trade rules of the UR of GATT (Mokoena, 2011; Stern and Ramkolowan, 2021). The rules-based trading system meant that agriculture was included in an established process of support reductions and let to the entrenchment of tariffs through the tariffication of NTBs as a means of protection (Mokoena, 2011).

The UR AoA of the GATT covers three main pillars of trade and is tasked with creating more equitable competition and a less-distorted agricultural sector (WTO, 2022a). The three primary pillars are market access, domestic support, and export competition (WTO, 2022a). The reduction in domestic support involves reduced farm export subsidies; market access involves increased import market access; and export competition involves reduced domestic producer subsidies (Mokoena, 2011; Stern and Ramkolowan, 2021; WTO, 2022a). Schedules are agreed to by members of the WTO under the ambit of the AoA, which list commitments that limit the tariffs that can be applied to single products, as well the level of domestic support and subsidies on exports (WTO, 2022a). The Committee on Agriculture oversees how WTO members are implementing the AoA, and also inspects how those members are following their commitments (WTO, 2022a).

South Africa has successfully implemented all of the UR rules on agriculture (Mokoena, 2011). This was achieved through the:

- Introduction of the new Marketing of Agricultural Products Act in 1996. The Act resulted in the elimination of all marketing boards, and the removal of price regulation and single market channels, all by the end of 1997, and the

formation of the National Agricultural Marketing Council (NAMC). The result is a reduction of domestic support measures to levels acceptable by the WTO in 2000 (Viljoen, 2004; Mokoena, 2011).

- Removal of export subsidies in July of 1997 by the termination of the GEIS, with the exception of sugar (Mokoena, 2011; Stern and Ramkolowan, 2021). For sugar, there is an industry arrangement that exists for local prices.[43]
- Replacement of import permits by import duties (Mokoena, 2011).

The impacts of the agricultural marketing reform mentioned, resulted in, among other things, a major drive for exports by a multitude of large, different sectors, leading to rapid export expansion (for example, the fruit sector); the initiation of risk management (for example, the South Africa Futures Exchange (SAFEX)); and intense managerial pressure (Viljoen, 2004; Kargbo, 2007). In this period (1994 to 2004), an ambitious drive towards attaining regional integration, as well as the creation of crucial trade relations within the continent as well as outside the continent, occurred (for example, SACU, SADC, various Southern African agreements, and the SA-EU TDCA (South Africa-European Union Trade, Development and Cooperation Agreement)) (Viljoen, 2004; Stern and Ramkolowan, 2021). By 2004, the general consensus was that the agricultural sector was being supported by good policies; however, implementation problems and the strategies to overcome them still required attention (Viljoen, 2004).

The market share that South Africa has gained can be mainly attributed to gains in the exports of raw agricultural goods (Stern and Ramkolowan, 2021). This can be ascribed to South Africa's particularly strong comparative advantage in primary-sector goods (Stern and Ramkolowan, 2021).

2.5.3 South Africa's total trade policy stance going forward

The findings of Constantinescu *et al.* (2020) point to the importance of the need for more decisive policy actions and development to increase investor confidence, thereby increasing trade flows. Constantinescu *et al.* (2020) discuss the impact that policy uncertainty has on global trade flows. They found that the growth in goods and services trade would decrease by 0.02% with an increase in policy uncertainty of 1%

43 A formula duty is applied that is tied to a dollar-based reference price. If the international price of sugar goes above this price, the duty is then eliminated (Stern and Ramkolowan, 2021).

(Constantinescu *et al.*, 2020). They also discuss the evolution of global trade in recent years and how countries are adopting more protectionist policies and shortening their global value chains (Constantinescu *et al.*, 2020).The replacement of the Regulatory Impact Assessment with the Socio-Economic Impact Assessment System (SEIAS) in 2015 (Republic of South Africa (RSA), 2020) was the first step taken towards ensuring that proposed public policies in South Africa are intensively analysed for impacts, costs, and benefits, as well as risks, and are in line with the country's priorities specified in the NDP. To ensure proper policy development, implementation, and review going forward, the South African government developed the National Policy Development Framework (NPDF) (RSA, 2020). The NPDF was created amid concerns with regard to the lack of a standardised or systematic process for the development of evidence-based policies in South Africa and is tasked with the aim of providing "guidance on how robust public policies should be developed, coordinated and managed for effective implementation of the national priorities" (RSA, 2020). The NPDF is an important development in the South African policy space, as it outlines the various steps that are necessary to develop and review sound policies in South Africa, while it also demonstrates the ways in which the process may be streamlined (RSA, 2020). The NPDF is to be reviewed in its fifth year of implementation to accommodate minor amendments to the framework for the purpose of maintaining the best policymaking practices at the time (RSA, 2020).

In May of 2021, the DTIC issued a trade policy statement that reflects its objectives for international trade. This document was issued on account of the COVID-19 pandemic and the opportunities that stem from the signing of the AfCFTA (DTIC, 2021a). Through the DTIC, the South African government is in pursuit of a strategic approach to trade policy, which aims to: (DTIC, 2021a; DTIC, 2021b)

- Increase industry capacity;
- Assist workers, women and the communities;
- Encourage development on the African continent;
- Increase South Africa's exports of manufactured goods, and find markets;
- Improve resilience in the wake of the COVID-19 pandemic challenges, being faced with "building back better";
- Aid in the functioning of a digitalised economy;
- Improve environmental sustainability; and

- Improve South Africa's position at the WTO to build the multilateral trading system.

The broad strategy of the policy is to "accelerate growth along a path that generates decent jobs and reduces poverty and the extreme inequalities that characterize" the South African economy (DTIC, 2021b). It is the view of the South African government that, if the South African economy were to become more industrialised, then unemployment levels would lower and the economy would become more robust (DTIC, 2021b). Therefore, trade policy must support attempts to "diversify and upgrade industrial production for sustained and inclusive economic growth" (DTIC, 2021b).

Since 2008, global trade has been more fragile and uneven, and this has been further exacerbated by the COVID-19 outbreak. This highlights the fragility of economies around the world caused by the over-dependence on fragile global supply chains (DTIC, 2021b). The result has been a shift in global policymaking towards shorter global supply chains, with added attention being given to "addressing trade rules that inhibit efforts to strengthen national and regional manufacturing capacity" (DTIC, 2021b). Covid-19 has also highlighted the need for more resilient production systems and a degree of 'strategic autonomy' in the international production and trading system so that countries have the policy space to diversify their economies and add domestic value to production and exports (DTIC, 2021b). This statement frames South African trade policy, as well as its trade negotiations and engagements internationally, on industrial policy objectives (DTIC, 2021b).

There is an expanding realisation that African economies are in the correct position to gain considerably from the promotion of intra-continental trade of agricultural products, and that these gains are expected to result in a higher exchange of both processed and manufactured goods, greater knowledge transfer, and high value creation (Songwe, 2019). Recently, South Africa's stance towards trade policy has concentrated on improving regional economic integration, specifically from an African context, thereby reflecting global trends towards the creation of shorter global supply chains (Jansen Van Rensburg *et al.*, 2019; Constantinescu *et al.*, 2020; DTIC, 2021b).

There are various initiatives in South Africa that have been developed in recent years, tasked with increasing the flow of trade between South Africa and other countries on the continent, as well as globally. The Trade Invest Africa (TIA) initiative, an arm of the

DTIC, was developed in April of 2016, and tasked with “coordinating and implementing South Africa’s economic strategy for Africa” (DTIC, 2021a). TIA will direct attention towards advancing priorities for Africa outlined in the Industrial Policy Action Plan (IPAP) and the National Export Strategy (NES), and other opportunities unearthed through continental trade negotiations (DTIC, 2021a). The key facilitations offered by TIA are “access to capital, access to markets and contracts and other non-financial support such as market research” and others (DTIC, 2021a). Another initiative is the Export Marketing and Investment Assistance Scheme (EMIA), which enlarges export markets for South African products and services and assists in recruiting new FDI into South Africa (DTIC, 2021a). The EMIA has several objectives, mainly aimed at assisting and facilitating both trade expansion and growth, as well as FDI (DTIC, 2021a). The National Exporter Development Programme (NEDP) is another initiative tasked with increasing exports. The NEDP has several objectives that are mostly aimed at the development of new export markets and the creation of growth in current export markets, as well as developing a pool of export-ready companies (DTIC, 2021a).

Finally, the Agriculture and Agro-Processing Master Plan (AAMP) was signed in May of 2022 (Boshoff, 2022). The objectives of the AAMP are as follows (NAMC, 2022):

- A promoted transformation of the agricultural and agro-processing sectors;
- Increased food security within South Africa;
- Accelerated expansion of markets and an improved access environment;
- Improved competitiveness as well as entrepreneurial opportunities through innovations in technology, infrastructural developments, and digitalisation;
- The development of intuitive support for farmers, agro-processing, and food wholesale, as well as the incentivisation of retail;
- The creation of decent and inclusive employment, improved working conditions and decent pay, in the atmosphere of climatic change and technological innovations;
- Improve safety for the farming community and decrease stock theft;
- Form a capable state that has an enabling policy environment; and
- Improve resilience to climate change and the responsible management of natural resources.

Although the AAMP was only initiated in May of 2022, it is essentially the pinnacle of different polices and strategies that the DALRRD has been working on since 2001 (CDH, 2022). In achieving the said objectives, the AAMP provides an opportunity for market expansion, which includes expansion into the African markets (NAMC, 2022).

From the above, it is evident that an export-led strategy supports South Africa's trade policy. A policy that has the intent to increase not only the agricultural-sector exports beyond existing international markets, but also other industrial sectors as well. However, there are two directly conflicting views around South Africa's progress achieved so far in executing the strategy with regard to agriculture (Silhobo and Kapuya, 2021). The first view holds that South Africa has not directed sufficient effort towards opening new markets, thereby limiting the country's opportunity to expand agricultural exports, which is a view largely adopted by role players in the private sector (Silhobo and Kapuya, 2021). However, the first view is mainly concerned with the private sector's difficulties experienced in entering markets such as China, India, and Saudi Arabia (Silhobo and Kapuya, 2021). The opposing view is that South Africa has made major advancements in the opening of new markets, as evidenced by South Africa's involvement in many FTAs with vital regional and international markets (Silhobo and Kapuya, 2021). The disparity between these views can mainly be attributed to a lack of FTA development between countries and regions not included in the EU, the UK, and of course, the African continent (i.e. Asia, America,[44] and other regions).

2.6 Conclusion

International trade theory has evolved over the centuries to change from a country-based perspective to a more modern, firm-based approach to theoretical development. Newer economic theory, centred on behaviour at the firm level, suggests that it is the companies within the countries that have a large impact on the trade performance of a country. However, governments are thought to still have a part to play in the economic performance of a country through monetary and fiscal policy adjustment.

44 The AGOA agreement is set to expire in 2025, and there has been no real progress to date towards developing an FTA between South Africa and the United States of America, which raises concerns for exporters in the private sector.

International trade at the regional level is susceptible to the effects of trade creation and diversion, and if many regional trading blocs have members and rules that overlap, the 'spaghetti bowl' phenomenon presents potential welfare losses. It is therefore of the utmost importance that policymakers train their thoughts on a macro- and micro-/firm-level of thought when deducing policies aimed at increasing international trade and expanding into new markets.

From an African perspective, the relatively similar factor endowments (such as an abundance of labour) raise the question as to why African countries would trade among themselves. However, the NTT feeds into the hypothesis that regional integration has the potential to cause substantial gains from IIT, even among countries that are at similar developmental stages (Fortunato and Valensisi, 2011).

The value of South Africa's agricultural exports globally and into Africa have grown over the past twenty years. However, Africa's share of the value of South Africa's agricultural exports globally has decreased. This is against the backdrop of a continent with a growing population, expanding GDP, increased urbanization and evolving dietary patterns, amongst others. The types of agricultural products being exported by South Africa into the African region are largely lower-valued agricultural products, unlike those being exported into Europe for example. The main markets for South Africa's agricultural exports into Africa are SADC, SACU (which is subsumed in SADC) and the TFTA countries, with only small values of South Africa's agricultural exports being exported to remaining African countries.

It was found by several authors that SADC and SACU were successful, to an extent, in increasing intra-regional integration and trade flows. However, several authors also found that trade diversion effects trumped trade creation effects. South Africa's total agricultural exports into the SACU region in value terms, have decreased and little export growth is forecast for exports into the SADC region going forward. NTBs and NTMs are seen as major impediments to trade within the SADC and SACU regions.

The seven remaining African RECs are all at differing levels of regional integration and all apply different average MFN AVE tariffs on imports of processed and unprocessed agricultural products from non-member countries. The highest MFN AVE tariff rates for imports of processed agricultural products are enforced by COMESA and average

out at 25.54%. For unprocessed agricultural imports, the highest average MFN AVE tariff rate is for imports into IGAD and are at an average value of 21.49%.

Several authors investigated the trade effects of regional integration at the African continental level[45]. The AfCFTA is forecast to lead to various opportunities, challenges as well as changes within the continent. Heightened welfare gains, increased food security, employment growth, GDP growth, changing trade patterns, value added linkages (forward and backward), alternative extra- and intra-regional trade destinations, and so on, are highlighted as some of the characteristics that will change and set the tone for the continent going forward. However, complete tariff liberalization alone is found to be far less effective in creating additional welfare on the continent as opposed to tariff reductions accompanied by decreases in NTBs and NTMs. The size of a country and its trade openness on the continent is also found to be a determinant of the magnitude and proportions of welfare effects realized as a result of the AfCFTA. South Africa is forecast to realize various gains, such as capital accumulations gains, GDP and household utility gains, and is forecast to be a major gainer in the secondary agriculture market as a result of the AfCFTA.

Finally, South African trade policy through the decades has evolved and has been at the centre of policy discussions and debates. It has consequently aligned itself more directly with the global consensus on trade. The result is a sector that is largely free from trade-distorting measures (Mokoena, 2011). However, going forward, the shortening of GVCs and the increased threat of higher protectionist policies threaten the expansion of South Africa's agricultural export industry. Despite this seemingly threatening view of export trade, South Africa has made commendable efforts towards achieving the expansion of intra-continental trade. Various initiatives have been developed with the aim of expanding trade and entering new markets, which include the TIA, EMIA and NEDP, to name a few. With the lack of certainty with regard to export growth outside of Africa, the EU and the UK, the need to successfully implement new trade initiatives to expand trade into Africa under the guidance of the AfCFTA cannot be overlooked.

45 These include, amongst others, Mevel and Karingi (2013), Afreximbank (2018), Abrego *et al.* (2019), Ekobena *et al.* (2021), Sandrey and Jensen (2015), Pasara and Diko (2020), Shinyekwa *et al.* (2020) and Fusacchia *et al.* (2021).

Chapter 3:
Methodology and Data

3.1 Introduction

This chapter describes several trade indices that are used in Chapter 4 to investigate the trade patterns as well as the nature of trade pertaining to the RECs highlighted in Chapter 2. Unlike most other studies that are focussed on RECs and that apply gravity models, CGE models, partial equilibrium models and so on to quantify the effects of a new REC, this study applies simple, less data intensive techniques to rather identify export opportunities for South Africa's agricultural export sector that may arise as a result of the AfCFTA. In doing so, objectives iii and iv will be achieved. Using these trade indices and the analysis of actual trade data between South Africa and the respective REC's, opportunities for South Africa's agricultural export sector will be identified.

According to Plummer *et al*. (2010), indices provide important information pertaining to the potential benefits of joining trading blocs and associated policy decisions. In the case of the AfCFTA that has been recently signed, the trade indicators discussed in this Chapter will be used to determine the nature of existing trade and ascertain whether South African agricultural exports could achieve a deeper penetration into the African continent. Moreover, using these trade indicators will provide valuable information as to whether any opportunities exist that have not yet been exploited.

To perform the various analyses, a grouping that comprises products that belong to both South Africa's top 80% agricultural exports to the world and each African RECs top 80% agricultural imports from the world, was compiled for each REC. This was done for processed and unprocessed agricultural products.

3.2 Trade indices

Trade indices are commonly applied to analyse the nature of trade between firms, industries and even countries. They are often simple to calculate and have fewer demanding data requirements than the more complex econometric modelling techniques in existence, such as the gravity model, or mathematical programming models such as partial and general equilibrium models do (Plummer *et al.*, 2010).

Another benefit is that the data used is easily and freely obtainable from internationally reputable sources, such as the World Bank, the International Monetary Fund (IMF), the ITC, the UNCTAD, and so forth.

Trade indices are important tools that can be used to assist both producers and exporters in selecting their respective areas of strength to appropriately strategize their international business endeavours (Singh and Siddiqui, 2021[46]). They are also valuable in assisting the correct designing of policy support that can enhance the competitiveness of a sector/industry as well as the promotion of economic growth (Kamal, Shad, Khan, Ullah and Kahn, 2022[47]; Singh and Siddiqui, 2021).

It was for these reasons that several trade indices were chosen to be applied for analysis to gain an understanding of the nature of the trade that South Africa shares with its African counterparts, at the regional and national levels. The following sub-sections introduce each index and show how each index is interpreted.

3.2.1 The Regional Trade Introversion Index (RTI)

According to Iapadre (2004), one of the first steps in measuring the effects of regional trading blocs is to measure the actual level of trade intensity among the member countries. The RTI was developed by Iapadre (2004) and is an index used to measure the comparative intensity of regional trading, as opposed to trading with outsiders (Iapadre, 2004). This will be useful in achieving objective iii as the level of trade introversion displayed by each REC will be useful in identifying how well integrated each REC is and where opportunities lie for South Africa to enter previously 'closed off' RECs. The index is independent of the size of the region and ranges from −1 to 1, with −1 meaning that the region has an extra-regional bias, and 1 meaning there is an intra-regional bias (Plummer *et al.*, 2010). Iapadre (2004) developed the index to overcome the many shortcomings of the intra-regional trade share and the trade

46 Singh and Siddiqui (2021) used multiple trade indices as well as an Autoregressive Integrated Moving Average (ARIMA) model to identify potential export destinations for India's marine sector. They successfully identified several marine products and markets that India had the potential to either increase or start new trade in (Singh and Siddiqui, 2021).

47 Kamal *et al.* (2022) through the use of multiple trade indices identified trade potential that exists between Pakistan and the Association of Southeast Asian Nations (ASEAN). They concluded that their findings were useful for policy considerations that can be used to identify products in which to specialise in to enhance competitiveness and economic growth (Kamal *et al.*, 2022).

intensity indices (Plummer *et al.*, 2010). The shortcomings of the trade intensity indices include (Iapadre, 2004):

- Range variability, which means that the trade intensity index value is affected by the size of the region, in terms of the number of countries, i.e. the more countries there are in a region, the higher the value will be, despite the actual nature of intra-regional trade;
- Range asymmetry, which refers to the range of results not being symmetrical around its neutrality assumption, making economic interpretation difficult and which could lead to possibly biased assessments;[48] and
- Dynamic ambiguity, which refers to issues with sign concordance. Essentially, if the regional share of world trade were to either increase of decrease, the intra-regional trade intensity, as well as extra-regional trade intensity, may experience the same sign change (negative or positive).

The RTI will be applied to each RECs trade in processed and unprocessed agricultural products at the aggregated level. The formula for the RTI is shown in Equation 3.1 (Iapadre, 2004). HI_i represents intra-regional trade intensity, and HE_i represents extra-regional trade intensity (Iapadre, 2004).

Equation 3.1: Regional Trade Introversion Index (RTI)

$$RTI = \frac{[HI_i - HE_i]}{[HI_i + HE_i]}$$

where:

HI_i = $[T_{ii}/T_i]/[T_{oi}/T_o]$

HE_i = $[1-(T_{ii}/T_i)]/[1-(T_{oi}/T_o)]$

T_{ii} = Exports of region i to region i plus imports of region i from region i

T_i = Total exports of region i to the world plus total imports of region i from the world

T_{oi} = Exports of region i to outsiders plus imports of region i from outsiders

T_o = Total exports of outsiders plus total imports of outsiders

The RTI will help in determining whether or not the AfCFTA will aid in South Africa trading with its natural partners, such as those belonging to the SACU and SADC

48 The index is made symmetrical around zero via a bilinear transformation of the ratio between the intra-regional and extra-regional trade intensity indices (Plummer *et al.*, 2010).

trading blocs. If a specific REC has a high level of trade introversion, this may make it more difficult for South Africa to enter the specific REC, as the level of competition may be high, and it may be difficult to gain market share. However, if the levels are low, the REC may be more susceptible to trade infiltration from South Africa. Given that the AfCFTA aims to integrate the different African RECs into one trade bloc, the question arises as to whether or not the RECs will become redundant. It can be assumed that the process of harmonization of SPS measures, for example, may take some time to complete and that intra-continental trade may still be affected by this for some time to come. However, the answer to this question is beyond the ambit of this thesis.

Lastly, trade creation effects will be more prominent in an outcome that involves increased trade with South Africa's natural trading partners. For example, if South Africa naturally exports agricultural products to the EAC, without any preferential treatment such as reduced tariffs, then that implies, under a situation where tariff barriers are removed such as envisioned by the AfCFTA, that trade creation effects should be realised. The opposite is true for a situation in which the EAC imports a certain product from Australia, for example. If Australia can provide the product at a more competitive price than South Africa can, but when tariff barriers are removed for South Africa only, and then the EAC imports from South Africa, trade diversion will occur, as less-efficient partner-country production replaces more-efficient non-partner production.

3.2.2 Intra-Industry Trade (IIT) Coefficient

The IIT is commonly applied to demonstrate the nature of the imports and exports of a singular commodity by different countries/industries/firms within a year (Yakob, Viljoen, Jooste and Graz, 2006; Grote and Von Bach, 1994). According to Grubel and Lloyd (1975), IIT refers to the phenomenon of the international trade in differentiated products that fall within the same industry[49], and is defined as "the value of exports of

[49] In Grubel and Lloyd (1975), as opposed to selecting the definition of an industry at a suitable level of disaggregation/aggregation, they rather identified products and grouped the products together to assess IIT. This meant that they were able to analyse the pattern of IIT between countries at multiple different levels of aggregation (Grubel and Lloyd, 1975). In this thesis, the IIT will be conducted at the HS6 level for agricultural products, thereby allowing for the analysis to not be constrained by the limitations involved with a specific set of firms producing a fixed range of agricultural products within an industry.

an ‘industry’ which is exactly matched by the imports of the same industry”. This can reveal export surpluses or shortfalls and, in turn, reveal trade patterns between countries (Grubel and Lloyd, 1975).

The IIT formula is shown in Equation 3.2. For the purposes of this thesis, the IIT for South Africa’s agricultural exports will be analysed at the HS6 level. An IIT value of 0% represents a country that only imports or exports a specific product, whereas a value of 100% represents a situation where all imports are re-exported (Grubel and Lloyd, 1975). An IIT coefficient of 50 implies that, with a surplus in exports, a third of the export volume would have been imported (Grubel and Lloyd, 1971; Grubel and Lloyd, 1975).

Equation 3.2: Intra-Industry Trade (IIT) Coefficient

$$\mathbf{IIT} = \frac{[(\mathbf{X_i} + \mathbf{Y_i}) - |\mathbf{X_i} - \mathbf{Y_i}|]}{(\mathbf{X_i} + \mathbf{Y_i})} \mathbf{x\ 100}$$

where:

Xi = export value of product i

Yi = import value of product i

A high IIT, for example, can illustrate trade in similar, but marginally differentiated products, or even the trade in close substitutes that are in high demand by consumers who may have specific preferences (Grubel and Lloyd, 1975).

This analysis will prove useful in identifying South Africa’s position within the value chain. For example, if South Africa has a very low IIT value and a trade surplus for the trade in Cigarettes, containing tobacco (HS ‘240220), then this implies that South Africa is not a major cigarette importer, but rather focuses its trade efforts regarding Cigarettes on the exporting of cigarettes. In other words, South Africa is not highly dependent on imports of Cigarettes. This implies that South Africa is competitive in the production and trade of Cigarettes, as South Africa is able to produce Cigarettes domestically and export them to other countries. This would most likely be attributable to the fact that South Africa can do this at lower price points than is achievable by other countries.

However, if the trade balance was still positive and the IIT value was more than 50, then it is indicated that more than one third of South Africa’s exports of Cigarettes had

been imported from other countries. This could simply mean that South African exporters of cigarettes are able to purchase cigarettes from international markets and export said cigarettes at competitive prices. In this manner, South Africa's position within the value chain can be identified for certain agricultural exports.

3.2.3 The Regional Orientation Index (ROI) and the Gini Coefficient

In this thesis, the ROI will be used in tandem with the Gini coefficient for South Africa's agricultural exports to assess both the orientation and the level of concentration of South Africa's agricultural exports within an African context. The ROI will be applied at the REC level for South Africa's exports of processed and unprocessed agricultural exports. Regional analysis will help in identifying the regions to which South Africa directs its trade most, at the HS 6 level. The ROI is an index that reveals whether a country's exports of a particular product are more regionally oriented or extra-regionally oriented[50](Plummer *et al.*, 2010; Heo and Tran, 2012). If the index value is higher than one, it is indicated that the country has a regional bias in the exports of a particular product (Plummer *et al.*, 2010). However, if the index value is lower than one, then the country does not have a regional bias in the exports of a particular product (Plummer *et al.*, 2010). For example, if South Africa scores an ROI value of 5 for exports of fresh apples (HS '080810) to the COMESA region, this means that South Africa's exports of Fresh apples are strongly oriented towards the COMESA region. If there are no preferential tariff rates faced by South Africa when exporting fresh apples into COMESA, this means that, if the AfCFTA can reduce tariff rates to 0% for imports of Fresh apples from South Africa, an opportunity may present itself for South Africa to increase exports to its already natural trading partner. However, with this being said, NTMs and NTBs are seen as major impediments to expanding intra-African trade (Vink *et al.*, 2022; Behar and Edwards, 2011; Kalaba *et al.*, 2016). A low ROI score simply means the REC is not a major export destination of South Africa for a respective product or product grouping, but, under the ambit of the AfCFTA and reduced tariffs, the REC may become a viable export opportunity for South Africa's exports of Fresh apples. Such a conclusion can only be drawn when considering the results generated

50 This index only considers the exports of a certain country, and not the imports of the exporting country, nor the total imports of the importing country.

with indices already discussed and to be discussed in this Chapter. Equation 3.3 shows the ROI formula (Plummer *et al.*, 2010; Heo and Tran, 2012):

Equation 3.3: Regional Orientation Index (ROI)

$$\mathbf{ROI_{cgr}} = \frac{\left[\frac{\mathbf{X_{cgr}}}{\mathbf{X_{cr}}}\right]}{\left[\frac{\mathbf{X_{cg-r}}}{\mathbf{X_{c-r}}}\right]}$$

where:

Xcgr = Exports of good g by country c to region r
Xcr = Total exports of country c to region r
Xcg-r = Exports of good g by country c to countries outside of region r
Xc-r = Total exports of country c to countries outside of region r

To determine the concentration in which South Africa directs its exports to Africa, the Gini Index will be applied. The Gini coefficient is a widely used measure of how skewed or unequal trade is (Haughton and Khandker, 2009). A Gini coefficient of 0% represents equally distributed trade, while a value of 100% represents trade that is restricted to only one country (Haughton and Khandker, 2009). Defined graphically, the Gini coefficient is equal to the ratio of two surfaces involving the addition of the vertical differences between the line of perfect equality and the Lorenz curve (Haughton and Khandker, 2009).

The Gini coefficient can therefore be used to determine the concentration of a country's exports with respect to the total exports of a specific product or group of products, or even the concentration of a country's exports to specific markets. If a country has a low Gini coefficient for the exports of a particular product it means that the country's exports of said product are distributed amongst export markets fairly equally (Haughton and Khandker, 2009). In this study, South Africa's exports of processed and unprocessed agricultural products at the aggregate level will be used to assess South Africa's export concentration into Africa. The formula used to compute the Gini coefficient, as used by the World Bank, is shown in Equation 3.4 (Haughton and Khandker, 2009):

Equation 3.4: The Gini Index

$$\mathbf{G_i} = \sum_{\mathbf{k=0}}^{\mathbf{k=n=1}} (\mathbf{X_{k+1}} - \mathbf{X_k})(\mathbf{Y_{k+1}} + \mathbf{Y_k})$$

where:

Gi = The Gini coefficient

X = Cumulated proportion of the variable being investigated [51]

Y = Cumulated proportion of the export value

In this thesis, the Gini coefficient is applied at the country level for South Africa's exports of processed and unprocessed agricultural products at the aggregated level. This was useful in determining South Africa's level of concentration for processed and unprocessed agricultural exports into the different African countries. The Lorenz curve for each country when put into graphs was useful in displaying the different concentration levels for South Africa's said exports into each African country. If South Africa's agricultural exports are not diversified enough, this may have implications for the risk that South African agricultural exporters are exposing themselves to. For example, if South Africa exports 90% of all processed agricultural exports to Botswana, this may pose risks, as South Africa is heavily reliant on Botswana to continue importing from South Africa.

When using the Gini index, the Lorenz curve and the ROI in tandem, the orientation, as well as the level of concentration, of South Africa's exports into Africa can be shown. The ROI will be used to understand South Africa's regional orientation of exports of the processed and unprocessed agricultural products selected for the analysis of each region. The results of the Gini calculations will be used to show the market concentration of South Africa's exports of the processed and unprocessed agricultural products into Africa.

3.2.4 The Gini-Hirschman index (GHI)

The GHI is a commonly applied measure of concentration (Grote and Von Bach, 1994; Erkan and Sunay, 2018). The GHI will be the last trade index applied and will reveal the concentration of each REC's imports of processed and unprocessed agricultural imports from South Africa over time. To do this, the GHI will be calculated for the

51 **In this case the number of countries.**

imports of each REC for both processed and unprocessed agricultural products on an annual basis from 2012 through to 2021. This will prove valuable in identifying each REC's reliance on South Africa for the imports of either processed or unprocessed agricultural products. As the GHI can be used as a measure of the changes in concentration over time, it can in turn identify those RECs that are either increasing, maintaining, or even decreasing their reliance on imports from South Africa (Erkan and Sunay, 2018). In turn, this will prove valuable in advising agricultural exporters as to which RECs have little potential for expanding agricultural exports into, and which RECs provide opportunity for greater export expansion. Equation 3.5 shows the GHI[52]formula that will be used (Michealy, 1962; Erkan and Sunay, 2018).

Equation 3.5: The Gini-Hirschman Index (GHI)

$$\mathbf{Gini_i} = [\sum_{\mathbf{i=1}}^{\mathbf{n}} [\frac{\mathbf{M_{ij}}}{\mathbf{M_i}}]^2]^{\frac{1}{2}} \mathbf{x\ 100}$$

where:

Mij = imports of product i to country j

Mi = total import volume of product i

The difference between the Herfindahl-Hirschman Index (HHI) and the GHI is that the GHI is simply the square root of the HHI. This makes the output values of the GHI higher than the output values of the HHI. The reason the GHI was chosen as opposed to the HHI, was because of the low levels of concentration that each REC had on their imports of processed and unprocessed agricultural products from South Africa. This low level of concentration made it practically more difficult to analyse the graphs shown in chapter 4.4.3. Therefore, the GHI was chosen as the more suitable measure of concentration to be used for the purposes of this thesis. The application of the GHI and the Gini coefficient is a demonstration of two different measures of concentration. This was deemed necessary to include for completeness as it shows the different approaches that can be taken to measure the same principle (i.e. the levels of concentration in trade).

[52] It is important to note that the GHI is often applied to the export concentration of a country, however, in the case of this thesis, the GHI is applied to assess the import concentration of a country.

3.3 The Composite Country Priority Index (CCPI)

Exporters often face difficulties when trying to identify new and potential export markets (Jansen van Rensburg *et al*., 2019). This led to the creation and application of composite indices around the world, which will be discussed further in Chapter 5. The question, however, is how useful these indices are in guiding policy makers and business in identifying potential export markets. To answer this question a CCPI was developed specifically for South Africa to identify potential export markets within the African continent. The CCPI is a more appropriate index as opposed to the Country Attractiveness Index (CAI) and the Country Priority Index (CPI) as the latter two were applied and adapted on behalf of the Western Cape Department of Agriculture (WCDoA) to assess export opportunities for the Western Cape agricultural sector specifically. The CCPI and its methodological approach was designed to look at export opportunities within Africa for the entire South African agricultural export sector.

The CCPI[53] makes use of 12 different variables, some of them being indices themselves. The selection of the indices and variables was determined based on their relevance in an exporting country's decision on whether to export to a certain country or not. Others have followed a similar line of thinking in developing composite indices. Some examples include the CAI, created by Morokong and Pienaar (2019), the Human Development Index (HDI) of the United Nations Development Programme (UNDP) (UNDP, 2022), the Global Competitiveness Index (GCI) of the World Economic Forum (WEF, 2022) and the Market Attractiveness Index (MAI) of the International Trade Centre (ITC, 2022). The CCPI will be discussed further in Chapter 5.

Using the results of the analysis carried out using the various trade indices and the results of the CCPI, comparisons can be made between the country's that have been identified as having the most promising export potential. The CCPI itself, as well as the results of the CCPI analysis, are discussed in detail in Chapter 5.

53 A composite index is either a quantitative or a qualitative measure that is derived from a sequence of indicators that show the relative positions of countries in comparison with other countries (or other factors being measured), and is created when all of the indicators are assembled into a single index that is based on an underlying model (Morokong and Pienaar, 2019).

Chapter 4:
Analysing South Africa's Trade Patterns with Africa

4.1 Introduction

In this chapter objectives iii and iv are realized. South Africa's trade with the selected African RECs is analysed and for each REC, two groups comprising processed agricultural products and unprocessed agricultural products were custom selected, based on the process outlined in section 4.2.[54] Using the two groups of selected agricultural products, the trends in terms of exports and imports for the past decade (2012 to 2021[55]) were analysed to show any reductions or increases in import or export values. In addition, South Africa's market share for each REC's imports of selected agricultural products in the past decade was analysed, as well as the contribution that processed and unprocessed agricultural products made towards each REC's total imports of the selected agricultural products. Lastly, the Regional Trade Introversion (RTI) index that each region displays for the two groups of selected agricultural products was determined to assess how intra- or extra-regional the RECs trade in the said products is. This aids in understanding how dependent RECs are on imports/exports outside of the respective REC, as well as how well integrated the RECs are. The RECs used for this study are those recognised as such by the African Union[56] (AU, 2022a), namely SADC, AMU, COMESA, ECOWAS, CEN-SAD, EAC, ECCAS and IGAD.

Section 4.3 provides, from a South African perspective, the outcome of the application of some of the different trade indices mentioned in Chapter 3. Initially, the Intra-Industry Trade (IIT) coefficient analysis is carried out to identify those products that South Africa both imports and exports, imports only, or exports only. This will assist in formulating realistic policies that are aimed at increasing South Africa's exports of the

54 A systematic process was followed whereby the agricultural products imported into each REC are matched with South Africa's agricultural exports, globally. This process is carried out at the HS6 level of aggregation.

55 The reason for the selection of this specific time period is that prior to 2011, the ITC TradeMap database did not consider SACU trade, and so for congruence with the discussion in Chapter 2, the time period 2012 to 2021 was used.

56 It is important to note that Western Sahara is the only AU country that is not part of any recognised REC. In addition, there is no data for trade between Western Sahara and South Africa on TradeMap (ITC, 2022), and therefore Western Sahara was excluded from the analysis, and in turn from this thesis.

said products into Africa under the ambit of the AfCFTA. For example, in an instance where South Africa exports a large value of product A, but all of the export value is imported originally from elsewhere, then policy formulation will be different to a situation where South Africa is the producer of the said export product and does not import any of the said product. After this, South Africa's export orientation is then assessed. To do this, the ROI is applied at the REC level to identify which RECs South Africa exports to the most. This makes it easy to compare each REC according to South Africa's orientation. In addition, the Gini coefficient and the Lorenz curve are used at the country level to identify those countries that South Africa sends a large proportion of the exports to. Lastly, each REC's level of import concentration with respect to imports of the selected agricultural products from South Africa is analysed. This acts as a proxy for South Africa's market share in each REC and, in turn, can reveal how much 'room' in each REC is left for expansion.

The results obtained from the analyses will provide guidance as to which opportunities exist for South African agricultural exports to different RECs within the ambit of the AfCFTA at the regional, country and product levels.

4.2 Product selection per REC

To identify the relevant unprocessed and processed agricultural products applicable to the scope of this study, global import data for various RECs was extracted from the ITC TradeMap database (ITC, 2022). Next, data for South Africa's global exports of unprocessed and processed agricultural products was extracted from the ITC TradeMap database (ITC, 2022). Average import data for each REC, and export data for South Africa, from 2012 to 2021 for each product at the HS6 level of aggregation was calculated and ranked from largest to smallest.

The next step was to compare the top 80%[57] unprocessed and top 80% processed agricultural imports per REC with South Africa's top 80% unprocessed and top 80% processed agricultural exports. The purpose is to identify products imported by each

57 The reason that only the top 80% of agricultural exports and imports respectively were selected was because the remaining 20% of agricultural exports and imports are unlikely to contribute to the results of the analysis in the sense that the trade in the bottom 20% of agricultural products is negligible in value terms.

REC that are simultaneously exported by South Africa. This provides an initial scope of excess demand per REC and excess supply by South Africa.

Any products that belong to both groups, for example, SADC's top 80% processed agricultural imports from the world and South Africa's top 80% processed agricultural exports globally, were identified and grouped together. The identical process was then carried out for unprocessed agricultural products. The result was, for each REC, the compilation of a group of processed and a group of unprocessed agricultural products that 'qualified' for further analysis using the various trade indices mentioned in Chapter 3. Despite citrus being one of South Africa's largest export earners to the RoW, African RECs do not import a large value of citrus. It was for this reason that citrus was excluded from the analysis since it was not within the 80% selection criteria. However, future studies, may find it appropriate to assess the potential for growth in intra-African citrus trade given the growing trade potential of the African markets.

4.2.1 SADC trade analysis

4.2.1.1 Products selected

Table 4.1 shows, from the total processed and unprocessed agricultural products selected for further analysis of the SADC region, the top 5 processed and top 5 unprocessed agricultural products according to SADC's average import value (USD '000) of each product between 2012 and 2021. As shown in Table 4.1, the products selected are mostly lower valued agricultural products. Appendix 1 shows the full product list selected for the analysis of the SADC region. For the SADC region, 34 processed and 10 unprocessed agricultural products were selected for further analysis.

Table 4.1: Top 5 processed and unprocessed agricultural products selected for further analysis of the SADC region's trade

Product HS Code	Processed Agricultural Products	Average SADC Import Value in USD '000 (2012-2021)	CAGR on SADC Import Value (2012-2021)
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed	648 529	6,78%
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...	378 569	-2,08%
'110100	Wheat or meslin flour	342 829	-11,15%
'240220	Cigarettes, containing tobacco	214 779	-1,92%
'210690	Food preparations, n.e.s.	210 914	1,17%

Product HS Code	Unprocessed Agricultural Products	Average SADC Import Value in USD '000 (2012-2021)	CAGR on SADC Import Value (2012-2021)
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)	393 683	25,65%
'100590	Maize (excluding seed for sowing)	381 459	-2,09%
'020714	Frozen cuts and edible offal of fowls of the species Gallus domesticus	376 778	-1,07%
'020230	Frozen, boneless meat of bovine animals	116 169	-10,92%
'080810	Fresh apples	54 947	-4,81%

Source: Own calculations based on data from ITC (2022).

4.2.1.2 SADC trade overview

The two groups of agricultural products selected for the analysis of the SADC region were grouped together and used to give an overview of the nature of trade by SADC for the selected agricultural products between 2012 and 2021. Figure 4.1 shows the value of SADC's trade in the selected agricultural products with the RoW (in SADC's case, intra-regional trade is also analysed, as South Africa is a member nation). Since South Africa is a member nation, Figure 4.1 shows SADC's trade details with the RoW, both including and excluding South Africa.

The value of imports and exports (inclusive of South Africa) for the selected agricultural products with the RoW between 2012 and 2015 decreased in both export and import values. However, since 2015, SADC's exports and imports to and from the RoW, (inclusive of South Africa), increased. Both exports and imports (inclusive of South Africa) had a CAGR over the 2015–2021 period of 3.79%. SADC exports of the selected agricultural products (not including South Africa) had the lowest CAGR over the same period, at 1.73%, while imports had the largest CAGR of 5.64% between 2015 and 2021, showing that the value of imports has increased significantly more than the value of exports has.

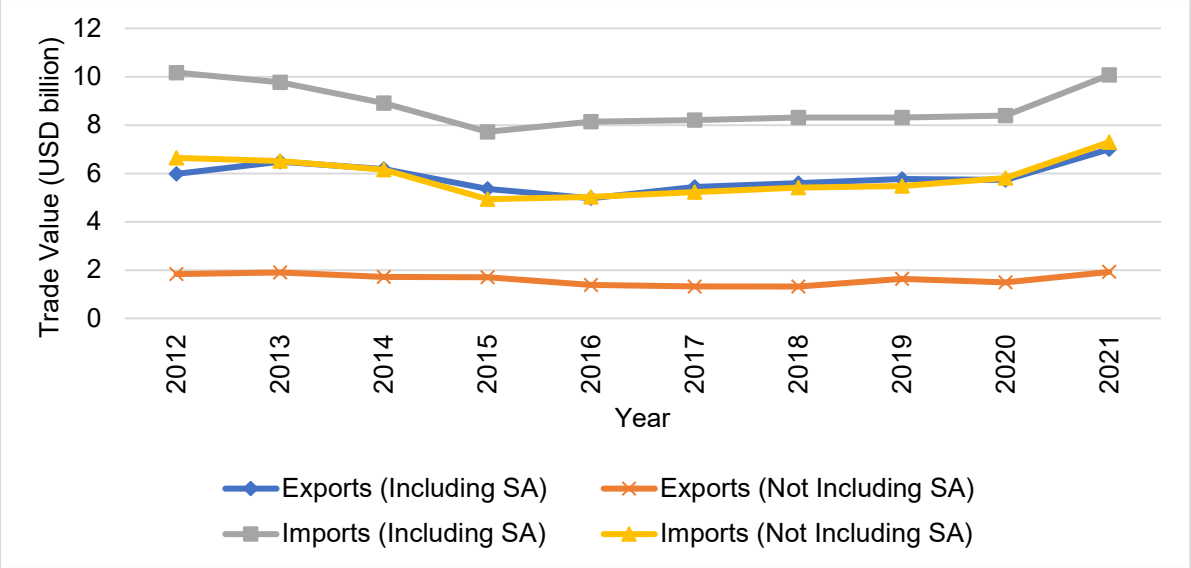


Figure 4.1: SADC's trade with the RoW in the selected agricultural products
Source: Own calculations based on data from ITC (2022).

4.2.1.3 South Africa's contribution to agricultural trade by and in SADC

Figure 4.2 shows that South Africa's share of SADC's global exports of selected products from 2012 to 2021 was at its lowest in 2015, at 68%. In 2021, however, South Africa contributed 73% towards the SADC's total exports of the selected agricultural products. South Africa's import share of SADC's global imports of the selected agricultural products reached its highest value in 2016, at 38%, and has since reduced to 27% in 2021, with a CAGR of −5.23%.

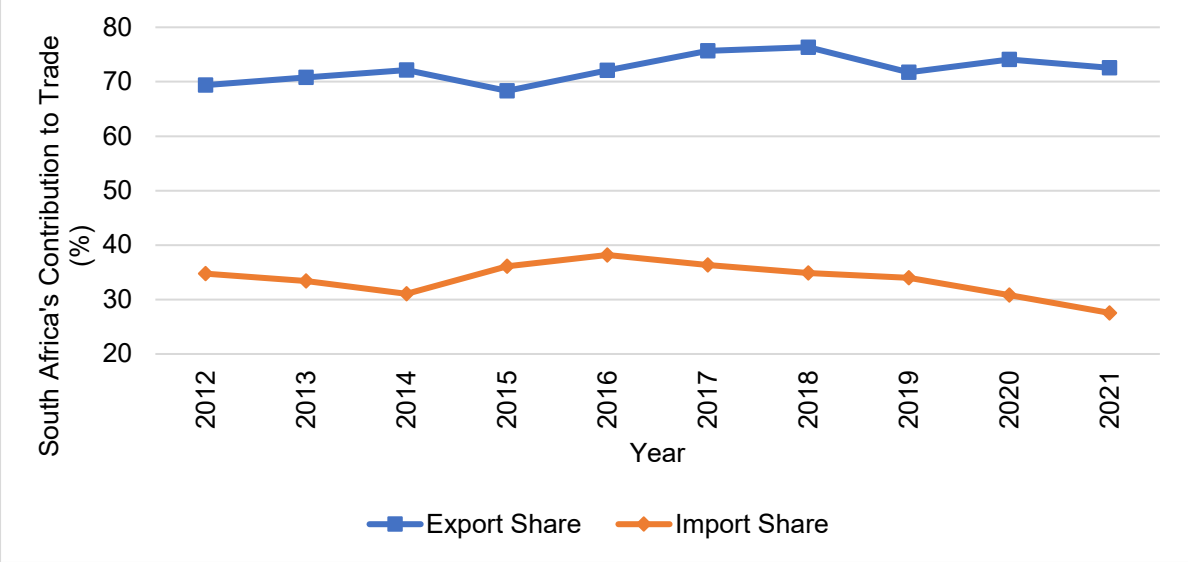


Figure 4.2: South Africa's contribution to SADC's trade with the RoW in the selected agricultural products
Source: Own calculations based on data from ITC (2022).

Figure 4.3 shows SADC's intra-regional trade in the selected agricultural products. South Africa's intra-regional exports of processed agricultural products contributed, on average, 82% towards the value of intra-regional processed agricultural imports, with a CAGR of −1.63% between 2012 and 2021. This implies a reduction in South Africa's intra-SADC market share for exports of processed agricultural products. In terms of SADC's intra-regional exports of processed agricultural products between 2012 and 2021, South Africa's intra-regional imports were a mere 9%, with a CAGR of −3.03%. This implies that South Africa's intra-regional import demand has declined over the past decade.

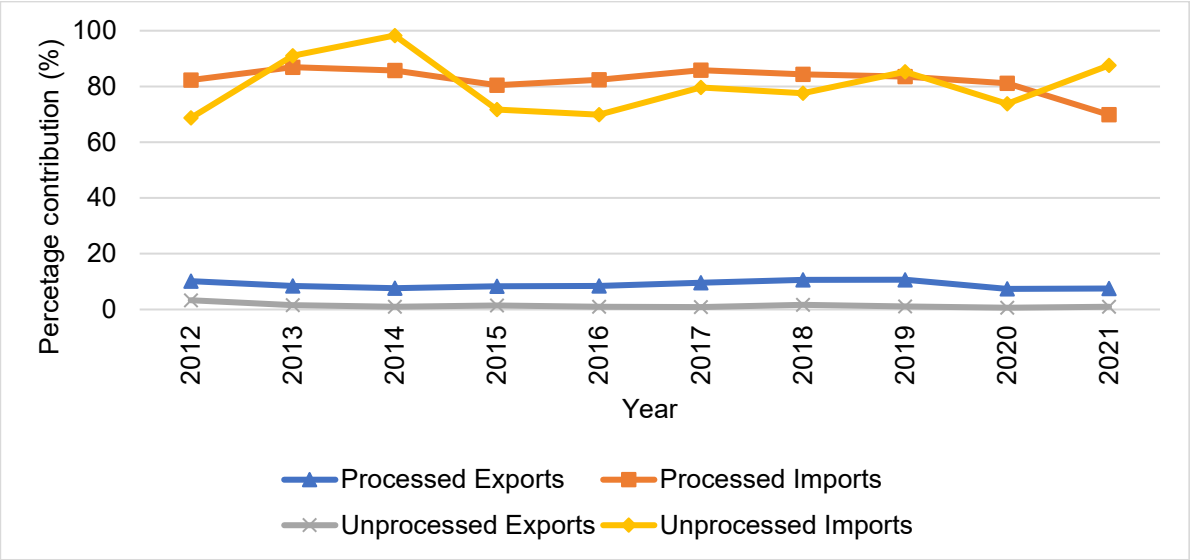


Figure 4.3: South Africa's contribution towards intra-SADC trade for the selected agricultural products

Source: Own calculations based on data from ITC (2022).

4.2.1.4 The composition of trade for the selected agricultural products for SADC

Figure 4.4 shows the decomposition of exports in processed and unprocessed agricultural products by SADC. Between 2012 and 2021, processed agricultural exports contributed more than 60% towards the total export value (USD billion) of SADC. The importance of processed agricultural exports to the SADC region has reduced over the 10-year period, with a CAGR of −0.15%.

Figure 4.5 shows the decomposition of imports in processed and unprocessed agricultural products by SADC. Between 2012 and 2021, the selected processed agricultural products contributed, on average, 74% towards the total import value

(USD billion) of the selected processed and unprocessed agricultural products, with a CAGR of −3.19%. This indicates that the importance of processed agricultural products in terms of overall demand for agricultural products has declined; however, there appears to be a high variability in import demand for processed agricultural products.

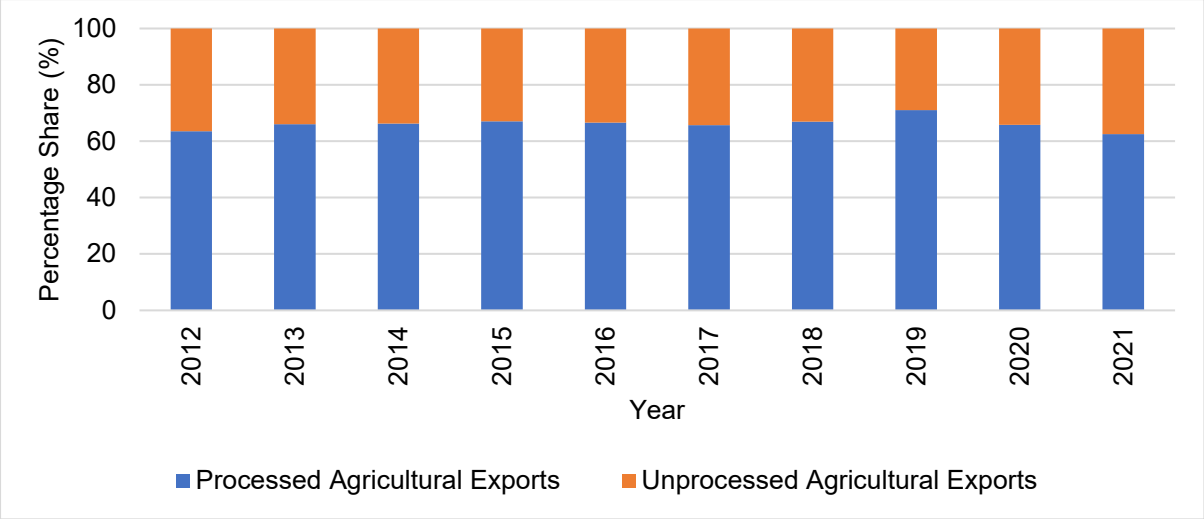


Figure 4.4: Decomposition of SADC's exports of the selected agricultural products
Source: Own calculations based on data from ITC (2022).

Figure 4.5: Decomposition of SADC's imports of the selected agricultural products
Source: Own calculations based on data from ITC (2022).

4.2.1.5 SADC Regional Trade Introversion (RTI) analysis

Figure 4.6 shows the RTI values for the SADC region. The RTI values for both processed and unprocessed agricultural products are relatively high. This implies that most of SADC trade (in value terms) is between SADC members, rather than with the RoW. SADC's trade in processed agricultural products scored the highest RTI values

throughout the period from 2012 to 2021, and in 2021, had an RTI value of 98%. The high levels of introversion imply that SADC trade is well integrated. The CAGR for the RTI value for trade in processed agricultural products were below 1% for the entire period, while the RTI for unprocessed agricultural trade had a CAGR of −0.39%.

This implies that the AfCFTA offers little benefit for South Africa to significantly expand trade into the SADC region because of the already high level of integration present in the region. However, a present threat to intra-SADC trade is the increased use of NTMs and the incumbent high levels of NTBs, which are seen as major impediments to expanding trade (Vink *et al.*, 2002; Behar and Edwards, 2011; Kalaba *et al.*, 2016).

It is important to note that despite SADC's high levels of integration and trade introversion, the average MFN AVE tariff rates imposed on imports of the selected processed and unprocessed agricultural imports from non-member countries are, as of 2022, 15.84% and 11.47% respectively (Market Access Map, 2022). If the tariffs are reduced, export opportunities for other African countries to export into SADC will increase at the same time. However, the potential competition from competitors within the African region is beyond the scope of this thesis.

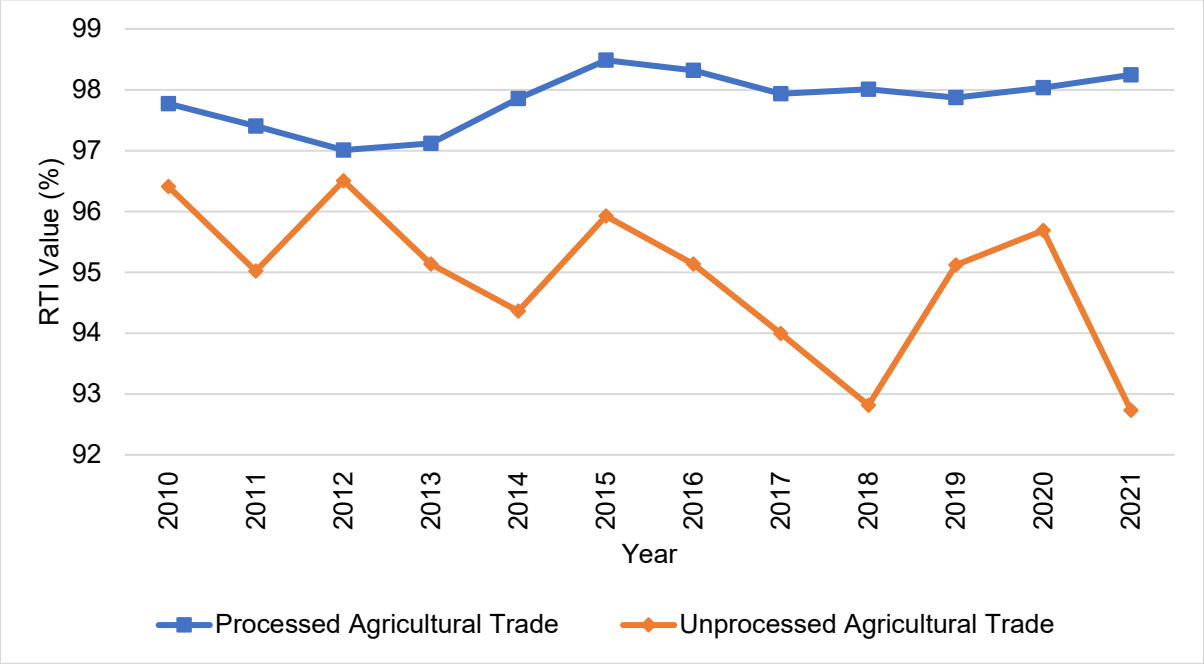


Figure 4.6: RTI values for trade in the SADC region

Source: Own calculations based on data from ITC (2022)

4.2.2 AMU trade analysis

4.2.2.1 Products selected

Table 4.2 shows, from the total processed and unprocessed agricultural products selected for further analysis of the AMU region, the top 5 processed and top 2 unprocessed[58] agricultural products, according to AMU's average import value (USD '000) of each product between 2012 and 2021. Appendix 2 shows the full product list selected for the analysis of the AMU region.

Table 4.2: Top 5 processed and top 2 unprocessed agricultural products selected for further analysis of the AMU region's trade

Product HS Code	Processed Agricultural Products	Average AMU Import Value in USD '000 (2012-2021)	CAGR on AMU Import Value (2012-2021)
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding …	1 088 769	2,55%
'150710	Crude soya-bean oil, whether or not degummed	1 085 450	5,42%
'230400	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting ...	833 994	1,99%
'040210	Milk and cream in solid forms, of a fat content by weight of <= 1,5%	454 618	2,54%
'240220	Cigarettes, containing tobacco	419 576	3,34%
Product HS Code	**Unprocessed Agricultural Products**	**Average AMU Import Value in USD '000 (2012-2021)**	**CAGR on AMU Import Value (2012-2021)**
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)	2 469 971	9,02%
'100590	Maize (excluding seed for sowing)	1 658 224	0,60%

Source: Own calculations based on data from ITC (2022)

4.2.2.2 AMU trade overview

The two groups of agricultural products selected for the analysis of the AMU region were grouped together and utilised to give an overview of the nature of trade by AMU for the selected processed and unprocessed products between 2012 and 2021.

Figure 4.7 shows the value of AMU's trade in the selected agricultural products with the RoW. Exports of the selected agricultural products from the AMU to the RoW had

58 For the AMU region, 17 processed and only two unprocessed agricultural products were available after the selection process described in Section 4.2.

a CAGR of 7.48% from 2012 through to 2021. However, this growth had started from a low base of just over USD 0.4 billion. Imports into the AMU region from the RoW also experienced a positive CAGR. However, from 2019 through to 2021, the CAGR was far higher than the CAGR of 4.72% over the 2012 to 2021 period. The CAGR for the 2019 to 2021 period for AMU imports from the RoW was 8.74%.

Between 2012 and 2021, South Africa was a market for less than 1% of AMU's exports of the selected agricultural products. South Africa's imports from the AMU did increase over the same period, with a CAGR of 32.04%. The AMU was also a market for less than 1% of South Africa's exports of the selected agricultural products between 2012 and 2021 and had a similar CAGR of 35.53% over the same period. The low import and export shares are indicative that the AMU will most probably remain an insignificant trade partner in the future, despite the relatively high CAGR for the selected agricultural products. It can be postulated that this is due to the AMU's geographical location in respect of the EU.

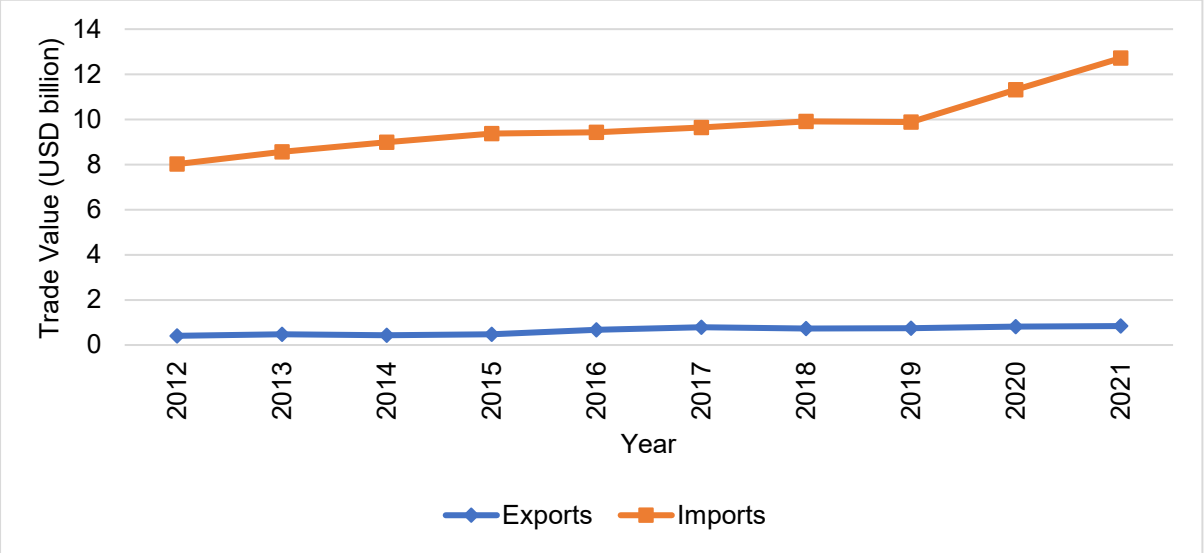


Figure 4.7: AMU's trade with the RoW in the selected agricultural products
Source: Own calculations based on data from ITC (2022)

4.2.2.3 The composition of trade for the selected agricultural products for AMU

Figure 4.8 shows the decomposition of exports in processed and unprocessed agricultural products by AMU. Processed agricultural products dominate the AMU region for exports of the selected agricultural products in value terms, not contributing

less than 98% during the period 2012–2021 and contributing 100% in a few of the years.

Figure 4.9 shows the decomposition of imports in processed and unprocessed agricultural products by AMU. Processed and unprocessed imports of the selected agricultural products by the AMU are more evenly distributed in value terms. Between 2012 and 2021, the average contribution by the imports of processed agricultural products was 58%, with a CAGR of −0.50%. This implies that, although relatively stable, the importance of imports of processed agricultural products into the AMU is decreasing.

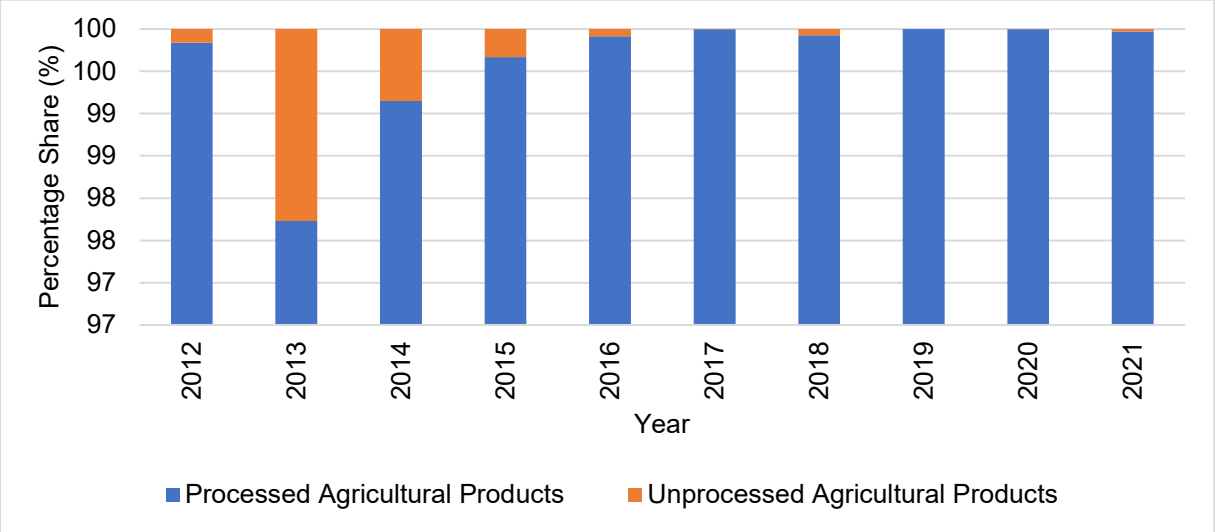


Figure 4.8: Decomposition of AMU's exports of the selected agricultural products
Source: Own calculations based on data from ITC (2022).

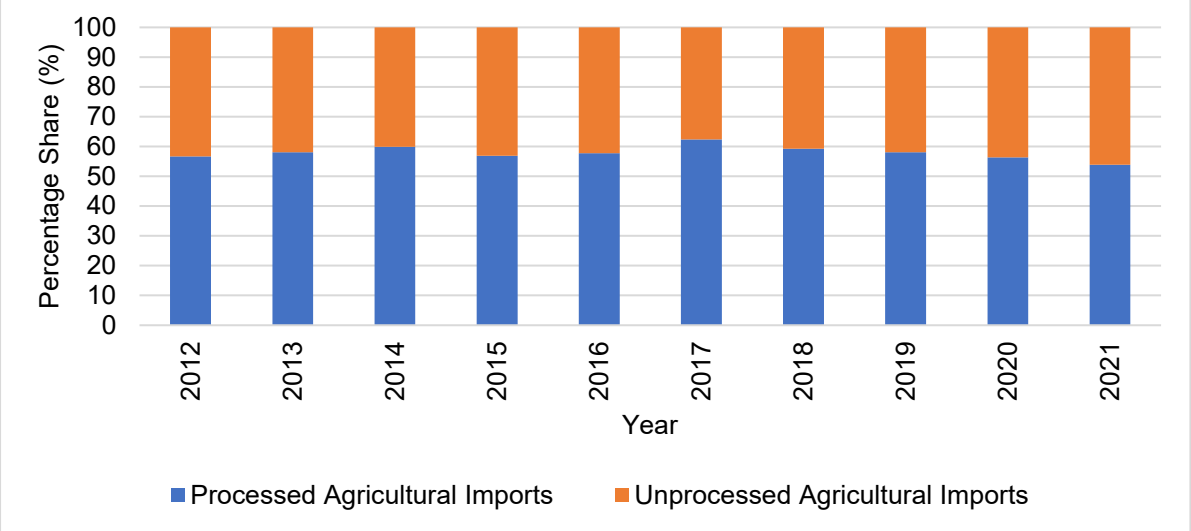


Figure 4.9: Decomposition of AMU's imports of the selected agricultural products
Source: Own calculations based on data from ITC (2022).

4.2.2.4 AMU's RTI analysis

The RTI values for trade in the AMU region are shown in Figure 4.10. For trade in the selected processed agricultural products, the AMU is regionally introverted, with the level of introversion increasing in the past decade. The CAGR for the RTI value for processed agricultural trade between 2012 and 2021 is 8.06%, showing a growing preference of the countries to trade among themselves. It can be postulated that the growing intra-regional introversion is reducing the opportunity that South Africa might have to enter the AMU markets for processed agricultural products.

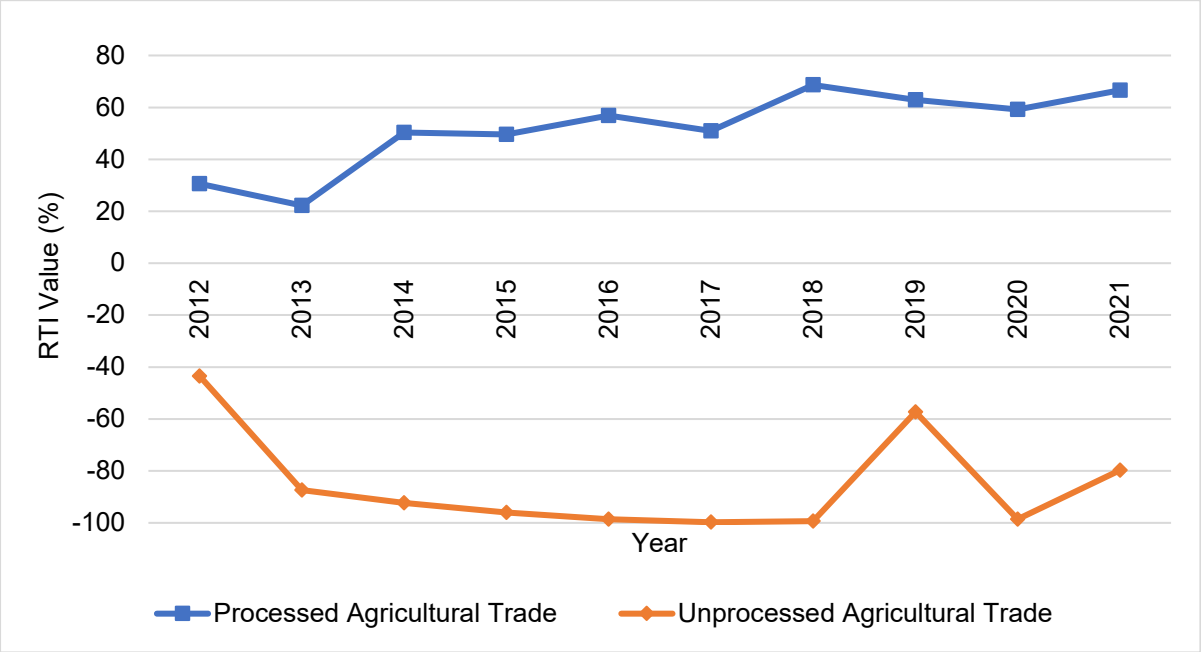


Figure 4.10: RTI values for trade in the AMU region
Source: Own calculations based on data from ITC (2022).

For the selected processed agricultural products, trade in the AMU is mostly introverted. However, for Milk and cream in solid form (HS '040210), Crude soya-bean oil (HS '150710), Raw cane sugar (HS '170199) and Smoking tobacco (HS '240319) the AMU region is highly dependent on extra-regional trade. The average MFN AVE tariff rates applied to non-member countries by the AMU for Milk and cream in solid form, Crude soya-bean oil, Raw cane sugar and Smoking tobacco are 33.20%, 4.38%, 21.03% and 34.00% respectively (Market Access Map, 2022). A reduction in these tariffs should secure increased market share for those African countries already trading with the AMU and might represent export opportunities for other African countries not trading with AMU in these products.

For Milk and cream in solid form and Soya-bean oil, South Africa's trade balance is varied. South Africa would need to improve domestic production and/or trade capabilities to take advantage of the export opportunities these products offer in the AMU market. The trade balance for Smoking tobacco, and Cane sugar had a CAGR between 2012 and 2021 of -34.07% and -8.05% respectively, and hence offer limited increased export opportunities to the AMU.

Trade in the selected unprocessed agricultural products for the AMU region is highly dependent on extra-regional trade. In 2017, the trade in the selected unprocessed agricultural products for the AMU region was 100%. This can be explained by the low, and sometimes complete absence of, intra-regional trade in the selected unprocessed agricultural products, and the dependence on imports from the RoW. The low RTI could signal potential for exports by South Africa to AMU. Table 4.2 shows that the main unprocessed agricultural products imported by AMU are Wheat and meslin (excluding seed for sowing, and durum wheat) and Maize (excluding seed for sowing). These two products make up 45% of all imports of unprocessed agricultural products by AMU. Other products imported include durum wheat (excluding seed for sowing), soybeans (whether or not broken; excluding seed for sowing), and barley (excluding seed for sowing), which combined, contribute just over 20% to the imports of unprocessed agricultural products.

South Africa has the potential to export these products, especially Maize, since South Africa is a net exporter of maize. The average MFN AVE tariff imposed on imports of Maize (HS '1005) into the AMU region on non-member countries, as of 2022, was a value of 3.13% (Market Access Map, 2022), implying little trade expansion possible as a result of tariff cuts. Although wheat shows high export potential, South Africa is a net importer of wheat and currently mainly trades with neighbouring countries. Referring to barley, South Africa is more or less self-sufficient, with marginal imports or exports when circumstances warrant it. Given the geographical location of AMU, especially in relation to Europe, and the products mentioned above, the AMU does not represent a significant export market for South Africa, and so the AfCFTA will not significantly benefit South Africa's exports of unprocessed agricultural products into the region.

In addition to the AMU's geographical location, incumbent tariffs on imports from the non-members are some of the highest of the African RECs, at an average AVE tariff

rate of between 20.85% and 20.17% for processed and unprocessed agricultural products. The envisioned tariff reductions may lead to an easing of access for South Africa, but the same can be said for other African countries that are situated closer to the AMU.

4.2.3 COMESA trade analysis

Table 4.3 shows, from the total processed and unprocessed agricultural products selected for further analysis of the COMESA region, the top 5 processed and top 3[59] unprocessed agricultural products according to COMESA's average import value (USD '000) of each product between 2012 and 2021. Appendix 3 shows the full product list for the analysis of the COMESA region.

Table 4.3: Top 5 processed and top 3 unprocessed agricultural products selected for further analysis of the COMESA region's trade

Product HS Code	Processed Agricultural Products	Average COMESA Import Value in USD '000 (2012-2021)	CAGR on COMESA Import Value (2012-2021)
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...	1 518 589	2,45‘
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed	1 039 033	11,49‘
'240220	Cigarettes, containing tobacco	691 945	-1,77‘
'210690	Food preparations, n.e.s.	629 495	6,59‘
'230400	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting ...	596 005	-7,47%
Product HS Code	**Unprocessed Agricultural Products**	**Average COMESA Import Value in USD '000 (2012-2021)**	**CAGR on COMESA Import Value (2012-2021)**
'100590	Maize (excluding seed for sowing)	2 576 192	2,05‘
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)	1 415 452	20,96‘
'080810	Fresh apples	369 106	4,69%

Source: Own calculations based on data from ITC (2022)

59 For the COMESA region, 20 processed and only three unprocessed agricultural products were available after the selection process described in Section 4.2.

4.2.3.1 COMESA trade overview

The two groups of agricultural products selected for the analysis of the COMESA region were grouped together and utilised to give an overview of the nature of trade by COMESA between 2012 and 2021.

Figure 4.11 shows the value of COMESA's trade in the selected agricultural products with the RoW between 2012 and 2021. Imports of the selected agricultural products have consistently been higher than the export values throughout the period 2012 to 2021. Imports into COMESA of the selected agricultural products had a CAGR from 2012 to 2021 of 5.82%, beating the CAGR for exports of 2.00% over the same period. However, from 2018 to 2021 imports had a CAGR of 6.68% and exports a CAGR of 4.82%.

South Africa's share of this trade growth has, however, decreased in the past decade, and more so since 2018. South Africa's exports into COMESA, as a share of COMESA's imports from the world, had a CAGR of −4.00% between 2012 and 2021, and a CAGR of −1.45% between 2018 and 2021. As a market, South Africa's share of COMESA's exports, globally, had a CAGR of −7.82% between 2018 and 2021.

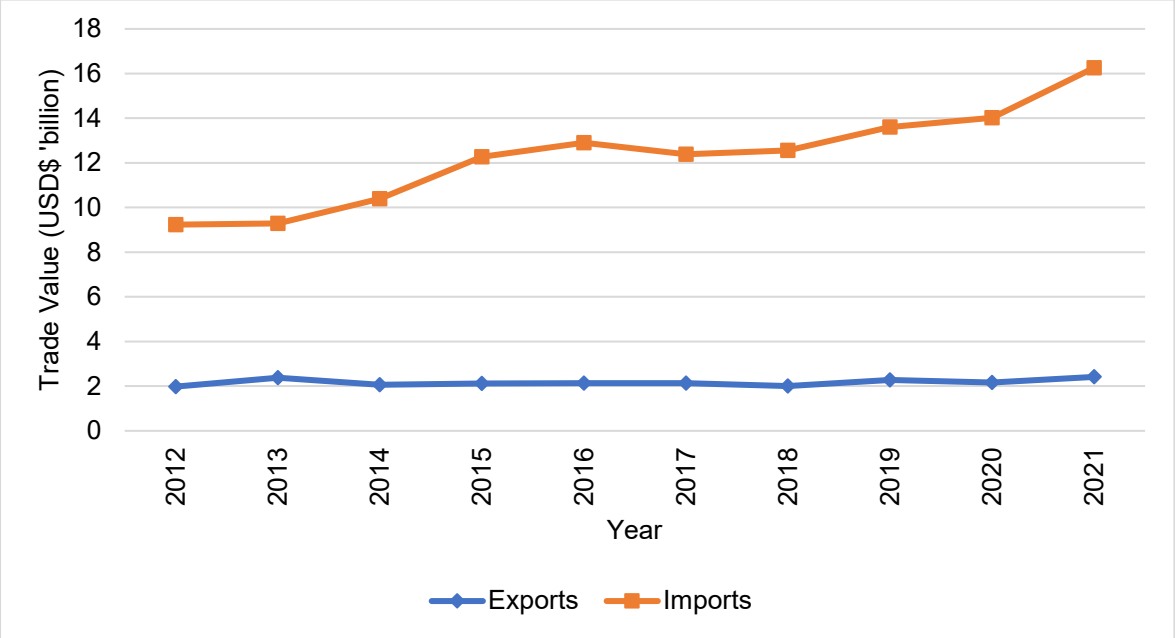


Figure 4.11: COMESA's trade with the RoW in the selected agricultural products
Source: Own calculations based on data from ITC (2022)

4.2.3.2 The composition of trade for the selected agricultural products for COMESA

Figure 4.12 shows the decomposition of exports in processed and unprocessed agricultural products by COMESA. Processed agricultural products dominate the COMESA region for exports of the selected agricultural products in value terms, not contributing less than 89% during the period 2012–2021. The average contribution made by processed agricultural products was 96%, with a CAGR of 0.99%, whereas unprocessed agricultural exports had a CAGR between 2012 and 2021 of −19.28% and an average contribution of 4%.

Figure 4.13 shows the decomposition of imports in processed and unprocessed agricultural products by COMESA. Processed and unprocessed imports of the selected agricultural products by COMESA are more evenly distributed in value terms. Between 2012 and 2021, the average contribution by the imports of processed agricultural products was 65%, with a CAGR of −0.51%. This implies that, although relatively stable, the importance of imports of processed agricultural products into COMESA is decreasing. The average for unprocessed imports over the same period was 35%, with a CAGR of 0.87%.

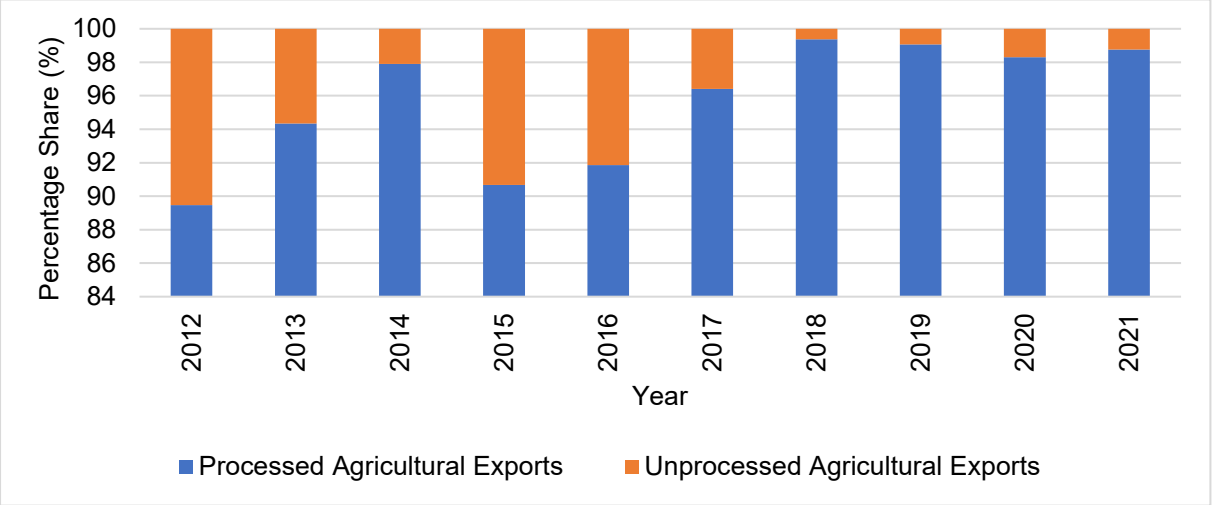


Figure 4.12: Decomposition of COMESA's exports of the selected agricultural products

Source: Own calculations based on data from ITC (2022).

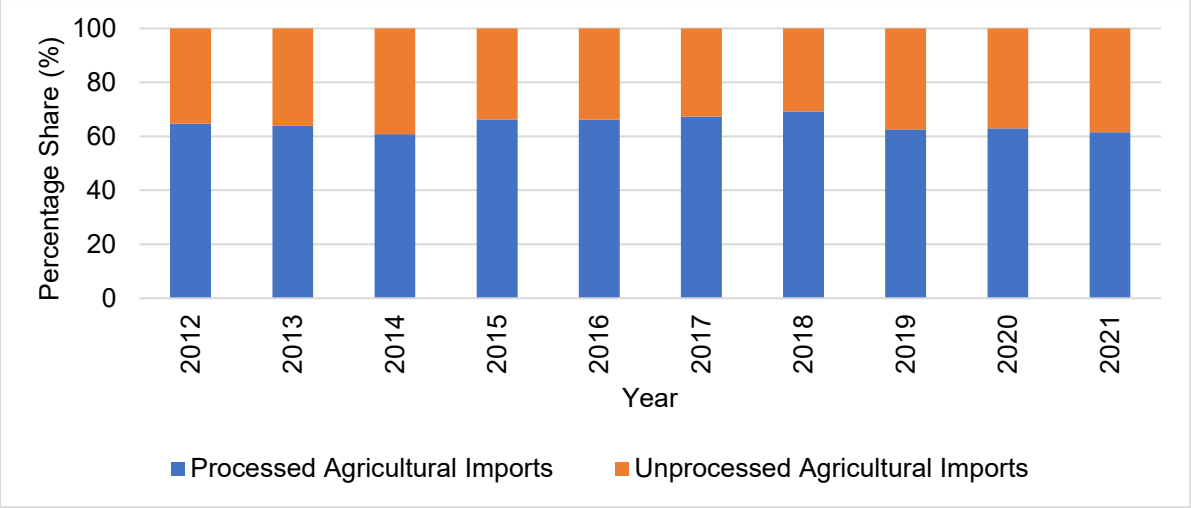


Figure 4.13: Decomposition of COMESA's imports of the selected agricultural products

Source: Own calculations based on data from ITC (2022).

4.2.3.3 COMESA RTI analysis

Figure 4.14 shows the RTI values for the COMESA region. The RTI values for trade in the selected processed agricultural products are very high, implying that the region is introverted when trading processed agricultural products. In 2021, the RTI value was 86% for processed agricultural products, and from 2015 to 2021, the CAGR was 1.21%.

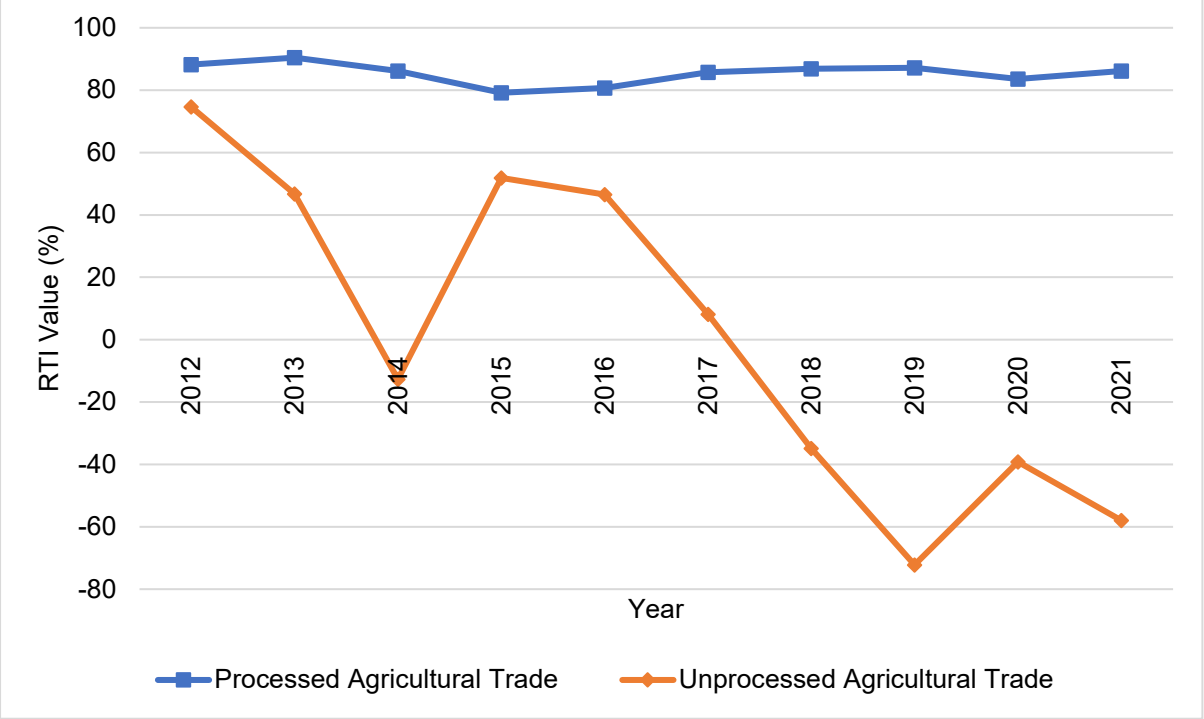


Figure 4.14: RTI values for trade in the COMESA region

Source: Own calculations based on data from ITC (2022).

Therefore, it may prove difficult for South Africa to gain any market share in the COMESA region for processed agricultural products, and therefore it can be postulated that the AfCFTA offers little opportunity for South Africa to gain significant market access for processed agricultural products in COMESA. However, the average MFN AVE tariff rate imposed by COMESA on processed agricultural imports from non-members is the highest of all African RECs at 25.56%. Therefore, with tariff reductions, opportunities for South Africa's processed agricultural exports into COMESA may present themselves, but cognisance must be taken of the fact that other exporting countries will benefit from the tariff reductions as well.

COMESA's RTI values for trade in the selected processed agricultural products at the HS6 level are all relatively high, except for Semi-milled or wholly milled rice (HS '100630) which had an RTI value that fluctuated above and below the 0%-line between 2012 and 2021, with the RTI value in 2021 being -93.39%. The average MFN AVE tariff imposed by COMESA countries (excluding those belonging to SADC) onto extra-regional imports of Semi-milled or wholly milled rice was 29.63% as of 2022, and so if tariff reductions envisioned under the AfCFTA come to fruition, an opportunity will be presented to South Africa, given South Africa can increase production or import capacity for Semi-milled or wholly milled rice.

For unprocessed agricultural products, the RTI value was positive, at just under 80% in 2012, although in 2021, the RTI value had decreased to −58%. The first year between 2012 and 2021 when the RTI fell below zero was 2014. It then increased to above 50% in 2015 and has since been declining annually, with the exception of 2020. The CAGR from 2015 to 2021 for trade in the selected unprocessed agricultural products in COMESA is −201.61%. The low RTI values could signal potential for South Africa's exports of unprocessed agricultural products into COMESA. As shown in Table 4.3, Maize (excluding seed for sowing), Wheat and meslin (excluding seed for sowing and durum wheat), and Fresh apples are the only unprocessed agricultural products selected for further analysis of the COMESA region. Together, they contributed, on average, 28% towards the total import value of unprocessed agricultural imports into COMESA between 2017 and 2021. Other imports, such as Durum wheat (excluding seed for sowing), Frozen boneless meat of bovine animals, and Durum wheat fall into the top 5 unprocessed imports in the region in value terms, along with Maize (excluding seed for sowing) and Wheat and meslin (excluding seed

for sowing and durum wheat). Together, these imports contribute an average of over 52% towards the total unprocessed imports of the COMESA region from the RoW.

Wheat and meslin (excluding seed for sowing and durum wheat), Durum wheat and Durum wheat (excluding seed for sowing) present little opportunity for South Africa's export expansion, as South Africa is a net importer of wheat. Maize (excluding seed for sowing), Fresh apples and Frozen boneless meat of bovine animals however, present an opportunity for South Africa to increase exports into COMESA, as South Africa is a net exporter of both Maize and Fresh apples and has experienced an increased positive trade balance for the trade in Frozen boneless meat of bovine animals in recent years. The average MFN AVE tariffs imposed on imports of Fresh apples, Maize and Frozen boneless meat of bovine animals into COMESA[60] on non-members as of September 2022 sit at 22.91%, 21.45% and 26.40% respectively (Market Access Map, 2022). Therefore, under the envisioned tariff reductions, COMESA presents a real opportunity for South Africa's exports of Fresh apples (HS '080810), Maize (HS '100590) and Frozen boneless meat of bovine animals (HS '020230). The average AVE tariff rate on imports of unprocessed agricultural products into COMESA sits at 15.10%. Given the close proximity of some of the COMESA countries (that also fall into the SADC region), it can be assumed that the increased trade opportunities in these countries would be minimal, given the high levels of introversion in the SADC region. However, countries that do not belong to SADC may present fruitful opportunities for South Africa's unprocessed agricultural exports.

4.2.4 ECOWAS trade analysis

Table 4.4 shows, from the total processed and unprocessed agricultural products selected for further analysis of the ECOWAS region, the top 5 processed and top 5 unprocessed[61] agricultural products according to ECOWAS' average import value (USD '000) of each product between 2012 and 2017. Appendix 4 shows the full product list selected for the analysis of the ECOWAS region's trade.

60 The average was calculated for all COMESA members excluding those that belong to SADC, as their tariff rates imposed on South Africa are aligned with those of the SADC region and SADC FTA.

61 For the ECOWAS region, 16 processed, and six unprocessed agricultural products were selected for further analysis as a result of the process described in Section 4.2.

Table 4.4: Top 5 processed and unprocessed agricultural products selected for further analysis of the ECOWAS region's trade

Product HS Code	Processed Agricultural Products	Average ECOWAS Import Value in USD '000 (2012-2021)	CAGR on ECOWAS Import Value (2012-2021)
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed	1 687 373	-1,94'
'100640	Broken rice	1 455 790	-4,74'
'190190	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing …	526 825	6,73'
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...	519 261	4,34'
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...	445 798	#DIV/0!
Product HS Code	**Unprocessed Agricultural Products**	**Average ECOWAS Import Value in USD '000 (2012-2021)**	**CAGR on ECOWAS Import Value (2012-2021')**
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)	557 408	#DIV/0'
'020714	Frozen cuts and edible offal of fowls of the species Gallus domesticus	298 880	6,39'
'100590	Maize (excluding seed for sowing)	120 431	-0,50'
'080810	Fresh apples	73 606	6,04'
'070190	Fresh or chilled potatoes (excluding seed)	34 210	3,37%

Source: Own calculations based on data from ITC (2022).

4.2.4.1 ECOWAS trade overview

The two groups of agricultural products selected for the analysis of the ECOWAS region were grouped together and utilised to give an overview of the nature of imports and exports by ECOWAS between 2012 and 2021 (see Figure 4.15).

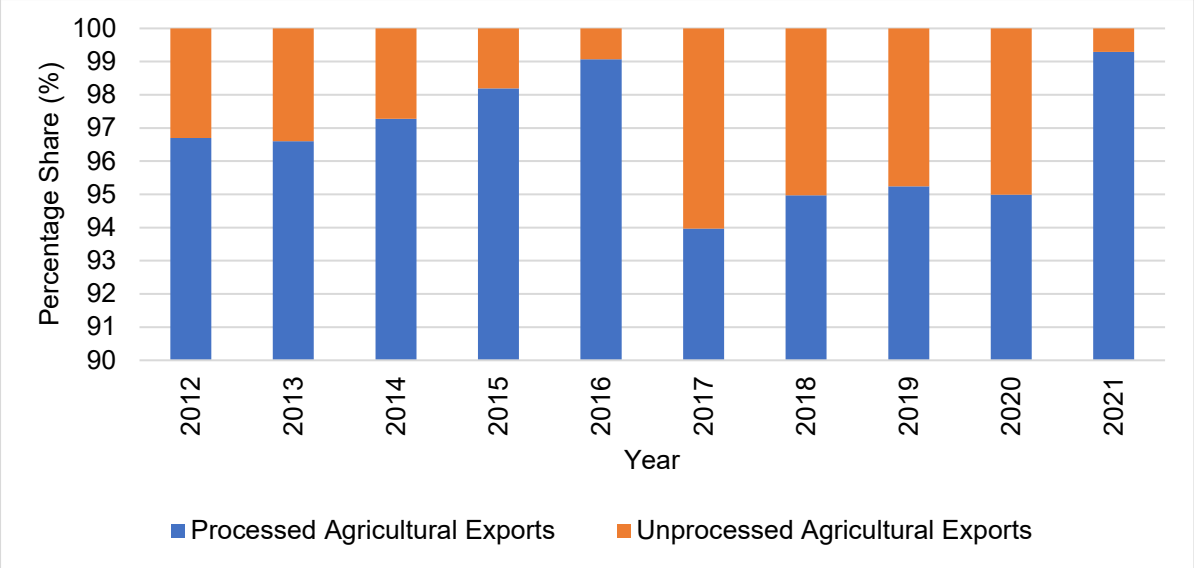
ECOWAS's exports, from 2012 to 2021, have remained stable, but had a CAGR of −1.16% over the period. Between 2018 and 2021, however, exports had a CAGR of 2.15%, although from a low base. ECOWAS's imports of the selected products had a CAGR of 3.19% from 2012 to 2021, and a strong CAGR of 6.52% from 2019 to 2021. This implies that the ECOWAS region has a high dependence on imports from the RoW for the selected agricultural products. In 2021, South Africa only had a 1.5% market share for exports of the selected agricultural products into the ECOWAS region.

4.15: ECOWAS's trade with the RoW in the selected agricultural products
Source: Own calculations based on data from ITC (2022)

4.2.4.2 The composition of trade for the selected agricultural products for ECOWAS

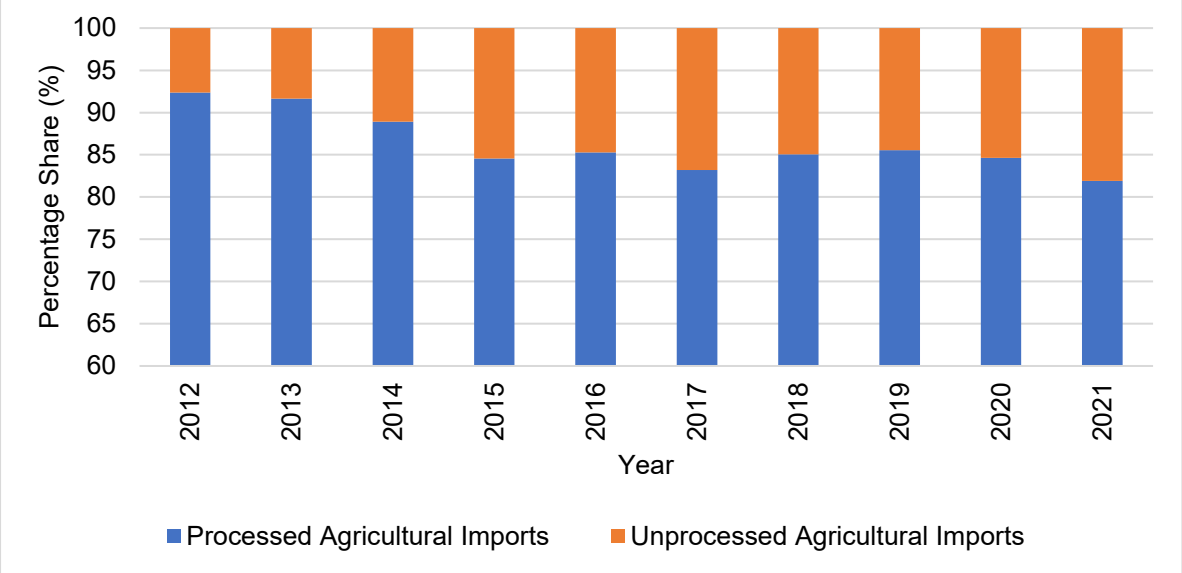
Figure 4.16 shows the decomposition of exports in processed and unprocessed agricultural products by ECOWAS. Processed agricultural products dominate the COMESA region for exports of the selected agricultural products in value terms, contributing not less than 93% during the period 2012–2021. The average contribution made by processed agricultural products was 97%, with a CAGR of 0.27%, over the decade.

Figure 4.17 shows the decomposition of imports in processed and unprocessed agricultural products by ECOWAS. Processed and unprocessed imports of the selected agricultural products by COMESA are more evenly distributed in value terms, although processed agricultural imports still outweigh unprocessed imports heavily in value terms. Between 2012 and 2021, the average contribution by the imports of processed agricultural products was 86%, with a CAGR of −1.20%. This implies that, although relatively stable, the importance of imports of processed agricultural products into ECOWAS has been decreasing over the past decade. The average for unprocessed imports over the same period was 14%, with a CAGR of 9.02%.



4.16: Decomposition of ECOWAS's exports of the selected agricultural products

Source: Own calculations based on data from ITC (2022)



4.17: Decomposition of ECOWAS's imports of the selected agricultural products

Source: Own calculations based on data from ITC (2022)

4.2.4.3 ECOWAS RTI analysis

Figure 4.18 shows the RTI value for ECOWAS's trade in the selected agricultural products between 2012 and 2021. The RTI values for trade in the selected processed agricultural products are high, with an average RTI value between 2012 and 2021 of 81%. In 2013, a peak RTI value of 94% was realised for trade in processed agricultural products, which declined through to 2021 to a value of 79%, representing a CAGR of −1.87%.

The processed products shown in Table 4.4 contributed, on average, over 42% towards the total import value of the ECOWAS region between 2017 and 2021. South Africa has little opportunity to increase these exports into the ECOWAS region, as South Africa is dependent on imports of the products from the RoW. This is with the exception of Malt extract (HS ‘190190), in which South Africa had a relatively small positive trade balance for period stretching between 2017 and 2021. ECOWAS’ CAGR for Malt extract imports between 2012 and 2021 was 6.73% and the average MFN AVE tariff applied to extra-regional imports as of 2022 was 10.54% (Market Access Map, 2022). Tariff reductions under the AfCFTA may therefore present an opportunity for South Africa to expand exports of Malt extract into ECOWAS. ECOWAS imports of Oilcake and other solid residues (HS ‘230400) had the highest CAGR over the 2012 to 2021 period of 16.23% and the tariff rate applied on extra-regional imports as of 2022, was 10%. However, South Africa’s trade balance for Oilcake and other solid residues fluctuated over the same ten-year period, and so if South Africa is to realize the opportunity presented, either domestic production or increased imports will be necessitated.

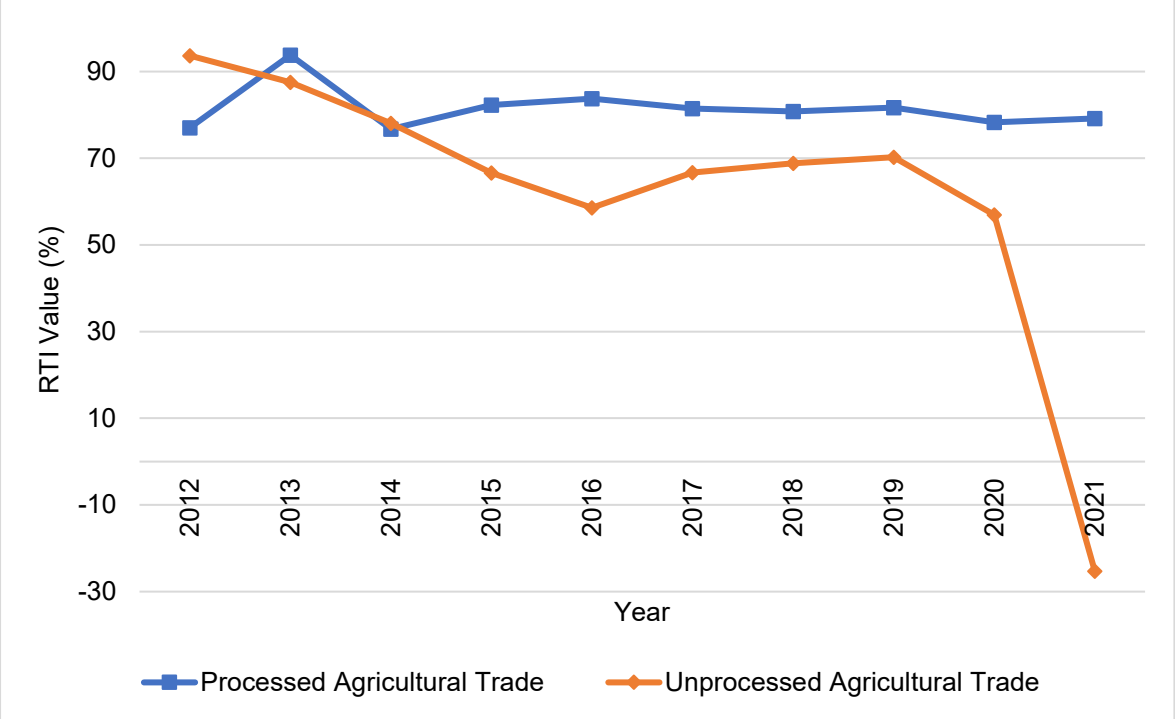


Figure 4.18: RTI values for trade in the ECOWAS region
Source: Own calculations based on data from ITC (2022)

Trade in the selected unprocessed agricultural products in the ECOWAS region experienced a reduction in intra-regional trade from 2012 through to 2021, with

increases felt between 2016 and 2019. However, between 2020 and 2021, the RTI value for trade in unprocessed agricultural products for the ECOWAS region experienced a rapid decline, going from a value of 57% in 2020, to a value of −25% in 2021, implying ECOWAS's increased dependence on extra-regional trade for unprocessed agricultural products.

The six unprocessed agricultural products selected for further analysis of the ECOWAS region contributed, on average, just over 26% between 2017 and 2021 towards the total import value of unprocessed agricultural products. As with the COMESA region, this presents an opportunity for South Africa's exports of Fresh apples and Maize, as South Africa is a net exporter of these two products. In addition, South Africa is a net exporter of Fresh or chilled potatoes (excluding seed), meaning that there is an opportunity for expansion into ECOWAS. The average MFN AVE tariff imposed on imports into the ECOWAS region of Fresh apples, Maize and Fresh or chilled potatoes are 19.29%, 6.07% and 33.57% respectively (Market Access Map, 2022). Therefore, with tariff reductions envisioned under the AfCFTA, all three these products present an opportunity for increased exports by South Africa to the region. Wheat and meslin (excluding seed for sowing and durum wheat) presents little opportunity for increased exports, as South Africa is a net importer of wheat and meslin, and the same applies to Frozen cuts and edible offal of fowl. Despite the above points, the ECOWAS region is situated at a large distance away from South Africa, and so logistical challenges would need to be overcome before any meaningful opportunities could present themselves to South Africa's unprocessed agricultural exports.

ECOWAS charges some of the lowest tariff rates on imports from non-member nations out of the eight African RECs. This is according to the average MFN AVE tariff rates of 17.05% and 14.44% for imports of processed and unprocessed agricultural products, respectively. The reduction in tariffs, however, may not be enough to overcome the incumbent logistical and other challenges that would need to be surpassed to transport the products from South Africa to ECOWAS.

4.2.5 CEN-SAD trade analysis

Table 4.5 shows, from the total processed and unprocessed agricultural products selected for further analysis of the CEN-SAD region, the top 5 processed and top 4 unprocessed[62] agricultural products according to CEN-SAD's average import value (USD '000) of each product between 2012 and 2017. Appendix 5 shows the full product list for the analysis of the CEN-SAD region.

Table 4.5: Top 5 processed and top 4 unprocessed agricultural products selected for further analysis of the CEN-SAD region's trade

Product HS Code	Processed Agricultural Products	Average CEN-SAD Import Value in USD$ '000 (2012-2021)	CAGR on CEN-SAD Import Value (2012-2021)
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed	1 841 277	-2,71%
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...	1 587 182	4,28%
'100640	Broken rice	1 456 174	-3,29%
'240220	Cigarettes, containing tobacco	979 507	0,66%
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...	818 113	26,35%
Product HS Code	**Unprocessed Agricultural Products**	**Average CEN-SAD Import Value in USD$ '000 (2012-2021)**	**CAGR on CEN-SAD Import Value (2012-2021)**
'100590	Maize (excluding seed for sowing)	2 868 793	2,09%
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)	1 676 525	27,03%
'080810	Fresh apples	407 773	4,78%
'020714	Frozen cuts and edible offal of fowls of the species Gallus domesticus	339 455	7,37%

Source: Own calculations based on data from ITC (2022).

4.2.5.1 CEN-SAD trade overview

The two groups of agricultural products selected for the analysis of the CEN-SAD region were grouped together and utilised to give an overview of the nature of trade by CEN-SAD between 2012 and 2021.

Figure 4.19 shows the value of CEN-SAD's trade in the selected agricultural products with the RoW between 2012 and 2021. CEN-SAD has a significant negative trade

62 For the CEN-SAD region, 20 processed and four unprocessed agricultural products were available after the selection process described in Section 4.2.

balance for the selected agricultural products. The CAGR for 2012–2021 for CEN-SAD exports in the selected agricultural products, however, was 3.92%, while imports had a CAGR over the same period of 4.10%. South Africa's contribution to CEN-SAD's imports from the RoW for the agricultural products selected has been less than 1% since 2013, and from 2012 to 2021, had a CAGR of −1.76%.

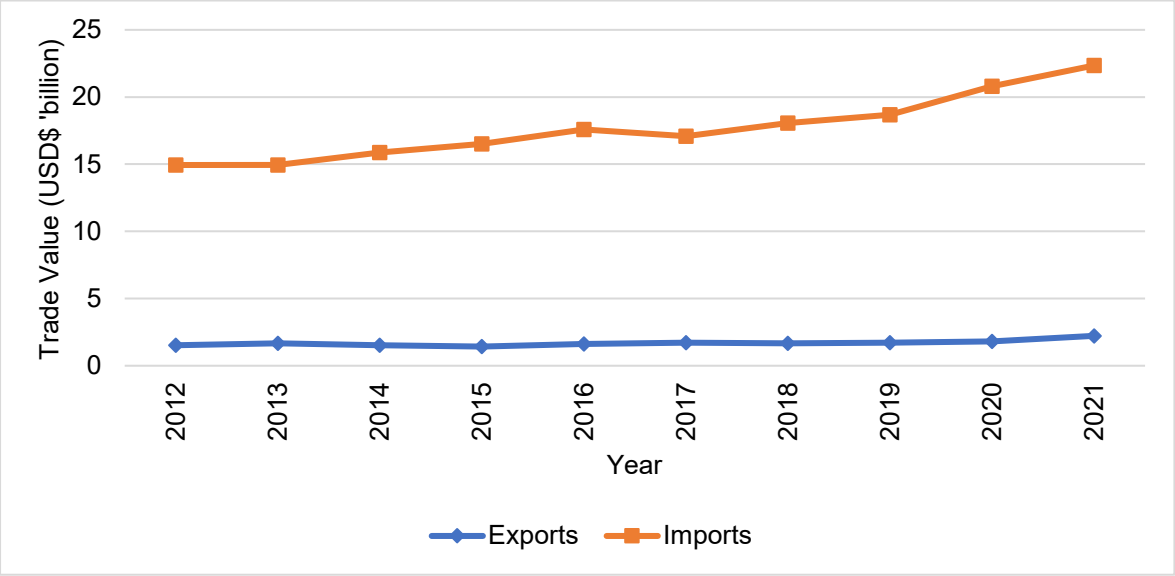


Figure 4.19: CEN-SAD's trade with the RoW for the selected agricultural products
Source: Own calculations based on data from ITC (2022)

4.2.5.2 The composition of trade for selected agricultural products for CEN-SAD

Figure 4.20 shows the decomposition of exports in processed and unprocessed agricultural products by CEN-SAD. Processed agricultural products dominate the CEN-SAD region for exports of the selected agricultural products in value terms, contributing no less than 97% during the period 2012–2021. The average contribution made by processed agricultural products was 98%, with a CAGR of 0.24%, whereas unprocessed agricultural exports had a CAGR between 2012 and 2021 of −17.47%, and an average contribution of 2%.

Figure 4.21 shows the decomposition of imports in processed and unprocessed agricultural products by CEN-SAD. Processed and unprocessed imports of the selected agricultural products by CEN-SAD are more evenly distributed, in value terms. Between 2012 and 2021, the average contribution by the imports of processed agricultural products was 70%, with a CAGR of −1.56%. This implies that, although

relatively stable, the importance of imports of processed agricultural products into CEN-SAD is decreasing. The average for unprocessed imports over the same period was 30%, with a CAGR of 3.51%.

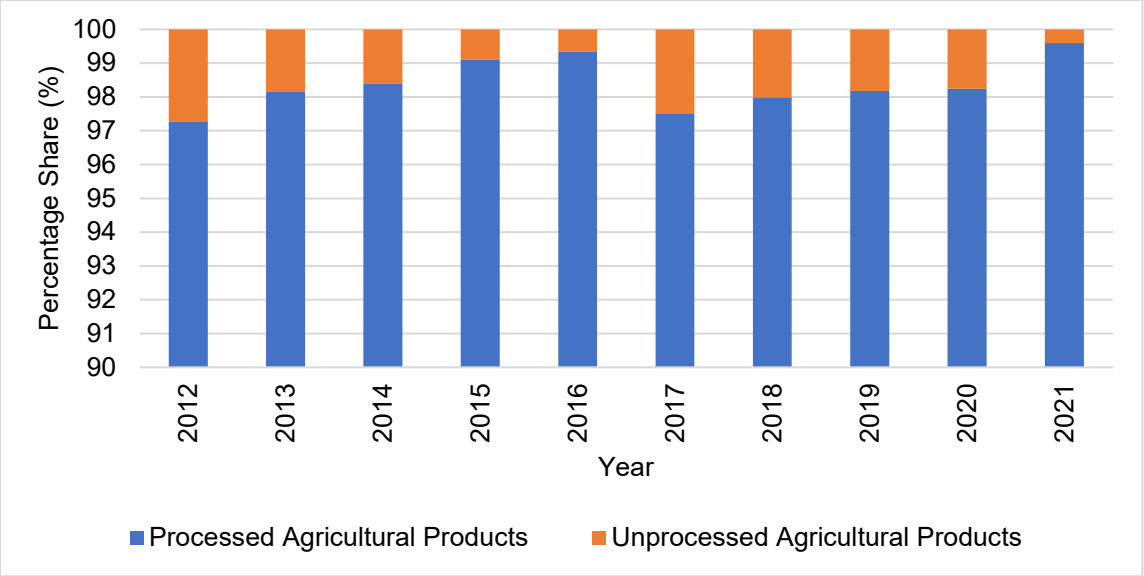


Figure 4.20: Decomposition of CEN-SAD's exports of the selected agricultural products

Source: Own calculations based on data from ITC (2022)

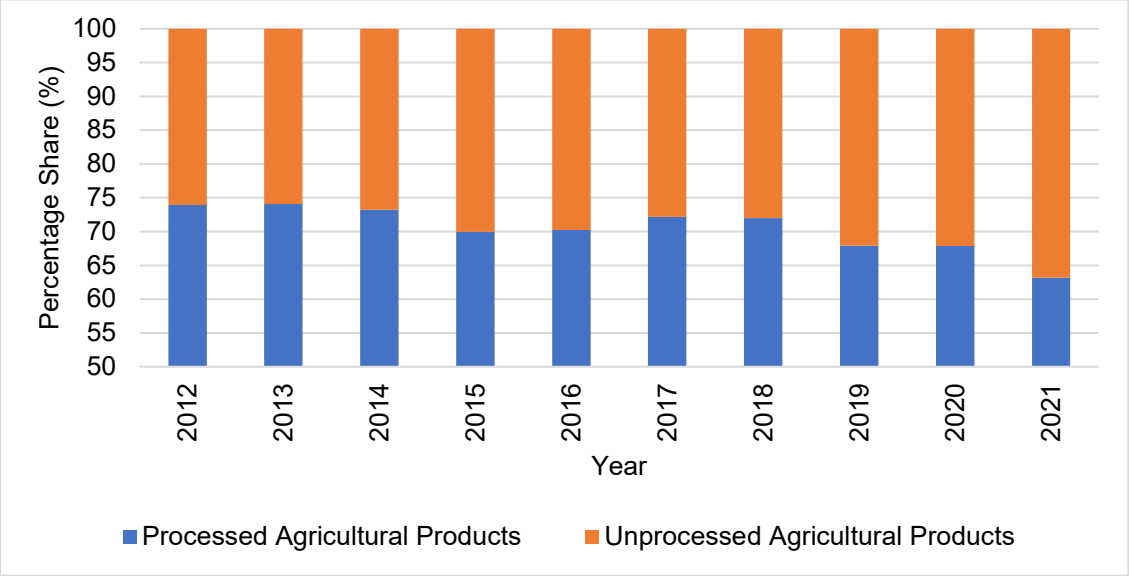


Figure 4.21: Decomposition of CEN-SAD's imports of the selected agricultural products

Source: Own calculations based on data from ITC (2022)

4.2.5.3 CEN-SAD RTI analysis

The RTI values for the CEN-SAD region are shown in Figure 4.22. Processed agricultural trade in CEN-SAD had an average RTI value between 2012 and 2021 of

66%, with a peak in 2013 of 86% and a trough in 2020 of 60%. The level of introversion is therefore relatively low, when compared with RECs such as SADC and COMESA, but is still high. Therefore, the CEN-SAD region offers more opportunity for South Africa's processed agricultural exports than do the other RECs already discussed, although entering the CEN-SAD markets may still prove difficult.

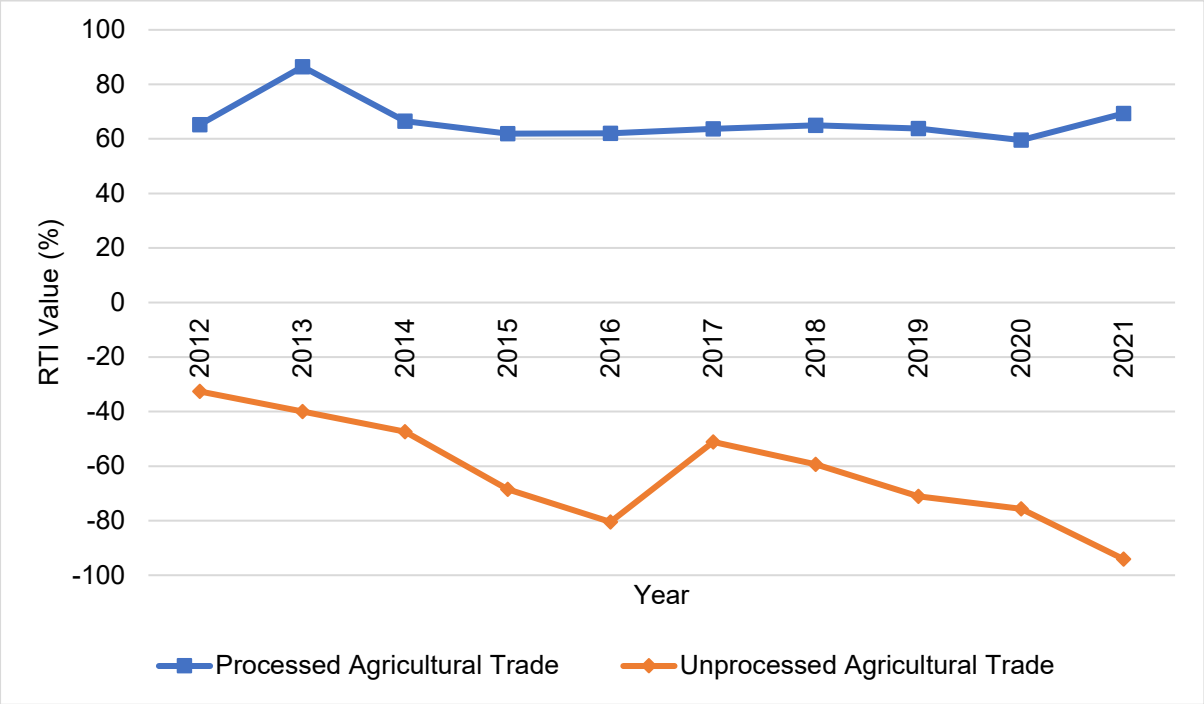


Figure 4.22: RTI values for trade in the CEN-SAD region
Source: Own calculations based on data from ITC (2022)

The top 5 processed agricultural products selected for further analysis of the CEN-SAD region shown in Table 4.5 contributed just over 31% towards the import value of the total processed agricultural imports between 2017 and 2021. However, South Africa had a consistently negative trade balance for the trade in rice (HS '1006) between 2017 and 2021, meaning that the opportunity for the export expansion of rice into CEN-SAD can only be realised by increasing imports of rice by South Africa. The same can be said for Cane or beet sugar (HS '1701), as South Africa had a positive trade balance in some years, and a negative trade balance in others. South Africa has had a positive trade balance for cigarettes for at least the past two decades, and given the shelf life and transportability of cigarettes, a real opportunity presents itself to South Africa. This is assuming that no domestic taxes (such as 'sin' taxes), which would negatively affect domestic demand in the CEN-SAD countries, are placed on cigarettes. As of September 2022, the average MFN AVE tariff imposed by CEN-SAD

on imports of Cigarettes containing tobacco is at 23.55%, therefore a tariff reduction will provide an opportunity for South African exports (Market Access Map, 2022).

CEN-SAD's imports of Sunflower-seed or safflower oil (HS '151219) had a noticeable CAGR over the 2012 to 2021 period of 35.76%, and with an average MFN AVE tariff rate of 18.62% as of 2022, envisioned tariff reductions may present an opportunity to South Africa. South Africa's trade balance for Sunflower-seed or safflower oil has been consistently positive throughout the 2012 to 2021 period.

The RTI value of unprocessed agricultural trade, on the other hand, decreased through the 2012 to 2021 period, with the exception of 2016 to 2017, when the RTI value increased from −80% to −51%. However, since 2017, the RTI value for unprocessed agricultural trade has been decreasing, through to 2021, to an RTI value of −94%, representing a CAGR between 2017 and 2021 of −12.98%. The CEN-SAD region is therefore highly dependent on extra-regional trade for the selected unprocessed agricultural products. The selected unprocessed agricultural products contributed, on average, 38% towards the total imports of unprocessed agricultural products into CEN-SAD from the RoW. An opportunity is presented for South Africa to increase exports of Maize (HS '1005) into the CEN-SAD region, given South Africa's net exporter status for Maize. The same is true for South Africa's exports of Fresh apples. However, the opportunities present for the expansion of Wheat and Edible offal of fowl exports into CEN-SAD are limited, unless South Africa imports more of these products. What must be noted is, that in recent years, South Africa's exports of Frozen, boneless meat of bovine animals (HS '020230) have realised a growing positive trade balance, and this specific product is CEN-SAD's fifth largest unprocessed agricultural import. Therefore, an opportunity is presented to South Africa in this regard. The average MFN AVE tariff rates imposed by the CEN-SAD region on imports of Maize, Fresh apples and Frozen, boneless meat of bovine animals from non-member countries as of 2022, sit at 7.29%, 23.10% and 35.32% respectively (Market Access Map, 2022). Therefore, the reduction in tariffs under the AfCFTA on Fresh apples and Frozen, boneless meat of bovine animals, could provide a real export opportunity for South Africa.

CEN-SAD's average AVE tariffs on imports of processed agricultural products are some of the highest of all the African RECs, at 24.73%. The tariff reductions envisioned under the AfCFTA could allow for the easing of access for South Africa, although CEN-

SAD's geographical distance from South Africa and its proximity to Europe raise doubts as to viability of the opportunities available for South Africa. The average AVE tariffs imposed on imports of unprocessed agricultural imports from non-members sits at 16.36%; however, the same concern raised in the previous sentence stands. It can be concluded that the CEN-SAD region provides little opportunity for South Africa's agricultural exports, especially considering the logistical challenges of transporting the products to the final consumers.

4.2.6 EAC trade analysis

Table 4.6 shows, from the total processed and unprocessed agricultural products selected for further analysis of the EAC region, the top 5 processed and top 5 unprocessed[63] agricultural products according to the EAC's average import value (USD '000) of each product between 2012 and 2017. Appendix 6 shows the full product list for the analysis of the EAC region.

Table 4.6: Top 5 processed and unprocessed agricultural products selected for further analysis of the EAC region's trade

Product HS Code	Processed Agricultural Products	Average EAC Import Value in USD '000 (2012-2021)	CAGR on EAC Import Value (2012-2021)
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...	392 303	-0,75%
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed	312 953	11,67%
'210690	Food preparations, n.e.s.	116 415	12,57%
'100640	Broken rice	76 751	-21,50%
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...	71 352	86,94%
Product HS Code	**Unprocessed Agricultural Products**	**Average EAC Import Value in USD '000 (2012-2021)**	**CAGR on EAC Import Value (2012-2021)**
'020714	Frozen cuts and edible offal of fowls of the species Gallus domesticus	36 970	77,73%
'080810	Fresh apples	19 410	10,14%
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)	698 851	52,13%
'100510	Maize seed for sowing	72 228	-3,06%
'100590	Maize (excluding seed for sowing)	102 265	4,82%

Source: Own calculations based on data from ITC (2022).

63 For the EAC region, 19 processed and six unprocessed agricultural products were available after the selection process described in Section 4.2.

4.2.6.1 EAC trade overview

The two groups of agricultural products selected for the analysis of the EAC region were grouped together and utilised to give an overview of the nature of trade by EAC between 2012 and 2021.

Figure 4.23 shows the value of the EAC's trade in the selected agricultural products with the RoW between 2012 and 2021. Both exports and imports to and from the RoW have been increasing in value terms (USD billion) from 2012 to 2021, with a few downturns, as in 2016 for example. Between 2015 and 2016, both EAC's exports and imports to and from the RoW had CAGRs of −3.39% and −6.53%, respectively. However, both exports and imports recovered going into 2017, with imports reaching over USD 3 billion. From 2019 to 2021, the export and import growth in the region had CAGRs of 8.80% and 12.41%, respectively.

South Africa's contribution to the EAC's imports of the selected agricultural products from the RoW over the 2012 to 2021 period declined, with a CAGR of −6.64%, down from 4.79% in 2012, dropping to 2.41% in 2021. It is thus indicated that South Africa is forfeiting market share in the EAC region for the agricultural products selected.

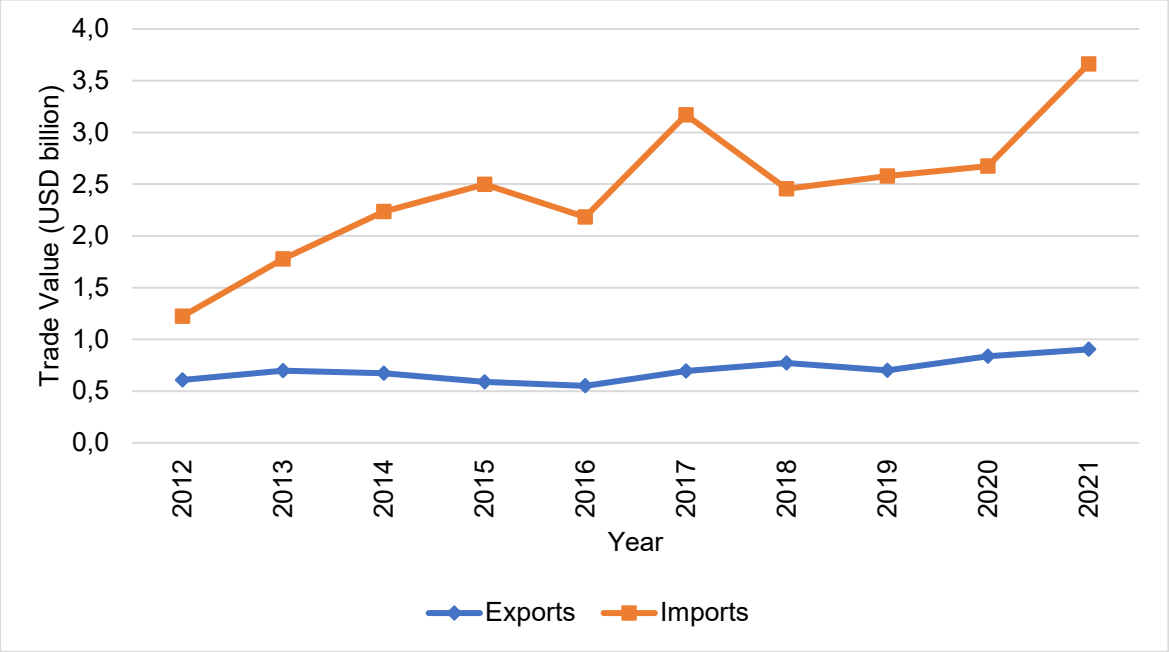


Figure 4.23: EAC's trade with the RoW for the selected agricultural products
Source: Own calculations based on data from ITC (2022)

4.2.6.2 The composition of trade for selected agricultural products for the EAC

Figure 4.24 shows the decomposition of exports in processed and unprocessed agricultural products by the EAC. Exports of processed agricultural products by the EAC averaged at 83% of the total export value (USD '000) for the selected agricultural products between 2012 and 2021, achieving a CAGR of 0.25%. The lowest value for the contribution of processed agricultural exports was in 2017, when exports of the selected processed agricultural products contributed 75%.

Figure 4.25 shows the decomposition of imports in processed and unprocessed agricultural products by the EAC. Processed agricultural imports made up, on average, 62% of the import value of the selected agricultural products for the EAC between 2012 and 2021. Unprocessed agricultural imports only contributed an average of 38% towards the total value between 2012 and 2021 but had a CAGR of 10.13% in the same period. This implies that the EAC is becoming proportionately more dependent on imports of the selected unprocessed agricultural products, as opposed to the selected processed agricultural products.

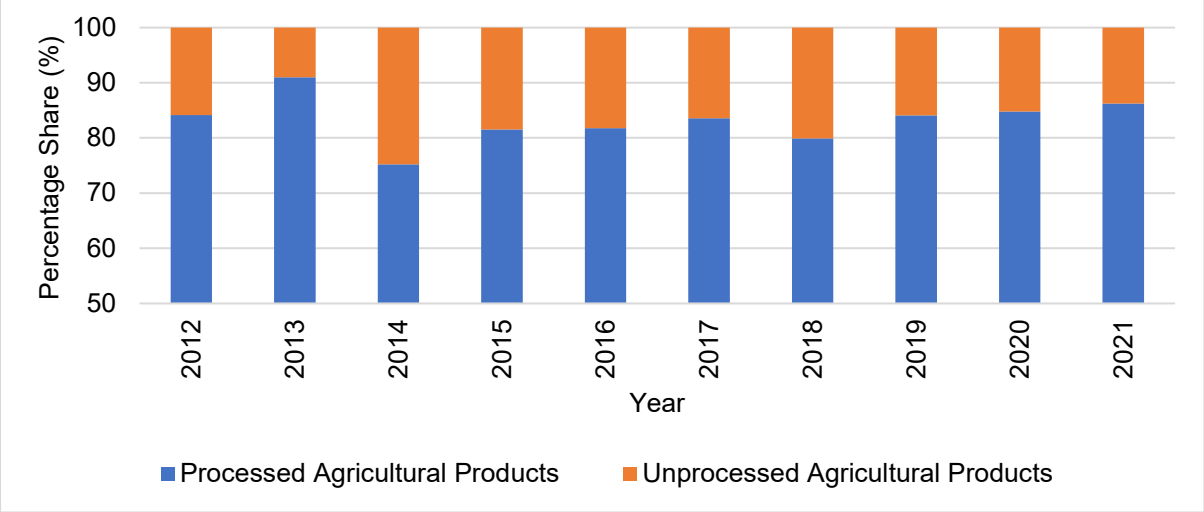


Figure 4.24: Decomposition of the EAC's exports of the selected agricultural products
Source: Own calculations based on data from ITC (2022)

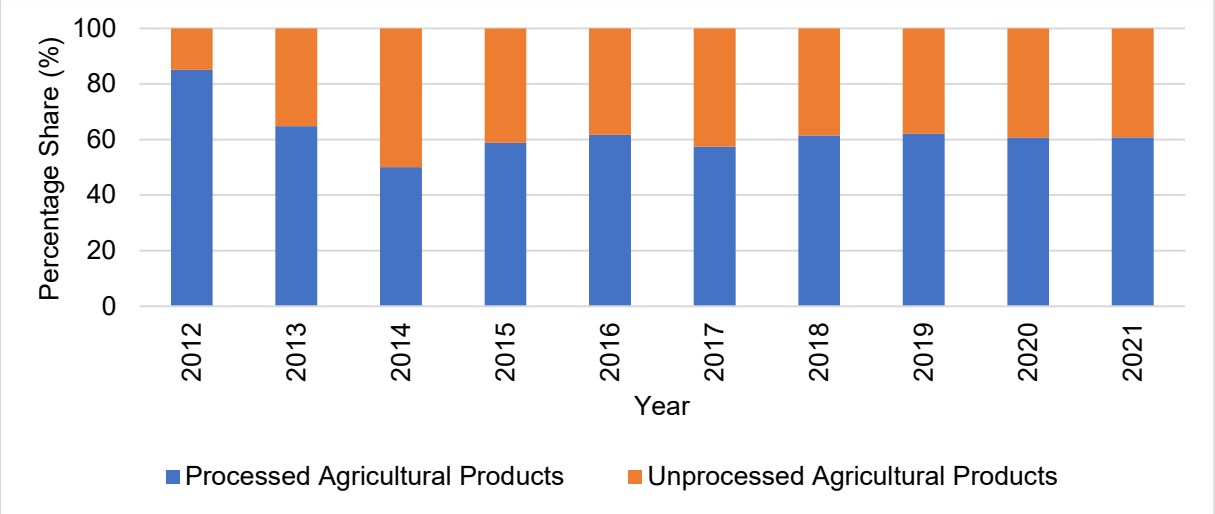


Figure 4.25: Decomposition of the EAC's imports of the selected agricultural products
Source: Own calculations based on data from ITC (2022)

4.2.6.3 EAC RTI analysis

Figure 4.26 shows the RTI values for the EAC region between 2012 and 2021. The EAC is highly introverted when it comes to trade in the selected processed agricultural products. The average RTI value for trade in processed agricultural products between 2012 and 2021 was just over 99%. This can be explained by the EAC's import value of the selected processed agricultural products being very similar to the export value, with some years having a negative trade balance, and some years having a positive trade balance. The opportunities for increased exports of processed agricultural products into the EAC region for South Africa are low. For Cane or beet sugar (HS '1701) and Rice (HS '1001), South Africa is not a strong exporter of either, and so little export opportunity presents itself for these products.

South Africa is not a strong exporter of any product in the top 10 processed agricultural products imported by the EAC between 2012 and 2021, which on average contributed over 61% of the region's total imports of processed agricultural products. Therefore, the EAC region provides little opportunity for South Africa's exports of processed agricultural products under the ambit of the AfCFTA.

Unprocessed agricultural trade was highly introverted for most of the 2012 to 2021 period and reached a trough in introversion in 2017 of just under 90%. From 2017 through to 2021, unprocessed agricultural trade became more introverted, with an RTI value of 95%, representing a CAGR of 1.05%. It is indicated, then, that the EAC is well

integrated and that entering the EAC may prove difficult for South African agricultural exports because of the region's level of trade introversion in the selected unprocessed agricultural products.

The average MFN AVE tariff rates imposed on imports from non-member countries into the EAC region for processed and unprocessed agricultural products are 23.30% and 17.68%, respectively. The reduction in tariffs and the REC's relatively close proximity to South Africa (direct transit countries being Zimbabwe, Zambia and Mozambique), as well as the REC's access to seaports, may provide South Africa with export opportunities in the future, mostly for unprocessed agricultural products.

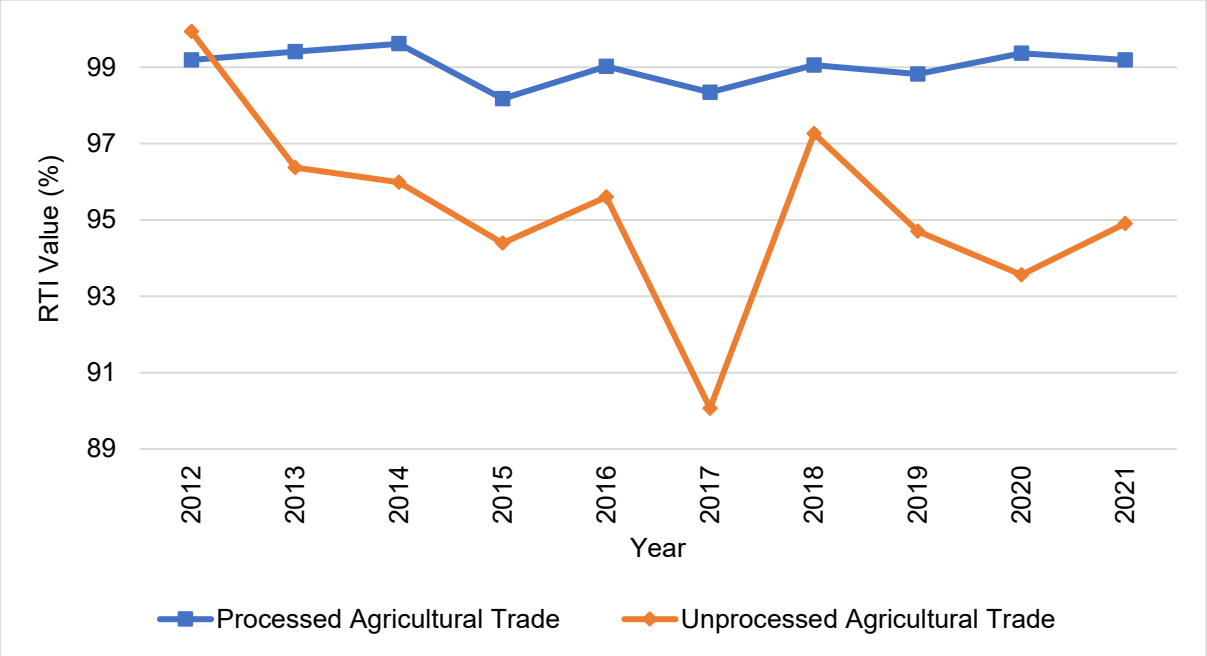


Figure 4.26: RTI values for trade in the EAC region
Source: Own calculations based on data from ITC (2022)

4.2.7 ECCAS's trade analysis

Table 4.7 shows, from the total processed and unprocessed agricultural products selected for further analysis of the ECCAS region, the top 5 processed and top 5 unprocessed[64] agricultural products according to ECCAS's average import value (USD '000) of each product between 2012 and 2021. Appendix 7 shows the full product list for the analysis of the ECCAS region.

64 For the ECCAS region, 26 processed and four unprocessed agricultural products were available after the selection process described in Section 4.2.

Table 4.7: Top 5 processed and top 4 unprocessed agricultural products selected for further analysis of the ECCAS region's trade

Product HS Code	Processed Agricultural Products	Average ECCAS Import Value in USD '000 (2012-2021)	CAGR on ECCAS Import Value (2012-2021)
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed	601 002	1,25%
'110100	Wheat or meslin flour	280 264	-16,22%
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...	237 340	-4,53%
'220300	Beer made from malt	168 629	-13,95%
'210690	Food preparations, n.e.s.	147 988	-1,35%
Product HS Code	**Unprocessed Agricultural Products**	**Average ECCAS Import Value in USD '000 (2012-2021)**	**CAGR on ECCAS Import Value (2012-2021)**
'020714	Frozen cuts and edible offal of fowls of the species Gallus domesticus	449 755	0,55%
'080810	Fresh apples	26 819	-7,28%
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)	305 053	33,23%
'100590	Maize (excluding seed for sowing)	33 254	10,58%

Source: Own calculations based on data from ITC (2022).

4.2.7.1 ECCAS trade overview

The two groups of agricultural products selected for the analysis of the ECCAS region were grouped together and utilised to give an overview of the nature of trade by ECCAS between 2012 and 2021.

Figure 4.27 shows the ECCAS region's trade with the RoW in the selected processed and unprocessed agricultural products. The ECCAS region's imports of the selected products had a standard deviation over the 2012 to 2021 period of 54.59%, while imports from the RoW had a standard deviation of 5.66%. The CAGR for imports from the RoW over the same 2012–2021 period had a value of −0.94%, pointing to the decline in import value (USD 'billion). A trough in the import value was reached in 2016, of less than USD 3 billion, and in 2021, after experiencing fluctuating import values, the value reached just under USD 4 billion.

South Africa's market share in the ECCAS region had a CAGR of −9.09 between 2012 and 2021, going from a 6.50% share of all imports into ECCAS, to a 2.51% share.

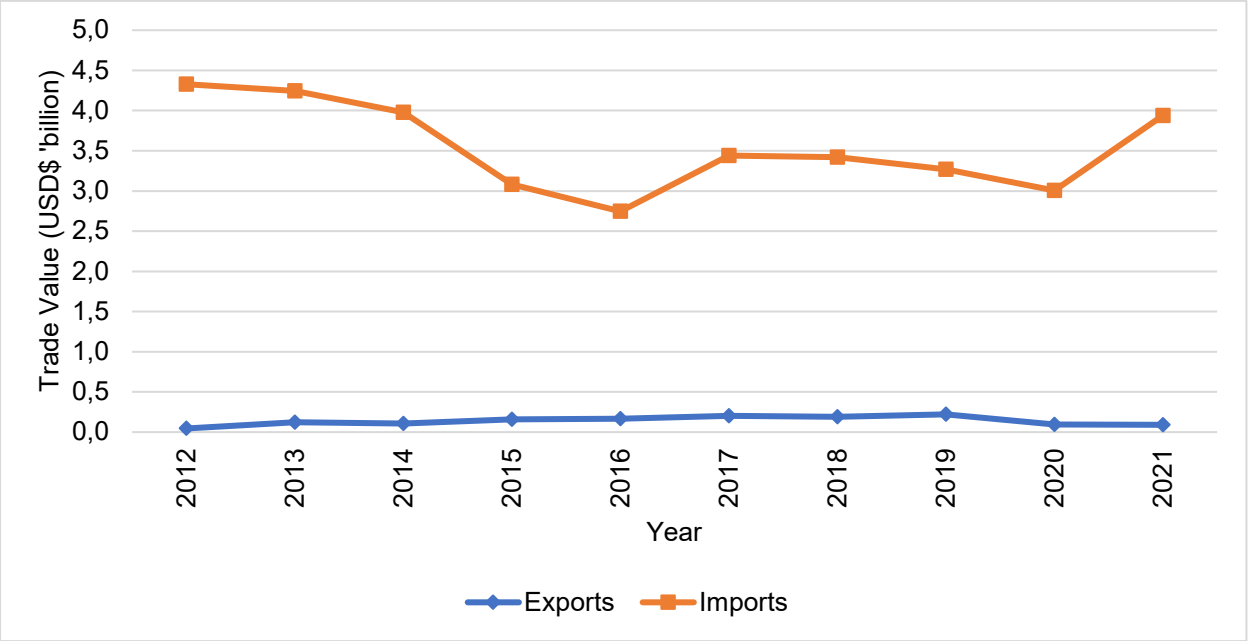


Figure 4.27: ECCAS's trade with the RoW in the selected agricultural products
Source: Own calculations based on data from ITC (2022)

4.2.7.2 The composition of trade of the selected agricultural products for ECCAS

Figure 4.28 shows the decomposition of exports in processed and unprocessed agricultural products by ECCAS. Processed agricultural products dominate the ECCAS region for exports of the selected agricultural products in value terms, contributing not less than 98% during the period 2012–2021. The average contribution made by processed agricultural products was 99%, with a CAGR of 0.09%, whereas unprocessed agricultural exports had a CAGR between 2012 and 2021 of −7.14% and an average contribution of 1%.

Figure 4.29 shows the decomposition of imports in processed and unprocessed agricultural products by ECCAS. Processed and unprocessed imports of the selected agricultural products by ECCAS were dominated by processed agricultural imports in 2012, as they contributed over 85% towards the imports of the selected agricultural products. However, the CAGR between 2012 and 2021 of −2.20% meant that, in 2021, processed agricultural products contributed less than 70%. The average contribution by the imports of unprocessed agricultural products was 14% in 2012, which rose to

31% in 2021, achieving a CAGR of 8.24%. This implies that the ECCAS region is becoming more dependent on imports of unprocessed agricultural products.

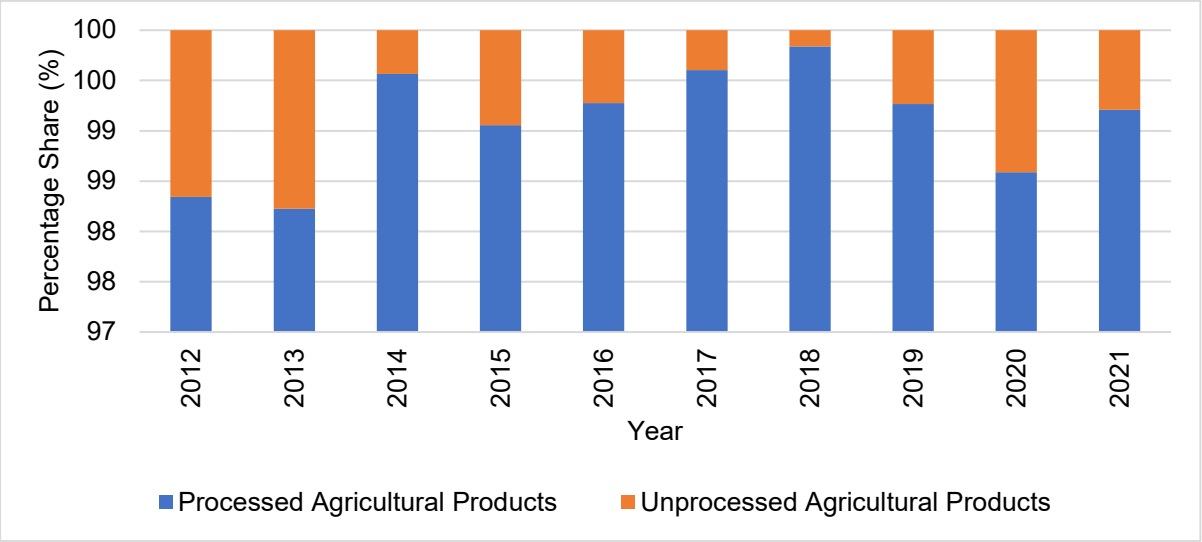


Figure 4.28: Decomposition of ECCAS's exports of the selected agricultural products
Source: Own calculations based on data from ITC (2022)

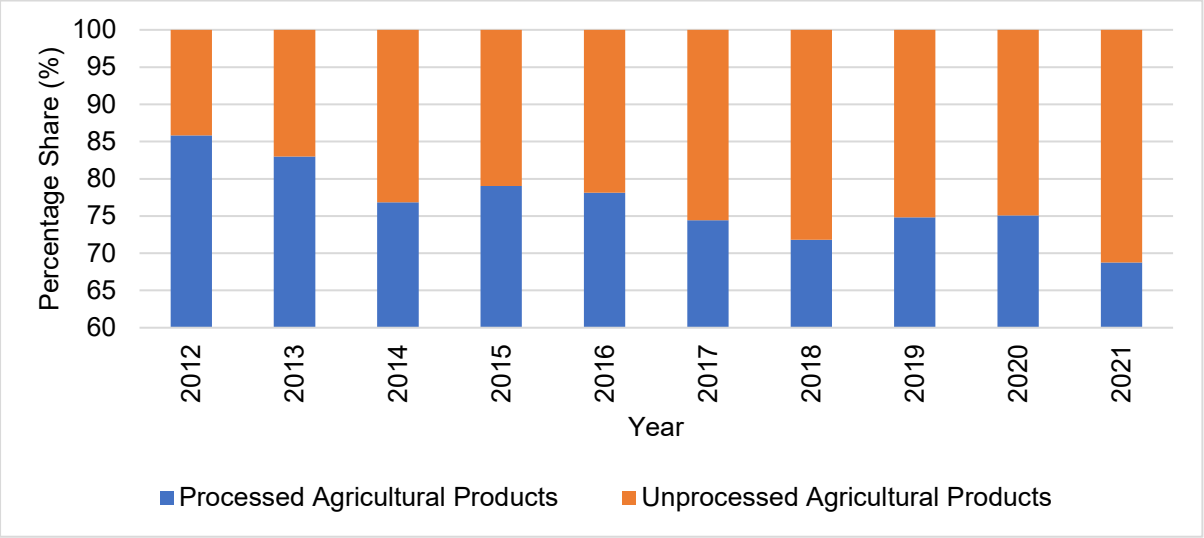


Figure 4.29: Decomposition of ECCAS's imports of the selected agricultural products
Source: Own calculations based on data from ITC (2022)

4.2.7.3 ECCAS RTI analysis

Figure 4.30 shows the RTI values for the ECCAS region. Processed agricultural trade is largely intra-regional. The level of introversion rose between 2012 and 2019, from 39% through to 91%, representing a CAGR of 11.04%. However, the level of introversion for trade in the selected processed agricultural products decreased from 2019 through to 2021 to a value of 75%.

The processed agricultural products shown in Table 4.7 contributed, on average between 2012 and 2021, just over 30% towards the total import value of processed agricultural products for the ECCAS region. The total selected processed agricultural products for further analysis of the ECCAS region contributed nearly 59% towards the same figure. South Africa's exports of the selected processed agricultural products into Angola and the DRC (the members of the ECCAS region nearest to South Africa) are at decent levels. South Africa's average exports of the processed agricultural products selected into the ECCAS region, between 2012 and 2021, are valued at over USD 69 million. However, the CAGR over the same period for exports into Angola was at a value of −8.28%. South Africa's exports into Angola and the DRC could be attributable to the fact that both countries are also part of the SADC region. For these countries, South Africa has decent market access as they are part of SADC, and if ECCAS tariffs generally decline it could mean increased market access for South Africa's agricultural exports into the other countries.

Unprocessed agricultural trade decreased its level of introversion from 2012 to 2021. In 2012, the RTI value for unprocessed agricultural trade was at 46%, and by 2014, the value had dropped to −58%, only to rise to 1% in 2016, after which dropping again to −81% in 2018. Furthermore, there was an increase in the RTI value between 2018 and 2020, from −81% to −15%. Unprocessed agricultural product trade, as of 2021 had an RTI value of −79%, implying that most of the trade in the region in the unprocessed agricultural products selected is extra-regional.

Maize (HS '1005) and Fresh apples, as with other RECs already discussed, present an opportunity to South Africa for expansion in the ECCAS region. This is because of South Africa's status as a net exporter of these products. The average MFN AVE tariff applied on imports into the ECCAS region[65] from non-member countries for Mazie (at the HS4 level) and Fresh apples (HS '080810) are 24.29% and 20.36% respectively (Market Access Map, 2022). The countries that lie further north of Angola and DRC, such as the Central African Republic and Chad, are not large export markets for South Africa's exports of the selected unprocessed agricultural products, although opportunities are presented to South Africa for export growth in the coming years.

65 The average was calculated for all ECCAS members excluding those that belong to SADC, as their tariff rates imposed on South Africa are aligned with those of the SADC region and SADC FTA.

The average MFN AVE tariff rates applied to non-member imports into the ECCAS region for processed and unprocessed agricultural products are 20.79% and 17.54%, respectively. A reduction in tariff rates may present opportunities for South Africa to expand agricultural exports into countries like the Central African Republic, Chad, and Equatorial Guinea, and other non-SADC members.[66]

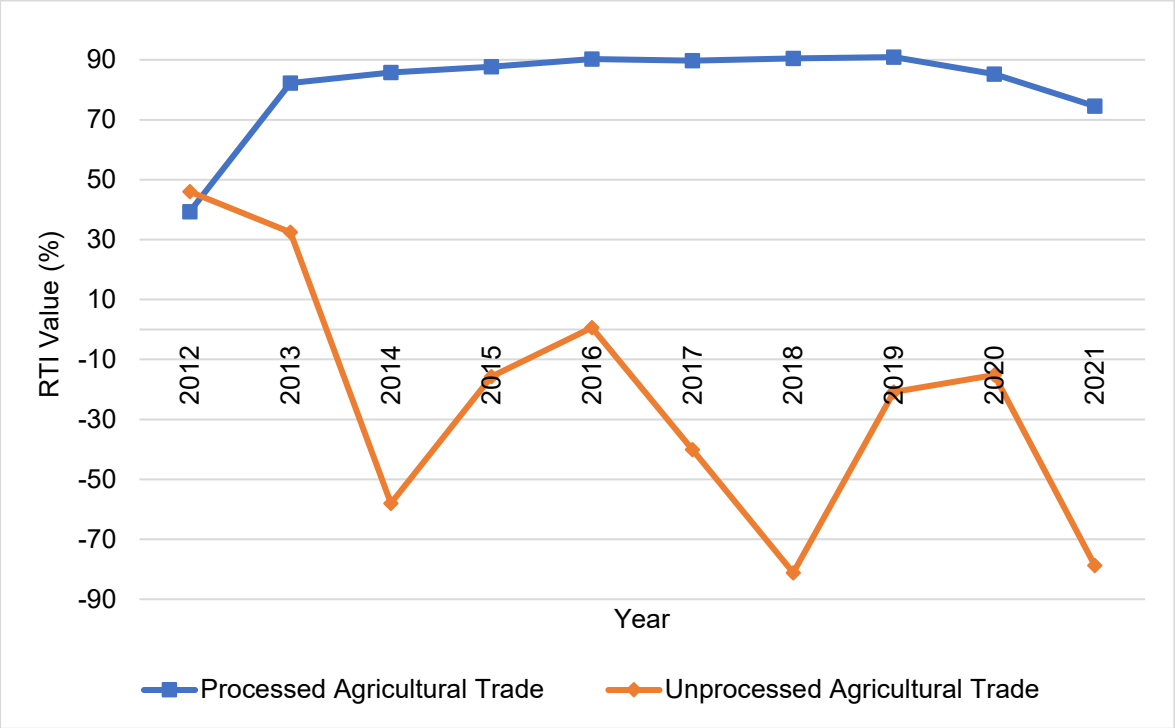


Figure 4.30: RTI values for trade in the ECCAS region
Source: Own calculations based on data from ITC (2022)

4.2.8 IGAD trade analysis

Table 4.8 shows, from the total processed and unprocessed agricultural products selected for further analysis of the IGAD region, the top 5 processed and top 4 unprocessed[67] agricultural products according to IGAD's average import value (USD '000) of each product between 2012 and 2017. Appendix 8 shows the full product list for the analysis of the IGAD region.

66 As noted in earlier sections, the SADC region offers little opportunity for South Africa to expand agricultural exports owing to the region's high level of trade introversion and South Africa's membership within the SADC-FTA.
67 For the IGAD region, 11 processed and only four unprocessed agricultural products were available, after the selection process described in Section 4.2.

Table 4.8: Top 5 processed and top 4 unprocessed agricultural products selected for further analysis of the IGAD region's trade

Product HS Code	Processed Agricultural Products	Average IGAD Import Value in USD '000 (2012-2021)	CAGR on IGAD Import Value (2012-2021)
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...	1 126 383	4,21%
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed	621 478	15,31%
'110100	Wheat or meslin flour	275 802	9,63%
'210690	Food preparations, n.e.s.	239 263	5,11%
'240220	Cigarettes, containing tobacco	220 474	-12,50%
Product HS Code	**Unprocessed Agricultural Products**	**Average CEN-SAD Import Value in USD '000 (2012-2021)**	**CAGR on CEN-SAD Import Value (2012-2021)**
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)	919 439	27,94%
'100590	Maize (excluding seed for sowing)	101 553	10,05%
'100510	Maize seed for sowing	39 511	-2,64%
'120991	Vegetable seeds, for sowing	32 464	7,57%

Source: Own calculations based on data from ITC (2022).

4.2.8.1 IGAD trade overview

The two groups of agricultural products selected for the analysis of the IGAD region were grouped together and utilised to give an overview of the nature of trade by IGAD between 2012 and 2021.

Figure 4.31 shows the value of IGAD's trade in the selected agricultural products with the RoW between 2012 and 2021. The import value (USD 'billion) of the selected processed and unprocessed agricultural products is larger than the export value. The value of imports into the IGAD region of the selected products had been on a relatively steep increase between 2012 and 2021, with a CAGR of 10.91%. Between 2018 and 2021, the import value had a CAGR of 12.10%, after a reduced import value between 2017 and 2018 of USD 0.129 billion. The export value, on the other hand, had a CAGR between the same 2012 to 2021 period of −2.40%. South Africa's share of IGAD's total import value has not matched the growth in the IGAD region's total import value. South Africa's market share of the IGAD region's imported value of selected products had CAGR of −11.88% over the 2012 to 2021 period, and a CAGR of −16.63% over

the 2018 to 2021 period. It is indicated, then, that South Africa is losing market share in the IGAD region for exports of the selected agricultural products.

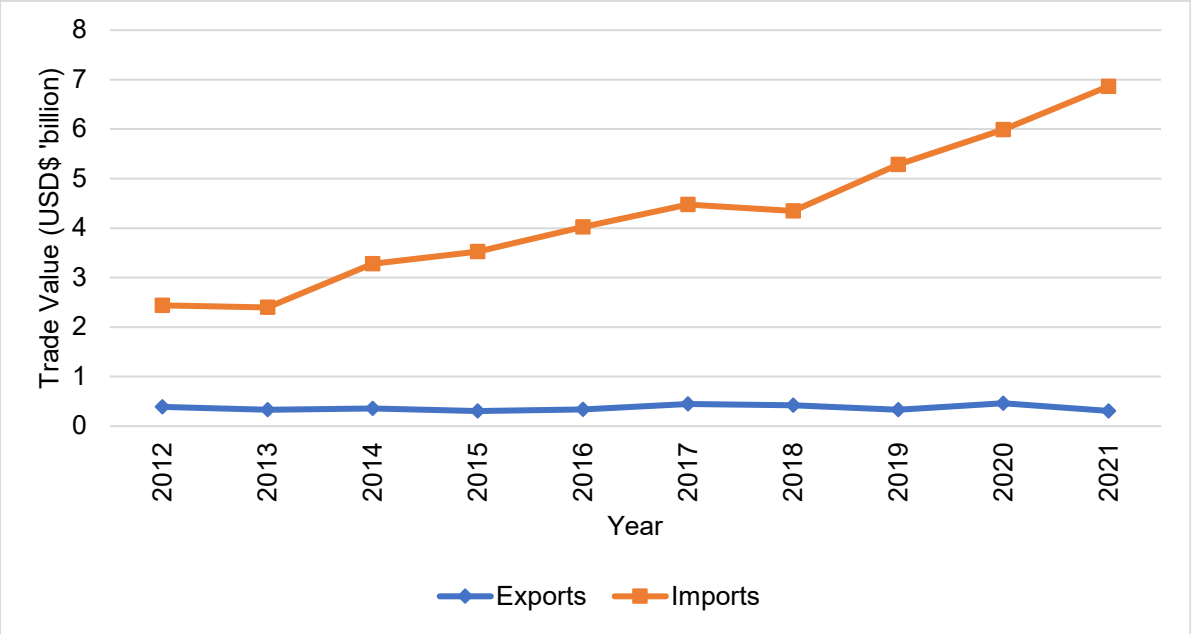


Figure 4.31: IGAD's trade with the RoW in the selected agricultural products
Source: Own calculations based on data from ITC (2022)

4.2.8.2 The composition of trade of the selected agricultural products for IGAD

Figure 4.32 shows the decomposition of exports in processed and unprocessed agricultural products by IGAD. The selected processed agricultural products contributed, on average, 81% towards the total value of exports of the selected agricultural products and had a CAGR of 0.49%. Unprocessed agricultural products contributed an average of 19% towards the total export value of the selected products between 2012 and 2021.

Figure 4.33 shows the decomposition of imports in processed and unprocessed agricultural products by IGAD. Processed agricultural products contributed, on average, 76% towards the total value for imports of the selected agricultural products but had a CAGR of −2.55%. This implies that IGAD is becoming proportionately less dependent on imports of processed agricultural products, as opposed to unprocessed agricultural products. Processed agricultural products contributed 24%, on average, to the total import figure and had a CAGR of 13.07% between 2012 and 2021.

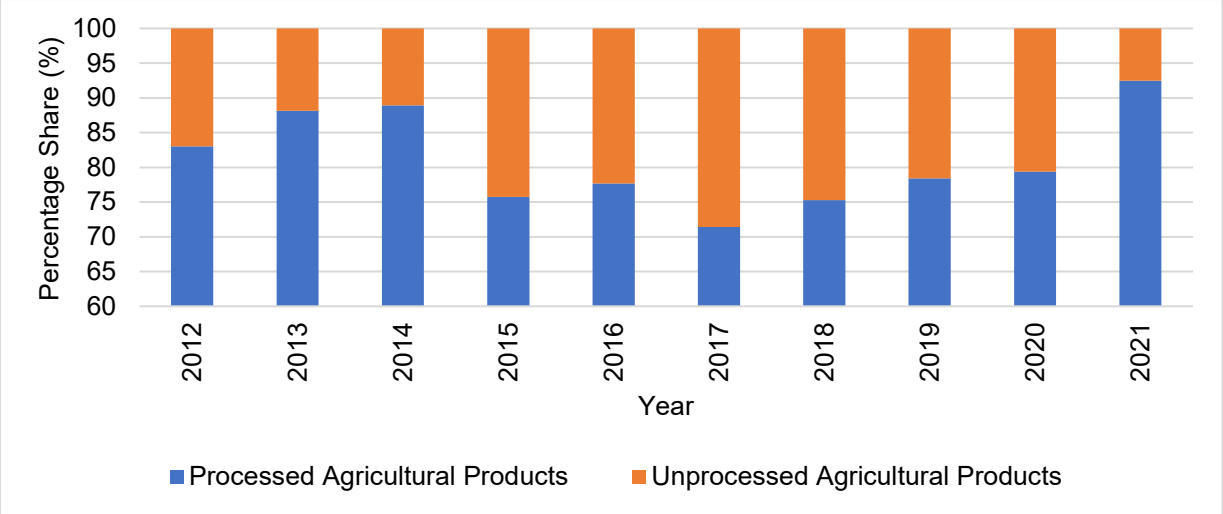


Figure 4.32: Decomposition of IGAD's exports of the selected agricultural products
Source: Own calculations based on data from ITC (2022)

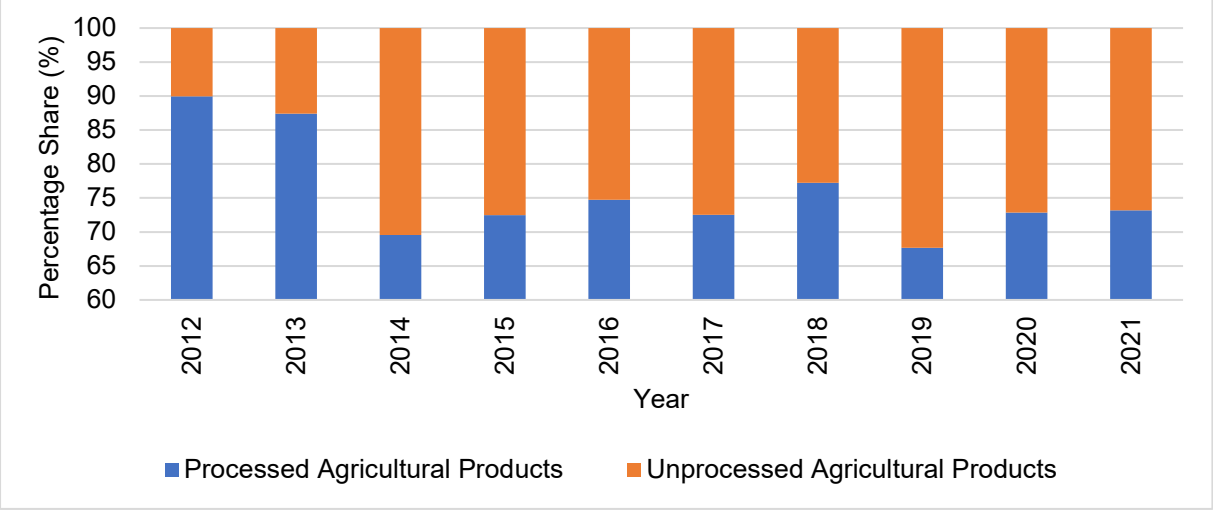


Figure 4.33: Decomposition of IGAD's imports of the selected agricultural products
Source: Own calculations based on data from ITC (2022)

4.2.8.3 IGAD RTI analysis

Figure 4.34 shows the RTI values for trade within the IGAD region. Trade in processed agricultural products within the IGAD region had an RTI value of 87% in 2012, which then increased to 90% in 2013. From 2013 through to 2021, with the exception of 2017, the RTI for processed agricultural trade in the IGAD region has been decreasing, with a CAGR of −3.15%. This presents South Africa with an opportunity to expand processed agricultural exports into the IGAD region.

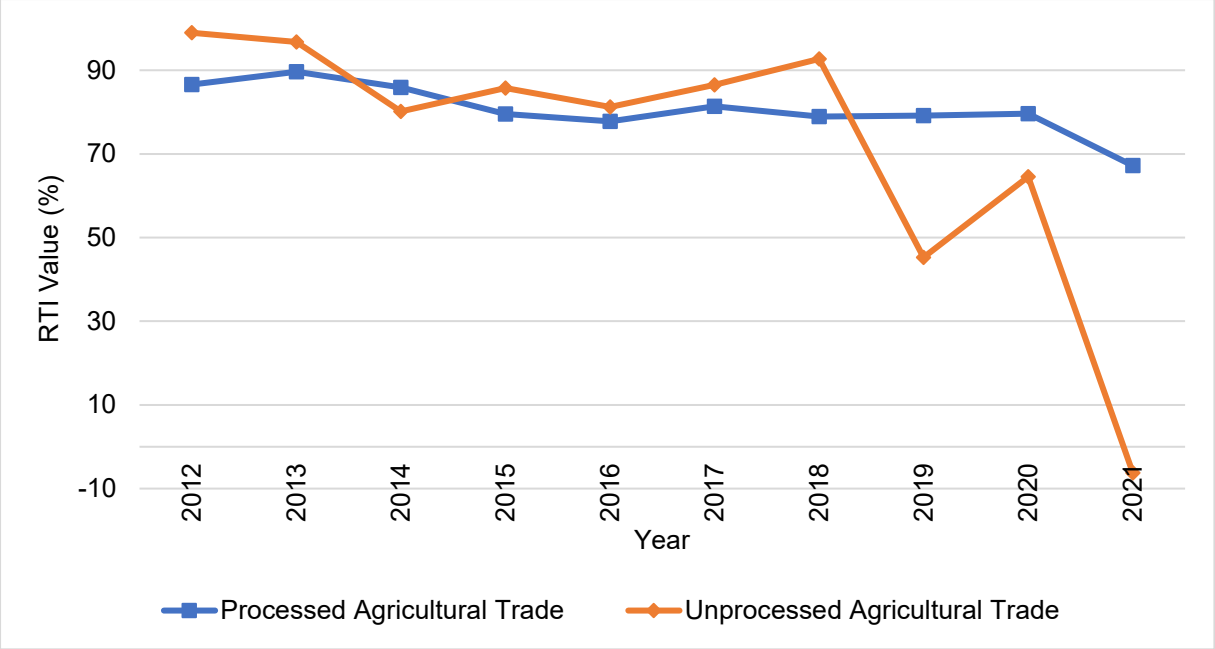


Figure 4.34: RTI values for trade in the IGAD region
Source: Own calculations based on data from ITC (2022)

The processed agricultural products shown in Table 4.8 represent an average of just under 37% of the total import value of processed agricultural products into the IGAD region between 2012 and 2021. However, of the five, only Cigarettes (HS ‘240220) and Food preparations n.e.s. (HS 210690) present a more immediate opportunity for increased South African exports into the IGAD region, as South Africa’s trade balance for the two products has been positive for at least the past two decades. The average MFN AVE tariff on imports of Cigarettes containing tobacco and Food preparations n.e.s. into the IGAD region placed on non-member countries in 2022 sits at 34.20% and 12.94%, respectively (Market Access Map, 2022). Therefore, if import tariffs in Cigarettes containing tobacco are reduced, South Africa has a real opportunity to expand exports into the IGAD region. Noticeably, the IGAD region’s imports from the RoW of Sunflower-seed or safflower oil (HS ‘151219) had a CAGR over the 2012 to 2021 period of 51.24%, and the average MFN AVE tariff placed on extra-regional imports as of 2022 was 31.46%, with Uganda, Kenya and Sudan placing an MFN AVE tariff rate of 60%, 41.29% and 40% on extra-regional imports respectively (Market Access Map, 2022). This might present an opportunity to South Africa to export Sunflower-seed or safflower oil exports into the IGAD region, provided South Africa expands its production of sunflowers and sunflower oil processing capacity.

South Africa does not hold membership in an REC with any of the IGAD member countries. This means that South Africa has been facing average AVE import tariffs for processed agricultural products into the IGAD region of 24.87%, the highest of any other African REC. If the tariff reductions envisioned under the AfCFTA do occur, then an opportunity for South Africa to export processed agricultural products into the IGAD region is foreseeable.

Intra-regional trade introversion in the selected unprocessed agricultural products within the IGAD region has decreased dramatically in recent years, with the CAGR for the RTI values from 2018 through to 2021 being −175.55%. This represents an RTI value of 93% in 2018, falling to an RTI value of −6 by 2021. This implies that the IGAD region may be vulnerable to supply shocks, either internally or externally, for unprocessed agricultural products, as the RTI is seen to change so dramatically in such a short period of time. In addition, this implies that there is an opportunity for South Africa to expand exports of unprocessed agricultural products into the IGAD region.

The unprocessed agricultural products shown in Table 4.8 contributed an average of just over 29% towards the total import value of processed agricultural products into the IGAD region between 2012 and 2021. There is little opportunity for South Africa's expansion of wheat exports into IGAD unless South Africa can import more wheat from elsewhere for re-export purposes. South Africa's trade balance for Vegetable seeds (for sowing) (HS '120991) has been hovering below the zero line and above the zero line for the past two decades, and so little opportunity is presented for South African exports unless either production capabilities or imports are increased. However, Maize (HS '1005) exports are presented with an export expansion opportunity into the IGAD region. In addition to this, imports of Fresh or chilled vegetables into the IGAD region are ranked as the fourth largest unprocessed agricultural import according to value terms between 2012 and 2021. With South Africa's net exporter status for Fresh or chilled vegetables, an opportunity may present itself. The average MFN AVE tariff rate imposed on imports of Maize (HS '1005) and Fresh or chilled vegetables (HS '0709) into IGAD from non-member nations are at 19.70% and 25.54% respectively (Market Access Map, 2022). With this being said, logistical practicalities within the African continent may nullify this opportunity owing to the distance that the vegetables would need to cover in getting to IGAD countries.

4.3 South Africa's trade analysis

In this section, South Africa's IIT analysis will be calculated for the selected agricultural products at the HS6 level. This will help determine whether South Africa only exports, only imports, or exports and imports a specific product within a year and will thereby be effective in achieving objectives iii and iv. This will be useful for determining what role South Africa will play in the regional supply chain. Given South Africa's role in intra-regional trade of being a powerful exporter nation within SADC and SACU, as discussed in Chapter 2, as well as South Africa's access to marine ports, South Africa may have the opportunity to increase its role as a hub in the regional supply chain under the AfCFTA through re-exports. Globally, there has been an increasing value and share of re-exports in the past twenty years (Jones, Kobza, Lowery and Peters, 2020). With the expansion of GVCs, regional hubs have become increasingly more important and countries that are able to capitalize on their logistical and regulatory infrastructures are in a good position to become regional supply-chain hubs (Jones *et al.*, 2020).

Following the analysis of South Africa's IIT, Section 4.3.2 assesses South Africa's level of export concentration as well as its orientation within the African continent using the Gini coefficient and Lorenz curve, as well as South Africa's ROI values. Lastly, each REC's level of import concentration on imports of the custom selected agricultural products from South Africa will be analysed through using the Gini-Hirschman Index (GHI) coefficient. This will help to determine each African RECs reliance on South Africa as a supplier of either processed or unprocessed agricultural products.

4.3.1 South Africa's IIT analysis

4.3.1.1 IIT analysis for the selected processed agricultural products

For practical interpretation purposes, only ten products were selected for discussion in this section. For the full table containing the IIT results for the total processed agricultural products selected, please refer to Appendix 9. For the table showing the trade balances for all of the selected processed agricultural products, refer to Appendix 10.

Figure 4.35 shows South Africa's IIT values between 2017 and 2021 for semi milled or wholly milled rice (HS '100630), Cane or beet sugar and chemically pure sucrose (HS '170199), Raw cane sugar in solid form (HS '170114), Broken rice (HS '100640), Cigarettes, containing tobacco (HS '240220), Food preparations n.e.s. (HS '210690), Malt extract, food preparations of flour (HS '190190), Wheat or meslin flour (HS '110100), Beer made from malt (HS '220300), and Groats and meal of maize (HS '110313). The reason for highlighting these products in Figure 4.35 is that they were prominent in the RTI analysis for the African RECs.

Only Groats and meal of maize had IIT values below 10% for the entire 2017 to 2021 period implying that, given the positive trade balance, almost all exports from South Africa are sourced internally. Semi-milled or wholly milled brown rice had the next lowest IIT values between 2017 and 2021 of around 20%. Figure 4.36 shows South Africa's trade balance for the 10 selected products. For the 2017 to 2021 period, most products had a positive trade balance, with the exceptions of Semi-milled or wholly milled rice, Beer made from malt, and at certain points in time, Cane or beet sugar and chemically pure sucrose, Broken rice, and Food preparations n.e.s.

- For Groats and meal of maize, the low IIT value and positive trade balance for 2017 to 2021 implies that South Africa mostly exports groats and meal of maize and does not import the product in any considerable value.
- Broken rice, generally, had the second highest IIT values over the 2017 to 2021 period, which were also similar to those of Wheat or meslin flour. Broken rice had a negative trade balance for 2017 and 2018, which then went positive for the remaining years. The high IIT value implies that almost all exports of rice had originally been imported between 2017 and 2021 with the shares changing only slightly between the years. For Wheat or meslin flour, the same can be said, except for the fact that a positive trade balance was maintained throughout.
- Raw cane sugar in solid form had IIT values that were near 50% between 2017 and 2021, with a negative trade balance in 2017 and positive trade balances going forward. In 2017, the high IIT value and negative trade balance implies that most exports of Raw cane sugar had been imported. In the years 2018 to 2021, the IIT value was near 50% and positive trade balances were

experienced. This implies that close to a third of the export volume had been imported in those years.

- Beer made from malt represents exactly the opposite picture as that of Raw cane sugar. With negative trade balances throughout and IIT values also near 50%, it is indicated that roughly a third of South Africa's imports of beer had been re-exported.

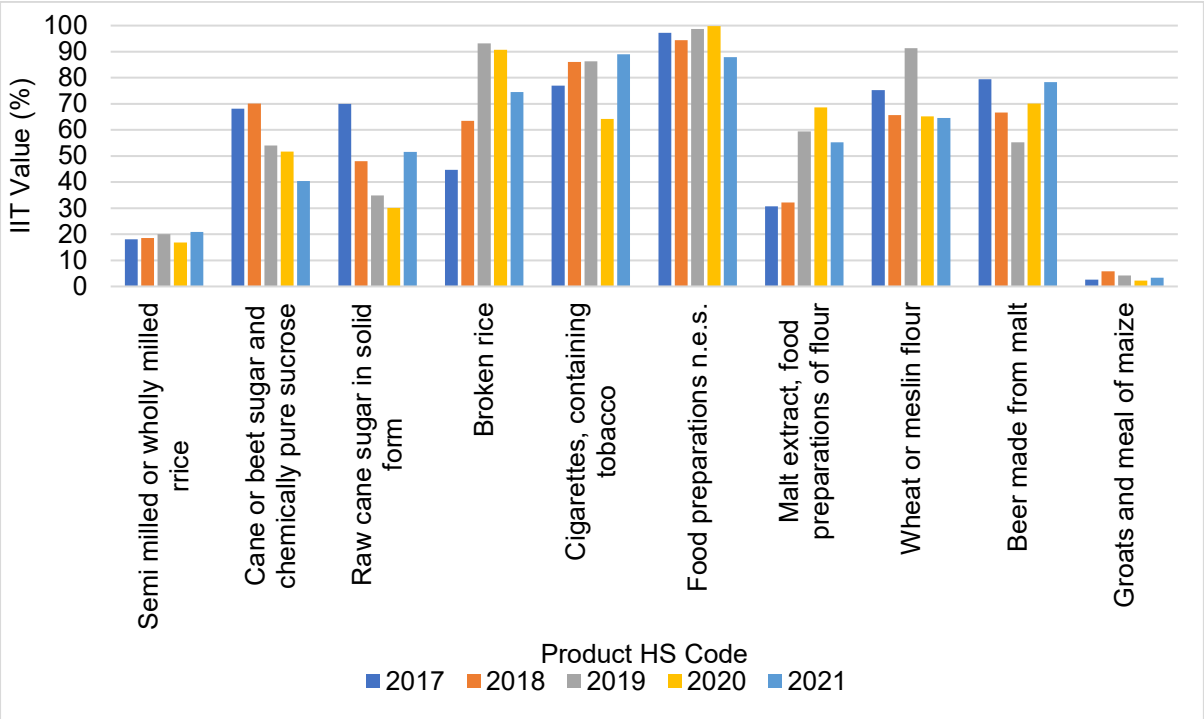


Figure 4.35: South Africa's IIT values for the processed agricultural products selected (2017-2021)

Source: Own calculations based on data from ITC (2022).

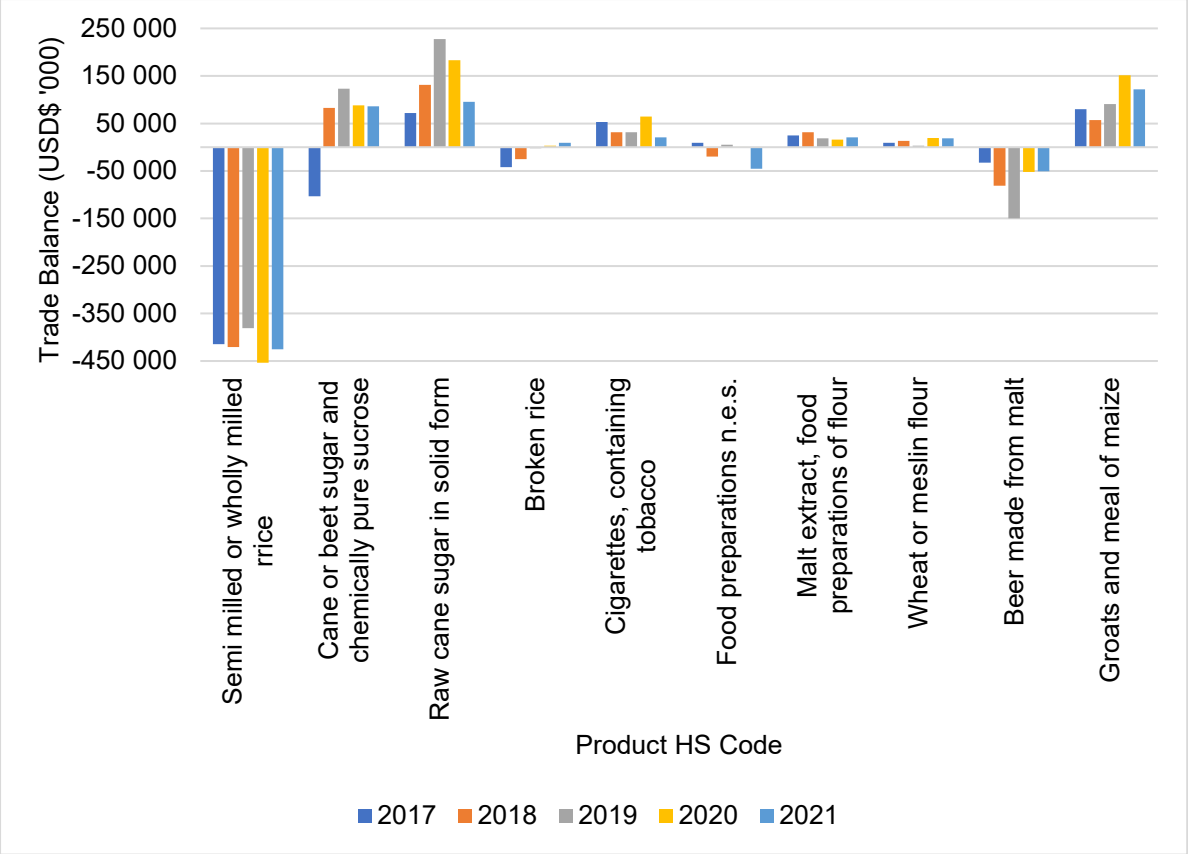


Figure 4.36: South Africa's trade balance for the processed agricultural products selected (2017-2021)

Source: Own calculations based on data from ITC (2022)

4.3.1.2 IIT analysis for the selected unprocessed agricultural products

Figure 4.37 shows the IIT values for the selected unprocessed agricultural products utilised for further analysis of the African RECs between 2017 and 2021. In addition, Figure 4.38 shows the trade balances for the same unprocessed agricultural products, also between 2017 and 2021. Products included are Maize (excluding seed for sowing) (HS '100590), Fresh grapes (HS '080610), Fresh apples (HS '080810), Fresh or chilled potatoes (excluding seed for sowing) (HS '070190), Spices (HS '091099), Maize seed for sowing (HS '100510), Fresh or chilled bovine meat (HS '020130), Vegetable seeds for sowing (HS '120991), Frozen cuts and edible offal of fowl (HS '020714), and Wheat and meslin (excluding seed for sowing) (HS '100199). The analysis will continue, with mention being given to a few specific products.

- Fresh or chilled bovine meat maintained an IIT value below 3.5% between 2017 and 2021, while at the same time maintaining a positive trade balance, although relatively small, throughout the same period. The trade balance in 2021 was

USD 72.4 million and the IIT value was 0.69%. This implies that almost all of South Africa's trade in Fresh or chilled bovine meat is based off of exports, and only a small amount (in value terms) is imported into South Africa. This points towards South Africa's lack of dependency on international markets for the trade in Fresh of chilled bovine meat. The same can be said for Fresh or chilled potatoes (excluding seed for sowing), but to a greater extent, as the IIT values are smaller than those of Fresh or chilled bovine meat are.

- Referring to Wheat and meslin (excluding seed for sowing, and durum wheat), the IIT values were relatively low between 2017 and 2021, reaching a peak value of 33.2% in 2021; however, the trade balance was negative throughout the entire 2017 to 2021 period, with the trade balance being over USD −371 million in 2021. The relatively low trade balances and high export deficits imply that most of South Africa's trade in this product is dependent on imports, rather than on exports. This shows South Africa's dependency on international markets for Wheat and meslin (excluding seed for sowing, and durum wheat).
- Lastly, referring to Maize (excluding seed for sowing), South Africa's IIT values fluctuated over the 2017 to 2021 period, with the IIT value being less than 1% in 2018 and 2021, less than 5% in 2020, and 36% and 58% in 2017 and 2019, respectively. Despite the fluctuating IIT values, South Africa's trade balance was maintained at a value above USD 150 million for the entire 2017 to 2021 period. The low IIT values in 2018, 2020 and 2021, and the positive trade balances in those years, imply that South Africa's trade in Maize was mostly revolved around exports, and few imports were received in those years in value terms. This implies a small dependence on international markets for imports of Maize. However, in 2019, South Africa had a relatively high IIT value of 58%, and the lowest positive trade balance in the same year of USD 150 million. This implies that in 2019, more than one third of South Africa's export volume of Maize was imported. The reasons for this could be varied, such as the climatic conditions in 2019 and so on.

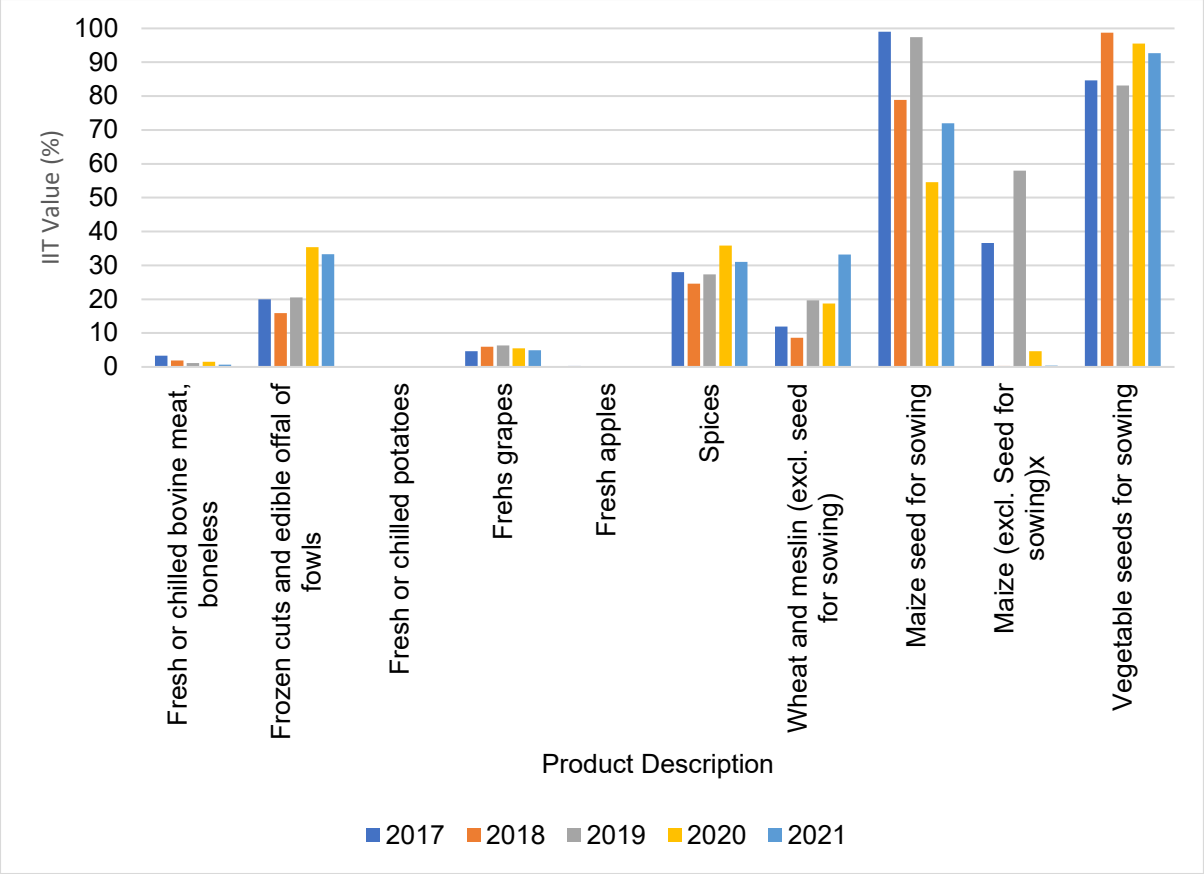


Figure 4.37: South Africa's IIT values for the selected unprocessed agricultural products (2017-2021)

Source: Own calculations based on data from ITC (2022).

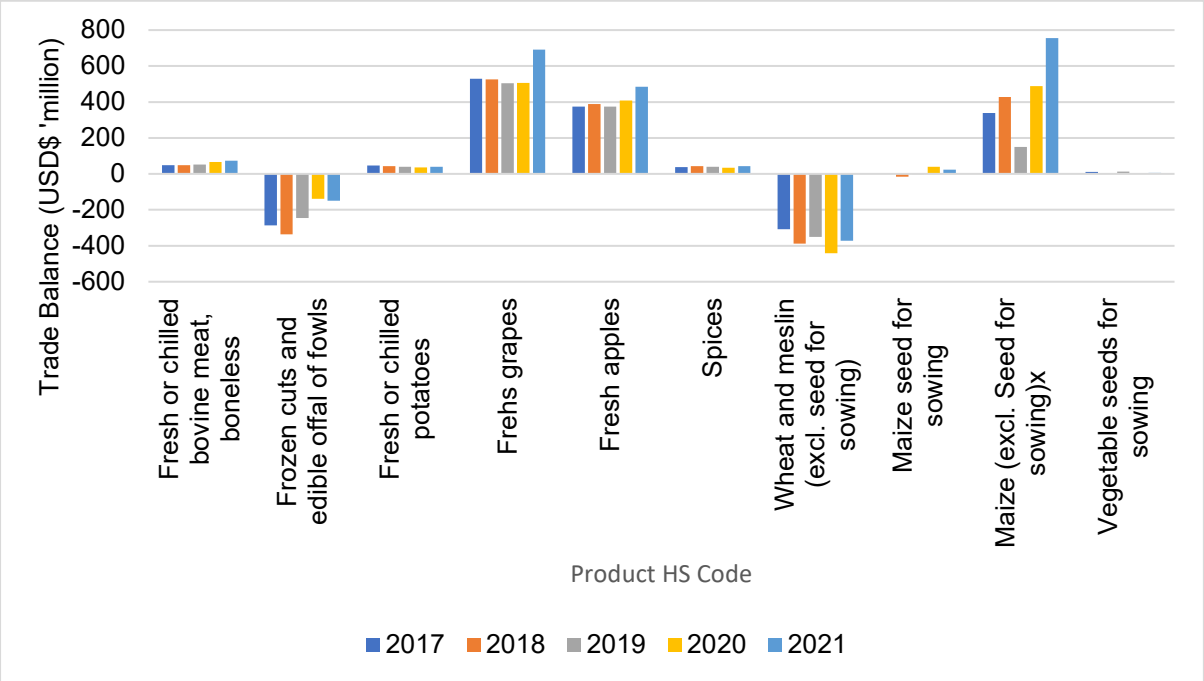


Figure 4.38: South Africa's trade balance for the selected unprocessed agricultural products (2017-2021)

Source: Own calculations based on data from ITC (2022)

4.3.2 South Africa's export concentration in the African RECs

In this section, the ROI, Lorenz curve and Gini index are used to analyse South Africa's market orientation and concentration within in the African continent. The ROI was applied at the regional level to gain an understanding of the magnitude of orientation that South Africa places on different RECs when exporting those processed and unprocessed agricultural products selected for each REC's analysis. South Africa's Lorenz curve was calculated at the country level within the African continent for the total processed and unprocessed agricultural products selected for the further analysis of each region. This was done to gain an understanding of how concentrated South Africa's exports are to the different African markets. Additionally, South Africa's Gini index for exports of the selected processed and unprocessed agricultural products into Africa was calculated for 2021.

4.3.2.1 South Africa's Regional Orientation Index (ROI) values for agricultural exports into the African RECs

Figure 4.39 shows the ROI values for South Africa's processed agricultural exports into each REC. An ROI value higher than 1 implies that trade is regionally oriented, with the orientation increasing in magnitude the higher the value goes above 1. For ROI values below 1, it is implied that trade is not regionally oriented. The exports into each REC are for those commodities chosen specifically for each region's analysis, and so the ROI values speak to a different processed agricultural exports basket for each respective REC. The same is true for Figure 4.40, showing South Africa's ROI values for unprocessed agricultural exports into each African REC. The ROI is used to determine how oriented a country's exports of a particular product/product grouping are into a specific country/region in comparison to the country's total exports of the product/product grouping. The analysis of the ROI continues below, starting with the SADC region.

- Figure 4.39 shows South Africa's ROI for processed agricultural exports into SADC declining between 2012 and 2014, increasing going into 2015, and then declining again through to 2019. After that, from an ROI value of 5.50, South Africa's ROI increased between 2019 and 2021, with a CAGR of 19.43%, to an

ROI value of 9.37 in 2021. This represents the highest ROI value for South Africa's processed agricultural exports into African RECs for the past decade.

- South Africa's ROI for the AMU region has varied relatively largely over the past decade (2012 to 2021), with a standard deviation of 263%. This represents an increase in ROI from 1.46 in 2012 to 8.21 in 2017, down to 3.34 in 2018, then up again to 8.00 in 2020, and down once again to 2.04 in 2021. South Africa's ROI for the AMU in 2017 was the second highest ROI value of the decade for processed agricultural exports into the African RECs.
- Lastly, referring to the EAC, South Africa's ROI into the EAC was relatively low for the entire period shown in Figure 4.48, never going above a value of 2. However, the ROI did achieve a CAGR of 3.65% over the 2012 to 2021 period, representing an increase from an ROI value of 1.26 in 2012 to 1.81 in 2021.

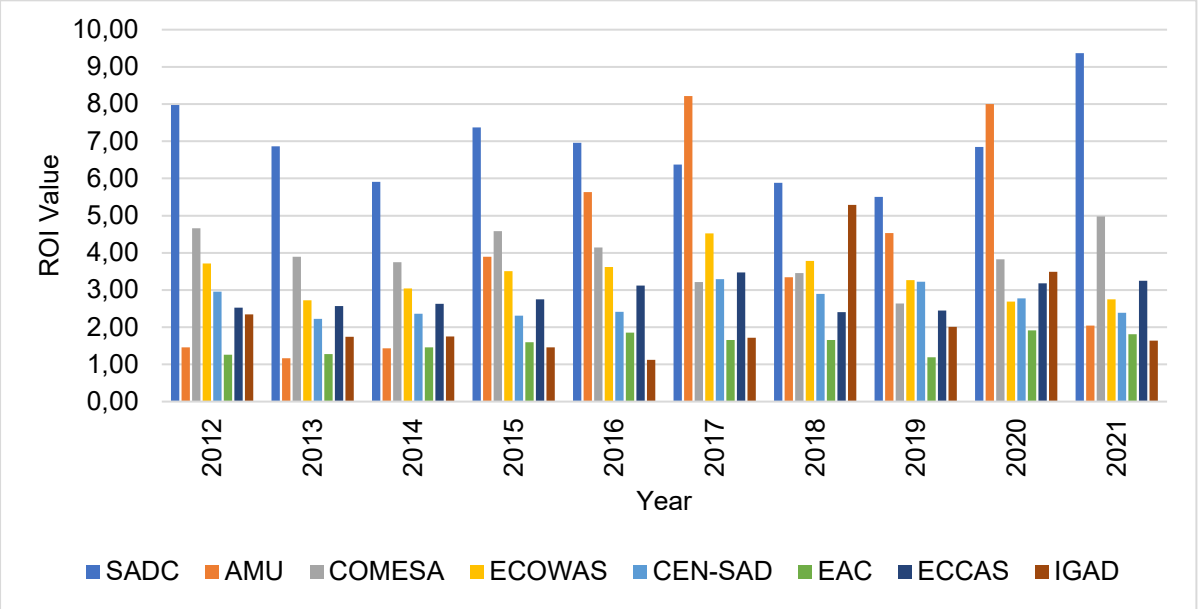


Figure 4.39: South Africa's ROI value for exports of processed agricultural products into each African REC (2012-2021)

Source: Own calculations based on data from ITC (2022)

In Figure 4.40, South Africa's ROI value for selected unprocessed agricultural exports into African RECs is shown.

- South Africa's highest ROI for unprocessed agricultural exports into African RECs between 2012 and 2021 was an ROI value of 12.68, which was for exports into the IGAD region. This value, however, fell to 1.22 in 2021, representing a CAGR of −37.37 %. Prior to 2017, South Africa's ROI for

unprocessed exports into IGAD had been relatively low, exceeding the value of 1 only in 2015, when the ROI value was 1.18.

- The highest ROI value in 2021 was for South Africa's exports into the ECOWAS region, with an ROI value of 6.06. The ROI value for exports into ECOWAS increased from 2.76 in 2012 to 7.00 in 2015, after which it declined to 4.73 in 2017. Another peak was reached in 2019, with an ROI value of 7.02.
- South Africa's ROI for exports of unprocessed agricultural products into the AMU region was the lowest of all the African RECs for the entire 2012 to 2021 period. In 2012, the ROI value was 0.03, while from 2013 to 2017 it was 0, in 2018 it went up to 0.07, then went back down to 0, only to go up again in 2021, with a value of 0.16, being the peak for the period.
- Lastly, referring to SADC, South Africa's ROI for unprocessed agricultural exports into the SADC region was relatively low for the 2012 to 2021 period, with a standard deviation of 30.8% over the ten-year period. In 2012, the ROI value was 1.45. This value rose to 1.91 in 2016, and then declined to 1.27 by 2021, representing a CAGR with respect to the ROI values of −6.61%.

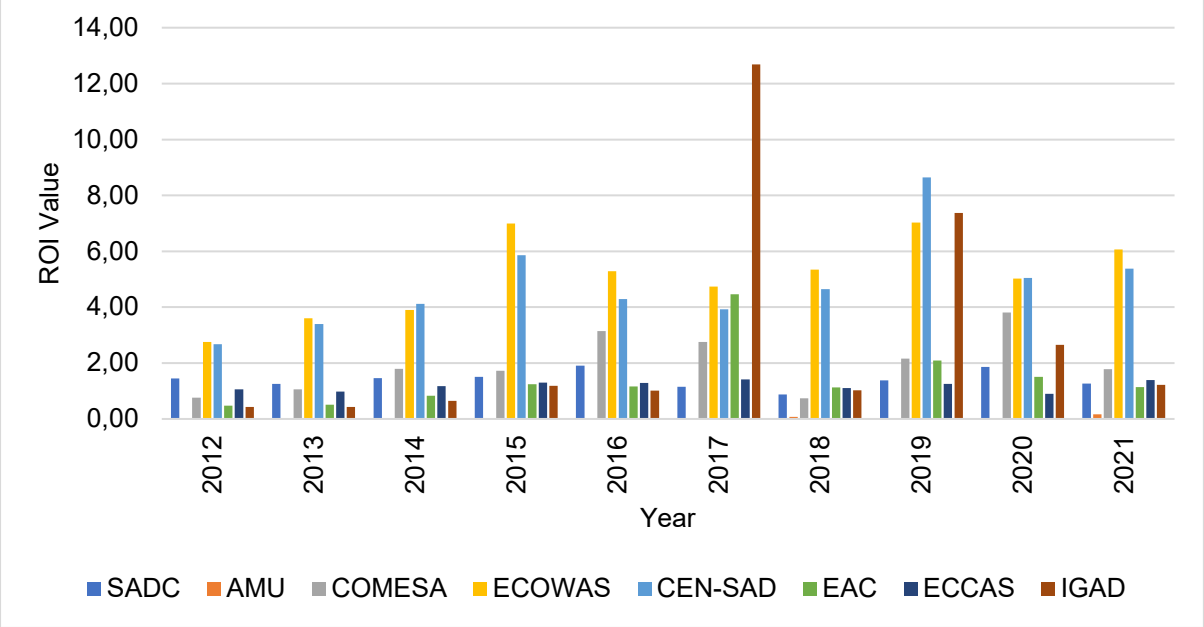


Figure 4.40: South Africa's ROI value for exports of unprocessed agricultural products into each African REC (2012-2021)

Source: Own calculations based on data from ITC (2022)

4.3.2.2 The Gini Coefficient and the Lorenz curve for South Africa's exports of the selected agricultural products into Africa

In this sub-section, the analysis of the Lorenz curve and Gini coefficient will be in reference to Appendices 11 and 12. The Lorenz curve for South Africa's exports of the total processed agricultural products selected for further analysis was calculated at the country level for all African countries recognised by the AU. This was done for the year 2021 and is shown in Appendix 11. The same calculations were done for South Africa's exports of the total unprocessed agricultural products selected for further analysis, which are shown in Appendix 12.

As shown in Appendix 11, of the total selected processed agricultural products that South Africa exports, the exports were most concentrated, in 2021, on Botswana, Namibia, Mozambique, Zimbabwe, Lesotho, Zambia, Eswatini and Angola, in that order. It is important to note that these countries just listed all belong to SADC, and at the same time, many are neighbouring countries of South Africa. This raises the importance of the SADC region, as well as the distance from South Africa that export markets are located, in terms of which markets South Africa directs export efforts to. The Gini coefficient for South Africa's exports into Africa of the total processed agricultural products selected for analysis of the RECs was 85% in 2021. Therefore, South Africa's exports of processed agricultural products into Africa are focused on only a small share of the total African market, in terms of the number of countries. This is a situation that may change, given the provisions of AfCFTA.

As shown in Appendix 12, of the total selected unprocessed agricultural products that South Africa exports, these were most concentrated, in 2021, on Botswana, Zimbabwe, Mozambique, Namibia, Eswatini and Lesotho, in that order. Again, these are countries that are all SADC member nations, with most of them being neighbouring countries of South Africa. This again raises the importance of the SADC region, as well as the distance from South Africa that export markets are located, in terms of which markets South Africa directs export efforts to. The Gini coefficient for South Africa's exports into Africa of the total unprocessed agricultural products selected for analysis of the RECs was 81% in 2021. This figure is slightly lower than that of processed agricultural products, but still relatively high. Showing South Africa's 'small' grasp on the entire African export market, in terms of the Number of countries.

4.3.3 Africa's import concentration

In this sub-section, the GHI is applied to each REC's imports to assess the import concentration that each REC places on South Africa. This will aid in understanding how much each REC is reliant on South Africa for imports of processed and unprocessed agricultural products and in turn will show which regions South Africa does not have a strong grasp of the market in.

The GHI was calculated for each REC's imports at the aggregated and disaggregated levels. To see the results of the disaggregated analysis (HS6 level), refer to Appendices 13 to 28. Figure 4.41 shows each REC's GHI at the aggregated level, which refers to the processed agricultural products selected for the analysis of each REC. For example, the processed agricultural products selected for the analysis of the SADC region, were used for the GHI calculation of the SADC region, and the AMU selected products were used for the AMU GHI calculations. Figure 4.42 shows the GHI values for each REC's imports from South Africa of the unprocessed agricultural products selected for the analysis of each REC.

Referring to Figure 4.41, SADC has the highest GHI value for imports of the selected processed agricultural products from South Africa. However, since 2015, when the GHI value was at a peak of 45%, South Africa's share of SADC's imports had fallen to 33% by 2021, representing a CAGR of −4.27%. South Africa's market share of imports into the AMU was 0% for the entire period from 2012 to 2021 and did not breach 1% for both ECOWAS and CEN-SAD, and only got to 2% for IGAD in 2013 and 2014.

COMESA's GHI for imports from South Africa decreased in the ten years from 2012 to 2021, from a value of 9% to a value of 5%, and for ECCAS region, the GHI fell from 7% to 3% during the same period. However, in 2014, there was a peak of 9% for the ECCAS region's GHI from South Africa.

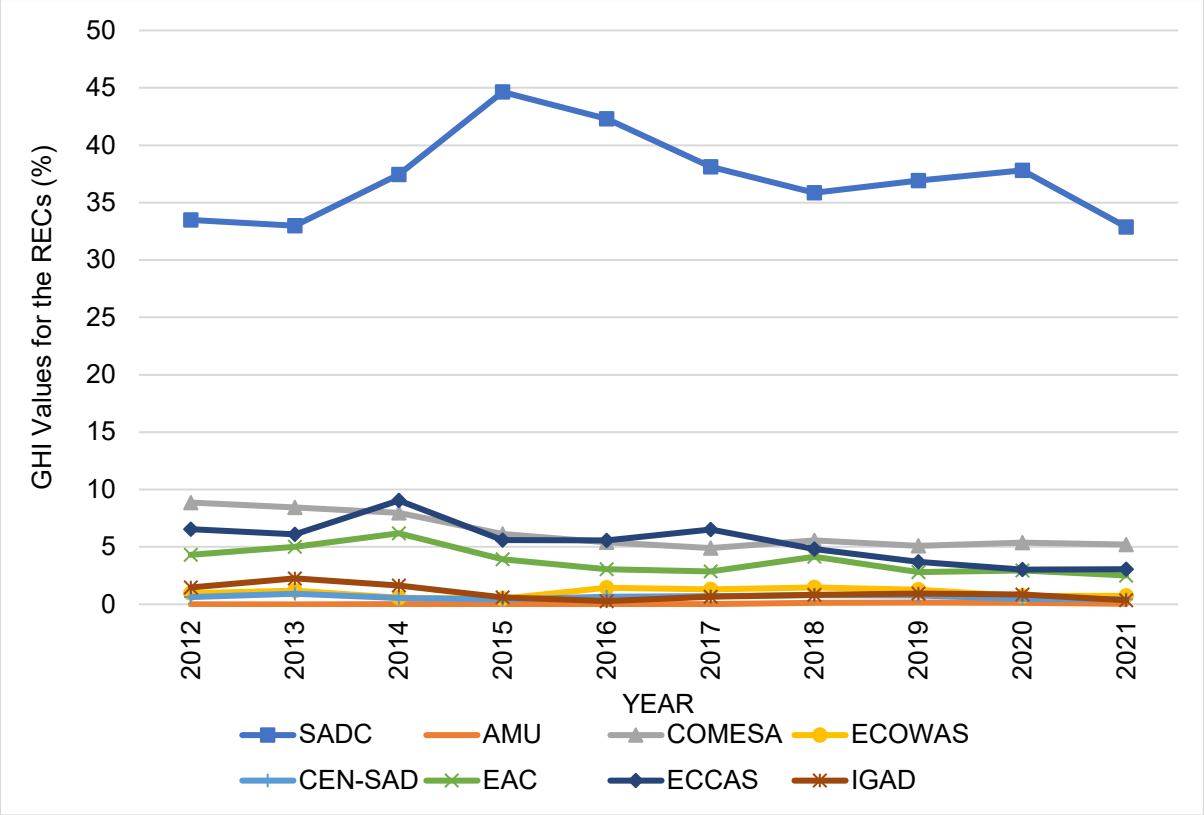


Figure 4.41: GHI values for the African RECs for processed agricultural imports from South Africa

Source: Own calculations based on data from ITC (2022)

Figure 4.42 shows each REC's GHI value for imports of unprocessed agricultural products from South Africa as a share of their imports from the RoW. Again, SADC has the highest GHI values for imports from South Africa, with a peak value of 41% in 2020. However, it must also be noted the GHI for 2021 for the SADC region's imports of unprocessed agricultural products is the lowest value in the ten-year period 2012 to 2021, at 28%. ECOWAS had relatively high GHI values between 2012 and 2021, starting with a value of 8 in 2012. This value increased to 10 in 2013, but has since decreased to 5% in 2021, representing a CAGR of −6.95%.

Again, the AMU region's GHI for unprocessed imports from South Africa was 0 through the 2012 to 2021 period, as it was for processed agricultural products. CEN-SAD had a peak GHI value in 2014 of 2% but was at 1% for all other years. IGAD had a value of 1% for 2012, which went up to 2% in 2013 and back down to 1% in 2014, until it increased to 6% in 2017, being a peak. However, in 2021 the IGAD region's GHI for unprocessed agricultural imports from South Africa was 1%.

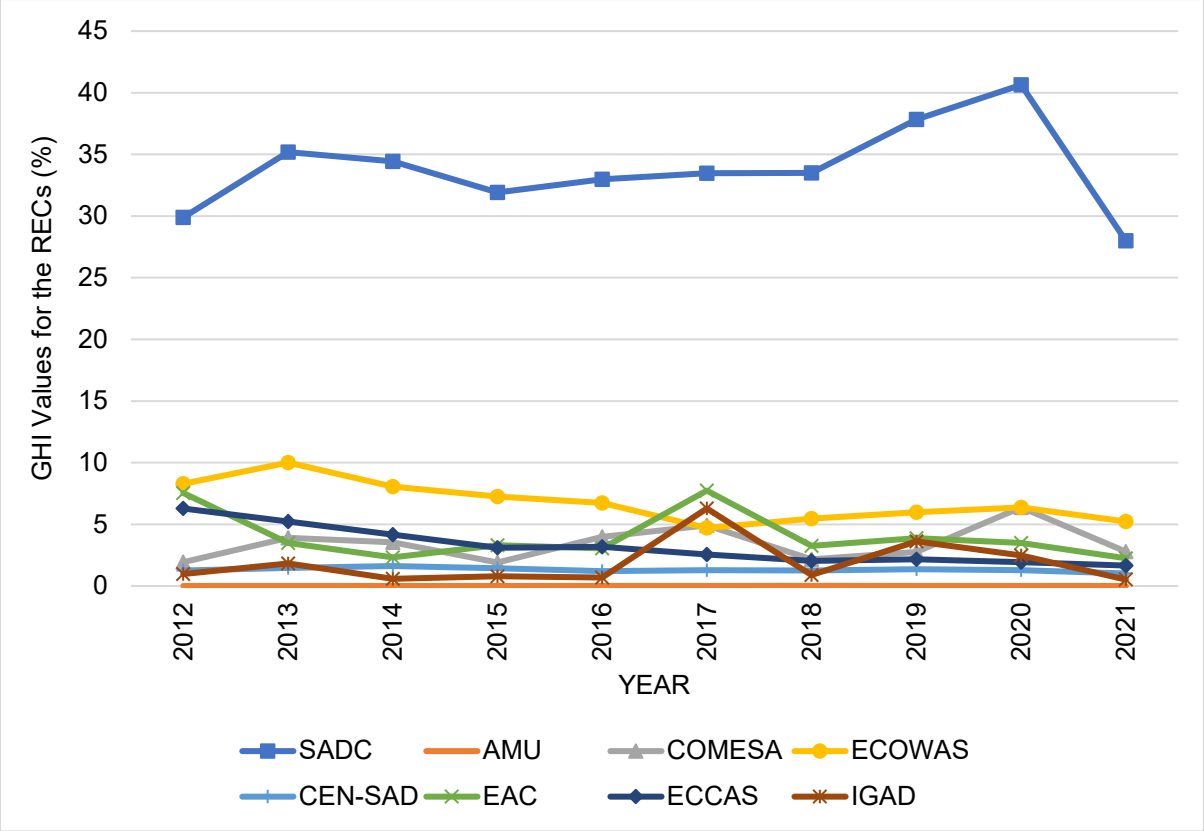


Figure 4.42: GHI values for the African RECs for unprocessed agricultural imports from South Africa

Source: Own calculations based on data from ITC (2022)

4.4 Conclusion

This chapter began with an analysis of each African REC's trade. The first step was to systematically select product groupings for each region. The result was two custom-selected groups of agricultural products (processed and unprocessed) being selected for the further analysis of each REC. The product groupings represent the top agricultural imports of each REC from the RoW, as well as South Africa's top performing agricultural exports to the RoW in value terms (USD).

The next step involved the analysis of each REC's trade. To do this, data for each REC's exports and imports to and from the RoW in value terms (USD) were gathered from TradeMap. This analysis allowed for the identification of trends in the exports and imports that each REC has exhibited over the past decade (2012 to 2021). The most obvious conclusion drawn was that, for every single REC, the value of the selected processed and unprocessed agricultural imports exceeded the value of exports. In addition, most RECs appeared to show an increased import demand for the custom-

selected agricultural products, while at the same time not showing any real growth in the export value of agricultural products. This analysis proved useful in determining those RECs in which market demand was expanding (using imports as a proxy for market demand). South Africa's contribution to the trade figures was also calculated to assess the share that South Africa has in each market and how this changed over the last decade. After this was done, the contributions that processed and unprocessed agricultural products made towards the export and import values of each REC were calculated. It was found that processed agricultural trade dominated unprocessed agricultural trade in value terms in all the regions for the selected agricultural products.

The next step of the analysis was to assess each REC's RTI values for the selected processed and unprocessed agricultural products. This analysis was beneficial as it allowed for the identification of those products (at the HS 6 level) that South Africa had the potential to expand exports of into each REC. Several potential opportunities present themselves to South Africa's agricultural export industry as a result of the AfCFTA. These are mostly attributable to the fact that, for the trade in the unprocessed agricultural products selected, many RECs had low trade introversion, which implies that they rely on international imports and exports of the selected agricultural products to satisfy the demand in each REC. However, the opportunities in one REC are not indicative of the opportunities available in the next REC. The SADC, for example, presents little additional opportunities for agricultural export expansion under the ambit of the AfCFTA, as the region is well integrated and South Africa is also a member to the SADC-FTA. Therefore, unless the AfCFTA can achieve one of its goals, which is to improve intra-regional trade by the reduction in NTMs and NTBs, South Africa's agricultural export expansion into SADC will be difficult to achieve. For other RECs, there are opportunities for South Africa to expand its exports of Maize, Fresh or chilled vegetables, Cigarettes containing tobacco, Fresh or chilled potatoes, Fresh apples and Frozen, boneless meat of bovine animals because of the regions low RTI score for unprocessed agricultural products and South Africa's status as a net exporter. Additionally, the high average MFN AVE tariff levels imposed on the imports of the various agricultural products into each region pose an opportunity for South Africa if the tariff reductions envisioned under the AfCFTA are realized. However, South Africa's exports of wheat will not realise the same export potential, as South Africa is

a net importer in wheat. Opportunity can be realised if South Africa is to import more wheat (and other products) for re-exports into Africa.

It was found that there are several opportunities that may present themselves within the African continent that will allow for the expansion of South Africa's agricultural exports. However, for South Africa to capitalize on some of these opportunities, either increased imports (for the purpose of re-exporting) or increased production is required. The latter point is supported by the findings of Idsardi (2014). Idsardi (2014) found that expansion in production is required to take advantage of export opportunities.

The next step was to determine South Africa's trade with the African continent. The first step involved calculating South Africa's IIT values for the total selected agricultural products. In doing this, it was possible to determine which products/industries constitute strong exports of South Africa, which products/industries rely on imports for re-exportation (and to what extent), and which products South Africa exports very little of and imports much of. Several conclusions were drawn at the HS 6 level as a result of this analysis. For certain products, such as Maize, South Africa is self-sufficient and does not rely heavily on imports of maize from the rest of the world. For others, such as wheat, South Africa is heavily dependent on imports from the RoW, although a large share of these imports are re-exported into the African continent.

South Africa's export concentrations into Africa at the REC and country levels were determined next. It was found that, at the REC level, South Africa's agricultural exports into the continent are mostly focused on the SADC region, with the remaining regions each receiving small shares of South Africa's agricultural exports. When using the Lorenz curve and the Gini coefficient to determine South Africa's trade inequality and country level several major African export markets were identified. South Africa's largest export market for the selected agricultural products is Botswana. This is true for both processed and unprocessed agricultural exports. The conclusion was that South Africa's agricultural exports into Africa are highly concentrated on a small number of markets. This poses a risk to South Africa's agricultural exports, and it was suggested that South Africa should consider diversifying its agricultural exports into other African countries.

The last step in the analysis was to assess Africa's import concentration of agricultural products from South Africa. SADC was found to be the most dependent REC on South

Africa's agricultural exports. The results were used as a proxy for market share, and it was concluded that South Africa has a small market share of each REC's agricultural imports.

In summation, the AfCFTA presents several opportunities for South Africa's agricultural export expansion. However, as mentioned in Chapter 2, overcoming the many obstacles to trade, over and above tariff reductions, is a necessity if South Africa, and the continent, are to realise any real trade gains because of the liberalisation in trade.

This conclusion is supported by the findings of previous studies in the sense that opportunities are presented for agricultural trade under the AfCFTA, however the NTMs and NTBs currently hampering intra-African agricultural trade (and total intra-African trade) are found to be major limitations to intra-African trade growth (Vink *et al.*, 2022; Behar and Edwards, 2011; Kalaba *et al.*, 2016). Authors that came to similar conclusions with respect to intra-African trade and intra-African agricultural trade under a CFTA (the AfCFTA) include, amongst others, Mevel and Karingi (2012), Sandrey and Jensen (2015), Chauvin et al. (2016), Afreximbank (2018), Abrego et al. (2019) and Fusacchia et al. (2021). A common theme amongst most authors was that intra-African tariff reduction would have positive effects of intra-African trade, however, the reduction NTBs and NTMs currently hampering intra-African trade alongside tariff reductions would lead to the largest trade increases.

Chapter 5:
The Composite Country Priority Index (CCPI)

5.1 Introduction

This chapter introduces and discusses in detail the formulation and the findings of the CCPI, in alignment with achieving objective v. Several authors have pointed out that the success of the AfCFTA is found to be dependent on, among other things, the structural constraints that currently hamper intra-Africa trade, as well as the complexity of coordinating current regional trading blocs and the required integration of them (Ngepah and Udeagha, 2018; Morokong and Pienaar, 2019; Oluwusi and Punt, 2019; Moyo, 2020). Structural constraints include the standard of trade and transport infrastructure, the organisation of customs and border clearance, the capability and the quality of logistical services (World Bank, 2022a). It is therefore not surprising that decisions pertaining to targeting specific countries for developing trade relations from a country perspective or targeting specific markets in a country from a business perspective, is cumbersome and generates significant opportunity costs. For example, Jansen van Rensburg *et al*. (2019) argue that exporters often face difficulties in accessing accurate market information that would aid in them making informed decisions on which markets to export to.

The use of different (composite) indices as a first step to identify potential market opportunities is not uncommon. For example, the TRADE-Decision Support Model® (DSM®) and the Country Attractiveness Index (CAI) are useful in determining suitable export markets as they take into consideration many variables that determine trade within the country, as well as the access of that country for a potential exporter (Steenkamp and Ferreira, 2020; Jansen van Rensburg *et al.*, 2019). Similarly, the Western Cape Department of Agriculture (WCDoA) recently compiled an Africa strategy for the Western Cape agricultural sector, based on a Country Priority Index (CPI) (WCDoA, 2022).

There are also several freely available indices and other economic variables that are published regularly by reputable organisations that can be used by policymakers and businesses to guide their decisions regarding targeting potential export destinations and markets. These include the Human Development Index (HDI) (United Nations

Development Programme (UNDP), 2022), Global Competitiveness Index (GCI) (WEF, 2022), Foreign Direct Investment (FDI) (World Bank, 2022a), Export Potential Map (ITC, 2022) and the Logistical Performance Index (LPI) (World Bank, 2022a).

It is hypothesised that, since these indices are freely available (and hence easily accessible) and published on a regular basis, they could be useful tools to be utilised by business and policymakers to guide business tactics and trade policy. To test this hypothesis, a CCPI is compiled. A composite index can be either a qualitative or a quantitative measure that is derived from several suitable indicators that show the relative positions of countries (for example) and is conceived when all of the indicators/indices are assembled into a sole index, built upon a fundamental underlying model (Morokong and Pienaar, 2019). Thereafter, the respective countries can be ranked according to their index score to identify their suitability for trade and investment (Cavusgil, Kiyak and Yeniyurt, 2004; Morokong and Pienaar, 2019).

The rest of this chapter will discuss the application of other composite indices used to identify potential trade opportunities, the methodology used to compile the CCPI, and the results of the CCPI per REC.

5.2 Previous applications of composite indices

5.2.1 The Trade-DSM®

The Trade-DSM® is a quantitative methodology used to establish the potential export opportunities available in markets for numerous products by using trade data and several filters. The methodology was developed initially by Cuyvers, De Pelsmacker, Rayp and Roozen (1995), and has since been refined over the years by various authors[68] in unison with the North-West University (Potchefstroom, South Africa) and the TRADE Research Advisory (PTY) Ltd. The approach assesses trade data on a global scale for all types of products and markets, allowing an individual to review trade patterns between countries and to provide a picture of the trade flows of specific products using 6-digit international tariff codes (Jansen Van Rensburg *et al.*, 2019;

68 After 1995, refinements to the Trade-DSM model were introduced by Cuyvers (1997), Viviers, Rossouw, Steenkamp and Cuyvers (2009), Viviers, Steenkamp, Rossouw and Cuyvers (2010), Cuyvers and Viviers (2012), Cameron and Viviers (2017), and Cuyvers, Steenkamp, Viviers, Cameron and Rossouw (2017).

Steenkamp and Ferreira, 2020). The Trade-DSM approach focuses on identifying unilateral export opportunities in different countries (Jansen van Rensburg *et al.*, 2019). The filters used in assessing the export opportunities take into consideration the economic and political risk of a country, the size and the "growth of the market, competition in the market, accessibility of a market, maturity of a market and the ability of the exporter to supply the market" (Idsardi, 2014; Steenkamp and Ferreira, 2020). Through the use of this filtering system that is able to process large volumes of data, the methodology is able to reveal product–market combinations that show the most promising potential for the respective country or industry in question (Viviers, Cuyvers, Steenkamp, Grater, Matthee and Krugell, 2014).

There are several applications of the Trade-DSM® approach to South African exports, as well as to export opportunities for other countries, such as Belgium and Thailand (Viviers *et al*., 2014). For example, Cuyvers (2004) used the Trade-DSM® to identify practical export opportunities for Thailand's exports to the RoW and to the Asia-Pacific region, specifically. A number of product–country combinations (opportunities) were identified. However, Cuyvers (2004) stressed the fact that the identification of these opportunities is merely a first step in a country's export strategy, and that increasing export capacity and product development is important, if export-promoting strategies are to be successful (Cuyvers, 2004).

Jansen van Rensburg *et al.* (2019) identified export opportunities between the Indian Ocean Rim Association (IORA) states and South Africa, using South Africa and Thailand as a case study. One of the goals of the paper was to demonstrate whether the Trade-DSM® could "provide the building blocks for the development of a region-wide export promotion strategy for IORA" (Jansen van Rensburg *et al.*, 2019). Their paper was successful in identifying bilateral opportunities for exports between South Africa and Thailand, which highlighted the important role that the DSM could potentially play in the IORA's venture to strengthen both intra- and extra-regional trade, as well as its export performance (Jansen van Rensburg *et al.*, 2019).

Viviers *et al*. (2014) used the Trade-DSM® to identify product-/service-country export opportunities for South Africa that were the most realistic and sustainable. Viviers *et al*. (2014) identified a number of product- and service-country combinations for South Africa. The countries included, but were not limited to, Ireland, Singapore, Germany,

the Netherlands, and South Korea. They illustrated, from the results of the application of the model, that the birth of a new era in export market selection and promotion had begun (Viviers *et al*., 2014). One of their major conclusions was that the Trade-DSM® was useful in identifying export opportunities that would have otherwise been overlooked in the past, proving the model's usefulness in export diversification (Viviers *et al*., 2014).

5.2.2 The Country Attractiveness Index (CAI)

The CAI was developed on behalf of the Western Cape Department of Agriculture (WCDoA) by Morokong and Pienaar (2019). The CAI was based on work done by the ITC in the creation of a Market Attractiveness Index (MAI). The MAI, being a composite index itself, consists of several indicators that aim to reflect the demand in a country as well as the market access conditions of that country at the product level[69] (Morokong and Pienaar, 2019).

Morokong and Pienaar (2019) used several variables in the construction of the CAI, these included, but are not limited to, the Ease of Doing Business Index (of the World Bank), Agriculture's share of GDP in the potential markets, The Western Cape's total export value and urbanisation. In total, Morokong and Pienaar (2019) applied 13 different variables and indices in their composite index. As a result, they identified several "attractive" African countries that the Western Cape agricultural sector had the potential to increase exports to (Morokong and Pienaar, 2019).

5.2.3 The Overall Market Opportunity Index (OMOI)

Cavusgil (1997) created the OMOI from the perspective of "Western management". The composite index was used to quantify and rank 25 countries, which were identified as emerging markets, according to their potential (Cavusgil, 1997). Cavusgil (1997) used seven dimensions[70] of market opportunities and produced a list of high growth,

69 Country demand conditions include GDP growth forecasts, export volume growth, the size of the market, and indicators of trade balance (Morokong and Pienaar, 2019). Market access conditions include relative tariffs, relative distance, and total exports (Morokong and Pienaar, 2019).

70 Dimensions included "market size, market growth rate, market intensity, market consumption capacity, commercial infrastructure, economic freedom, and market receptivity" (Cavusgil, 1997).

developing countries that represented attractive business opportunities for Western firms, such as those residing in the United States.

Cavusgil (1997) concluded that the OMOI rankings were likely useful for gaining insight about markets in a comparative sense and that the OMOI aided in reducing complexities involved in evaluating the relative attractiveness of emerging markets. Lastly, it was also stated that managers could be more objective and systematic in selecting candidate markets, after the list of markets under investigation is narrowed down to a manageable few (Cavusgil, 1997). Thereafter, a more in-depth analysis can be carried out (Cavusgil, 1997).

5.2.4 The Growth Potential Index (GPI)

The GPI was developed by the Taiwan Institute for Economic Research (TIER) (Yang, Kao, Chen, Ho, Cho and Huang, 2017). It was designed to identify promising emerging markets that Taiwan could begin new business in or expand existing business in (Yang *et al.*, 2017). The GPI has four dimensions, comprising the political dimension, economic dimension, social dimension, and the technological dimension (Yang *et al.*, 2017).

The GPI successfully produced a list of countries, ranked from highest to lowest, according to their GPI scores (Yang *et al.*, 2017). The first country identified was China, then Malaysia and Russia, followed by 11 other countries (Yang *et al.*, 2017).

5.3 Methodology behind the CCPI

5.3.1 Methodological and theoretical framework

The methodological framework used to construct the CCPI is in alignment with the process of composite indicator formulation outlined in the OECD's (2008) 'Handbook on Constructing Composite Indicators.' The development of a composite indicator requires five important steps which include: the creation of a theoretical framework, the selection of indicators, data imputation for missing data points, normalisation of

the data, and lastly, weighting[71] and aggregation (OECD, 2008). In this sub-section the theoretical framework used for the construction of the CCPI is shown.

According to OECD (2008), a theoretical framework should be able to define the phenomenon being measured as well as the sub-components. Therefore, the phenomenon being measured by the CCPI is defined as, 'the potential that a foreign market has to become an export destination based off of its market size and makeup and potential for growth, the feasibility of operating a business in said country, and lastly the logistical considerations in getting a product to the final consumer in said market'. The CCPI is therefore based off of three sub-components/dimensions, which include the 'market conditions', the 'business environment' and the 'logistical conditions' of a potential export market. The definitions of each dimension are discussed in sub-section 5.3.2.

In this sub-section the theoretical framework was outlined. The indicator selection process is shown in sub-section 5.3.2, the process used to carry out the imputation of missing data is highlighted in section 5.3.2.1 and the process of normalization and aggregation of the variables is shown in sub-section 5.3.3. This process therefore complies with the methodological framework used to construct a composite indicator as shown by the OECD (2008), with the exception of weighting each variable.

5.3.2 Variables used to construct the CCPI

The CCPI is composed from three dimensions that affect the trade potential of an export destination. The three dimensions are (i) the Market Conditions, (ii) the Business Environment, and (iii) the Logistical Conditions of each country. Each dimension has several different variables, which are shown in Table 5.1. The Global Competitiveness Index (GCI) compiled by the WEF (2020), and the CAI was used as the basis to select the different variables per dimension but were excluded from the CCPI themselves to avoid "double counting" of different variables/indices. This approach builds on that of the CAI as it assesses the actual trade flows between South African and the country in question through a ranking methodology that will be discussed in Section 5.3.3. This allows for the results of the CCPI to be compared to

71 The weighting of the different variables/indices used in the CCPI was not carried out given time constraints but is recommended for further research.

actual trade figures in turn identifying countries in which South Africa over-, under- or exports to in the correct amount according to the CCPI. In Addition, the CCPI assesses trade flows between South Africa and the different African countries, and the exports used to assess the trade flows consist of South Africa's top performing agricultural exports as opposed to the Western Cape's top performing agricultural exports as is the case for the CPI and the CAI.

Table 5.1: The three dimensions of the CCPI and their variables[72]

Market Conditions	Business Environment	Logistical Conditions
GDP per capita	Political Stability	Road Infrastructure
GDP Growth Expectations (2019-2024)	Ease of Doing Business Index	Port Infrastructure
Human Development Index	Corruption Perceptions Index	Logistical Performance Index
FDI Net Inflows (2017-2019 Average)	Regulatory Quality	Distance to Market

Market conditions represent the factors that influence the size/mass of a potential market through the inclusion of the GDP per capita, as well as the future growth projections through the inclusion of the GDP growth expectations. Alexander, Rhodes, Myers and Java (2007) found that as opposed to the population of a market, the GDP of said market acts as the more appropriate proxy for mass in a Newtonian gravitational relationship and is therefore an important inclusion when deciding on an export market. Miecinskiene, Stasytyte and Kazlauskaite (2013) highlight the importance of the education and development levels as important factors to consider when selecting an export market. This leads to the inclusion of the Human Development Index (HDI) of the United Nations Development Programme (UNDP) (UNDP, 2022) which shows the human development status of a country, and in turn serves as a proxy for the types of products that will be demanded by the people in the country. Foreign Direct Investment (FDI) is an important mode of foreign market entry for a firm (Al Qur'an, 2020). Therefore the FDI levels in a market act as a proxy for firms being able to enter said market and also acts as a proxy for the interest/confidence in a market from an international investment perspective. This is the basis for the selection of FDI net inflows in the market conditions dimension. The GDP per capita and the HDI are important factors to consider in the development of the Country Priority Index, as these can aid in the selection of products/services for

72 Please refer to Appendix 29 for a description of each variable and their ranges included in Table 5.1.

the export market. For example, a country with a relatively high GDP per capita and HDI will most likely import food products/services that are higher in value.

The selection of a foreign market hinges on numerous factors, amongst others, the legal system and the political stability of a country are important considerations (Miecinskiene *et al.*, 2013). The business environment allows for the determination of the feasibility (practicality) involved in conducting business in a respective country. A market with low political stability carries with it higher levels of risk, and a country with poor regulatory quality means that the government is unable to "formulate and implement sound policies and regulations that permit and promote private sector development" (World Bank, 2021). Therefore, this dimension is important when determining which market to export to, as it takes into consideration the practicalities behind operating a business in an international market, which may or may not be politically stable, and so on.

The logistical conditions in a country are another important factor to consider. This is because the logistical conditions in a market determine the ease (and therefore cost) with which an exporter can transport an export product to the final consumer (Du Plessis, 1987). As costs are involved, so too is the competitiveness of an exporter. If road infrastructure is poor, vehicle damages and repairs increase the costs of insurance and transport, and thus the cost of the final product, thereby making it more expensive than the same product that a local producer has to offer (Du Plessis, 1987). The LPI is an important inclusion, as it measures the performance along the logistics supply chain of a country, from both an international and a domestic perspective (World Bank, 2018). The distance to a market is an important inclusion as the distance to a market acts as a proxy for both transport and communications costs (Alexander *et al.*, 2007).

When constructing the CCPI, the importance of resilience in sustaining trade and export performance was considered. Factors impacting on resilience relating to supply chain performance (business relationships, information sharing, and so on); external forces (state of the economy, rule of law, and so on); and internal aspects (operational reliability, quality, transparency, and so on) (WEF, 2022), and as noted by Jordaan and Kirsten (2019), Setene and Jordaan (2020), and Seifert and Lucker (2014), were found to be sufficiently captured by the indices used in construction of the CCPI.

5.3.2.1 Methodology used to account for missing data

To impute the missing data points for some of the indices and variables used, software provided by Statistica was used for the calculations required (StatSoft Europe, 2022). In this specific case, Statistica made use of the methodology known as K-Nearest Neighbours (KNN) (StatSoft Europe, 2022). The KNN algorithm is a regression classifier that is commonly used because of its simplicity and accuracy (International Business Machines (IBM), 2022). The KNN algorithm assesses the nearness (or proximity) of available data points and uses this information to predict the absent data point (IBM, 2022).

The algorithm makes use of the average KNN value to predict the missing data point when performing regression analyses (IBM, 2022). In other words, the missing (output or *Y*) variables are formed, based upon predictions made by using the available (input or *X*) variables (Magnussen and Tomppo, 2014). The result is a linear equation that can be used to predict missing data points. The resultant linear equations are shown in Appendix 30 through to Appendix 34. In the tables, the column labelled '*b*' represents the linear equation used for the imputation of the missing data points for each respective variable. Only the best-performing regressions were used for the imputation of each variable. These regressions best explain the change in the output value as a result of changes in the input variables. The highest R^2 value is used to determine the best linear regression.

To perform the KNN algorithm, all the variables that had a full set of data were used as the input variables in the analysis, and the output variables were the data sets that did not have a full set of data. Variables with a full set of data included GDP growth expectations, the HDI, political stability, the ease of doing business index, the corruption perceptions index, the regulatory quality of a country, and the distance to the market. The output variables included the GDP of a country, the FDI inflows, road infrastructure, port infrastructure, and the logistical performance index. Therefore, there were five output (*Y*) variables and seven input (*X*) variables. It was decided that the four best predictors be used to formulate the regression equations. If any two predictors were highly correlated, then only the best predictor was retained, and the predictor that contributed the least to the variance in the output variable was excluded.

5.3.3 Constructing the CCPI

The variables used in the CCPI were normalised by utilising a commonly applied normalisation technique known as the 'Min-max normalisation' (OECD, 2008). Equation 5.1 shows the Min-max normalisation equation (OECD, 2008). In this normalisation, every variable (indicator) x^t_c for a country *c*, and time *t* is transformed to produce normalised indicators I_c that have values ranging between 0 and 1[73] (OECD, 2008). The figure 0 represents the lowest (laggard) value for the respective variables, and 1 represents the highest (leader) value for each variable (OECD, 2008; World Bank, 2021).

Equation 5.1: Min-max normalisation equation

$$\boldsymbol{I_c^t = \frac{x_c^t - min_c(x^t)}{max_c(x^t) - min_c(x^t)}}$$

where:

minc(xt) Minimum value of xtc

maxc(xt) Maximum value of xtc

After the process of normalisation, the different variables are summed together using a commonly applied measure of linear aggregation that involves the summation of normalised individual indicators (OECD, 2008). The resultant values that represent each country are then ranked in order, from largest to smallest, with the largest values representing the countries that have the highest overall scores regarding 'Market Conditions', the 'Business Environment', and 'Logistical Conditions'.

With the results of the CCPI, the actual willingness of South African agricultural exporters to export to certain markets was compared with the CCPI results. South Africa's agricultural export value for each African country was used as a proxy for the willingness to do business with the different African countries. In doing so, South Africa's over- or under-exposure to doing business in certain African countries can be demonstrated, and this can be used to make further suggestions on potential export

73 For variables that are not indexed (such as 'Distance to Market'), a lower value (such as a close market) would result in a score closer to zero. To correct for this error, the appropriate variables were made negative. This adjustment allows for the calculation in Equation 5.1 to yield the correct results. For example, a closer market would have a smaller negative value in terms of distance than a further market would have, and so I^t_c would be closer to 1.

markets. The reasoning behind this follows on a logical approach to compare actual trade to the suggestions of the CCPI, in essence, if a country is recommended as an export destination by the CCPI, the exports into said country should reflect this finding. However, to test this, the actual export data was used.

To assess South Africa's exports into each country, the groupings of the total processed and total unprocessed agricultural products selected for further analysis were used. South Africa's exports in value terms (USD billion) of processed and unprocessed agricultural products into each country were then gathered from TradeMap. With this data, the country ranking according to the CCPI is subtracted from the country ranking according to the actual trade data (for a five-year average between 2017 and 2021). The results give an indication of whether (i) trade follows the CCPI, (ii) trade is more than what the CCPI suggests it should be, and (iii) trade is less than what the CCPI suggests it should be[74].

5.3.4 Results of the CCPI by REC

Tables 5.2 through 5.17 show the results of the CCPI ('Index Rank' in left column), as well as the results of the CCPI in comparison with the trade value for each REC ('Trade Minus Index Rank' and 'Colour Code' columns)[75]. The African countries were ranked once, according to the CCPI, from 1 to 53 (South Africa was excluded). For the trade value rank to CCPI rank comparisons, data for South Africa's exports into Africa, at the country level, of the selected processed agricultural products was retrieved from TradeMap. The African countries were then ranked from the largest export destination to the smallest, according to value of South Africa's exports of the selected processed agricultural products into each country. This ranking was then compared with the CCPI rankings for the African countries. The analysis was also carried out at the country level for the unprocessed agricultural products selected per REC.

74 If the score of the ranking comparison for a country is -21 or lower, the country is assigned to the red colour code in the tables (signifying over-trading). If the score is between -10 and -20 the country is assigned to the yellow colour code (signifying slight over-trading). If the score for a country is between 10 and -10 (signifying that current trade follows the CCPI), the country is assigned to the green colour code. If the score for a country is between 11 and 20 the country is assigned to the grey colour code (signifying slight under-trading). Finally, if the score for a country is 21 and above, the country is assigned a blue colour code (signifying under-trading).

75 Please refer to Appendix 37 for a comparison between the ranking results of the CCPI and the CAI of Morokong and Pienaar (2019). The rankings do differ, but most countries appear to have rankings in close proximity to each other with Eritrea being ranked number 46 in both the CCPI and CAI.

Two tables showing the results of the CCPI comparison to trade for all the African countries are shown in Appendices 35 and 36. In Appendix 35, the trade rankings for the African countries are set out according to the total processed agricultural products selected for further analysis of the African RECs. The trade rankings in Appendix 36 are for the total unprocessed agricultural products selected for analysis of the African RECs.

5.3.4.1 CCPI results for SADC

Table 5.2 shows the results of the CCPI and trade comparison analysis for South Africa's exports of the selected processed agricultural exports into Africa for the SADC region. Only the SADC member nations (excluding South Africa) are included in Table 5.2. The DRC is ranked 50th according to the CCPI, implying that, according to the CCPI, the DRC should be one of least-prioritised African countries for South Africa's agricultural exports. However, when the index rank is subtracted from the trade rank, a value of −41 is the result. The DRC is ranked as the 9th largest African export destination for South Africa's exports of the processed agricultural products selected for further analysis in the SADC region. This means that current export flows into the DRC significantly exceed what is suggested by the CCPI. The same is true for all countries located in the red section, but to a lesser extent, as well as for countries located in the orange section. The reasons for the poor CCPI rank can be attributed to a country's poor scores in factors such as political stability, the HDI, GDP per capita, and the perception of corruption.

Countries located in the green section are those that South Africa exports to in proportion with the findings of the CCPI. The Comoros, for example, scores a value of −1 when the index rank is subtracted from the trade rank. This implies that trade with Comoros is almost perfectly aligned with what the CCPI suggests (perfect alignment would result in a net value of zero). Lastly, the grey section identifies those countries that South Africa trades with far less than what is suggested by the CCPI; these countries are Mauritius and the Seychelles. These are typically countries that one would expect to attract more trade from South Africa than is currently the case, owing to relatively high scores in political stability, HDI, GDP per capita, and regulatory quality. However, this is not the case. This can be attributed to the small populations of the latter two countries. However, given the higher scores in other attributes of the

CCPI, Mauritius and the Seychelles may present opportunities for different kinds of agricultural exports, such as higher valued agricultural exports as opposed to grain or cereal exports.

Table 5.2: CCPI for processed exports for the SADC Region

Index Rank	Country	Trade Minus Index Rank	Colour Code
50	DRC	-41	Current Trade Significantly Exceeds CCPI
45	Angola	-37	
38	Zimbabwe	-33	
29	Mozambique	-26	
23	Lesotho	-19	Current Trade Exceeds CCPI
24	Malawi	-14	
19	Zambia	-13	
26	Madagascar	-9	Current Trade Correlates with CCPI
13	Eswatini	-6	
15	Tanzania	-3	
3	Botswana	-2	
4	Namibia	-2	
28	Comoros	-1	
1	Mauritius	14	CCPI Exceeds Current Trade
2	Seychelles	18	

Table 5.3 shows the results of the CCPI and trade comparison for South Africa's exports of the selected unprocessed agricultural exports for the SADC region. The same countries in the red section in Table 5.2 are again in the red section in Table 5.3; however, they have changed their order. Zimbabwe, with a trade rank minus index rank of −36, is the SADC country that South Africa trades with more in unprocessed agricultural products than what is suggested by the CCPI the most.

Tanzania is in the green section and has a net value of 0, implying that South Africa exports unprocessed agricultural products to Tanzania in the exact proportion that is suggested by the CCPI. The Seychelles is traded with the least in proportion with the CCPI. The Seychelles is in the blue section, suggesting that South Africa's exports of unprocessed agricultural products to the Seychelles is far less than what is suggested by the CCPI, and accordingly South Africa should look at expanding exports to the Seychelles.

Table 5.3: CCPI for unprocessed exports for the SADC Region

Index Rank	Country	Trade Minus Index Rank	Colour Code
38	Zimbabwe	-36	Current Trade Significantly Exceeds CCPI
45	Angola	-33	
50	DRC	-32	

Index Rank	Country	Trade Minus Index Rank	Colour Code
29	Mozambique	-25	
23	Lesotho	-17	Current Trade Exceeds CCPI
19	Zambia	-10	Current Trade Correlates with CCPI
13	Eswatini	-8	
24	Malawi	-5	
3	Botswana	-2	
4	Namibia	-1	
15	Tanzania, United Republic of	0	
26	Madagascar	5	
28	Comoros	12	CCPI Exceeds Current Trade
1	Mauritius	13	
2	Seychelles	27	CCPI Significantly Exceeds Current Trade

5.3.4.2 CCPI results for the AMU

Table 5.4 shows the results for the AMU region. For South Africa's exports into Africa of processed agricultural products selected for further analysis of the AMU region, only Algeria is exported to in proportion with the findings of the CCPI. Libya is exported to more than what is suggested by the CCPI, and it can be suggested that South Africa should look at alternatives for its exports into Libya. Alternatives could potentially be Tunisia, Morocco, and Mauritania, if the AMU region is to be focused on.

Table 5.4: CCPI for processed exports for the AMU region

Index Rank	Country	Trade Minus Index Rank	Colour Code
51	Libya	-13	Current Trade Exceeds CCPI
25	Algeria	-7	Current Trade Correlates with CCPI
31	Mauritania	18	CCPI Exceeds Current Trade
11	Tunisia	37	CCPI Significantly Exceeds Current Trade
7	Morocco	39	

Table 5.5 shows the results for the AMU region for South Africa's exports into Africa for the unprocessed agricultural products selected for further analysis of the AMU region, compared with the CCPI rankings. In this case, Algeria and Mauritania are exported to in proportion with the CCPI. However, Libya is still exported to more than want is suggested by the CCPI, while Tunisia and Morocco are exported to less than what is suggested by the CCPI.

Table 5.5: CCPI for unprocessed exports for the AMU region

Index Rank	Country	Trade Minus Index Rank	Colour Code
51	Libya, State of	-14	Current Trade Exceeds CCPI
25	Algeria	6	Current Trade Correlates with CCPI
31	Mauritania	6	
11	Tunisia	18	CCPI Exceeds Current Trade
7	Morocco	29	CCPI Significantly Exceeds Current Trade

5.3.4.3 CCPI results for COMESA

Table 5.6 shows the results for South Africa's exports into Africa of the processed agricultural products selected for analysis of the COMESA region, compared with the results of the CCPI for COMESA. Again, the DRC and Zimbabwe are exported to more than what is suggested by the CCPI and are joined by Somalia and Ethiopia. Seven countries are exported to in proportion with the CCPI, including Uganda, with the lowest net value of −1. In the case of COMESA, Tunisia is the country that is exported to the least, rather than what is suggested by the CCPI.

Table 5.6: CCPI for processed exports for the COMESA region

Index Rank	Country	Trade Minus Index Rank	Colour Code
50	Congo, Democratic Republic	-39	Current Trade Significantly Exceeds CCPI
38	Zimbabwe	-34	
53	Somalia	-30	
37	Ethiopia	-24	
24	Malawi	-15	Current Trade Exceeds CCPI
19	Zambia	-12	
51	Libya	-11	
26	Madagascar	-11	
47	Sudan	-9	Current Trade Correlates with CCPI
13	Eswatini	-8	
49	Eritrea	-7	
46	Burundi	-3	
28	Comoros	-2	
21	Uganda	-1	
8	Kenya	9	
17	Djibouti	12	CCPI Exceeds Current Trade
1	Mauritius	17	
2	Seychelles	19	
5	Rwanda	28	CCPI Significantly Exceeds Current Trade
6	Egypt	35	
11	Tunisia	38	

Table 5.7 shows the results for South Africa's exports into Africa of the unprocessed agricultural products selected for analysis of the COMESA region, compared with the results of the CCPI for COMESA. Here, Zimbabwe is the country that exports are sent

to with a higher surplus than any other country. Somalia and the DRC are also still located in the red section. Ethiopia is now located in the yellow section.

According to the CCPI and South Africa's export values, Eritrea is exported to in exactly the correct amounts. Eleven other countries are also located in the green section but are not as perfectly aligned as Eritrea is. When referring to the blue section, Rwanda is the country that receives less exports from South Africa than what is suggested by the CCPI, to the greatest extent. An index score of 5, and a trade rank minus index rank of 40, suggests that Rwanda is in 45th place of the African countries that South Africa exports unprocessed agricultural products to. The CCPI suggests that Rwanda is a country that South Africa should export to more, as its composite score from the CCPI ranks the country highly.

Table 5.7: CCPI for unprocessed exports for the COMESA region

Index Rank	Country	Trade Minus Index Rank	Colour Code
38	Zimbabwe	-37	Current Trade Significantly Exceeds CCPI
53	Somalia	-31	
50	DRC	-30	
37	Ethiopia	-11	Current Trade Exceeds CCPI
13	Eswatini	-9	Current Trade Correlates with CCPI
19	Zambia	-9	
47	Sudan	-7	
51	Libya	-5	
21	Uganda	-2	
8	Kenya	-1	
24	Malawi	-1	
49	Eritrea	0	
17	Djibouti	1	
46	Burundi	3	
26	Madagascar	3	
28	Comoros	10	
1	Mauritius	16	CCPI Exceeds Current Trade
2	Seychelles	30	CCPI Significantly Exceeds Current Trade
6	Egypt	33	
11	Tunisia	33	
5	Rwanda	40	

5.3.4.4 CCPI results for ECOWAS

Table 5.8 shows the results obtained for processed agricultural products for the ECOWAS region. Mali and Nigeria are exported to far more than what is suggested by the CCPI, as is Niger, but to a lesser extent. Guinea is exported to in the exact right proportions that concur with the CCPI, while several other countries are also exported to in proportion with the CCPI. Benin, Togo, Senegal and Cote d'Ivoire are exported to less than what is suggested by the CCPI, whereas Cabo Verde is exported to far

less than what is suggested by the CCPI, with a net trade rank minus index rank score of 42.

Table 5.8: CCPI for processed exports for the ECOWAS region

Index Rank	Country	Trade Minus Index Rank	Colour Code
43	Mali	-35	Current Trade Significantly Exceeds CCPI
41	Nigeria	-29	
42	Niger	-16	Current Trade Exceeds CCPI
39	Liberia	-4	Current Trade Correlates with CCPI
30	Guinea	0	
27	Gambia	2	
35	Sierra Leone	2	
34	Burkina Faso	4	
12	Ghana	7	
40	Guinea-Bissau	7	
18	Benin	15	CCPI Exceeds Current Trade
20	Togo	16	
14	Senegal	18	
9	Cote d'Ivoire (Ivory Coast)	19	
10	Cabo Verde (Cape Verde)	42	

Table 5.9 shows the results for unprocessed agricultural products for the ECOWAS region. Only Nigeria is exported to far more than what is suggested by the CCPI, with a net score of −34, and only Mali is exported to more than what is suggested by the CCPI (yellow section). Twelve countries are exported to in proportion with the CCPI, including Ghana, Gambia, Guinea, and Sierra Leone, all being countries with a net value of either 1 or −1. Only Cabo Verde is exported to less than what is suggested by the CCPI.

Table 5.9: CCPI for unprocessed exports for the ECOWAS region

Index Rank	Country	Trade Minus Index Rank	Colour Code
41	Nigeria	-34	Current Trade Significantly Exceeds CCPI
43	Mali	-16	Current Trade Exceeds CCPI
40	Guinea-Bissau	-6	Current Trade Correlates with CCPI
39	Liberia	-6	
14	Senegal	-5	
34	Burkina Faso	-4	
42	Niger	-4	
20	Togo	-4	
12	Ghana	-1	
27	Gambia	1	
30	Guinea	1	
35	Sierra Leone	1	
9	Cote d'Ivoire (Ivory Coast)	4	
18	Benin	7	
10	Cabo Verde (Cape Verde)	39	

5.3.4.5 CCPI results for CEN-SAD

Table 5.10 shows the results for the selected processed agricultural products for analysis of the CEN-SAD region. According to export values and the CCPI, six countries for CEN-SAD are exported to more than what is suggested by the CCPI, with four of them being to a large extent (red section).

Nine countries are exported to in proportion with the CCPI, with the Central African Republic being exported to in proportions that agree exactly with the CCPI. Nine countries are exported to less than what is suggested by the CCPI, with three of them being exported to far less than what is suggested by the CCPI. Tunisia and Morocco both have a trade rank minus index rank of 38, and are in the blue section, suggesting that South Africa's exports to these countries is far less than what is suggested by the CCPI.

Table 5.10: CCPI for processed exports for the CEN-SAD region

Index Rank	Country	Trade Minus Index Rank	Colour Code
43	Mali	-33	Current Trade Significantly Exceeds CCPI
41	Nigeria	-29	
53	Somalia	-29	
47	Sudan	-26	
42	Niger	-16	Current Trade Exceeds CCPI
51	Libya	-11	
49	Eritrea	-8	Current Trade Correlates with CCPI
44	Chad	-1	
48	Central African Republic	0	
28	Comoros	2	
27	Gambia	2	
35	Sierra Leone	2	
34	Burkina Faso	4	
12	Ghana	7	
40	Guinea-Bissau	7	
17	Djibouti	11	CCPI Exceeds Current Trade
18	Benin	15	
20	Togo	16	
9	Cote d'Ivoire (Ivory Coast)	18	
14	Senegal	18	
31	Mauritania	19	
6	Egypt	33	CCPI Significantly Exceeds Current Trade
7	Morocco	38	
11	Tunisia	38	

Table 5.11 shows the results for the selected unprocessed agricultural products for analysis of the CEN-SAD region. For unprocessed agricultural exports, only two countries, as opposed to four, are in the red section. These are Nigeria (with a net score of −35) and Somalia (with a net score of −31). Mali has moved from the red

section, where it was located for processed agricultural products, to the yellow section, with a net score of −17. This shows the difference in priority that South Africa places on exports of processed agricultural products into Mali, as opposed to South Africa's exports of unprocessed agricultural products into Mali. The relative position changes of countries when comparing processed and unprocessed agricultural exports is a common occurrence.

Table 5.11: CCPI for unprocessed exports for the CEN-SAD region

Index Rank	Country	Trade Minus Index Rank	Colour Code
41	Nigeria	-35	Current Trade Significantly Exceeds CCPI
53	Somalia	-31	
43	Mali	-17	Current Trade Exceeds CCPI
40	Guinea-Bissau	-6	Current Trade Correlates with CCPI
47	Sudan	-6	
51	Libya	-5	
14	Senegal	-5	
34	Burkina Faso	-4	
42	Niger	-4	
20	Togo	-4	
44	Chad	-2	
12	Ghana	-1	
49	Eritrea	0	
48	Central African Republic	1	
27	Gambia	1	
35	Sierra Leone	1	
17	Djibouti	2	
9	Cote d'Ivoire (Ivory Coast)	3	
18	Benin	6	
28	Comoros	11	CCPI Exceeds Current Trade
31	Mauritania	12	
6	Egypt	31	CCPI Significantly Exceeds Current Trade
11	Tunisia	33	
7	Morocco	40	

5.3.4.6 CCPI results for EAC

Table 5.12 shows the results of the processed agricultural products analysis for the EAC. Again, the DRC is located in the red section and Rwanda in the blue section, which is a result not uncommon with those of other RECs. Most of the countries in the EAC region lie in the green section regarding South Africa's exports of the selected processed agricultural products to the EAC. Burundi and Tanzania have a net score of −2, Uganda of −1, South Sudan a score of 1, and Kenya a score of 6. Exports to these countries in the EAC region are in proportion to the findings of the CCPI, and therefore it can be suggested that South Africa should maintain export levels to these countries, and perhaps explore expanding exports into these countries.

Table 5.12: CCPI for processed exports for the EAC region

Index Rank	Country	Trade Minus Index Rank	Colour Code
50	DRC	-39	Current Trade Significantly Exceeds CCPI
46	Burundi	-3	Current Trade Correlates with CCPI
15	Tanzania	-2	
21	Uganda	-1	
52	South Sudan	1	
8	Kenya	6	
5	Rwanda	26	CCPI Significantly Exceeds Current Trade

Table 5.13 shows the results of the unprocessed agricultural products analysis for the EAC. Again, most of the countries are in the green section, with the DRC being in the red section and Rwanda in the blue section. This therefore implies that South Africa's exports of both the processed and unprocessed agricultural products selected for further analysis of the EAC region, into the EAC region are in proportion with the CCPI.

Table 5.13: CCPI for unprocessed exports for the EAC region

Index Rank	Country	Trade Minus Index Rank	Colour Code
50	DRC	-32	Current Trade Significantly Exceeds CCPI
52	South Sudan	-3	Current Trade Correlates with CCPI
8	Kenya	-2	
21	Uganda	-2	
15	Tanzania	-1	
46	Burundi	3	
5	Rwanda	40	CCPI Significantly Exceeds Current Trade

5.3.4.7 CCPI results for ECCAS

Table 5.14 shows the results for the processed agricultural products analysis of the ECCAS region. Four countries, namely the DRC, Angola, the Congo and Cameroon, are exported to by South Africa more than what is suggested by the CCPI. Five countries are exported to in proportion to the recommendations of the CCPI. Rwanda and Sao Tome and Principe are two countries in the ECCAS region that South Africa does not place enough priority on with regard to the exports of the processed agricultural products selected for further analysis of the ECCAS region, according to the CCPI. Both countries have a net score of 29.

Table 5.14: CCPI for processed exports for the ECCAS region

Index Rank	Country	Trade Minus Index Rank	Colour Code
50	Congo, Democratic Republic	-41	Current Trade Significantly Exceeds CCPI
45	Angola	-37	

Index Rank	Country	Trade Minus Index Rank	Colour Code
32	Congo, Republic	-16	Current Trade Exceeds CCPI
36	Cameroon	-13	
46	Burundi	-4	Current Trade Correlated with CCPI
44	Chad	-1	
48	Central African Republic	1	
22	Gabon	2	
33	Equatorial Guinea	6	
5	Rwanda	29	CCPI Significantly Exceeds Current Trade
16	Sao Tome & Principe	29	

Table 5.15 shows the results of the unprocessed agricultural products analysis for the ECCAS region. In this case, Angola and the DRC share the same net score of −32. The Congo has moved to the green section as a result of using the custom selected products for the analysis of the ECCAS region in the CCPI to trade comparison and has a score of −5, as opposed to −16, implying that South Africa's exports to the Congo of the unprocessed agricultural products selected are more aligned with the CCPI than are South Africa's exports of the processed agricultural products selected. Gabon has a net score of −1 and the Central African Republic a score of 1, implying that these countries are exported to in proportionate amounts when referring to the results of the CCPI. Again, Rwanda and Sao Tome and Principe are in the blue section of the table, pointing towards South Africa's lack of priority placement with regard to exports of both processed and unprocessed agricultural products to these two countries as suggested by the CCPI.

Table 5.15: CCPI for unprocessed exports for the ECCAS region

Index Rank	Country	Trade Minus Index Rank	Colour Code
45	Angola	-32	Current Trade Significantly Exceeds CCPI
50	DRC	-32	
36	Cameroon	-22	Current Trade Exceeds CCPI
32	Congo, Republic	-5	Current Trade Correlates with CCPI
44	Chad	-2	
22	Gabon	-1	
48	Central African Republic	1	
33	Equatorial Guinea	2	
46	Burundi	3	
16	Sao Tome & Principe	32	CCPI Significantly Exceeds Current Trade
5	Rwanda	40	

5.3.4.8 CCPI Results for IGAD

From Table 5.16, it is seen that South Africa's exports of the processed agricultural products for the analysis of the IGAD region are exported either more than what is suggested by the CCPI, or in the proportionate amounts. Somalia and Ethiopia are

located in the red section, with Eritrea and Sudan in the yellow section. South Africa exports to these countries in values that are more than what is suggested by the CCPI. Uganda, South Sudan, Kenya, and Djibouti are the countries that South Africa exports to in amounts proportionate with the CCPI.

Table 5.16: CCPI for processed exports for the IGAD region

Index Rank	Country	Trade Minus Index Rank	Colour Code
53	Somalia	-32	Current Trade Significantly Exceeds CCPI
37	Ethiopia	-23	
49	Eritrea	-11	Current Trade Exceeds CCPI
47	Sudan	-11	
21	Uganda	-1	Current Trade Correlates with CCPI
52	South Sudan	1	
8	Kenya	8	
17	Djibouti	9	

Table 5.17 shows the results of the unprocessed agricultural products analysis for the IGAD region. Again, no country is an export destination of South Africa that is prioritised to an extent that is more than what is suggested by the CCPI. Somalia and Ethiopia are still located in the red section, with Sudan in the yellow. Eritrea, however, is now located in the green section, implying that South Africa's unprocessed agricultural exports to Eritrea are more in proportion with the CCPI than that of South Africa's processed agricultural exports to Eritrea.

Table 5.17: CCPI for the Unprocessed Exports Selected for the IGAD Region

Index Rank	Country	Trade Minus Index Rank	Colour Code
53	Somalia	-37	Current Trade Significantly Exceeds CCPI
37	Ethiopia	-25	
47	Sudan	-18	Current Trade Exceeds CCPI
52	South Sudan	-9	Current Trade Correlates with CCPI
49	Eritrea	-6	
17	Djibouti	-4	
21	Uganda	-3	
8	Kenya	-1	

5.3.5 Conclusion on the results of the CCPI

South African exports of processed and unprocessed agricultural products into different countries are not prioritised in the same manner. In essence, South Africa may be 'over-exporting' processed agricultural products to a country such as Eritrea, but when it comes to South Africa's exports of unprocessed agricultural products into Eritrea, the export values are proportionate to the findings of the CCPI. This example works in the opposite direction as well. This has implications for the recommendations

as to what types of agricultural exports (processed or unprocessed) should be recommended to either remain the same, decrease, or even increase, for each respective country. At the same time, different regions pose different levels of opportunities for trade expansion. For example, there are more countries in the CEN-SAD region in which South Africa has the opportunity to focus more priority on, where currently not enough priority is being placed (according to the trade value and CCPI comparison), than there are in the ECCAS region.

Lastly, there are several countries that South Africa exports to in quantities far more than what is suggested by the CCPI. For some countries, this might potentially be explained by their proximity to South Africa, the competitiveness of South Africa's products as opposed to imports from elsewhere, or the availability of products in the home country, and so forth. For countries such as the DRC and Angola, high export figures can be explained by their ease of access to South Africa for exports of agricultural products at competitive prices, whereas this ease of access is not available for other countries at the same quality level, or at all. It is important that the reasons for this phenomenon being experienced should be identified to protect South Africa from 'over-exposure' in markets that may potentially pose significant risks in coming years.

For markets that are not major South African export destinations, such as Mauritius and the Seychelles, but which are recognised as priority countries according to the CCPI, it can be hypothesised that this situation arises because of factors such as low population numbers, as is the case for Mauritius and the Seychelles. In 2021, Mauritius had a population of 1.26 million, while the Seychelles had a population of fewer than a hundred thousand people (World Bank, 2022c). This finding implies that the results of the CCPI analysis and its comparison with trade values should be used as a basis to further investigate the appropriateness of an identified export market, as there may be crucial underlying reasons as to why South Africa does not export to such countries in any large amount.

One of the main drawbacks of the CCPI is a lack of weighting for each variable used in the composition of the final CCPI scores for each country. Without any weighting, it is not possible to differentiate between the importance that each variable plays in an exporter's decision regarding which market to export to and warrants further analysis

The weighting of the different variables/indices could not be carried out in this study due to time constraints. However, objective v of the study was achieved as it highlighted the relevance of the development and use of a composite index such as the CCPI in identifying an export market. It proved valuable in highlighting those markets that South Africa is potentially over-exposed to and also highlighted those in which South Africa has not awarded much agricultural export value to. Upon these findings further by-country analyses can be carried out to further investigate the appropriateness of identified export markets.

Chapter 6:
Summary and Conclusions

6.1 Introduction

Objectives i through to v were achieved successfully in this study. A thorough literature review was provided in Chapter 2 achieving objective i and gave an understanding of the theory pertaining to both international trade as well as the theory concerning regional economic integration. In addition, Chapter 2 introduced South Africa's overall trade and agricultural trade with the SADC and SACU regions and analysed the techniques and findings of previous authors that investigated the potential effects as well as the realizations that occurred as a result of economic integration. Previous studies that assessed the ramifications of a continental trade area were also analysed and their findings highlighted to give an overview of the nuances that influence intra-African trade. Lastly, Chapter 2 also detailed the evolution of South Africa's trade policy stances as well as South Africa's trade policy stance going forward, an important factor to consider when interpreting the results of the findings of this study, thereby achieving objective ii.

Chapter 3 and 4 went through the methodology and the findings of this study and in doing so achieved objectives iii and iv. The methodological approach in this study stood apart from others previously used in the sense that it did not focus on the macro-economic implications of the formation of the AfCFTA through the use of various econometric techniques, but rather aimed at identifying specific product-market combinations that held potential for South Africa's agricultural export industry through the use of various trade indices. In doing so various markets and products were identified that hold potential for South Africa's agricultural exports going forward under the ambit of the AfCFTA. Lastly, Chapter 5 achieved objective v through the formation of the CCPI. The CCPI proved valuable in identifying potential export markets as well as those that South Africa may be focusing on more than what is suggested by the CCPI.

6.2 Agricultural trade and regional integration

The outcomes of the Uruguay Round of GATT negotiations ushered in a new era of agricultural trade that is fairer and more competitive, on the global scale, in 1995 (UNCTAD, 2020). However, in the following years, failures to meet deadlines to further liberalise total trade (agricultural and other) on a global scale shifted the goal posts for countries to focus more on regional trade blocs. For example, between 2012 and 2021, the number of RTAs, globally, increased from 238 to 353 (WTO, 2022b). The past two decades also experienced a rapid rise in the trade of agricultural products with the expansion occurring at the global level across various GVCs (Van Berkum, 2021 and OECD, 2022). The value of global agricultural imports increased from USD 482 billion to USD 1 820 billion between 2002 and 2021, or by 377%, which equates to a CAGR of 6.86%.

African countries have responded to the advent of increased global regionalism by creating further regional trading blocs on the continent and by strengthening the existing ones. According to the WTO (2022b), the number of RTAs on the African continent increased from 28 in 2012 to 45 in 2021. The thrust to expand in regionalism has been focused on structural reforms designed to assist in making economies more open to implementing export-orientated policies, that are more market driven, competitive and democratic (Moyo, 2020; Steenkamp and Ferreira, 2020). The AfCFTA, the most recent addition to FTAs on the African continent, came into effect as of January 2021 and will effectively consolidate 55 African countries into one single market.

South Africa has followed the global trend of increased inclusion in trade agreements to achieve increased collaboration and to strengthen economic integration. The NDP, which aims to eliminate poverty and reduce inequality by 2030, highlights the fact that Africa is a key strategic market for South African trade, including agricultural trade (Morokong and Pienaar, 2019).

However, at the global level, consensus has still not been reached on whether regional trading blocs are beneficial in the sense that the trade creation effects outweigh the trade diversion effects, or if the opposite is true. For example, Coulibaly (2007), Heo and Tran (2012), and Ngepah and Udeagha (2018) found that some regional trading blocs proved to be beneficial, whereas others proved to have a net trade-diversion

impact on the trade between member countries and the RoW. It is therefore important for a country and/or firm to assess the nature of the trade that is shared between the exporting entity and the members of a newly formed, or even an established, REC. The reason for this is that, despite the ambiguity referring to the true effects of integration, new export opportunities present themselves to an exporter through many channels, which include, but are not limited to, tariff reductions, reductions in NTMs and NTBs, and many other trade-facilitating advancements that accompany regional integration.

Given the nature of South Africa's agricultural exports into the continent, which in 2020 accounted for 35.4% of South Africa's total agricultural exports, as well as the rapidly growing African economies and populations, and the country's desire to be a leader in expanding African trade, it is important that opportunities for agricultural export expansion into the continent be identified.

The research question that was addressed in this research study is whether the AfCFTA presents an opportunity for South Africa to expand agricultural exports into the continent, or whether it is just a pipedream. This should be seen against the backdrop that South Africa's agricultural exports into the continent accounted for 35.4% of South Africa's total agricultural exports in 2020, but that this share has decreased over the past decade, despite Africa's potential for being a large export destination market.

6.3 Data and methodologies used

Since this research focused on South Africa's agricultural exports into Africa under the AfCFTA, the analysis was conducted per REC, at the regional levels, and country levels in some instances. A grouping of agricultural products at the HS6 level of aggregation that belong to both South Africa's top 80% agricultural exports to the world, as well as the top 80% imports of each respective REC from the world, was compiled using the ITC TradeMap database (ITC, 2022). The product scope includes all agricultural products classified as unprocessed and processed. Using the identified exports and imports, a multitude of trade indices was applied to identify the nature of trade between South Africa and each REC.

Trade indices are commonly applied to analyse the nature of trade between firms, industries, and even countries, since they are often simple to calculate and have fewer demanding data requirements (Plummer *et al.*, 2010). Another benefit is that the data used is easily and freely obtainable from internationally reputable sources such as the World Bank, the IMF, the ITC, and the UNCTAD (Plummer *et al.*, 2010). The indices used include, the RTI, the IIT, the ROI and Gini-Index, and the GHI.

In addition, a CCPI composed from three dimensions that affect the trade potential of an export destination was compiled to identify potential export markets for South Africa to prioritise on the African continent. The three dimensions are, Market Conditions, the Business Environment and the Logistical Conditions.

6.4 Results

6.4.1 South Africa's trade with the African Continent

The value of South Africa's agricultural exports into Africa have been experiencing a declining share of the value of South Africa's total agricultural exports to the world in more recent years, i.e. from nearly 47% in 2012 to 36% in 2021. However, the value of agricultural exports into the continent between 2012 and 2021 increased by approximately USD 219 million, representing a CAGR of 0.51%, to reach USD 1.30 billion in 2021. This declining share in the value of South Africa's agricultural trade with Africa is reason for concern, since Africa has the potential to provide a large market for South African agricultural exports because of the projected increase in Africa's GDP, population, trade, urbanisation, and other factors.

South Africa's processed agricultural exports into Africa consistently contributed more than 65% to South Africa's total agricultural exports into the continent, over the period 2012–2021; in 2021 contributing 69% of the total agricultural export value into Africa.

South Africa's total agricultural exports into the SACU and SADC regions largely influence South Africa's total agricultural exports into the continent. South Africa's agricultural exports into SACU made up 49% of South Africa's total agricultural exports into the continent in 2020, as compared with 53% in 2010. The SADC region has contributed approximately 89% of the total value of South Africa's agricultural exports into Africa, by value, since 2010.

Agricultural exports by South Africa into the TFTA, which includes nations belonging to COMESA, EAC and SADC, and which was only signed by South Africa in 2017, accounted for 90% of South Africa's total agricultural exports into the continent in 2020. Prior to South Africa signing the TFTA, exports of agricultural products to other countries belonging to the TFTA accounted for 91% and 89% in 2010 and 2015, respectively.

6.4.2 RTI and IIT

The high RTI for SADC shows that the majority of SADC trade (in value terms) is between SADC members, rather than with the RoW for both processed and unprocessed agricultural products. The AfCFTA, therefore, offers little benefit for South Africa to increase trade with SADC countries. In addition, the tariff rates faced by South Africa within the SADC region are either part of the SADC rates or the SADC-FTA and so are relatively low already.

Most other RECs are strongly regionally introverted for the selected processed agricultural products that they trade in (e.g., AMU, COMESA, ECOWAS, CEN-SAD, EAC, ECCAS, IGAD). The RTI results for unprocessed products however show that several RECs are highly dependent or becoming more dependent on extra-regional trade (e.g., AMU, COMESA, ECOWAS, CEN-SAD, ECCAS, IGAD). The exception is the EAC which has a high level of introversion for unprocessed agricultural products. The tariff rates that the RECs charge for imports of processed and unprocessed agricultural products on non-member countries mostly hover around 20% and so reduced tariffs under the AfCFTA could allow for South Africa to enter more markets than what is currently the case.

The high level of trade introversion for processed agricultural products in all RECs suggests that South Africa could experience difficulties in exploiting market opportunities despite tariff reductions, but the opposite is true for unprocessed agricultural products, except perhaps in the EAC. Overall, the unprocessed agricultural products showing the highest potential for market expansion, supported by the IIT values and the trade balances of the respective products, include Maize, Fresh apples, Fresh or chilled potatoes and Frozen, boneless meat of bovine animals. South Africa also has the potential to increase exports of Wheat and meslin, however, this would

necessitate South Africa to either increase production or the import of Wheat and meslin. For processed agricultural products, opportunities are present in South Africa's exports of Sugar cane, Broken rice and Semi-milled or wholly milled rice, however, this too would necessitate increased production in South Africa or increased imports. Additionally, South Africa's exports of Cigarettes containing tobacco is presented with export opportunities in several RECs, however, South Africa has a high IIT value for Cigarettes containing tobacco and therefore most of South Africa's exports of Cigarettes containing tobacco are 're-exports'.

6.4.3 ROI values for agricultural exports

South Africa's ROI scores for the selected agricultural products are high for SADC, which can be expected. However, the level of orientation differs for each other REC and also depends on whether the exports are processed or unprocessed agricultural products. For example, South Africa scored a relatively high ROI value of roughly 5 in 2021 for exports of the selected processed agricultural products into the COMESA region but had an ROI value of less than 2 for exports of the selected unprocessed agricultural products in 2021. For the COMESA region, then, this implies that the trade creation effects to be realised from processed agricultural exports will be larger than for unprocessed agricultural exports, as COMESA is more of a natural trading partner with South Africa for the processed agricultural exports selected.

South Africa's ROI for exports of processed and unprocessed agricultural products fluctuated between 2012 and 2021 with the ROI values for processed agricultural exports tending to be higher than for unprocessed agricultural exports. South Africa's ROI for exports of unprocessed agricultural products were highest for the ECOWAS and CEN-SAD RECs with values higher than 5 as of 2021. This implies that trade creation effects would be higher than trade diversion effects from increased exports into those RECs as a result of reduced tariffs.

6.4.4 Trade concentration

The high Gini coefficients show South Africa's exports of the selected agricultural products into Africa are highly concentrated in a few markets. These are Botswana, Mozambique, Zimbabwe, Lesotho, Eswatini and Namibia (all members of the SADC REC). The SADC region has the highest import concentration of imports of the

selected agricultural products from South Africa (represented by the GHI for SADC's imports of agricultural products). This implies that South Africa already has a large market share of the SADC region, and that this market share should be maintained to preserve South Africa's strong role within the REC. The AMU REC has the lowest import concentration for imports from South Africa of the selected agricultural products, and this implies that South Africa has a minimal market share in the region.

6.4.5 Composite Country Priority Index (CCPI)

The CCPI developed in this research shows that: (i) South African exports of processed and unprocessed agricultural products into different countries are not prioritised in the same manner, (ii) different regions pose different levels of opportunities for trade expansion, and (iii) export volumes to some countries are far greater than what is suggested by the CCPI. The latter point can be explained by, among other things, the proximity of certain countries to South Africa, the competitiveness of South Africa's products as opposed to imports from elsewhere, and the availability of products within the home country. The CCPI also revealed the usefulness of a composite index in initial investigations into the appropriateness of potential export markets.

6.5 Conclusions

The identification of country- and product-specific export opportunities for South Africa's agricultural export sector under the ambit of the AfCFTA, through the use of several trade indices as well as the development and application of a CCPI, point to the uniqueness of this study. Prior studies including those shown in Chapter 2, amongst others, were predominantly aimed at identifying and quantifying the economic and trade effects as a result of the creation of the AfCFTA, through the use of econometric models such as CGE, gravity and general equilibrium models, amongst others. However, they did not speak to specific export opportunities for South Africa's agricultural sector throughout the African continent under the ambit of the AfCFTA, at both the aggregated and disaggregated (HS6) levels, as was done in this study.

The AfCFTA does offer opportunities for South Africa's export expansion into the African continent. The opportunities are mixed amongst RECs and the types of agricultural products. Most RECs are introverted in processed agricultural products

trade and less for unprocessed agricultural products. The lower level of trade introversion implies that South Africa has an opportunity to expand exports of agricultural products faster to a particular REC than when a high level of introversion exists. Cognisance should be taken that the expansion of trade will depend on the type of products demanded, as well as historical trade ties that have been cemented over several years.

If the tariff reductions envisioned under the AfCFTA come to fruition, it can be postulated that South Africa's competitiveness within each African market, that South Africa has no prior trade agreement with, will improve considering the high MFN AVE tariffs. The overall opportunities may be less than envisaged due to the nature of products (processed and unprocessed) being demanded and what South Africa can supply in terms of its current trade commitments and product scope.

The use of a composite index, such as the CCPI, is a good indicator of where policy makers and business should focus their efforts. Cognisance should however be taken of the deviations between the CCPI and actual trade. Such deviations can be explained by geographical proximity from South Africa, whether it is traders from other countries that buy essential agricultural products in South Africa given their tacit knowledge in their home countries, availability of essential agricultural products in the home country, competitiveness of South African products versus imports from elsewhere, the expansion of South African retailers into Africa and the market size of the target country.

A significant impediment to expand trade under the AfCFTA is NTMs and incumbent high levels of NTBs as confirmed by several authors. These measures are already impeding on trade opportunities with regions where South Africa has strong historical trade ties, i.e., SADC.

Finally, from the results of this study there is no conclusive evidence that the AfCFTA is a pipedream for South African agricultural exports, but it is certainly not a silver bullet to significantly expand agricultural exports, at least not in the short to medium term.

6.6 Recommendations for further research

It is recommended that the results of this thesis be expanded via an analysis of the competitiveness of South African agricultural exports in comparison to the other

African countries. The Contribution to Trade Balance (CTB) methodology, developed by Stellian and Danna-Buitrago (2019) can be applied at the REC, country and product levels and can be compared across time to obtain a deeper understanding of competitiveness of different sectors and products at the HS6 level (Stellian and Danna-Buitrago, 2019). This will give valuable insight into South Africa's competitive ability to supply to African countries and will also highlight competitors within the African continent. Further details on the appropriateness and advantages that set the CTB abreast from other measures of comparative advantage are provided in Stellian and Danna-Buitrago (2019).

It is recommended that a value chain analysis be conducted on the Structure, Conduct and Performance of the different African markets as well as those outside of Africa. This will be useful in determining whether respective African countries would be more suitable export markets than those in regions such as Europe, South America, and so on.

It is recommended that the results of the CCPI be progressed through the weighting of the different variables and indices used in the CCPI. Weightings can be deduced via surveys that are sent out to industry stakeholders within South Africa, as was done for the WCDoA (2022) study. However, there are also other weighting methods that can be applied if deemed more appropriate. This will prove valuable in refining the results of the CCPI as the weights will allow for a more robust ranking of the most appropriate export markets. A deeper understanding of the main areas that influence an exporter's decision on what market to export to will additionally aid in policy creation and development.

Finally, it would be beneficial to conduct a similar analysis that focusses on an individual REC at a time and that is inclusive of an investigation of the NTMs that could impede on potential trade creation. This will shed more light on the ways in which countries apply NTMs to protect local industries and can assist in South Africa's management of this issue.

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Appendices

Appendix 1: Selected agricultural products for analysis of the SADC region

Product HS Code	Processed Agricultural Products	Average SADC Import Value in USD$ '000 (2012-2021)	CAGR on SADC Import Value (2012-2021)
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed	648 529	6,78%
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...	378 569	-2,08%
'110100	Wheat or meslin flour	342 829	-11,15%
'240220	Cigarettes, containing tobacco	214 779	-1,92%
'210690	Food preparations, n.e.s.	210 914	1,17%
'150710	Crude soya-bean oil, whether or not degummed	204 331	13,14%
'220300	Beer made from malt	193 729	-8,74%
'230990	Preparations of a kind used in animal feeding (excluding dog or cat food put up for retail ...	171 650	2,52%
'220421	Wine of fresh grapes, incl. fortified wines, and grape must whose fermentation has been arrested ...	140 109	-5,63%
'150790	Soya-bean oil and its fractions, whether or not refined (excluding chemically modified and ...	123 295	-4,57%
'190531	Sweet biscuits	122 125	0,00%
'230400	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting ...	110 740	6,42%
'151219	Sunflower-seed or safflower oil and their fractions, whether or not refined, but not chemically ...	106 630	-4,39%
'210390	Preparations for sauces and prepared sauces; mixed condiments and seasonings (excluding soya ...	104 284	2,89%
'170490	Sugar confectionery not containing cocoa, incl. white chocolate (excl. chewing gum)	100455	-2,70%
'220210	Waters, incl. mineral and aerated, with added sugar, sweetener or flavour, for direct consumption ...	94775	3,06%
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...	81694	11,64%
'151710	Margarine (excluding liquid)	79464	-3,15%
'220600	Cider, perry, mead and other fermented beverages and mixtures of fermented beverages and non-alcoholic ...	75586	-3,24%
'200990	Mixtures of fruit juices, incl. grape must, and vegetable juices, unfermented, whether or not ...	73115	-0,46%

Product HS Code	Unprocessed Agricultural Products	Average SADC Import Value in USD$ '000 (2012-2021)	CAGR on SADC Import Value (2012-2021)
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)	393 683	25,65%
'100590	Maize (excluding seed for sowing)	381 459	-2,09%
'020714	Frozen cuts and edible offal of fowls of the species Gallus domesticus	376 778	-1,07%
'020230	Frozen, boneless meat of bovine animals	116 169	-10,92%
'080810	Fresh apples	54 947	-4,81%
'100510	Maize seed for sowing	51 308	3,53%
'070190	Fresh or chilled potatoes (excluding seed)	46 332	-1,13%
'070310	Fresh or chilled onions and shallots	45 835	-0,29%
'091099	"Spices (excluding pepper of the genus Piper, fruit of the genus Capsicum or of the genus Pimenta, ...	37092	3,56%
'120991	Vegetable seeds, for sowing	23026	5,93%
'020130	Fresh or chilled bovine meat, boneless	16905	-0,34%
'080610	Fresh grapes	16313	-0,56%

Source: Own calculations based on data from ITC (2022).

Appendix 2: Selected agricultural products for the analysis of the AMU region

Product HS Code	Processed Agricultural Products	Average AMU Import Value in USD$ '000 (2012-2021)	CAGR on AMU Import Value (2012-2021)
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...	1 088 769	2,55%
'150710	Crude soya-bean oil, whether or not degummed	1 085 450	5,42%
'230400	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting ...	833 994	1,99%
'040210	Milk and cream in solid forms, of a fat content by weight of <= 1,5%	454 618	2,54%
'240220	Cigarettes, containing tobacco	419 576	3,34%
'210690	Food preparations, n.e.s.	358 818	10,44%
'190110	Food preparations for infant use, put up for retail sale, of flour, groats, meal, starch or ...	268 702	43,28%
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...	244 734	5,27%
'040690	"Cheese (excluding fresh cheese, incl. whey cheese, curd, processed cheese, blue-veined cheese ...	212 737	2,21%
'230990	Preparations of a kind used in animal feeding (excluding dog or cat food put up for retail ...	164 015	18,34%
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed	127 846	5,81%

Product HS Code	Processed Agricultural Products	Average AMU Import Value in USD$ '000 (2012-2021)	CAGR on AMU Import Value (2012-2021)
'240319	Smoking tobacco, whether or not containing tobacco substitutes in any proportion (excluding ...	85 392	19,44%
'180690	Chocolate and other preparations containing cocoa, in containers or immediate packings of <= ...	82 577	2,75%
'150790	Soya-bean oil and its fractions, whether or not refined (excluding chemically modified and ...	79 179	40,19%
'190531	Sweet biscuits	67 470	-3,87%
'190590	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion ...	55 218	17,30%
'220299	Non-alcoholic beverages (excl. water, fruit or vegetable juices, milk and beer)	51 748	15,72%
Product HS Code	**Unprocessed Agricultural Products**	**Average AMU Import Value in USD$ '000 (2012-2021)**	**CAGR on AMU Import Value (2012-2021)**
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)	2 469 971	9,02%
'100590	Maize (excluding seed for sowing)	1 658 224	0,60%

Source: Own calculations based on data from ITC (2022).

Appendix 3: Selected agricultural products for analysis of the COMESA region

Product HS Code	Processed Agricultural Products	Average COMESA Import Value in USD$ '000 (2012-2021)	CAGR on COMESA Import Value (2012-2021)
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...	1 518 589	2,45%
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed	1 039 033	11,49%
'240220	Cigarettes, containing tobacco	691 945	-1,77%
'210690	Food preparations, n.e.s.	629 495	6,59%
'230400	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting ...	596 005	-7,47%
'150710	Crude soya-bean oil, whether or not degummed	427 241	6,35%
'110100	Wheat or meslin flour	396 882	5,47%
'230990	Preparations of a kind used in animal feeding (excluding dog or cat food put up for retail ...	377 465	3,86%
'040210	Milk and cream in solid forms, of a fat content by weight of <= 1,5%	360 270	1,32%
'100640	Broken rice	295 679	4,40%
'151219	Sunflower-seed or safflower oil and their fractions, whether or not refined, but not chemically ...	257 462	17,49%
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...	256 917	12,46%

Product HS Code	Processed Agricultural Products	Average COMESA Import Value in USD$ '000 (2012-2021)	CAGR on COMESA Import Value (2012-2021)
'190110	Food preparations for infant use, put up for retail sale, of flour, groats, meal, starch or ...	222 431	6,31%
'190190	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing ...	183 440	4,48%
'040690	"Cheese (excluding fresh cheese, incl. whey cheese, curd, processed cheese, blue-veined cheese ...	158 874	2,05%
'190531	Sweet biscuits	130 349	6,30%
'170490	Sugar confectionery not containing cocoa, incl. white chocolate (excl. chewing gum)	107 080	6,23%
'220210	Waters, incl. mineral and aerated, with added sugar, sweetener or flavour, for direct consumption ...	98 033	11,25%
'210390	Preparations for sauces and prepared sauces; mixed condiments and seasonings (excluding soya ...	91 750	7,24%
'040120	Milk and cream of a fat content by weight of > 1% but <= 6%, not concentrated nor containing ...	90 568	11,37%
Product HS Code	**Unprocessed Agricultural Products**	**Average COMESA Import Value in USD$ '000 (2012-2021)**	**CAGR on COMESA Import Value (2012-2021)**
'100590	Maize (excluding seed for sowing)	2 576 192	2,05%
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)	1 415 452	20,96%
'080810	Fresh apples	369 106	4,69%

Source: Own calculations based on data from ITC (2022).

Appendix 4: Selected agricultural products for analysis of the ECOWAS region

Product HS Code	Processed Agricultural Products	Average ECOWAS Import Value in USD$ '000 (2012-2021)	CAGR on ECOWAS Import Value (2012-2021)
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed	1 687 373	-1,94%
'100640	Broken rice	1 455 790	-4,74%
'190190	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing ...	526 825	6,73%
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...	519 261	4,34%
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...	445 798	#DIV/0!
'240220	Cigarettes, containing tobacco	370 968	2,11%
'210690	Food preparations, n.e.s.	292 819	10,96%
'040210	Milk and cream in solid forms, of a fat content by weight of <= 1,5%	238 450	6,21%

Product HS Code	Processed Agricultural Products	Average ECOWAS Import Value in USD$ '000 (2012-2021)	CAGR on ECOWAS Import Value (2012-2021)
'210390	Preparations for sauces and prepared sauces; mixed condiments and seasonings (excluding soya ...	197 225	8,13%
'110100	Wheat or meslin flour	178 508	0,12%
'190110	Food preparations for infant use, put up for retail sale, of flour, groats, meal, starch or ...	176 432	4,07%
'210410	Soups and broths and preparations therefor	148 176	5,75%
'230990	Preparations of a kind used in animal feeding (excluding dog or cat food put up for retail ...	137 355	9,20%
'220290	Non-alcoholic beverages (excluding water, fruit or vegetable juices and milk)	132 009	-21,40%
'220299	Non-alcoholic beverages (excl. water, fruit or vegetable juices, milk and beer)	91 935	#DIV/0!
'230400	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting ...	76 332	16,32%
Product HS Code	**Unprocessed Agricultural Products**	**Average ECOWAS Import Value in USD$ '000 (2012-2021)**	**CAGR on ECOWAS Import Value (2012-2021)**
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)	557 408	#DIV/0!
'020714	Frozen cuts and edible offal of fowls of the species Gallus domesticus	298 880	6,39%
'100590	Maize (excluding seed for sowing)	120 431	-0,50%
'080810	Fresh apples	73 606	6,04%
'070190	Fresh or chilled potatoes (excluding seed)	34 210	3,37%
'100510	Maize seed for sowing	31 382	0,39%

Source: Own calculations based on data from ITC (2022).

Appendix 5: Selected agricultural products for analysis of the CEN-SAD region

Product HS Code	Processed Agricultural Products	Average CEN-SAD Import Value in USD$ '000 (2012-2021)	CAGR on CEN-SAD Import Value (2012-2021)
'040210	Milk and cream in solid forms, of a fat content by weight of <= 1,5%	538 311	3,11%
'040690	"Cheese (excluding fresh cheese, incl. whey cheese, curd, processed cheese, blue-veined cheese ...	228 095	3,86%
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed	1 841 277	-2,71%
'100640	Broken rice	1 456 174	-3,29%
'110100	Wheat or meslin flour	416 108	5,66%
'150710	Crude soya-bean oil, whether or not degummed	702 944	1,47%
'151219	Sunflower-seed or safflower oil and their fractions, whether or not refined, but not chemically ...	129 300	35,76%

Product HS Code	Processed Agricultural Products	Average CEN-SAD Import Value in USD$ '000 (2012-2021)	CAGR on CEN-SAD Import Value (2012-2021)
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...	818 113	26,35%
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...	1 587 182	4,28%
'190110	Food preparations for infant use, put up for retail sale, of flour, groats, meal, starch or ...	378 544	4,22%
'190190	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing ...	590 854	6,53%
'190531	Sweet biscuits	135 344	5,48%
'210390	Preparations for sauces and prepared sauces; mixed condiments and seasonings (excluding soya ...	213 796	6,01%
'210410	Soups and broths and preparations therefor	150 421	5,13%
'210690	Food preparations, n.e.s.	775 921	6,81%
'220290	Non-alcoholic beverages (excluding water, fruit or vegetable juices and milk)	167 412	-20,54%
'220299	Non-alcoholic beverages (excl. water, fruit or vegetable juices, milk and beer)	130 080	#DIV/0!
'230400	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting ...	811 265	-3,11%
'230990	Preparations of a kind used in animal feeding (excluding dog or cat food put up for retail ...	405 925	3,31%
'240220	Cigarettes, containing tobacco	979 507	0,66%
Product HS Code	**Unprocessed Agricultural Products**	**Average CEN-SAD Import Value in USD$ '000 (2012-2021)**	**CAGR on CEN-SAD Import Value (2012-2021)**
'020714	Frozen cuts and edible offal of fowls of the species Gallus domesticus	339 455	7,37%
'080810	Fresh apples	407 773	4,78%
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)	1 676 525	27,03%
'100590	Maize (excluding seed for sowing)	2 868 793	2,09%

Source: Own calculations based on data from ITC (2022).

Appendix 6: Selected agricultural products for analysis of the EAC regjon

Product HS Code	Processed Agricultural Products	Average EAC Import Value in USD$ '000 (2012-2021)	CAGR on EAC Import Value (2012-2021)
'040120	Milk and cream of a fat content by weight of > 1% but <= 6%, not concentrated nor containing ...	42 074	10,31%
'040210	Milk and cream in solid forms, of a fat content by weight of <= 1,5%	27 405	21,74%
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed	312 953	11,67%
'100640	Broken rice	76 751	-21,50%

Product HS Code	Processed Agricultural Products	Average EAC Import Value in USD$ '000 (2012-2021)	CAGR on EAC Import Value (2012-2021)
'110100	Wheat or meslin flour	40 005	0,56%
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...	71 352	86,94%
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...	392 303	-0,75%
'170490	Sugar confectionery not containing cocoa, incl. white chocolate (excl. chewing gum)	30 326	14,96%
'190190	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing ...	61 900	2,97%
'190531	Sweet biscuits	38 683	12,72%
'210390	Preparations for sauces and prepared sauces; mixed condiments and seasonings (excluding soya ...	27 685	16,75%
'210690	Food preparations, n.e.s.	116 415	12,57%
'220299	Non-alcoholic beverages (excl. water, fruit or vegetable juices, milk and beer)	35 397	#DIV/0!
'220300	Beer made from malt	61 135	2,83%
'220830	Whiskies	33 732	13,65%
'230400	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting ...	33 176	17,00%
'230990	Preparations of a kind used in animal feeding (excluding dog or cat food put up for retail ...	50 778	24,41%
'240220	Cigarettes, containing tobacco	56 304	5,21%
Product HS Code	**Unprocessed Agricultural Products**	**Average EAC Import Value in USD$ '000 (2012-2021)**	**CAGR on EAC Import Value (2012-2021)**
'020714	Frozen cuts and edible offal of fowls of the species Gallus domesticus	36 970	77,73%
'080810	Fresh apples	19 410	10,14%
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)	698 851	52,13%
'100510	Maize seed for sowing	72 228	-3,06%
'100590	Maize (excluding seed for sowing)	102 265	4,82%
'120991	Vegetable seeds, for sowing	24 410	9,37%

Source: Own calculations based on data from ITC (2022).

Appendix 7: Selected agricultural products for analysis of the ECCAS region

Product HS Code	Processed Agricultural Products	Average ECCAS Import Value in USD$ '000 (2012-2021)	CAGR on CEN-SAD Import Value (2012-2021)
'040120	Milk and cream of a fat content by weight of > 1% but <= 6%, not concentrated nor containing ...	33 489	-8,03%
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed	601 002	1,25%

Product HS Code	Processed Agricultural Products	Average ECCAS Import Value in USD$ '000 (2012-2021)	CAGR on CEN-SAD Import Value (2012-2021)
'100640	Broken rice	61 007	4,34%
'110100	Wheat or meslin flour	280 264	-16,22%
'110220	"Maize ""corn"" flour"	120 379	-14,76%
'110313	"Groats and meal of maize ""corn"""	40 595	4,24%
'150790	Soya-bean oil and its fractions, whether or not refined (excluding chemically modified and ...	92 676	-2,71%
'151710	Margarine (excluding liquid)	42 178	-6,43%
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...	31 909	170,99%
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...	237 340	-4,53%
'170490	Sugar confectionery not containing cocoa, incl. white chocolate (excl. chewing gum)	45 405	-0,73%
'190110	Food preparations for infant use, put up for retail sale, of flour, groats, meal, starch or ...	85 888	1,01%
'190190	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing ...	123 821	1,01%
'190531	Sweet biscuits	91 375	0,10%
'190590	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion ...	34 122	-8,27%
'210390	Preparations for sauces and prepared sauces; mixed condiments and seasonings (excluding soya ...	56 966	3,85%
'210690	Food preparations, n.e.s.	147 988	-1,35%
'220210	Waters, incl. mineral and aerated, with added sugar, sweetener or flavour, for direct consumption ...	35 148	-6,60%
'220290	Non-alcoholic beverages (excluding water, fruit or vegetable juices and milk)	53 773	-30,55%
'220299	Non-alcoholic beverages (excl. water, fruit or vegetable juices, milk and beer)	39 671	#DIV/0!
'220300	Beer made from malt	168 629	-13,95%
'220421	Wine of fresh grapes, incl. fortified wines, and grape must whose fermentation has been arrested ...	90 365	-7,11%
'220429	Wine of fresh grapes, incl. fortified wines, and grape must whose fermentation has been arrested ...	31 891	-14,22%
'220830	Whiskies	65 134	-10,48%
'230400	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting ...	33 059	2,84%
'240220	Cigarettes, containing tobacco	106 113	-1,90%

Product HS Code	Unprocessed Agricultural Products	Average ECCAS Import Value in USD$ '000 (2012-2021)	CAGR on CEN-SAD Import Value (2012-2021)
'020714	Frozen cuts and edible offal of fowls of the species Gallus domesticus	449 755	0,55%
'080810	Fresh apples	26 819	-7,28%
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)	305 053	33,23%
'100590	Maize (excluding seed for sowing)	33 254	10,58%

Source: Own calculations based on data from ITC (2022).

Appendix 8: Selected agricultural products for analysis of the IGAD region

Product HS Code	Processed Agricultural Products	Average CEN-SAD Import Value in USD$ '000 (2012-2021)	CAGR on CEN-SAD Import Value (2012-2021)
'040210	Milk and cream in solid forms, of a fat content by weight of <= 1,5%	68 813	1,39%
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed	621 478	15,31%
'100640	Broken rice	115 679	8,61%
'110100	Wheat or meslin flour	275 802	9,63%
'151219	Sunflower-seed or safflower oil and their fractions, whether or not refined, but not chemically ...	178 703	51,24%
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...	136 983	17,09%
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...	1 126 383	4,21%
'190190	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing ...	111 100	-1,98%
'210690	Food preparations, n.e.s.	239 263	5,11%
'230990	Preparations of a kind used in animal feeding (excluding dog or cat food put up for retail ...	75 389	15,99%
'240220	Cigarettes, containing tobacco	220 474	-12,50%
Product HS Code	**Unprocessed Agricultural Products**	**Average CEN-SAD Import Value in USD$ '000 (2012-2021)**	**CAGR on CEN-SAD Import Value (2012-2021)**
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)	919 439	27,94%
'100510	Maize seed for sowing	39 511	-2,64%
'100590	Maize (excluding seed for sowing)	101 553	10,05%
'120991	Vegetable seeds, for sowing	32 464	7,57%

Source: Own calculations based on data from ITC (2022).

Appendix 9: South Africa's IIT values for the total selected processed agricultural products (2017 to 2021)

Product HS Code	Product Description	2017	2018	2019	2020	2021
	Total Processed Agricultural Products	**89%**	**83%**	**81%**	**81%**	**81%**
'190590	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion ...	88%	88%	86%	93%	96%
'240220	Cigarettes, containing tobacco	77%	86%	86%	64%	89%
'190531	Sweet biscuits	73%	78%	84%	87%	88%
'210690	Food preparations, n.e.s.	97%	94%	99%	100%	88%
'230990	Preparations of a kind used in animal feeding (excluding dog or cat food put up for retail ...	93%	80%	86%	92%	88%
'220210	Waters, incl. mineral and aerated, with added sugar, sweetener or flavour, for direct consumption ...	81%	73%	73%	89%	85%
'170490	Sugar confectionery not containing cocoa, incl. white chocolate (excl. chewing gum)	70%	78%	78%	80%	80%
'220300	Beer made from malt	79%	67%	55%	70%	78%
'040210	Milk and cream in solid forms, of a fat content by weight of <= 1,5%	83%	82%	65%	70%	78%
'100640	Broken rice	45%	63%	93%	91%	75%
'040690	"Cheese (excluding fresh cheese, incl. whey cheese, curd, processed cheese, blue-veined cheese ...	99%	86%	85%	67%	71%
'180690	Chocolate and other preparations containing cocoa, in containers or immediate packings of <= ...	69%	65%	70%	69%	69%
'110100	Wheat or meslin flour	75%	66%	91%	65%	65%
'190190	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing ...	31%	32%	59%	69%	55%
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...	70%	48%	35%	30%	52%
'230400	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting ...	25%	32%	50%	49%	48%
'190110	Food preparations for infant use, put up for retail sale, of flour, groats, meal, starch or ...	55%	55%	42%	52%	43%
220290 & 99	Non-alcoholic beverages (excl. water, fruit or vegetable juices, milk and beer)	34%	35%	29%	44%	42%
'040120	Milk and cream of a fat content by weight of > 1% but <= 6%, not concentrated nor containing ...	80%	51%	60%	24%	41%
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...	68%	70%	54%	52%	40%
'150710	Crude soya-bean oil, whether or not degummed	93%	75%	86%	65%	40%

Product HS Code	Product Description	2017	2018	2019	2020	2021
'150790	Soya-bean oil and its fractions, whether or not refined (excluding chemically modified and ...	28%	32%	56%	26%	37%
'190410	Prepared foods obtained by swelling or roasting cereals or cereal products, e.g. corn flakes	20%	39%	23%	42%	33%
'210390	Preparations for sauces and prepared sauces; mixed condiments and seasonings (excluding soya ...	33%	33%	39%	35%	30%
'220830	Whiskies	23%	24%	20%	26%	26%
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed	18%	19%	20%	17%	21%
'151219	Sunflower-seed or safflower oil and their fractions, whether or not refined, but not chemically ...	50%	31%	31%	35%	14%
'220600	Cider, perry, mead and other fermented beverages and mixtures of fermented beverages and non-alcoholic ...	25%	12%	9%	10%	13%
'240319	Smoking tobacco, whether or not containing tobacco substitutes in any proportion (excluding ...	3%	4%	4%	5%	7%
'110220	"Maize ""corn"" flour"	2%	1%	2%	4%	5%
'210410	Soups and broths and preparations therefor	8%	7%	10%	6%	4%
'200990	Mixtures of fruit juices, incl. grape must, and vegetable juices, unfermented, whether or not ...	3%	3%	3%	3%	4%
'110313	"Groats and meal of maize ""corn"""	3%	6%	4%	2%	3%
'220421	Wine of fresh grapes, incl. fortified wines, and grape must whose fermentation has been arrested ...	3%	3%	3%	3%	3%
'040310	Yogurt, whether or not flavoured or containing added sugar or other sweetening matter, fruits, ...	5%	3%	2%	1%	1%
'151710	Margarine (excluding liquid)	2%	2%	1%	0%	0%
'220429	Wine of fresh grapes, incl. fortified wines, and grape must whose fermentation has been arrested ...	0%	8%	17%	2%	0%

Source: Own calculations based on data from ITC (2022).

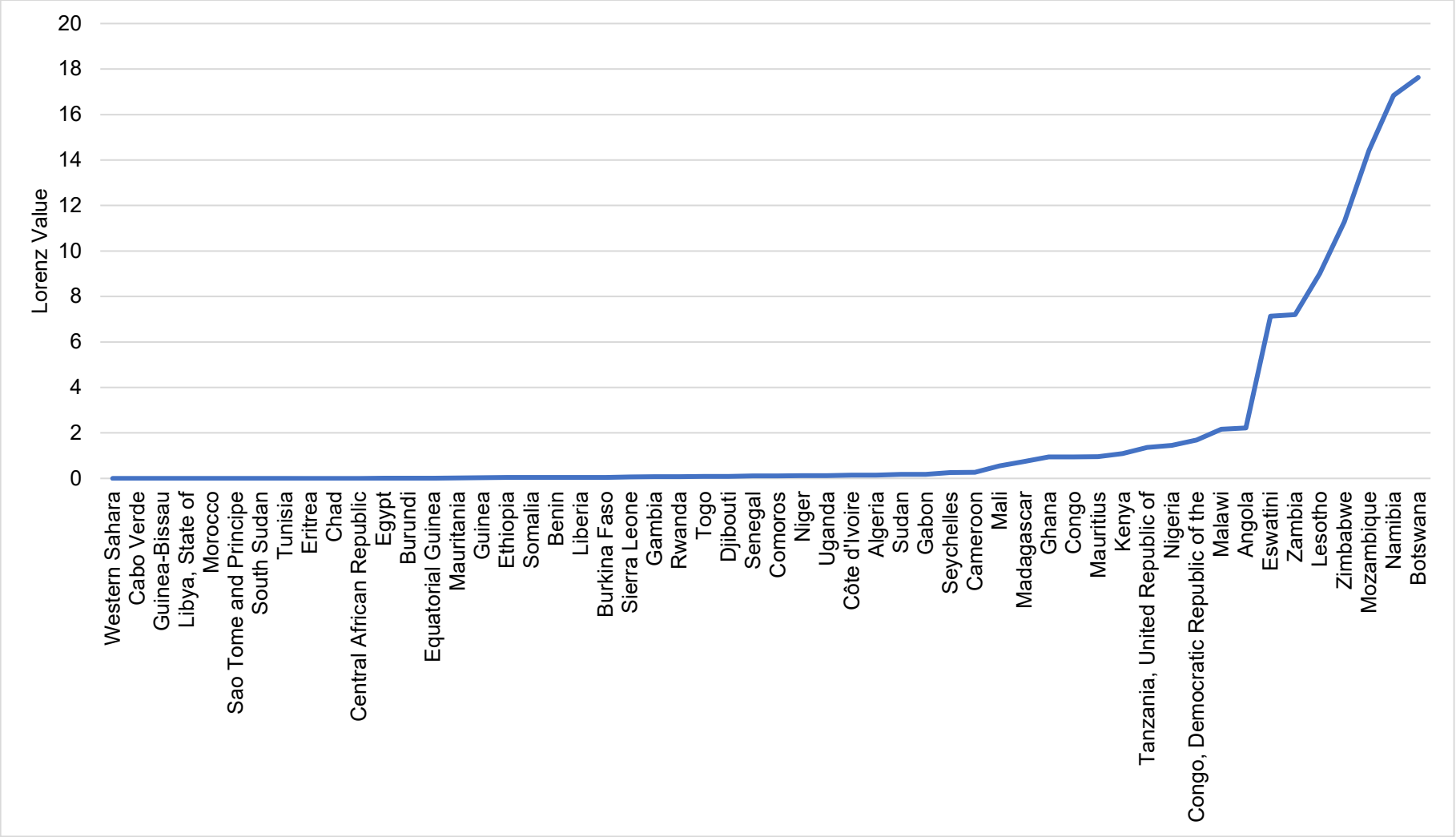
Appendix 10: South Africa's trade balances for the total selected processed agricultural products in USD '000 (2017 to 2021)

Product HS Code	Product Description	2017	2018	2019	2020	2021
	Total	**543 340**	**874 973**	**936 430**	**848 682**	**943 395**
'040120	Milk and cream of a fat content by weight of > 1% but <= 6%, not concentrated nor containing ...	10 936	19 834	14 685	20 639	23 882
'040210	Milk and cream in solid forms, of a fat content by weight of <= 1,5%	9 809	8 071	-17 705	-19 620	-14 746

Product HS Code	Product Description	2017	2018	2019	2020	2021
'040310	Yogurt, whether or not flavoured or containing added sugar or other sweetening matter, fruits, ...	49 785	36 469	35 592	29 852	34 098
'040690	"Cheese (excluding fresh cheese, incl. whey cheese, curd, processed cheese, blue-veined cheese ...	-779	6 780	5 911	12 325	14 253
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed	-414 553	-420 353	-381 173	-478 132	-425 405
100640	Broken rice	-42 296	-25 017	-2 205	3 163	9 269
'110100	Wheat or meslin flour	9 352	13 472	3 485	19 095	18 591
'110220	"Maize ""corn"" flour"	23 673	35 466	25 751	13 066	16 014
'110313	"Groats and meal of maize ""corn"""	79 659	56 916	90 685	151 655	121 485
'150710	Crude soya-bean oil, whether or not degummed	-4 898	15 412	6 675	20 967	59 996
'150790	Soya-bean oil and its fractions, whether or not refined (excluding chemically modified and ...	-99 034	-68 333	-30 451	-81 778	-78 859
'151219	Sunflower-seed or safflower oil and their fractions, whether or not refined, but not chemically ...	51 089	50 619	52 438	47 877	73 682
'151710	Margarine (excluding liquid)	35 954	33 233	29 648	30 777	33 192
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...	71 627	131 483	227 710	183 062	95 302
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...	-103 522	82 487	123 049	87 769	85 768
'170490	Sugar confectionery not containing cocoa, incl. white chocolate (excl. chewing gum)	31 972	22 700	21 919	17 414	22 251
'180690	Chocolate and other preparations containing cocoa, in containers or immediate packings of <= ...	-28 577	-34 379	-25 555	-24 461	-26 401
'190110	Food preparations for infant use, put up for retail sale, of flour, groats, meal, starch or ...	17 997	20 181	28 976	26 239	39 097
'190190	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing ...	24 484	31 230	18 870	15 944	20 857
'190410	Prepared foods obtained by swelling or roasting cereals or cereal products, e.g. corn flakes	27 532	21 114	23 340	17 316	22 366

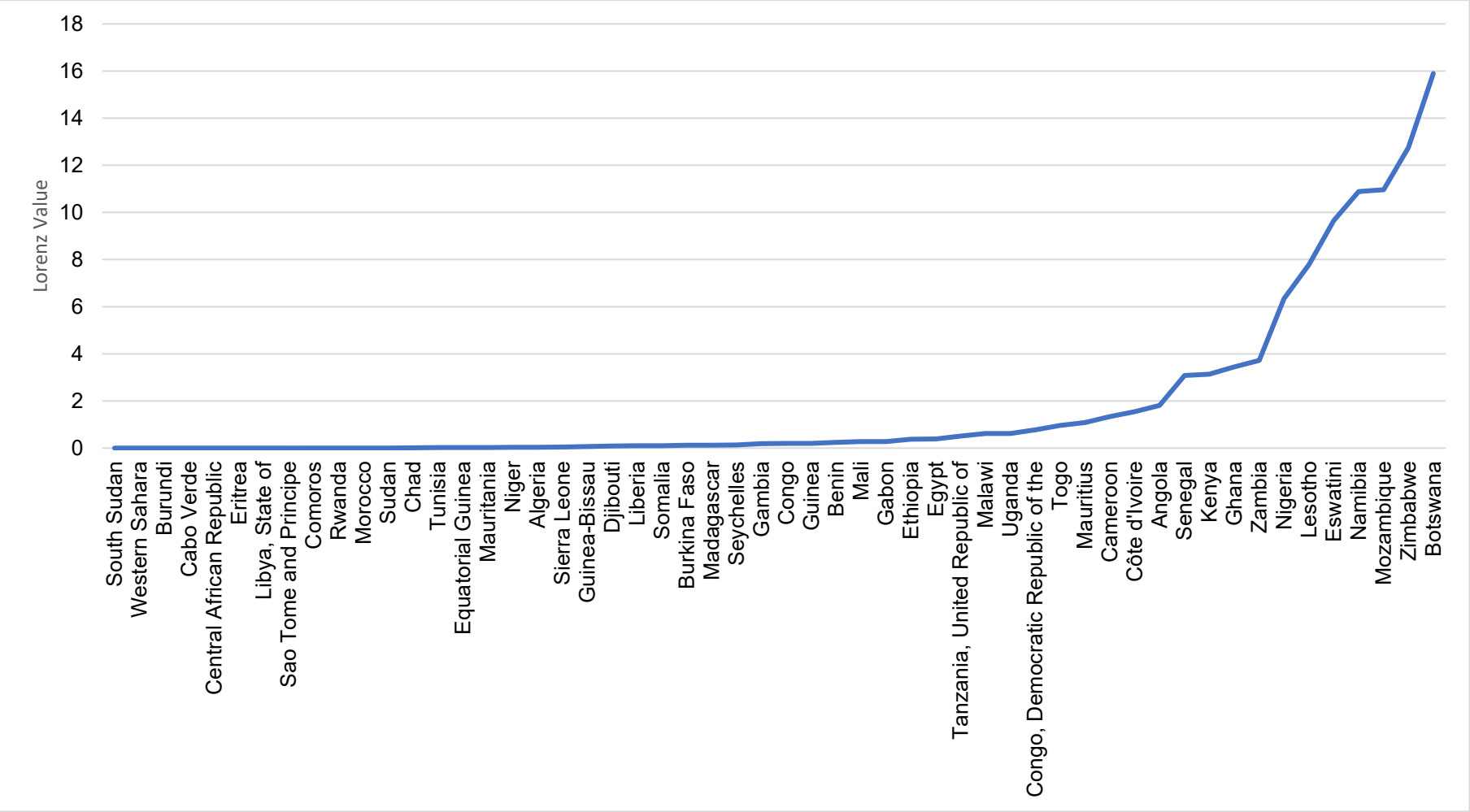
Product HS Code	Product Description	2017	2018	2019	2020	2021
'190531	Sweet biscuits	17 287	15 436	11 211	9 010	9 264
'190590	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion ...	-8 722	-9 927	-11 550	-4 563	-2 564
'200990	Mixtures of fruit juices, incl. grape must, and vegetable juices, unfermented, whether or not ...	97 044	88 878	82 352	62 964	70 540
'210390	Preparations for sauces and prepared sauces; mixed condiments and seasonings (excluding soya ...	80 972	84 768	81 279	87 244	119 778
'210410	Soups and broths and preparations therefor	63 205	74 496	51 598	65 269	72 088
'210690	Food preparations, n.e.s.	9 486	-19 707	4 920	510	-45 495
'220210	Waters, incl. mineral and aerated, with added sugar, sweetener or flavour, for direct consumption ...	30 673	44 636	48 521	17 223	31 747
220290 & 99	Non-alcoholic beverages (excl. water, fruit or vegetable juices, milk and beer)	41 785	36 117	43 549	28 942	32 754
'220300	Beer made from malt	-32 649	-80 801	-150 038	-51 764	-51 038
'220421	Wine of fresh grapes, incl. fortified wines, and grape must whose fermentation has been arrested ...	474 023	503 864	453 411	418 862	496 345
'220429	Wine of fresh grapes, incl. fortified wines, and grape must whose fermentation has been arrested ...	153 068	171 249	121 498	127 982	173 535
'220600	Cider, perry, mead and other fermented beverages and mixtures of fermented beverages and non-alcoholic ...	53 615	66 450	72 217	53 493	84 606
'220830	Whiskies	-163 728	-149 260	-150 980	-90 753	-123 746
'230400	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting ...	-157 790	-132 480	-88 809	-95 048	-152 214
'230990	Preparations of a kind used in animal feeding (excluding dog or cat food put up for retail ...	12 260	55 904	32 322	16 634	28 909
'240220	Cigarettes, containing tobacco	52 989	31 806	31 263	64 218	20 462
'240319	Smoking tobacco, whether or not containing tobacco substitutes in any proportion (excluding ...	69 612	56 159	52 021	45 290	33 732

Source: Own calculations based on data from ITC (2022).



Appendix 11: The Lorenz curve for South Africa's exports of the selected processed agricultural products into Africa (2021)

Source: Own calculations based on data from ITC (2022).



Appendix 12: The Lorenz curve for South Africa's exports of the selected unprocessed agricultural products into Africa (2021)

Source: Own calculations based on data from ITC (2022)

Appendix 13: SADC's import GHI analysis at the HS 6 level for selected processed agricultural products

Product HS Code	Product description	Average level of concentration (2017-2021)			Standard deviation (2017-2021)	CGAR (2017-2021)
		High (>75)	Medium (>25 - <75)	Low (<25)		
'040120	Milk and cream of a fat content by weight of > 1% but <= 6%, not concentrated nor containing ...		X		9%	16%
'040210	Milk and cream in solid forms, of a fat content by weight of <= 1,5%			X	4%	-5%
'040310	Yogurt, whether or not flavoured or containing added sugar or other sweetening matter, fruits, ...		X		10%	-8%
'040690	"Cheese (excluding fresh cheese, incl. whey cheese, curd, processed cheese, blue-veined cheese ...		X		6%	10%
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed			X	1%	-21%
'110100	Wheat or meslin flour			X	8%	81%
'110313	"Groats and meal of maize ""corn"""		X		15%	-3%
'150710	Crude soya-bean oil, whether or not degummed		X		10%	-22%
'150790	Soya-bean oil and its fractions, whether or not refined (excluding chemically modified and ...			X	4%	10%
'151219	Sunflower-seed or safflower oil and their fractions, whether or not refined, but not chemically ...		X		4%	-5%
'151710	Margarine (excluding liquid)		X		1%	2%
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...		X		16%	-50%
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...			X	2%	2%
'170490	Sugar confectionery not containing cocoa, incl. white chocolate (excl. chewing gum)		X		5%	-11%
'180690	Chocolate and other preparations containing cocoa, in containers or immediate packings of <= ...		X		4%	4%
'190110	Food preparations for infant use, put up for retail sale, of flour, groats, meal, starch or ...		X		10%	11%
'190190	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing ...			X	5%	-7%
'190410	Prepared foods obtained by swelling or roasting cereals or cereal products, e.g. corn flakes		X		10%	-14%

Product HS Code	Product description	Average level of concentration (2017-2021)			Standard deviation (2017-2021)	CGAR (2017-2021)
		High (>75)	Medium (>25 - <75)	Low (<25)		
'190531	Sweet biscuits		X		6%	-13%
'190590	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion ...		X		1%	-2%
'200990	Mixtures of fruit juices, incl. grape must, and vegetable juices, unfermented, whether or not ...	X			11%	-13%
'210390	Preparations for sauces and prepared sauces; mixed condiments and seasonings (excluding soya ...		X		3%	2%
'210410	Soups and broths and preparations therefor		X		3%	-5%
'210690	Food preparations, n.e.s.		X		4%	-5%
'220210	Waters, incl. mineral and aerated, with added sugar, sweetener or flavour, for direct consumption ...		X		6%	3%
220290 & 99	Non-alcoholic beverages (excl. water, fruit or vegetable juices, milk and beer)		X		22%	-39%
'220300	Beer made from malt		X		3%	3%
'220421	Wine of fresh grapes, incl. fortified wines, and grape must whose fermentation has been arrested ...		X		5%	5%
'220600	Cider, perry, mead and other fermented beverages and mixtures of fermented beverages and non-alcoholic ...	X			1%	1%
'220830	Whiskies		X		1%	-3%
'230400	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting ...		X		8%	21%
'230990	Preparations of a kind used in animal feeding (excluding dog or cat food put up for retail ...		X		3%	-3%
'240220	Cigarettes, containing tobacco		X		7%	-1%
Total		2	25	6		

Source: Own calculations based on data from ITC (2022).

Appendix 14: SADC's import GHI analysis at the HS 6 level for selected unprocessed agricultural products

Product HS Code	Product description	Average level of concentration (2017-2021)			Standard deviation (2017-2021)	CGAR (2017-2021)
		High (>75)	Medium (>25 - <75)	Low (<25)		
'020130	Fresh or chilled bovine meat, boneless		X		8%	2%
'020714	Frozen cuts and edible offal of fowls of the species Gallus domesticus			X	1%	-2%
'070190	Fresh or chilled potatoes (excluding seed)	X			3%	-1%
'080610	Fresh grapes	X			3%	1%
'080810	Fresh apples	X			1%	0%
'091099	"Spices (excluding pepper of the genus Piper, fruit of the genus Capsicum or of the genus Pimenta, ...	X			1%	0%
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)			X	6%	-22%
'100510	Maize seed for sowing		X		4%	5%
'100590	Maize (excluding seed for sowing)		X		7%	6%
'120991	Vegetable seeds, for sowing		X		3%	0%
	Total	**4**	**4**	**2**		

Source: Own calculations based on data from ITC (2022).

Appendix 15: AMU's import GHI analysis at the HS 6 level for selected processed agricultural products

Product HS Code	Product description	Average level of concentration (2017-2021)			Standard deviation (2017-2021)	CGAR (2017-2021)
		High (>75)	Medium (>25 - <75)	Low (<25)		
'040210	Milk and cream in solid forms, of a fat content by weight of <= 1,5%			X	0%	0%
'040690	"Cheese (excluding fresh cheese, incl. whey cheese, curd, processed cheese, blue-veined cheese ...			X	0%	0%
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed			X	0%	0%
'150710	Crude soya-bean oil, whether or not degummed			X	0%	0%
'150790	Soya-bean oil and its fractions, whether or not refined (excluding chemically modified and ...			X	0%	0%
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...			X	0%	0%
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...			X	0%	0%
'180690	Chocolate and other preparations containing cocoa, in containers or immediate packings of <= ...			X	0%	0%
'190110	Food preparations for infant use, put up for retail sale, of flour, groats, meal, starch or ...			X	0%	0%
'190531	Sweet biscuits			X	0%	0%
'190590	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion.			X	0%	0%
'210690	Food preparations, n.e.s.			X	0%	0%
'220299	Non-alcoholic beverages (excl. water, fruit or vegetable juices, milk and beer)			X	0%	0%
'230400	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting ...			X	0%	0%
'230990	Preparations of a kind used in animal feeding (excluding dog or cat food put up for retail ...			X	0%	0%
'240220	Cigarettes, containing tobacco			X	0%	0%
'240319	Smoking tobacco, whether or not containing tobacco substitutes in any proportion (excluding ...			X	3%	0%
Total		0	0	17		

Source: Own calculations based on data from ITC (2022).

Appendix 16: AMU's import GHI analysis for selected unprocessed agricultural products

Product HS Code	Product description	Average level of concentration (2017-2021)			Standard deviation (2017-2021)	CGAR (2017-2021)
		High (>75)	Medium (>25 - <75)	Low (<25)		
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)			X	0%	0%
'100590	Maize (excluding seed for sowing)			X	0%	0%
	Total	**0**	**0**	**2**		

Source: Own calculations based on data from ITC (2022).

Appendix 17: COMESA's import GHI analysis at the HS 6 level for selected processed agricultural products

Product HS Code	Product description	Average level of concentration (2017-2021)			Standard deviation (2017-2021)	CGAR (2017-2021)
		High (>75)	Medium (>25 - <75)	Low (<25)		
'040120	Milk and cream of a fat content by weight of > 1% but <= 6%, not concentrated nor containing ...			X	2%	34%
'040210	Milk and cream in solid forms, of a fat content by weight of <= 1,5%			X	1%	34%
'040690	"Cheese (excluding fresh cheese, incl. whey cheese, curd, processed cheese, blue-veined cheese ...			X	4%	-12%
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed			X	1%	-43%
'100640	Broken rice			X	1%	21%
'110100	Wheat or meslin flour			X	3%	75%
'150710	Crude soya-bean oil, whether or not degummed			X	4%	4%
'151219	Sunflower-seed or safflower oil and their fractions, whether or not refined, but not chemically ...			X	2%	-48%
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...			X	1%	-45%
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...			X	0%	31%
'170490	Sugar confectionery not containing cocoa, incl. white chocolate (excl. chewing gum)			X	2%	-21%
'190110	Food preparations for infant use, put up for retail sale, of flour, groats, meal, starch or ...			X	2%	8%

Product HS Code	Product description	Average level of concentration (2017-2021)			Standard deviation (2017-2021)	CGAR (2017-2021)
		High (>75)	Medium (>25 - <75)	Low (<25)		
'190190	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing ...			**X**	2%	10%
'190531	Sweet biscuits			**X**	3%	-27%
'210390	Preparations for sauces and prepared sauces; mixed condiments and seasonings (excluding soya ...		**X**		5%	-4%
'210690	Food preparations, n.e.s.			**X**	1%	3%
'220210	Waters, incl. mineral and aerated, with added sugar, sweetener or flavour, for direct consumption ...			**X**	3%	-5%
'230400	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting ...			**X**	3%	126%
'230990	Preparations of a kind used in animal feeding (excluding dog or cat food put up for retail ...			**X**	1%	7%
'240220	Cigarettes, containing tobacco			**X**	2%	13%
Total		0	1	19		

Source: Own calculations based on data from ITC (2022).

Appendix 18: COMESA's import GHI analysis at the HS 6 level for selected unprocessed agricultural products

Product HS Code	Product description	Average level of concentration (2017-2021)			Standard deviation (2017-2021)	CGAR (2017-2021)
		High (>75)	Medium (>25 - <75)	Low (<25)		
'080810	Fresh apples			**X**	2%	-6%
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)			**X**	0%	-18%
'100590	Maize (excluding seed for sowing)			**X**	3%	-8%
	Total	**0**	**0**	**3**		

Source: Own calculations based on data from ITC (2022).

Appendix 19: ECOWAS' import GHI analysis at the HS 6 level for selected processed agricultural products

Product HS Code	Product description	Average level of concentration (2017-2021)			Standard deviation (2017-2021)	CGAR (2017-2021)
		High (>75)	Medium (>25 - <75)	Low (<25)		
'040210	Milk and cream in solid forms, of a fat content by weight of <= 1,5%			X	0%	-40%
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed			X	0%	-42%
'100640	Broken rice			X	0%	0%
'110100	Wheat or meslin flour			X	0%	-17%
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...			X	0%	26%
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...			X	0%	-63%
'190110	Food preparations for infant use, put up for retail sale, of flour, groats, meal, starch or ...			X	3%	142%
'190190	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing ...			X	0%	-2%
'210390	Preparations for sauces and prepared sauces; mixed condiments and seasonings (excluding soya ...			X	2%	-25%
'210410	Soups and broths and preparations therefor			X	0%	42%
'210690	Food preparations, n.e.s.			X	1%	-14%
220290 & 99	Non-alcoholic beverages (excl. water, fruit or vegetable juices, milk and beer)			X	0%	12%
'230400	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting ...			X	0%	0%
'230990	Preparations of a kind used in animal feeding (excluding dog or cat food put up for retail ...			X	1%	-11%
'240220	Cigarettes, containing tobacco			X	7%	-35%
Total		0	0	15		

Source: Own calculations based on data from ITC (2022).

Appendix 20: ECOWAS' import GHI analysis at the HS 6 level for selected unprocessed agricultural products

Product HS Code	Product description	Average level of concentration (2017-2021)			Standard deviation (2017-2021)	CGAR (2017-2021)
		High (>75)	Medium (>25 - <75)	Low (<25)		
'020714	Frozen cuts and edible offal of fowls of the species Gallus domesticus			**X**	0%	-7%
'070190	Fresh or chilled potatoes (excluding seed)			**X**	0%	-9%
'080810	Fresh apples	**X**			2%	0%
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)			**X**	0%	0%
'100510	Maize seed for sowing			**X**	22%	109%
'100590	Maize (excluding seed for sowing)			**X**	2%	29%
	Total	**1**	**0**	**5**		

Source: Own calculations based on data from ITC (2022).

Appendix 21: CEN-SAD's import GHI analysis at the HS 6 level for selected processed agricultural products

Product HS Code	Product description	Average level of concentration (2017-2021)			Standard deviation (2017-2021)	CGAR (2017-2021)
		High (>75)	Medium (>25 - <75)	Low (<25)		
'040210	Milk and cream in solid forms, of a fat content by weight of <= 1,5%			X	0%	-32%
'040690	"Cheese (excluding fresh cheese, incl. whey cheese, curd, processed cheese, blue-veined cheese ...			X	0%	-63%
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed			X	0%	-39%
'100640	Broken rice			X	0%	-100%
'110100	Wheat or meslin flour			X	0%	16%
'150710	Crude soya-bean oil, whether or not degummed			X	0%	0%
'151219	Sunflower-seed or safflower oil and their fractions, whether or not refined, but not chemically ...			X	0%	-81%
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...			X	0%	-36%
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...			X	0%	-63%
'190110	Food preparations for infant use, put up for retail sale, of flour, groats, meal, starch or ...			X	1%	149%
'190190	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing ...			X	0%	17%
'190531	Sweet biscuits			X	0%	-24%
'210390	Preparations for sauces and prepared sauces; mixed condiments and seasonings (excluding soya ...			X	2%	-21%
'210410	Soups and broths and preparations therefor			X	1%	184%
'210690	Food preparations, n.e.s.			X	1%	-7%
220290 & 99	Non-alcoholic beverages (excl. water, fruit or vegetable juices, milk and beer)			X	0%	24%
'230400	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting ...			X	0%	0%

Product HS Code	Product description	Average level of concentration (2017-2021)			Standard deviation (2017-2021)	CGAR (2017-2021)
		High (>75)	Medium (>25 - <75)	Low (<25)		
'230990	Preparations of a kind used in animal feeding (excluding dog or cat food put up for retail ...			**X**	0%	11%
'240220	Cigarettes, containing tobacco			**X**	2%	-36%
Total		0	0	19		

Source: Own calculations based on data from ITC (2022).

Appendix 22: CEN-SAD's import GHI analysis at the HS 6 level for selected unprocessed agricultural products

Product HS Code	Product description	Average level of concentration (2017-2021)			Standard deviation (2017-2021)	CGAR (2017-2021)
		High (>75)	Medium (>25 - <75)	Low (<25)		
'020714	Frozen cuts and edible offal of fowls of the species Gallus domesticus			**X**	0%	-4%
'080810	Fresh apples			**X**	3%	-3%
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)			**X**	0%	0%
'100590	Maize (excluding seed for sowing)			**X**	0%	18%
	Total	**0**	**0**	**4**		

Source: Own calculations based on data from ITC (2022).

Appendix 23: EAC's import GHI analysis at the HS 6 level for selected processed agricultural products

Product HS Code	Product description	Average level of concentration (2017-2021)			Standard deviation (2017-2021)	CGAR (2017-2021)
		High (>75)	Medium (>25 - <75)	Low (<25)		
'040120	Milk and cream of a fat content by weight of > 1% but <= 6%, not concentrated nor containing ...			**X**	1%	-20%
'040210	Milk and cream in solid forms, of a fat content by weight of <= 1,5%			**X**	3%	-10%
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed			**X**	0%	77%
'100640	Broken rice			**X**	0%	245%
'110100	Wheat or meslin flour			**X**	0%	118%
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...			**X**	1%	-17%
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...			**X**	2%	50%
'170490	Sugar confectionery not containing cocoa, incl. white chocolate (excl. chewing gum)			**X**	1%	39%
'190190	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing ...			**X**	3%	57%
'190531	Sweet biscuits			**X**	1%	-26%
'210390	Preparations for sauces and prepared sauces; mixed condiments and seasonings (excluding soya ...			**X**	2%	-3%
'210690	Food preparations, n.e.s.			**X**	3%	-27%
'220299	Non-alcoholic beverages (excl. water, fruit or vegetable juices, milk and beer)			**X**	4%	-57%
'220300	Beer made from malt			**X**	1%	18%
'220830	Whiskies			**X**	1%	-38%
'230400	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting ...			**X**	1%	3%
'230990	Preparations of a kind used in animal feeding (excluding dog or cat food put up for retail ...			**X**	2%	-17%
'240220	Cigarettes, containing tobacco			**X**	6%	-33%
Total		0	0	18		

Source: Own calculations based on data from ITC (2022).

Appendix 24: EAC's import GHI analysis at the HS 6 level for selected unprocessed agricultural products

Product HS Code	Product description	Average level of concentration (2017-2021)			Standard deviation (2017-2021)	CGAR (2017-2021)
		High (>75)	Medium (>25 - <75)	Low (<25)		
'020714	Frozen cuts and edible offal of fowls of the species Gallus domesticus			X	1%	-5%
'080810	Fresh apples		X		8%	0%
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)			X	0%	-100%
'100510	Maize seed for sowing			X	3%	16%
'100590	Maize (excluding seed for sowing)			X	8%	-44%
'120991	Vegetable seeds, for sowing			X	2%	5%
	Total	**0**	**1**	**5**		

Source: Own calculations based on data from ITC (2022).

Appendix 25: ECCAS' import GHI analysis at the HS 6 level for selected processed agricultural products

Product HS Code	Product description	Average level of concentration (2017-2021)			Standard deviation (2017-2021)	CGAR (2017-2021)
		High (>75)	Medium (>25 - <75)	Low (<25)		
'040120	Milk and cream of a fat content by weight of > 1% but <= 6%, not concentrated nor containing ...			X	2%	17%
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed			X	0%	72%
'100640	Broken rice			X	0%	0%
'110100	Wheat or meslin flour			X	0%	94%
'110220	"Maize ""corn"" flour"		X		3%	-6%
'110313	"Groats and meal of maize ""corn"""			X	5%	-31%
'150790	Soya-bean oil and its fractions, whether or not refined (excluding chemically modified and ...			X	1%	75%
'151710	Margarine (excluding liquid)			X	2%	14%
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...			X	1%	252%
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...			X	1%	-2%
'170490	Sugar confectionery not containing cocoa, incl. white chocolate (excl. chewing gum)			X	2%	-47%
'190110	Food preparations for infant use, put up for retail sale, of flour, groats, meal, starch or ...			X	1%	24%
'190190	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing ...			X	4%	-5%
'190531	Sweet biscuits			X	1%	-26%
'190590	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion ...			X	3%	-38%
'210390	Preparations for sauces and prepared sauces; mixed condiments and seasonings (excluding soya ...			X	1%	10%
'210690	Food preparations, n.e.s.			X	3%	-34%
'220210	Waters, incl. mineral and aerated, with added sugar, sweetener or flavour, for direct consumption ...			X	5%	-49%

Product HS Code	Product description	Average level of concentration (2017-2021)			Standard deviation (2017-2021)	CGAR (2017-2021)
		High (>75)	Medium (>25 - <75)	Low (<25)		
220290 & 99	Non-alcoholic beverages (excl. water, fruit or vegetable juices, milk and beer)			**X**	7%	66%
'220300	Beer made from malt			**X**	0%	3%
'220421	Wine of fresh grapes, incl. fortified wines, and grape must whose fermentation has been arrested ...			**X**	2%	-21%
'220429	Wine of fresh grapes, incl. fortified wines, and grape must whose fermentation has been arrested ...			**X**	3%	-42%
'220830	Whiskies			**X**	1%	-32%
'230400	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting ...			**X**	2%	-10%
'240220	Cigarettes, containing tobacco			**X**	8%	-40%
Total		0	1	24		

Source: Own calculations based on data from ITC (2022).

Appendix 26: ECCAS' import GHI analysis at the HS 6 level for selected unprocessed agricultural products

Product HS Code	Product description	Average level of concentration (2017-2021)			Standard deviation (2017-2021)	CGAR (2017-2021)
		High (>75)	Medium (>25 - <75)	Low (<25)		
'020714	Frozen cuts and edible offal of fowls of the species Gallus domesticus			**X**	0%	-13%
'080810	Fresh apples	**X**			5%	1%
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)			**X**	0%	-100%
'100590	Maize (excluding seed for sowing)			**X**	1%	-5%
	Total	**1**	**0**	**3**		

Source: Own calculations based on data from ITC (2022).

Appendix 27: IGAD's import GHI analysis at the HS 6 level for selected processed agricultural products

Product HS Code	Product description	Average level of concentration (2017-2021)			Standard deviation (2017-2021)	CGAR (2017-2021)
		High (>75)	Medium (>25 - <75)	Low (<25)		
'040210	Milk and cream in solid forms, of a fat content by weight of <= 1,5%			**X**	0%	-18%
'100630	Semi-milled or wholly milled rice, whether or not polished or glazed			**X**	0%	-45%
'100640	Broken rice			**X**	0%	-100%
'110100	Wheat or meslin flour			**X**	0%	-48%
'151219	Sunflower-seed or safflower oil and their fractions, whether or not refined, but not chemically ...			**X**	0%	-87%
'170114	Raw cane sugar, in solid form, not containing added flavouring or colouring matter (excluding ...			**X**	1%	-100%
'170199	Cane or beet sugar and chemically pure sucrose, in solid form (excluding cane and beet sugar ...			**X**	0%	-11%
'190190	Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing ...			**X**	1%	122%
'210690	Food preparations, n.e.s.			**X**	3%	-9%
'230990	Preparations of a kind used in animal feeding (excluding dog or cat food put up for retail ...			**X**	1%	-25%
'240220	Cigarettes, containing tobacco			**X**	0%	51%
Total		0	0	11		

Source: Own calculations based on data from ITC (2022).

Appendix 28: IGAD's import GHI at the HS 6 level for selected processed agricultural products

Product HS Code	Product description	Average level of concentration (2017-2021)			Standard deviation (2017-2021)	CGAR (2017-2021)
		High (>75)	Medium (>25 - <75)	Low (<25)		
'100199	Wheat and meslin (excluding seed for sowing, and durum wheat)			**X**	0%	0%
'100510	Maize seed for sowing			**X**	5%	28%
'100590	Maize (excluding seed for sowing)			**X**	20%	-41%
'120991	Vegetable seeds, for sowing			**X**	3%	13%
	Total	**0**	**0**	**4**		

Source: Own calculations based on data from ITC (2022)

Appendix 29: Variables included in the construction of the CCPI

Dimension	Variable	Description
Market Conditions	GDP per capita	GDP of each market divided by the population of the market.
	GDP growth expectations (2019-2024)	GDP growth forecasts for each market going into 2024.
	Human Development Index (HDI)	Has three dimensions that include: Long and healthy life, knowledge, and a decent standard of living. The index ranges between 0 and 1, with 1 being the highest value (UNDP, 2022).
	Foreign Direct Investment (FDI) Net Inflows	The value of inward direct investment made by international investors, including re-invested earnings and intra-company loans, excluding the repatriation of capital and loan repayment (UN, 2007).
Business Environment	Political Stability	Measures the perceptions of the probability of political instability and/or politically motivated violence (World Governance Indicators (WGI), 2022). Ranges from -2.5 to 2.5 with 2.5 being a strong indicator of political stability and -2.5 being an indicator of high political instability (WGI, 2022).
	Ease of Doing Business Index	Countries are compared according to their regulatory environment and how the property rights in a country are conducive to business operations (World Bank, 2022c). Ranking of 190 countries globally from 1 being a country with the most business friendly regulations to the least (World Bank, 2022b).
	Corruption Perceptions Index	Ranking of 180 countries globally according to their perceived levels of public sector corruption (Transparency International, 2021). A lower ranking represents a country with a lower level of perceived corruption (Transparency International, 2021)
	Regulatory Quality	Measures the perceptions of the ability of a government to formulate and enforce sound policies and regulations that both allows and promotes development in the private sector (WGI, 2022). Ranges from -2.5 to 2.5 with -2.5 implying low levels of regulatory quality and 2.5 implying high levels of regulatory quality (WGI, 2022)
Logistical Conditions	Road Infrastructure	Measures the perspectives of business executives on country's road quality (World Bank, 2022a). Ranges from 1 being extremely underdeveloped to 7 being well developed and efficient by international standards (World Bank, 2022a).
	Port Infrastructure	Measures the perspectives of business executives on country's port facilities (World Bank, 2022a). Ranges from 1 being extremely underdeveloped to 7 being well developed and efficient by international standards (World Bank, 2022a).
	Logistical Performance Index	The Logistical Performance Index (LPI) benchmarks countries according to their logistics performance based on the efficiency of customs clearance processes, the quality of trade- and transport-related infrastructure, and a number of other variables (World Bank, 2018). The LPI ranges from 1 to 5, with 5 being a high score for the LPI of a country and 1 being a low score (World Bank, 2018).
	Distance to Market	Distance between the capital of each African market to South Africa in km

Appendix 30: Results of the KNN regressions for the dependant variable GDP per capita

	Regression summary for dependant variable: GDP per capita						
	R= 0,811			R^2=0,658			
N=53	**b***	**Standard error of b***	**b**	**Standard error of b**	**t(48)**	**p-value**	**Number of times in best 20 models**
Intercept			-5516,4199	2156,49	-2,56	0,01	
GDP growth expectations	-0,1450	0,1057	-143,9548	104,96	-1,37	0,18	13
HDI	0,6570	0,1227	12923,3555	2414,09	5,35	<0,01	17
Ease of doing business index	0,0462	0,1160	2,4786	6,22	0,40	0,69	12
Corruption perceptions index	0,2217	0,1252	39,9098	22,54	1,77	0,08	8
Political stability	Excluded						10
Regulatory quality	Excluded						9
Distance to markets	Excluded						11

Source: Adapted from StatSoft Europe (2022).

Appendix 31: Results of the KNN regressions for the dependant variable FDI inflows

	Regression summary for dependant variable: FDI Inflows						
	R= 0,419			R^2=0,176			
N=53	**b***	**Standard error of b***	**b**	**Standard error of b**	**t(48)**	**p-value**	**Number of times in best 20 models**
Intercept			-3341954323,6085	2541785232.8420	-1,31	0,19	
GDP growth expectations	0,1862	0,1532	138132622,2373	113714247,52	1,21	0,23	11
HDI	0,4117	0,1805	6051921705,8693	2653440638,49	2,28	0,03	15
Political stability	-0,4129	0,1628	-7777444 5,6957	306648260,92	-2,54	0,01	14
Ease of doing business index	-0,1139	0,1737	-4567938, 1880	6964775,50	-0,66	0,52	11
Corruption perceptions index	Excluded						9
Regulatory quality	Excluded						7
Distance to markets	Excluded						13

Source: Adapted from StatSoft Europe (2022).

Appendix 32: Results of the KNN regressions for the dependant variable Road infrastructure

	Regression summary for dependant variable: Road Infrastructure						
	R= 0,700			R^2=0,490			
N=53	**b***	**Standard error of b***	**b**	**Standard error of b**	**t(48)**	**p-value**	**Number of times in best 20 models**
Intercept			4,7730	0,41	11,71	<0,01	
GDP growth expectations	-0,1892	0,1100	-0,0600	0,03	-1,72	0,09	13
Political stability	0,2740	0,1202	0,2206	0,10	2,28	0,03	11
Ease of doing business index	-0,5329	0,1241	-0,0091	0,00	-4,29	<0,01	14
Distance to markets	0,3174	0,1070	0,0001	0,00	2,97	<0,01	15
HDI	Excluded						11
Corruption perceptions index	Excluded						7
Regulatory quality	Excluded						9

Source: Adapted from StatSoft Europe (2022).

Appendix 33: Results of the KNN regressions for the dependant variable Port infrastructure

	Regression summary for dependant variable: Port Infrastructure						
	R= 0,543			R^2=0,294			
N=53	**b***	**Standard error of b***	**b**	**Standard error of b**	**t(48)**	**p-value**	**Number of times in best 20 models**
Intercept			3,6452	0,69	5,31	<0,01	
HDI	-0,0140	0,1518	-0,0848	0,92	-0,09	0,93	12
Political stability	0,3716	0,1536	0,2878	0,12	2,42	0,02	12
Ease of doing business index	-0,1774	0,1454	-0,0029	0,00	-1,22	0,23	11
Distance to markets	0,3731	0,1253	0,0001	0,00	2,98	<0,01	17
GDP growth expectations	Excluded						12
Corruption perceptions index	Excluded						8
Regulatory quality	Excluded						8

Source: Adapted from StatSoft Europe (2022).

Appendix 34: Results of the KNN regressions for the dependant variable LPI

	Regression summary for dependant variable: LPI						
	R= 0,630			R^2=0,396			
N=53	**b***	**Standard error of b***	**b**	**Standard error of b**	**t(48)**	**p-value**	**Number of times in best 20 models**
Intercept			2,5575	0,31	8,24	<0,01	
GDP growth expectations	0,1735	0,1312	0,0184	0,01	1,32	0,19	14
HDI	0,1434	0,1545	0,3008	0,32	0,93	0,36	12
Political stability	-0,0683	0,1394	-0,0184	0,04	-0,49	0,63	11
Ease of doing business index	-0,5296	0,1487	-0,0030	0,00	-3,56	<0,01	14
Corruption perceptions index	Excluded						6
Regulatory quality	Excluded						11
Distance to markets	Excluded						12

Source: Adapted from StatSoft Europe (2022).

Appendix 35: CCPI comparison to trade for selected processed agricultural products

Number of countries	Index Rank	Country	Trade Minus Index Rank	Colour Codes
1	50	Congo, Democratic Republic	-41	Current Trade Significantly Exceeds Country Priority Index
2	45	Angola	-37	
3	38	Zimbabwe	-33	
4	41	Nigeria	-30	
5	43	Mali	-29	
6	53	Somalia	-27	
7	29	Mozambique	-26	
8	47	Sudan	-22	
9	37	Ethiopia	-19	Current Trade Exceeds Country Priority Index
10	23	Lesotho	-19	
11	32	Congo, Republic	-15	
12	24	Malawi	-14	
13	36	Cameroon	-13	
14	19	Zambia	-13	
15	42	Niger	-12	
16	51	Libya	-9	Current Trade Correlates with Country Priority Index
17	26	Madagascar	-7	
18	13	Eswatini	-6	
19	25	Algeria	-5	
20	49	Eritrea	-5	
21	39	Liberia	-5	
22	35	Sierra Leone	-4	
23	15	Tanzania	-3	
24	3	Botswana	-2	
25	4	Namibia	-2	
26	46	Burundi	-1	
27	30	Guinea	-1	
28	28	Comoros	0	
29	52	South Sudan	1	
30	21	Uganda	1	
31	48	Central African Republic	2	
32	44	Chad	2	
33	22	Gabon	2	
34	12	Ghana	4	
35	34	Burkina Faso	5	
36	8	Kenya	5	
37	33	Equatorial Guinea	7	
38	40	Guinea-Bissau	9	

Number of countries	Index Rank	Country	Trade Minus Index Rank	Colour Codes
39	27	Gambia	10	
40	31	Mauritania	10	
41	18	Benin	14	Country Priority Index Exceeds Current Trade
42	1	Mauritius	14	
43	9	Cote d'Ivoire (Ivory Coast)	18	
44	17	Djibouti	18	
45	20	Togo	18	
46	14	Senegal	19	
47	2	Seychelles	19	
48	5	Rwanda	31	Country Priority Index Significantly Exceeds Current Trade
49	16	Sao Tome & Principe	31	
50	6	Egypt	37	
51	11	Tunisia	40	
52	7	Morocco	41	
53	10	Cabo Verde (Cape Verde)	42	

Appendix 36: CCPI comparison to trade for selected unprocessed agricultural products

Number of countries	Index Rank	Country	Trade Minus Index Rank	Colour Codes
1	38	Zimbabwe	-36	Current Trade Significantly Exceeds Country Priority Index
2	41	Nigeria	-34	
3	45	Angola	-33	
4	50	Congo, Democratic Republic	-32	
5	53	Somalia	-29	
6	29	Mozambique	-25	
7	36	Cameroon	-20	Current Trade Exceeds Country Priority Index
8	23	Lesotho	-17	
9	37	Ethiopia	-16	
10	43	Mali	-15	
11	19	Zambia	-10	Current Trade Correlates with Country Priority Index
12	13	Eswatini	-8	
13	47	Sudan	-8	
14	32	Congo, Republic	-6	
15	42	Niger	-6	
16	40	Guinea-Bissau	-5	
17	39	Liberia	-5	
18	51	Libya	-5	
19	24	Malawi	-5	
20	14	Senegal	-4	
21	20	Togo	-3	
22	3	Botswana	-2	
23	34	Burkina Faso	-2	
24	52	South Sudan	-2	
25	44	Chad	-1	
26	12	Ghana	-1	
27	4	Namibia	-1	
28	21	Uganda	-1	
29	8	Kenya	0	
30	15	Tanzania	0	
31	49	Eritrea	1	
32	22	Gabon	1	
33	48	Central African Republic	2	
34	46	Burundi	3	
35	27	Gambia	3	
36	30	Guinea	3	
37	35	Sierra Leone	3	
38	9	Cote d'Ivoire (Ivory Coast)	4	

Number of countries	Index Rank	Country	Trade Minus Index Rank	Colour Codes
39	33	Equatorial Guinea	4	
40	17	Djibouti	5	
41	26	Madagascar	5	
42	18	Benin	9	
43	31	Mauritania	10	
44	28	Comoros	12	Country Priority Index Exceeds Current Trade
45	1	Mauritius	13	
46	25	Algeria	17	
47	6	Egypt	19	
48	2	Seychelles	27	Country Priority Index Significantly Exceeds Current Trade
49	16	Sao Tome & Principe	32	
50	11	Tunisia	33	
51	10	Cabo Verde (Cape Verde)	40	
52	7	Morocco	40	
53	5	Rwanda	40	

Appendix 37: Comparison of the rankings between the CCPI and CAI

Ranks	CAI Ranks	CCPI Ranks	Ranks	CAI Ranks	CCPI Ranks
1	Namibia	Mauritius	28	Seychelles	Gabon
2	Botswana	Namibia	29	Tunisia	Comoros
3	Nigeria	Seychelles	30	Cameroon	Mauritania
4	Kenya	Botswana	31	Sudan	Sierra Leone
5	Mauritius	Rwanda	32	South Sudan	Liberia
6	Egypt	Morocco	33	Benin	Mozambique
7	Tanzania	Egypt	34	Zimbabwe	Equatorial Guinea
8	Rwanda	Kenya	35	Burkina Faso	Zimbabwe
9	Zambia	Cote d'Ivoire (Ivory Coast)	36	Mauritania	Ethiopia
10	Cote d'Ivoire (Ivory Coast)	Tunisia	37	Mali	Nigeria
11	Mozambique	Senegal	38	Lesotho	Guinea-Bissau
12	Angola	Cabo Verde (Cape Verde)	39	Chad	Burkina Faso
13	Morocco	Tanzania	40	Congo, Republic	Cameroon
14	Togo	Djibouti	41	Comoros	Niger
15	Somalia	Eswatini	42	Niger	Congo, Republic
16	Ghana	Ghana	43	Liberia	Mali
17	Djibouti	Sao Tome & Principe	44	Gamiba	Burundi
18	Sao Tome and Principe	Zambia	45	Cabo Verde (Cape Verde)	Chad
19	Uganda	Togo	46	Eritrea	Eritrea
20	Malawi	Uganda	47	Sierra Leone	Angola
21	Congo, Democratic Republic	Algeria	48	Guinea-Bissau	Sudan
22	Algeria	Benin	49	Guinea	Central African Republic
23	Ethiopia	Gambia	50	Libya	South Sudan
24	Senegal	Malawi	51	Equatorial Guinea	Congo, Democratic Republic
25	Gabon	Guinea	52	Central African Republic	Libya

Ranks	CAI Ranks	CCPI Ranks	Ranks	CAI Ranks	CCPI Ranks
26	Eswatini	Madagascar	53	Burundi	Somalia
27	Madagascar	Lesotho	No Rank	Western Sahara	Western Sahara

Source for the CAI rankings: Morokong and Pienaar (2019).