

EVALUATING THE SECTORAL COMPETITIVENESS AND WELFARE EFFECTS IN  
SACU ECONOMIES UNDER THE AFCFTA FRAMEWORK

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## DECLARATION

Except for references specifically indicated in the text, and such help as has been acknowledged, this thesis is wholly my own work and has not been submitted to any other Tertiary Institution for degree purposes.

A handwritten signature in black ink, appearing to read 'Vusimani Priyan Kubhayi', is written over a circular stamp or mark.

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VUSIMANI PRIAN KUBHAYI

## ABSTRACT

As the AfCFTA gains attention as an engine to drive intra-African trade, this study aims to evaluate sectoral competitiveness and welfare effects while highlighting the unavoidable short-term fiscal revenue losses. A CGE model has been employed to evaluate the sectoral competitiveness and welfare impacts of a 100% AfCFTA tariff removal on SACU countries, with a focus on the agricultural and manufacturing sectors. The analysis draws on 2019 data, which was chosen to minimise the disruption caused by the effects of COVID-19. The findings show that South Africa and Namibia incurred the most significant fiscal revenue losses of  $-\$66.85$  million and  $-\$28.06$  million, respectively. Despite Eswatini's high dependence on tariff revenue, accounting for +36.2% after Lesotho (+46.80%), it is the only country with a positive net welfare gain of  $+\$3.58$  million, with manufacturing showing strong competitiveness. Botswana (+14.75%) is the second highest with respect to income growth after Eswatini (+19.43%), whereas Namibia observed the most significant income decline (-28.10%). The top two countries in wage growth are South Africa and Namibia, which increased by +13.65% and +6.56%, respectively, while Botswana recorded the most significant wage decline of -38.67%. Botswana is the only country with increased consumption in both sectors and the only country showing agriculture as a capital-intensive sector. Overall, most benefits accrued by SACU countries emanate from the manufacturing sector, which has export competitiveness potential, especially in South Africa, Namibia, and Eswatini, while agriculture is competitive in Botswana and Namibia.

JEL Classification : F1, F13, F15, D61, H25, Q17, O24

Keywords: Trade liberalisation, Regional and Economic Integration, AfCFTA, Welfare Effects, Sectoral Competitiveness

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## LIST OF ACRONYMS

AEC	African Economic Community
AfCFTA	African Continental Free Trade Agreement
AFDB	African Development Bank
AMU	Arab Maghreb Union
ASEAN	Association of Southeast Asian Nations
ATG	Africa Trade Gateway
AU	African Union
AUDA	African Union Development Agency
CARICOM	Caribbean Community
CARIFESTA	Caribbean Festival of Arts
CDEMA	Caribbean Disaster Emergency Management Agency
CEN-SAD	Community of Sahel-Saharan States
CES	Constant Elasticity of Substitution
CGE	Computable General Equilibrium
CIREM	Centre for International Research and Economic Modelling
COMESA	Common Market for Eastern and Southern Africa
COVID	Coronavirus Disease
CU	Customs Union
DNA	Data Not Available
EAC	East African Community
ECA	Economic Commission for Africa
ECCAS	Economic Community of Central African States
ECOWAS	Economic Community of West African States
EU	European Union
FDI	Foreign Direct Investment
GAMS	General Algebraic Modelling System
GCDL	Global Change Data Lab
GDP	Gross Domestic Product
GTI	Guided Trade Initiative
H-O	Heckscher-Ohlin
IBA	International Bar Association
ICBT	Informal Cross-Border Trade
ICTSD	International Centre for Trade and Sustainable Development

IMF	International Monetary Fund
ISS	Institute for Security Studies
ITC	International Trade Centre
JEL	Journal of Economic Literature
LCU	Local Currency Unit
LDCs	Least Developed Countries
LPA	Lagos Plan of Action
MFN	Most Favoured Nation
MPK	Marginal Product of Capital
MPL	Marginal Product of Labour
NAFTA	Northern America Free Trade Agreement
NEPAD	New Partnership for Africa's Development
NTBs	Non-Tariff Barriers
NTMs	Non-Tariff Measures
NTT	New Trade Theory
OAU	Organization of African Unity
OECD	Organization for Economic Co-operation and Development
OIDA	Ontario International Development Agency
OWID	Our World in Data
PAP	Pan African Parliament
PTA	Preferential Trade Area
REC	Regional Economic Communities
RTA	Regional Trade Agreement
RVCs	Regional Value Chains
SAATM	Single African Air Transport Market
SACU	Southern African Customs Union
SADC	Southern African Development Community
SAM	Social Accounting Matrix
SMEs	Small and Medium Enterprises
SNA	System of National Accounts
SPS	Sanitary and Phytosanitary Measures
STATSSA	Statistics South Africa
TBTs	Technical Barriers to Trade
TDCA	Trade and Development Cooperation Agreement

TFA	Trade Facilitation Agreement
TIPS	Trade and Industrial Policy Strategies
TPR	Trade Policy Review
TRALAC	Trade and Law Centre
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNSD	United Nations Statistics Division
US	United State
USD	United States Dollar
WITA	Washington International Trade Association
WTO	World Trade Organization

# CHAPTER ONE:

## INTRODUCTION

### 1.1. RESEARCH CONTEXT

Regional integration in Africa has been promoted by establishing RECs in different regions (Central Africa, Eastern Africa, Southern Africa, and Northern Africa) through tariff reform (tariff reduction). The tariff reform is insufficient to address African challenges, such as poor infrastructure, which hinders the efficient transportation of goods, and border compliance processes, thereby causing delays and sometimes blocking consignments (Zongwe, 2024). These challenges are classified as Non-Tariff Barriers (NTBs), and the literature concludes that they have far deeper negative effects than tariff-related issues. Thus, if appropriately addressed, they could generate two or three times more in potential welfare gains than those from tariff reduction (Brookings 2024: 94).

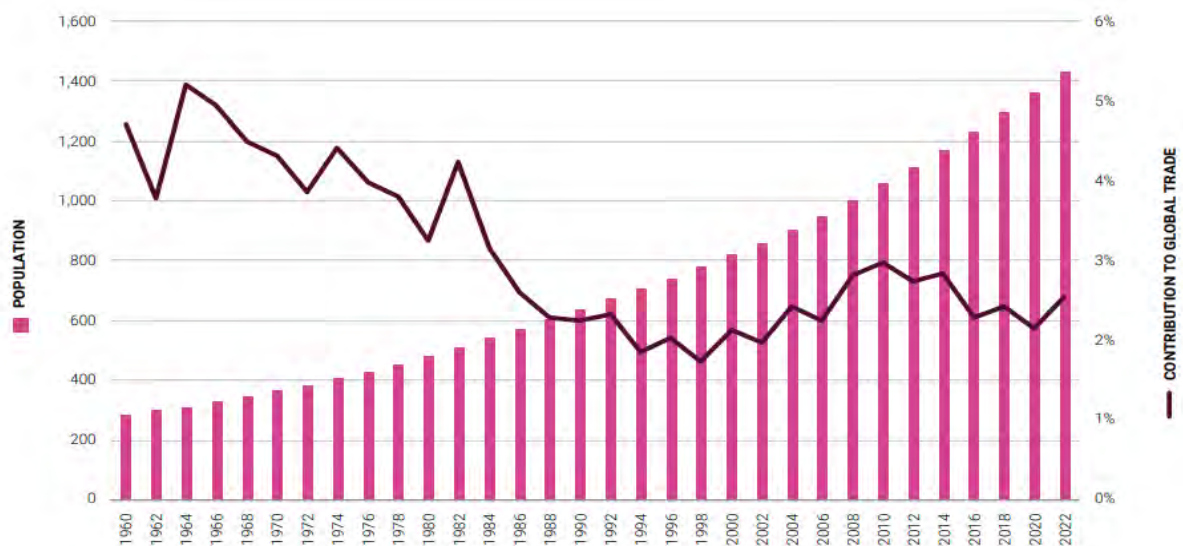
Welfare gains are defined as improvements in overall well-being. These gains can be quantitative (e.g., increased income or consumption) and qualitative (e.g., better access, equity, or individual choice). The AfCFTA agreement is designed to deliver these gains through increased trade and by fostering broader policy reforms, such as investments in infrastructure, social protection, and digital inclusion. This integrated approach reflects the AfCFTA agreement's ambition of increasingly maximising welfare gains across various development dimensions. This highlights the broad areas through which policy improvements can boost well-being (Brookings 2024). In recognising the importance of well-being, **Gumede (2019: 110) suggests that "at the centre of regional integration must be well-being"**.

Due to NTBs challenges, trade between neighbouring African economies is limited only to the regional groupings, as asserted by the Gravity Model of Trade (Zongwe, 2024) and not the whole continent (IBA, 2021). This limited trade within RECs undermines the vision set out in the Lagos Plan of Action (LPA) of 1980, which aimed to establish an African trade hub that prioritises continental integration over fragmented regional trade (OAU, 1980: 99). As a result, intra-African trade has

remained extremely low (ECA, 2019: 81) compared to other continental regions. For instance, intra-African trade was 15% in 2022, far lower than 60% and 70% in Asia and Europe, respectively (Brookings, 2024: 98).

Another problem is that Africa is overly reliant on the extraction of mineral resources, with very low value added to the global value chain. As a result, Brookings (2024: 98-99) reported Africa's overall global value chain to be low and dropped from 5% to 3% in 2022. According to Zongwe (2024), the extractives constitute 70% of Africa's exports to the rest of the world. This reliance suggests limited consumption of natural resources and their by-products on the African continent. For example, high volumes of minerals (e.g., metals like manganese ore from South Africa), agricultural materials and products (e.g., tea and coffee from East Africa and cocoa from West Africa) are being exported to the US, the EU, China, Japan, and South Korea. Most of the raw materials, especially minerals, are then used as inputs in producing high-value electronic products that are imported at higher prices by sub-Saharan countries from Asia, mainly China (Brookings, 2024: 97). With these trends, Africa remains trapped in the extraction phase of resources with a low manufacturing base.

Figure 1.1: Africa's contribution to Global trade



Source: Brookings (2024: 101)

Figure 1.1 shows that Africa's population has grown and reached nearly 1.4 billion in 2022. According to Brookings (2024: 101), this population increase has not translated

into proportional growth in the **continent's share of global trade, which only** contributed 2.5% on average to global trade in 2022, depicting a downward trend over the years. Brookings (2024) associated differences in population and contribution to global trade as structural problems due to a lack of industrialisation activities in Africa, dependence on raw material exports, and limited integration into global value chains. These factors simultaneously undermine the growth of intra-African trade. Therefore, through AfCFTA, the African continent can potentially use population growth to build the largest workforce in the world, which can serve as an economic asset to improve intra-African trade and its contribution to global trade.

## 1.2. MOTIVATION FOR THE STUDY

This research is driven by the increasing academic and policy interest in AfCFTA and its potential implications for improving welfare gains and boosting intra-African trade. A large body of literature (Abrego *et al.* 2020; the World Bank, 2020) has examined trade liberalisation at the country level, indicating the AfCFTA effects on macroeconomic aggregates such as exports, imports, income, GDP, and intra-Africa trade. However, few studies (Simola *et al.* 2021; Abrego *et al.* 2019) have focused on the sector-specific impacts of AfCFTA. Therefore, there is a research knowledge gap in the literature about how individual sectors (agriculture, mining, manufacturing, financial services, construction, etc) react to AfCFTA trade liberalisation within member countries, specifically, the SACU region.

Furthermore, the relationship between welfare effects, sectoral competitiveness and government revenue effects is largely unexplored. Many studies only examined the welfare effects and government revenue impacts (Edwards *et al.* 2023; Simola *et al.* 2021; World Bank, 2020; Abrego *et al.* 2019), overlooking sectoral performance, which is instrumental in boosting welfare and diversifying government revenue sources, thereby reducing the risk of tariff cuts on government revenue. It is, therefore, important to identify the sectors with a competitive edge and those with the potential and require nurturing. A robust sectoral base has the potential to enhance local industries and the country through improved welfare and minimised customs revenue shocks.

### 1.3. THE PRIMARY OBJECTIVES OF THE RESEARCH

This research aims to evaluate the sectoral competitiveness and welfare effects of AfCFTA tariff cuts on SACU countries. In particular, the study seeks to:

- a) Explore trade dynamics and regional integration in SACU

A descriptive analysis will be used to present key trade metrics to highlight SACU's trade landscape and degree of integration. This provides a contextual background and baseline for measuring sectoral performance, welfare impact, and fiscal implications (ISS, 2024; Brookings, 2024).

- b) Evaluate sectoral performance

Investigate the relative competitiveness of agriculture and manufacturing in SACU member states.

- c) Assess welfare impacts

Quantify the welfare effects of trade liberalisation on SACU economies through the consumer surplus, producer surplus, and fiscal revenue (Edwards *et al.* 2023).

- d) Investigate the dynamics of the fiscal revenue pool

Merge the individual revenue losses into a SACU pool and redistribute it according to the SACU sharing formula (WTO, 2023; Nkala, 2023).

### 1.4. METHODOLOGY

A Computable General Equilibrium (CGE) simulation programmed in the General Algebraic Modelling System (GAMS) software is used to estimate sectoral competitiveness and welfare changes. The dataset is obtained from the United Nations Statistics Division (UNSD), Our World in Data (OWID), the World Bank, and UNCTAD. For each of the research objectives, the applicable methods are outlined as follows:

- a) Trade dynamics and regional integration in SACU

This study uses a descriptive analysis approach to achieve this objective by exploring trade indicators such as trade as a share of GDP, SACU trade tariff Share, import duties as a percentage of tax revenue, import diversification, and export concentration indices.

b) Evaluate sectoral performance

To evaluate sectoral performance by SACU country, a CGE simulation of AfCFTA is conducted for the manufacturing and agriculture sectors.

c) Assess welfare Impacts

To determine the robustness of the welfare effects, the study uses the CGE simulated results to perform a sensitive welfare analysis through consumer and producer surpluses and revenue losses (Edwards *et al.* 2023; Pasara and Diko, 2020).

d) Investigate the dynamics of the fiscal revenue pool

The study combines all fiscal revenue losses into a pooled fund, which is redistributed according to the SACU revenue-sharing formula (WTO, 2023; Nkala, 2023). Each **country's share** of this pooled loss is then compared to its tax revenue as an indicator of relative dependence on trade-related revenues and vulnerability to fiscal shocks.

## 1.5. ORGANISATION OF THE STUDY

This study is structured as follows:

### Chapter Two:

Provides a review of the existing literature on trade theories and regional integration approaches relevant for AfCFTA.

### Chapter Three:

Discusses the development of regional integration in Africa that inspired the establishment of the AfCFTA, and then provides empirical findings of the AfCFTA.

### Chapter Four:

Explains the data sources, criteria for selecting sectors, and analytical methods applied in the study.

### Chapter Five:

The discussion of the CGE analysis features sectoral performance, welfare effects, and fiscal revenue analysis.

### Chapter Six:

Provide an overall conclusion, policy implications, recommendations, and direction for future research.

## CHAPTER TWO:

### THEORETICAL REVIEW AND EMPIRICAL LITERATURE

#### 2.1 INTRODUCTION

International trade theories serve as the basis for understanding regionalism, particularly trade dynamics and relationships between countries. Trade literature shows a reflection of the evolution of trade theories over time from classical, which focus on country-specific factors to modern theories which use firm-specific factors (Sunanda, 2010: 6), to explain gains from trade (Jeyarajah, 2024: 38). These trade theories have informed the establishment of AfCFTA and include comparative advantage, the gravity model of trade, and regional economic integration (Zongwe, 2024).

This chapter discusses these trade theories and their applicability and relevance to AfCFTA. The chapter is organised into four sections:

2.1: The introduction

2.2: The theoretical framework and application to AfCFTA

2.3: Theoretical approaches to regional integration

2.4: The conclusion

#### 2.2 THEORETICAL FRAMEWORK AND APPLICATION TO AFCFTA

##### *2.2.1 Trade theories informing the establishment of AfCFTA*

The earliest trade theory is mercantilism, which views exports and imports as, respectively, good and bad for achieving a favourable trade balance. Mercantilism further argues that accumulating precious metals such as gold and silver strengthens national power (Emeka and Rita, 2024: 44). Trade is treated as a zero-sum game (De Vylder *et al.* 2001: 32), **where a country's gain is another country's loss, ignoring the possibility of potential mutual benefits** (Aggarwal, 2021: 244-245). The government is assumed to provide subsidies to local industries, which lowers their production costs and enhances competitiveness. As a result, exports are encouraged while discouraging

imports using import tariffs to promote import substitution (Aggarwal, 2021: 245). The zero-sum game mirrors the popular argument about the implications of the AfCFTA. According to Chipanda and Cilliers (2025: 4), the AfCFTA is predicted to have winners and losers, which is similar to the zero-sum game.

Adenuga *et al.* (2024: 360) highlight that for benefits to accrue from AfCFTA, the rational choice theory must be applied, which states that individual nations should first prioritise national interest over the collective regional interest because the immediate effect on nations tends to be unfavourable compared to that of a region. Rodrik (2018), in Emeka and Rita (2024: 46), refers to prioritising national interest as **adopting a “pragmatic trade policy that considers each country’s unique development needs”**. The rational choice theory is relevant mainly in Africa, especially since the AfCFTA has integrated SMEs to be at the forefront of the AfCFTA implementation process. However, some of these SMEs are not yet mature enough to be internationally competitive; therefore, they require temporary protection by adopting the infant industry theory (Emeka and Rita, 2024: 47). The argument by Adenuga *et al.* (2024) shows that the literature uses the rational choice theory to support protectionist policies such as the infant industry theory, even when they contradict free trade regional agreements like the AfCFTA.

Though historically associated with the 16th–18th centuries, the principles of mercantilism find modern relevance in the context of African economic integration. Under the AfCFTA, the application of infant industry protection reflects a similar strategic motive: to shield emerging domestic industries from competitive pressures until they attain maturity (South Centre, 2025: 17). Much like mercantilist policy prioritising export surpluses and state intervention, infant industry theory justifies protective tariffs and subsidies to promote self-sufficiency and industrialisation. For African countries seeking to diversify their economies and reduce external dependency, this alignment offers a policy rationale for calibrated protectionism within a liberalising trade framework. The overarching argument is that infant industry protection echoes mercantilist thinking under AfCFTA (Emeka and Rita, 2024: 47). In both scenarios, the protectionist trade policies aim to achieve domestic economic strengthening by using the same policy tools, such as tariffs and subsidies. Therefore, protectionism provides a way to develop domestic industries, whereas

liberalism integrates into global markets and this balance approach is referred to as strategic liberalism (Emeka and Rita, 2024: 48).

Article 26(2)-(3) of the 2002 SACU agreement provides a legal basis for BLNS<sup>1</sup> countries to protect infant industries through temporary safeguards (Mathis, 2025: 6), which mirrors mercantilist and Infant Industry Theory principles. However, as Zongwe and Masumbe (2020: 93) observe, unclear provisions and administrative weakness often render such protection ineffective, undermining economic diversification goals. One example is the poultry sector in Namibia, where SACU safeguards were applied, but these regulatory barriers and short-term protection have prevented domestic capacity from maturing (Susa, 2014). These lessons have direct applications under the AfCFTA, and where similar asymmetries in industrial capacities and protection shields could either nurture or kill infant industries across the continent.

By implication, the Infant theory is relevant in SACU, where sectoral inequalities exist, with some relatively more industrialised members, such as South Africa, and smaller economies like Lesotho and Eswatini (Zongwe and Masumbe, 2020). According to infant industry theory, if Lesotho or Botswana pursues the development of its textile industry, or the production of processed agricultural goods, using temporary protection, it can promote investment, technology transfer, and the creation of jobs necessary to become permanently competitive. However, such protection must be well-targeted, transparent, and time-limited to prevent inefficiencies and rent seeking (Emeka and Rita, 2024). When well-implemented and managed, protection of the **infant industry can fulfil the AfCFTA's objectives** of promoting inclusive growth, industrial diversification, and balanced regional development.

The AfCFTA demonstrates that while pursuing free trade, complementary protectionist measures can be adopted to balance protectionist objectives with the broader goals of free trade (Geda and Yimer, 2023; Emeka and Rita, 2024: 47-48). For instance, Saygili *et al.* (2018: 7) argue that while the AfCFTA promotes growth through larger market access, more competition, and new foreign investment, it is

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<sup>1</sup> BLNS = Botswana, Lesotho, Namibia, and Swaziland (now officially called Eswatini)

contingent upon complementary policies. In addition, Okwatch (2023) also stressed that long-term cooperation in policies involving investment and competition is important in unlocking AfCFTA's potential benefits.

In the AfCFTA context, these complementary policies include the 3% exclusion list, the AfCFTA Adjustment Fund, and the continental Non-Tariff Barriers Mechanism, among others, which are all aimed at smooth transitioning. The 97% product list is expected to be traded freely and free trade theory asserts that trade barriers and non-trade barriers should be removed, and goods and services be exchanged freely (Mhonyera and Meyer, 2023: 3). Therefore, the application of free trade influenced the establishment of the AfCFTA agreement with the 97% tariff removal (Zongwe, 2024). Free trade theory holds that open markets lead to production efficiency, competition, and improved consumer welfare (Saygili *et al.* 2018: 7). Liberalisation theory assumes perfect competition with no monopolies and government intervention, which may distort market prices.

Adam Smith, through absolute advantage, was one of the earliest advocates of free trade in international trade theory. As Schumacher (2012: 58) notes, Smith considered the division of labour to be a primary source of specialisation, wherein production costs decrease as output is increased with the same amount of labour, thereby resulting in competitive advantage. Under the AfCFTA, the large population discussed in Chapter 1 (Research Context) can be leveraged by increasing division of labour and regional specialisation. Subsequently, this improves production efficiency, lowers costs, and raises the continent's competitive edge in trade. A major concern about absolute advantage is the view that assumes trade is only beneficial if one country is more efficient in producing one good and the trading partner is more efficient in producing another. Otherwise, trade does not result in mutual gains (Aggarwal, 2021: 244-245). Due to this assumption, absolute advantage is deemed unfit to explain trade dynamics. However, it is considered a good starting point for free trade benefits that move away from protectionist measures.

To further stabilise the explanation of free trade benefits, David Ricard introduced the theory of comparative advantage, referred to as comparative costs De Vylder *et al.* (2001: 32), based on labour hours (Sunanda, 2010: 2). Comparative advantage asserts

that through lower opportunity costs, trade can still be mutually beneficial even in cases where a country has an absolute disadvantage in the production of goods (Akamobi *et al.* 2024: 285; Aggarwal, 2021: 246). The theory assumes perfect competitive markets, full employment, static comparative advantage, and labour is the only factor of production (Akamobi *et al.* 2024: 285; Mhonyera and Meyer, 2023: 3). To contextualise this, the IMF (2020: 39) points out that the AfCFTA enable countries to focus on producing goods and services in which they have a comparative advantage which leads to improved productivity and growth. Akamobi *et al.* (2024: 285-286) highlight that countries like Nigeria have access to the most significant African market to supply specialised products, such as crude oil.

To reap the potential AfCFTA benefits, African nations should specialise in the production and export of goods that have a relatively low opportunity cost and should import goods for which its opportunity cost is higher (Saygili *et al.* 2018: 6). However, regardless of low opportunity cost, the literature (Chipanda and Cilliers, 2025: 4; ISS, 2024) claim that advanced African economies are anticipated to benefit more than small economies within the short to medium term. Thus, the common argument between free trade and protectionism is the presence of gainers and losers. Studies such as Akamobi *et al.* (2024), Zongwe (2024), and De Vylder *et al.* (2001: 33) have raised concerns that the relevance of comparative advantage in AfCFTA is limited because many African economies are characterised by poor infrastructure, weak industrial capacity, and restricted access to technology, which are all factors the theory does not address or consider. As a result, some African countries may become disadvantaged (losers) under **the free trade framework, despite the theory's claim that all participants ultimately benefit.**

Akamobi *et al.* (2024: 285-286) argue that the AfCFTA presents opportunities for increased raw materials trade with neighbouring African countries, which follows the Gravity Model of Trade. The Gravity Model of Trade asserts that physical distance is a barrier to interaction and that regional integration removes that barrier, which encourages trade. Zongwe (2024) states that Africa's excessive dependence on primary commodities could result in a commodity trap, where nations do not diversify but instead compete in low-value goods. However, given these limitations in the African context, Brookings (2024: 98) introduces a counterpoint that encourages moving

beyond comparative advantage by industrialising and claims that the AfCFTA will help Africa escape a colonial legacy of over-dependence on natural resources through labour-intensive industrialisation.

**Once again, a point to exploit Africa's largest 1.4 billion population, which translates** to \$1.3 trillion GDP in a single African market (UNECA *et al.* 2025: 17). The AfCFTA supports industrialisation, in that it calls on African nations to add value to their raw materials before exporting them, meaning the continent will no longer be referred to being export dependent as it has been for centuries. According to Emeka and Rita (2024: 48), the AfCFTA promotes the creation of value-added chains in agriculture, auto manufacturing, and textiles (manufacturing).

Comparative advantage helps explain why countries gain when they specialise in products with the lowest opportunity cost. However, it treats labour as the only input with a static comparative advantage, suggesting that it does not account for technological progress and dynamic changes in productivity. This limits its ability to reflect the complexities of real-world trade. To overcome these shortcomings, the Heckscher-Ohlin (H-O) model was introduced, considering three production factors: labour, capital and land (Emeka and Rita, 2024: 51). It claims that a country's relative factor endowments determine the pattern of trade. According to De Vylder *et al.* (2001: 32), **such endowments shape a nation's comparative** advantage by influencing its ability to produce certain goods at a lower opportunity cost.

The standard intuition of the H-O model is that labour-abundant countries specialise in labour-intensive goods while capital-abundant countries specialise in capital-intensive goods (Aggarwal, 2021: 247; De Vylder *et al.* 2001: 32). The abundance leads to cheap production and results in a comparative advantage. The H-O model assumes free movement of labour and capital within the country but not internationally, and only two goods are produced and traded in a perfectly competitive market (Jeyarajah, 2024: 39). The H-O model is relevant to AfCFTA, particularly by demonstrating that African countries can exploit their factor endowments to stimulate regional trade (Simola *et al.* 2021). For instance, labour-abundant economies like Ethiopia can specialise in labour-intensive industries such as textiles. In contrast, capital-abundant economies like South Africa can specialise in capital goods such as machinery or

automobiles to penetrate and supply the 1.3 billion potential market. While the H-O model may be theoretically compelling, empirically observed trade patterns do not always conform to H-O predictions.

As argued by economist Wassily Leontief in 1953, the Leontief Paradox found contradictory findings against the model's predictions, that the United States, a capital-abundant country, exported more labour-intensive goods and imported more capital-intensive goods. This contradiction calls into question how far factor endowments can explain countries' trade patterns, especially in economies with greater divergence in the socio-economic environment (Jeyarajah, 2024: 40-41). The perfect factor mobility and homogeneous production technology assumptions are widely challenged in African settings. Kumar *et al.* (2014) argue that despite having abundant labour, many African economies fail to export labour-intensive goods, **contradicting the model's predictions. On the** contrary, trade continues to revolve around low-processed primary commodities, implying that motives such as weak institutions, scarcity of capital and technological gaps are more suited to explain trade patterns. This is consistent with the H-O model being of limited explanatory value in the context of developing regions such as Africa, where actual trade outcomes in the real world differ from the theory's predictions.

Moreover, the H-O model does not provide for dynamic comparative advantage and learning-by-doing that are essential to gaining competitiveness in modern economies. For example, the rapid industrialisation of East Asia did not depend merely on an abundant supply of labour, let alone on the free trade that the H-O model uncritically endorses, but also on strategic industrial policies, infant-industry protection, and export-led growth, all of these being factors on which the model is silent. As observed by Wade (1992: 298-299), the rapidly transforming many Asian economies invested **massively** “ahead of their skills to generate learning-by-doing effects,” which is the very opposite of the static effects contemplated by the classical trade model. Nevertheless, underdeveloped infrastructure, low technological capacity and weak regional value chains have constrained their ability to diversify away from primary exports in much of Africa's economies. Undoubtedly, value will be added to AfCFTA participants, as long as it shifts from passive trade liberalisation to active capability-building. That is, treating trade as an instrument for generating learning, innovation and industrial

depth, not just static comparative advantage. Embracing Learning-by-doing policies that promote dynamic comparative advantage is the bridge from low-value exports to high-value regional production.

De Vylder *et al.* (2001: 32-33) assert that the H-O is an upgraded version of comparative advantage. Therefore, all these classical and neoclassical theories suffer from static comparative advantage, which fails to account for long-term growth. In addition, Aggarwal (2021: 246) argues that traditional theories do not explain the distribution of trade gains within a particular country, because trade can improve the country overall but make specific industries or people worse off. To understand trade within the context of industries, Paul Krugman proposed the New Trade Theory (NTT) in 1980. The NTT differs from traditional trade theories which explain trade gains at a country level based on static comparative advantages to explaining gains at a firm level based on economies of scale and product differentiation (Robinson and Thierfelder, 1999: 4). In addition, the NTT also shift away from perfect competition to imperfect competition such as monopolies and oligopolies industries (Aggarwal, 2021: 248). The theory's assumptions are dynamic effects, economies of scale (De Vylder *et al.* 2001: 33-34), and monopolistic competition with product differentiation (Sunanda, 2010: 6).

Unlike the customs union theory that views trade diversion as an adverse effect on welfare, the NTT captures the unpopular opinion about trade diversion. Wonnacott in 1996 argued that trade diversion can also improve a country's welfare within the RTA by stimulating competition and specialisation in the region which potentially enables industries to exploit economies of sale through the pool of large market (Robinson and Thierfelder, 1999: 4). Brookings (2024: 98) captured this point by stating that the creation of a large and unified market across the continent with 1.3 billion consumers allows African companies to take advantage of economies of scale, reduce production costs and improve competitiveness. The NTT differs from comparative advantage because it asserts that countries can still benefit even when they are producing the same products (Emeka and Rita, 2024: 51). Economies of scale are generated when firms increase output, lower production costs, and improve efficiency through access **to larger markets. The NTT focuses on firms that align with AfCFTA's goals to position SMEs at the centre of its integration agenda.** SMEs are the backbone of informal trade

as they not only provide goods and services across borders but also play a vital role in value and job creation, and poverty alleviation (Tieku and Yakohene, 2023), especially for youth and women (ECA, 2019: 84).

The ICBT accounts for more than 80% of employment and 62% share of GDP in some countries (Dushime, 2021; AUDA-NEPAD, 2023), and women constitute 60% and 70% of informal traders in West and Central Africa and Southern Africa, respectively (ECA, 2019: 84). Tieku and Yakohene (2023) acknowledge that the AfCFTA have opportunities for SMEs. However, at the same time, the authors failed to understand why informal trade is not mentioned in the agreement when most of the SMEs make up the most significant part of ICBT in other African regions. This inconsistency can limit trade and the benefits for SMEs under the AfCFTA.

The AfCFTA allows African countries to shift from exporting raw materials to value-added production and greater integration into global value chains. For example, lithium resource-rich countries such as the Democratic Republic of Congo and Zambia can shift from merely exporting raw lithium to emerge as central players in the lithium battery industry (Brookings, 2024: 99), which is a "unique endowment of green transition" that promote Africa's central focus to simultaneously achieving environmental and development objectives (Brookings, 2024: 106). In addition, **Liberia and Côte d'Ivoire are historically recognised as natural rubber**-exporting countries, these countries can take advantage of AfCFTA to facilitate a global industry for tire manufacturing, building out an industrial base and new jobs (Brookings, 2024: 99). The AfCFTA provides a single market of 1.3 billion users in 55 nations with a combined GDP of \$3.4 trillion and this is anticipated to enhance trade volumes, and investments, and boost the integration of African economies by lowering distance-based costs and facilitating economies of scale. Thus, this is consistent with the gravity trade model, which finds that economic size and geographic proximity contribute significantly to the acceleration of intra-African trade (Zongwe, 2024).

The NTT illustrates how the AfCFTA can facilitate commodity-based industrialisation, which leads to vertical integration along sectors, allowing African countries to diversify their economies while expanding their position in global trade, which is currently 3% of global trade (Brookings, 2024: 98-100). A similar argument is uttered

by the ISS (2024) that the **AfCFTA will significantly improve “Africa’s share of global trade to position the region as a dynamic international force”**.

### 2.3 THEORETICAL APPROACHES TO REGIONAL INTEGRATION

Sakyi and Opoku (2014: 4) define regional integration as an agreement where countries come together to collectively form a cooperative partnership that seeks to address common objectives collectively. This agreement is known as a regional trade agreement (RTA). The objective(s) can be from different cooperation areas, including economic, trade, political, social, security, infrastructure development, health, environmental, or cultural. The challenges facing the REC largely influence the cooperation area. By entering an RTA, nations agree to transfer their domestic powers to a regional decision-making body (Fioramonti and Mattheis, 2015: 3). Regional integration has different approaches consisting of frameworks that address specific objectives in each cooperation area. For instance, the principles used to attain economic cooperation objectives differ from those of politically driven cooperation. Therefore, the cooperation area becomes the deciding factor for selecting the approach. Choosing the appropriate approach that aligns with the objective of the cooperation area becomes an imperative task because the REC uses the guiding principles and strategies from the adopted approach to understand the benefits and challenges that stem from the RTA and how these benefits can be mutually shared.

Ochieng-Springer (2016: 44-45) discusses non-economic and economic benefits as the two benefits generated from different approaches. Economic benefits refer to measurable gains using data and statistics such as trade flows, trade barrier reduction, foreign direct investment, job creation, and economic growth. In contrast, non-economic benefits primarily focus on long-term, broader development and contribute to better living standards or improved quality of life for citizens. Thus, they cannot be translated into monetary terms, including political stability, cultural exchange, infrastructure development, social development (addressing social, education, and health issues), security, peace, and conflict resolution. This section reviews four distinct historical approaches adopted for regional integration in Africa and beyond: (i) functionalism; (ii) neo-functionalism; (iii) market integration; and (iv) the development approach.

### 2.3.1 *The Functionalist*

The functionalist is divided into two: classic and neo-functionalism cooperation. David Mitrany developed classic functionalist integration to facilitate the cooperation of political unity and infrastructure development. Ochieng-Springer (2016: 44-45) classified the benefits of functionalism as non-economic benefits and further stated that the OAU in 1963 adopted functionalism as the primary approach. In the 1960s, Africa's regional integration was primarily perceived as a tool to consolidate national power and cooperation to fight against colonial rule. Political independence was then used as a building block for international relations and formed a foundation for economic integration within the African context (Sakyi and Opoku, 2014: 2; Francis *et al.* 2013: 7).

Ernest Haas argued that classical functionalism fell short because it could not explain the mechanism of political spillover effects, and as a result, neo-functionalism emerged. Neo-functionalism is a modified version of classic functionalism cooperation that incorporates the concept of positive spillover effect. It stipulates that as integration cooperation deepens in one area, the resulting gains spill over into other areas of regional integration, such as social and security. In addition, the "transmission of domestic allegiance states" is another principle that implies that the regional integration process transfers the domestic powers of each member state from the national level to a supranational level of decision-making (Francis *et al.* 2013).

Phase I of AfCFTA focuses on tariffs and NTBs, which will progress to services liberalisation and the establishment of more sophisticated areas of economic integration, such as intellectual property, competition policy, and investment frameworks (Phases II), and Phase III covers e-commerce, women, and youth in trade. These phases are the spillover effects described by neo-functionalism, and Manboah-Rockson (2021: 308) further highlighted that the AfCFTA is born from the spillover of OAU. In addition, Manboah-Rockson (2021: 307) asserts that the AfCFTA requires member states to have the political will to merge policies at the supranational level (AU). Therefore, the AfCFTA is consistent with neo-functionalism.

Okafor and Aniche (2017) argued that, given the African context where countries are reluctant to surrender their respective national power to a high authority body, where hegemonic power imbalances exist, countries with power exploit regional integration for their own benefit. The neo-functionalism approach is deemed inadequate for addressing the challenges faced by Sub-Saharan Africa and driving the goals of AfCFTA. In addition, Fioramonti and Mattheis (2015: 7) observed that countries with power like the KENSA<sup>2</sup> countries tend to use their hegemon status to prioritise their own national interest over regional development.

The authors in the study by Okafor and Aniche (2017) argued that the EU avoided the **degree of having one country with so much power by establishing a system of “balance of forces”**. **This protected small countries from being dominated by powerful countries** and ensured that decisions taken by advanced economies were not at the expense of the regional bloc. However, in Africa, no system neutralises the power. For example, the move by South Africa to enter into the Trade and Development Cooperation Agreement (TDCA) with the EU without extensive consultations with SACU portrays a self-interest agenda at the expense of SACU member states (Francis *et al.* 2013: 182-186). Francis *et al.* (2013: 187) argue that it blocks the development of emerging economies.

Manboah-Rockson (2021: 308) argued that while functionalism and neo-functionalism are heavily criticised, rejected, and sometimes even deemed irrelevant in Africa, they nevertheless provide theoretical value underpinning the AfCFTA. Not only do their core principles remain highly relevant, but they also serve as the rationale behind establishing the AfCFTA. Functionalism and neo-functionalism highlight how economic integration in a certain sector can lead to deepened regional collaboration and pave the way for greater economic and political integration across Africa, advancing interdependence and collaborative progress. The point Okafor and Aniche (2017) mentioned about the power neutralisation system should be a lesson for AfCFTA to note, especially when designing policies to prevent advanced economies from taking advantage of the LDCs, for example.

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<sup>2</sup> KENSA = Kenya, Egypt, Nigeria, and South Africa

### 2.3.2 Economic Integration

A linear theory of economic integration was developed by Bela Balassa (1961), which proposed a sequence of stages to regional integration. It starts with establishing a free trade area to abolish tariffs among member states. Then, a customs union will be created, introducing a common external tariff. This is followed by a common market that enables the free movement of goods, services, capital, and labour. The fourth step is an economic union that coordinates the economic policy and ends in a political union and unified governance structures (Akamobi *et al.* 2024). Instead of using the existing customs unions, the AfCFTA created a large free trade area, also a steppingstone towards a continental Customs Union (ECA, 2023: iii). This approach reflects a progressive step towards economic integration on the African continent to accelerate regional cooperation (Zongwe, 2024).

The customs union of trade creation and trade diversion demonstrates that economic integration can either increase welfare, by redirecting trade to low-cost producers (trade creation) or decrease welfare, by redirecting trade away from low-cost producers (trade diversion) (Geda and Yimer, 2023: 331; Pasara and Diko, 2020: 5). Trade diversion occurs because of low prices within the FTA and not due to efficiency (Pasara and Diko, 2020: 5). As a result, Robinson and Thierfelder (1999: 4) argues that trade effects are likely to be dominated by trade diversion than trade creation thereby decreasing the welfare of neighbouring countries. ISS (2024) stated that the AfCFTA does not guarantee welfare improvement in small African countries in the short to medium term, which is captured by a decrease in welfare. Therefore, the customs union theory is relevant in Africa, where many countries heavily depend on imports from outside the continent. Thus, the AfCFTA has the potential to redirect these imports to Africa. This means that the customs union theory helps explain trade destinations and sources changes as African countries embark on trade under AfCFTA (Geda and Yimer, 2023: 331).

Davies (2019) and Okafor and Aniche (2017) criticised it for being Euro-centric, which recognises tariff regimes as fundamentally trade barriers, and prioritises markets (profits) (Gumede, 2019: 98). Ismail (2018: 12) criticised it for being out of the African regional integration scope. As a result, this cooperation fails to deal with the African

challenges characterised by underdeveloped production structures and inadequate infrastructure (Davies, 2019: 63). Subsequently, many RECs fail dismally to keep up with the proposed steps of linearity (Gumede, 2019: 98). To address these flaws, Davies (1996) proposed the developmental approach for adopting Africa's regional integration, as discussed below.

### 2.3.3 *Development Integration*

The Development approach is a regional integration approach that prioritises strong cooperation between member states in areas that involve more than just economic and non-economic trade. The developmental approach proposes the consolidation of market-based and functionalism approaches which would further be modified by adding new features such as investment, industrial development, and Regional Value Chains (RVCs) (Ismail, 2018: 13). RVCs include investment in education, research and development, innovation and technology and its importance has been linked to unlocking access to foreign markets which would bring about economies of scale to African economies (Tralac, 2020).

The development of cooperation deviates from characteristics advocated by earlier cooperation, such as a supranational and linear approach (Tralac, 2020). It advocates for government intervention as an agent with control over resources. It believes allocating these resources will enable "competitiveness of domestic industries through intra and extra-regional market expansion" (Francis *et al.* 2013: 183). Ismail (2018: 12) proposed a development approach towards implementing and efficiently operating the AfCFTA. Gumede (2019: 110) concludes in favour of a Pan-African developmental regional integration approach that embraces African nationalism and that is not only about market access (economically driven) but also includes cultural and social welfare features (Gumede, 2019: 98). Davies (2021) also echoes the two authors and recommends the adoption of developmental cooperation for implementing AfCFTA.

Ismail (2018: 12) further proposed four pillars that should be prioritised, namely:  
a) "Structural transformation and transformative industrialisation", b) followed by "the creation of regional value chains (RVCs) to build a robust regional market that will unlock access to the continent's manufacturing potential", c) "The cooperation on

cross-border infrastructure investment (and trade facilitation)". According to Cook and Wong (2023), trade facilitation is defined as the process of making it simpler and cheaper for the movement of goods across borders such as doing faster customs checks, less paperwork, and fewer delays and, d) "The cooperation promotes democracy, good governance and peace and security".

The African Union (AU) is an example of a REC that has adopted the development approach for its integration efforts, such as the New Partnership for Africa's Development (NEPAD), which is the body to deal with infrastructure development, agriculture, and human capital development at the continental level. The overarching objective is to realise sustainable development across the continent. Few have also adopted the developmental approach, yet the strongest RECs include EAC, SADC and COMESA. For example, the EAC has adopted this approach in their regional industrial development policy and the EAC Tripartite Free Trade Agreement on the industrial development pillar. Ismail (2018: 13) and Ismail (2021) have also alluded that Africa's regional integration should adopt the developmental approach to promote industrial and deepening economic transformation.

## 2.4 CONCLUSION

Despite being rooted in different eras and assumptions, both Mercantilism and Absolute Advantage recognise the role of lower production costs in improving a country's ability to trade. They both acknowledge the value of cost-competitiveness but differ in how this is achieved and how they view international trade. Mercantilism depends on government subsidies and import tariffs to control production costs, while Adam Smith's concept of Absolute Advantage is about efficiency through specialisation and labour divisibility, enabling countries to produce more with the same resources. It sees trade as win-win and not as a zero-sum game. Mercantilism supports protection policies, while Absolute Advantage promotes long-term growth through real productivity improvements and open trade based on natural strengths. The historical development of various international trade theories illustrates the complexities and interrelationships between global trading practices. While traditional concepts such as absolute and comparative advantage offer important insights into efficiency and specialisation in trade, modern economic approaches, like

the Heckscher-Ohlin or NTT, highlight the importance of factor endowments, economies of scale, and innovation. NTT highlights the opportunity for countries to establish regional value chains in automotive and textiles, where economies of scale can lead to competitiveness. Through the AfCFTA, which seeks to reduce trade costs and enhance connectivity between African countries, as suggested by the Gravity Model of Trade, investment in infrastructure and technology can stimulate economies of scale, ultimately leading to significant improvements in industrial productivity.

Classical and modern trade theories suggest that open economies, that is, those with relatively low trade barriers, such as tariffs and quotas, will experience:

1. The Ricardian and Heckscher-Ohlin models explain enhanced efficiency and division of labour. In addition, openness permits countries to specialise according to their comparative advantage by producing what they are good at and importing goods that others make better.
2. Welfare gains due to tariff removal are favourable if trade creation exceeds trade diversion, as explained by customs union theory (e.g., Viner, 1950).
3. Larger market access fosters scale economies and competition in the market, enabling innovation and productivity, e.g., NTT (Krugman, 1980).
4. Investment attraction is due to reduced tariffs, which make countries more attractive as regional production bases for foreign investors. This is attributable to cheaper inputs and larger markets, enhancing their returns.

Given the focus on trade liberalisation, diversification, and developing regional value chains in regional integration efforts. Thus, these theories have practical implications in AfCFTA. Their relevance to Africa, however, is frequently contested by structural inefficiencies, weak infrastructure, and policy misalignments. If aligned with continental realities, they can be powerful instruments of sustainable growth, deepening regional integration and fostering fairer trade systems.

## **CHAPTER THREE:**

### REGIONAL INTEGRATION IN AFRICA

#### 3.1 INTRODUCTION

Regional integration refers to the gradual process by which countries in close proximity (neighbouring countries) within a well-defined geographical area cooperate with one another across a range of domains, most commonly economic, political, security, and socio-cultural (Gumede, 2019: 101). According to Gumede (2019: 101), while integration may be cross-sectoral, it is often focused on economic collaboration involving countries within a region or sub-region, as explained by different trade theories such as the Gravity Model of Trade or Customs Union Theory and regional integration approaches such as Functionalism or Neo-functionalism (see chapter 2). Therefore, the AfCFTA bridges the gap by incorporating all the domains.

Regional integration has been perceived for a long time as a useful approach to address **the continent's economic, social, and political challenges. Africa has 55 nations with** different cultures, economies, and governance systems, challenging intra-regional trade and development. However, regional integration provides a structure vital to promoting collaboration, increasing economic development, and improving the continent's global competitiveness. From the establishment of RECs to the ambitious AfCFTA, the path to African integration has been paved by efforts to overcome fragmentation, realise economies of scale, and promote inclusive development.

This chapter is divided into six sections:

- 3.1: The Introduction,
- 3.2: Development of regional integration and RECs in Africa,
- 3.3: The state of trade in Africa,
- 3.4: The history of AfCFTA,
- 3.5: The empirical context, and
- 3.6: The Conclusion.

### 3.2 DEVELOPMENT OF REGIONAL INTEGRATION AND RECS IN AFRICA

The history of African regional integration is rooted in the continent's persistent aspiration for unity, independence, and economic development. Pan-Africanism largely shaped the agenda of early integration efforts throughout the 20th century, particularly due to calls for greater unity among African people against colonialism (Adetula *et al.* 2020). Pan-Africanism believes that Africans have shared historical and cultural backgrounds and must unite actively in the pursuit of self-sufficiency and development, which has pictured a single African state open to all people of the African continent (Malisa and Nhengeze, 2018).

Different schools of thought champion the African regional integration, namely, the Casablanca group<sup>3</sup>, the Brazzaville group<sup>4</sup>, and the Monrovia group<sup>5</sup>. The Monrovia group was the uniting group between the Casablanca and Brazzaville groups. The Casablanca group advocated pan-Africanism to achieve a united African state, while the Brazzaville group embraced a linear approach that starts from regional economic and cultural cooperation (Gumede, 2019: 99). Different African leaders behind Pan-Africanism came from these groups which include Kwame Nkrumah, George Patmore, W.E.B. Dubois, Marcus Garvey, and Julius Nyerere (Ismail, 2021: 1; Sakyi and Opoku, 2014: 2). For example, ECA, (2019: 37) highlights that Nkrumah in 1957 announced that the African political independence through decolonisation does not have the potential to improve the living standard of African citizens unless it is integrated with economic independence.

**Luke and Macleod (2019) note there are five distinct phases of Africa's economic integration:** the early formation of subregional trading blocs (1889-1979), moves toward legally binding treaties (1979-1991), the creation of trading sub-regions (1991-2006), efforts to streamline and rationalise African economic integration (2006-2015) and the path toward the AfCFTA (2015-2018). These phases illustrate the progression of Africa's integration initiatives, leading to the establishment of the AfCFTA. The first

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<sup>3</sup> The Casablanca group comprised Algeria, Egypt, Ghana, Guinea, Libya, Mali, and Morocco

<sup>4</sup> **The Brazzaville group comprised the Central African Republic, Cameroon, Ivory Coast, People's Republic of Congo, Dahomey, Mauritania, Gabon, Upper Volta, Senegal, Niger, Chad, and Madagascar.**

<sup>5</sup> The Monrovia group comprised Nigeria, Sierra Leone, Liberia, Togo, Ivory Coast, Cameroon, Senegal, Dahomey, Madagascar, Chad, Burkina Faso, Niger, People's Republic of Congo, Gabon, Central African Republic, Ethiopia, Somalia, and Tunisia.

attempt at regional integration in Africa was between 1889 and 1979, which was marked by a politically driven integration process (Luke and Macleod, 2019). This dates to the formation of SACU in 1910 (Leyaro and Hongoli, 2022: 1). It is the oldest customs union in the world that seeks to promote economic growth, industrialisation, and diversification, while also advancing fair competition with harmonised trade policies (Nkala, 2023). According to Nkala (2023), one of the defining characteristics of SACU compared to other customs unions is its shared revenue pool. SACU collects customs and excise duties revenue on imports from external countries and deposits it in a central fund pool. According to the revenue-sharing formula, the central fund pool is redistributed to SACU member states. The share of customs duties is based on the levels of imports by each country, whereas excise duties are distributed according to their economic contribution to the region's GDP. Furthermore, 15% of excise revenue goes to less developed members to help them grow. This system guarantees equitable resource allocation, addressing economic inequality among member states while emphasising SACU's commitment to regional economic cooperation and sustainable development (Nkala, 2023).

The UNECA was founded in 1958 to promote economic and social development through regional integration, while the OAU was formed in 1963 through the efforts of the Monrovia group (Gumede, 2019: 99) to pursue the political independence agenda (D'SA, 1983: 6-7). The UNECA facilitated different projects such as the formation of the Preferential Trade Area (PTA) for Eastern and Southern Africa which was converted to COMESA in 1994 under the framework of OAU (COMESA, 2018: 1). The objectives of the OAU were to safeguard the independence and protect the voice of the newly independent countries; promote solidarity, unity and peace; and improve international cooperation with the rest of the world (D'SA, 1983: 6). Early waves of economic integration were made in 1964 when the OAU adopted the Lagos Plan of Action (LPA) under the theme of "economic self-reliance" (Ismail, 2016; D'SA, 1983: 13). The LPA was designed to foster trade liberalisation and harmonisation of economic policies and the functionalist approach was adopted (D'SA, 1983: 4-5). As an attempt to reduce tariffs, the LPA ordered African countries to reduce tariffs on selected products ("cereals, coffee, pulses, sugar, meat, maize, fish, oilseeds, rice, wheat, sorghum, tea, vegetable oils") by no later than December 1984 (ECA, 2023: iii).

**The LPA was revised in 1980 under the theme “self-reliance, endogenous development and industrialisation” (Ismail, 2016; Dzinesa *et al.* 2012: 3-4).** This revision strengthened economic cooperation and shifted Africa’s focus from political to economic regional integration with emphasis on industrialisation (Seka, 2009: 2). Around this period, countries adopted import substitution as strategies to promote industrialisation but failed in the long-term (Leyaro and Hongoli, 2022: 1). The period **1979 to 1991 marked the second phase of Africa’s regional integration (Luke and Macleod, 2019).** The LPA envisioned establishing a common market in Africa by 2025 (Sakyi and Opoku, 2014: 2) and the African Economic Community (AEC) during the 1990s. To create these two entities, the LPA strengthened existing regional blocs and advocated that new regional blocs should be created "to cover the continent as a whole (Central Africa, Eastern Africa, Southern Africa, and Northern Africa)" (OAU, 1980: 99). Therefore, in 1983, 1988 and 1989, the Economic Community of Central African States (ECCAS), SADC and the Arab Maghreb Union (AMU) were respectively established to boost trade in the Central African, the Southern and Northern Africa regions (Sakyi and Opoku, 2014: 1).

While the LPA achieved some success, especially with promoting intra-regional trade and establishing RECs, it struggled with practical implementation and monitoring mechanisms. For example, the LPA could not outline the guidelines on how the set objectives would be monitored and implemented (Ismail, 2018: 7) and this motivated the African leaders to restructure the LPA by adopting the Abuja Treaty of 1991 (Tröster and Janechová, 2021: 5). This was the end of the second phase and the start of the third phase (1991-2006) (Luke and Macleod, 2019). According to Ochieng-Springer (2016: 42), the Abuja Treaty quoted eight RECs as official building blocks towards continental integration in Africa: namely CEN–SAD; ECOWAS; SADC; AMU; COMESA; ECCAS; IGAD; and EAC<sup>6</sup> which covers the whole continent as envisioned by the LPA under the OAU. These RECs are at different stages of economic integration as depicted below.

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<sup>6</sup> CEN-SAD (Community of Sahel-Saharan States); ECOWAS (Economic Community of West African States); SADC (Southern African Development Community); AMU (Arab Maghreb Union); COMESA (Common Market for Eastern and Southern Africa); ECCAS (Economic Community of Central African States); IGAD (Intergovernmental Authority on Development); and EAC (East African Community).

Table 3.1: Economic Integration Progress In Africa

AMU					
CEN-SAD					
COMESA					
EAC					
ECCAS					
ECOWAS					
IGAD					
SADC					
	Free Trade Agreement	Customs Union	Single Market	Monetary Union	Political Federation
	Stages of Integration				
	Achieved	In Progress		Planned	Not Planned

Source: Author adaptation based on UNCTAD (2019: 173).

Table 3.1 shows the progress of Africa's economic integration for the eight RECs that are building blocks for AfCFTA. These RECs are at different stages of the linear economic integration, symbolising varying successes and failures. COMESA, EAC, ECOWAS, and SADC have achieved the FTA stage, while EAC and ECOWAS have fully realised the FTA and Customs Unions (CU), and COMESA is working towards CU. The only region EAC has achieved the Single Market stage, while COMESA, ECOWAS, and SADC have planned for a Monetary Union. Only EAC has made some efforts toward political unification, while IGAD has not achieved nor made any plans towards any level of economic integration. With various RECs being at different stages of African integration, the AfCFTA can build on the successes and failures of these RECs to strategise and formulate a more integrated approach towards achieving its full potential (UNCTAD, 2019: 173).

Table 3.2: Key Objectives of the Abuja Treaty of 1991

Objectives to be realised in six stages	Target Year
a) To establish regional blocs in areas where there is none	1999
b) Reinforcement of existing RECs and strengthening its harmonisation	2007
c) The formation of the free trade area and customs union in each sub-regional bloc	2017
d) The continent-wide free trade area and customs union	2019
e) A continent-wide African Common Market with a single African central bank and currency	2023
f) A continent-wide economic and monetary union and a currency union and parliament	2028

Source: Compiled by the author based on literature and ECA (2023: 3)

Table 3.2 shows the implementation timeline of the Abuja Treaty objectives, which are set to be achieved in six states which has been influenced by economic integration (Gibb, 2009: 708; Davies, 2019: 62). The Abuja Treaty of 1991 established the AEC to realign the existing RECs towards economic integration rather than economic cooperation. To realise these objectives, Africa needed an organisation with the power to bind its decisions over national governments (ECA, 2023).

The OAU, however, was not equipped to fulfil the role of a central governing body with the capacity to enact policies, as it was primarily created to provide a platform for dialogue and cooperation among African countries with a limited mandate to promote collective policies. Nonetheless, the OAU was a vital forum for Africa to discuss regional issues. Therefore, African leaders, including Thabo Mbeki of South Africa and Olusegun Obasanjo of Nigeria, redefined their vision to shape a stronger Pan-African architecture by establishing the AU in 2002. Consequently, this dissolved the OAU (Gumede, 2019: 99).

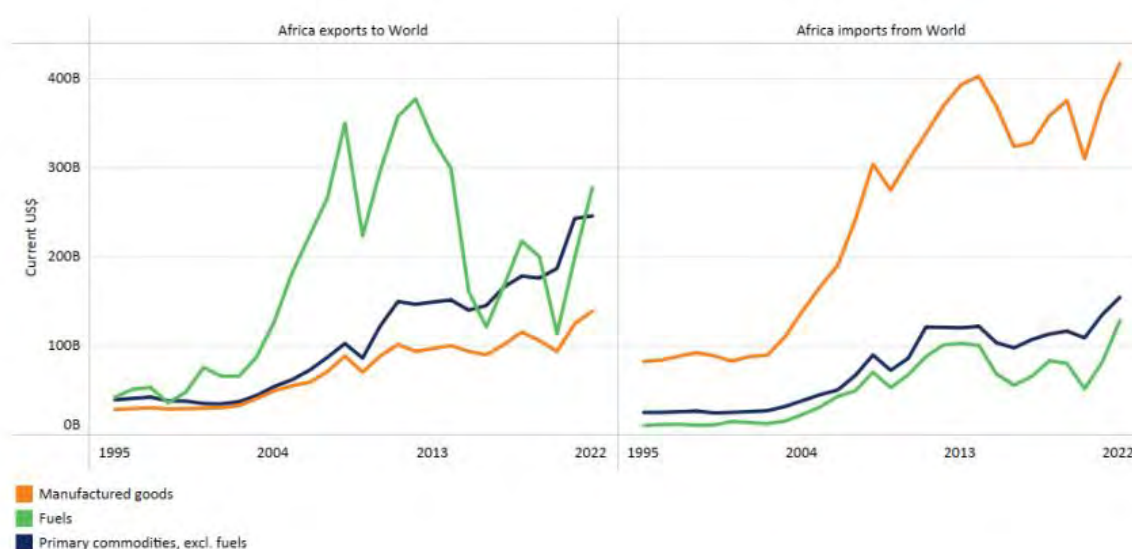
The AU has institutional powers to implement decisions over member states. It is therefore, classified as an intergovernmental body acting as a whip over African members states but it is not a full-qualified political union (Ochieng-Springer, 2016: 43; Debrah *et al.* 2024: 3). The formation of the AU paid special attention to continental integration rather than regional integration and to realise the continental dream, the AU was also established to fasten the process of establishing the entities as prescribed in the Abuja treaty (Gibb, 2009: 703; Sakyi and Opoku, 2014: 2). Zongwe (2024) states that the AU launched a 50-year (2013-2063) vision called "Agenda 2063" under the theme "The Africa we want". Agenda 2063 was established to realise the vision of "Pan-Africanism and African Renaissance" about unity, freedom, self-control, progress, and collective prosperity. The 50-year vision represents the number of years it took to realise this vision from the establishment of the OAU in 1963 to 2013 (ECA, 2019: 37). To put it differently, it was supposed to be the OAU's 50<sup>th</sup> birthday in 2013. To achieve Agenda 2063, the AU has tasked the AfCFTA to prioritise the aspirations of the 50-year vision (Ismail, 2018: 3; ITC, 2018).

### 3.3 THE STATE OF TRADE IN AFRICA

#### 3.3.1 Intra-Africa trade

Intra-trade is trade within a confined geographical area in a regional bloc, such as Africa, and promotes regional economic integration by lowering trade barriers. Intra-trade in Africa is considered low because of high NTBs, lack of infrastructure, low levels of industrialisation, and complicated customs regulations (Chipanda and Cilliers, 2025: 4). As a result of these NTBs, African countries trade on a small scale with each other rather than they do with external markets.

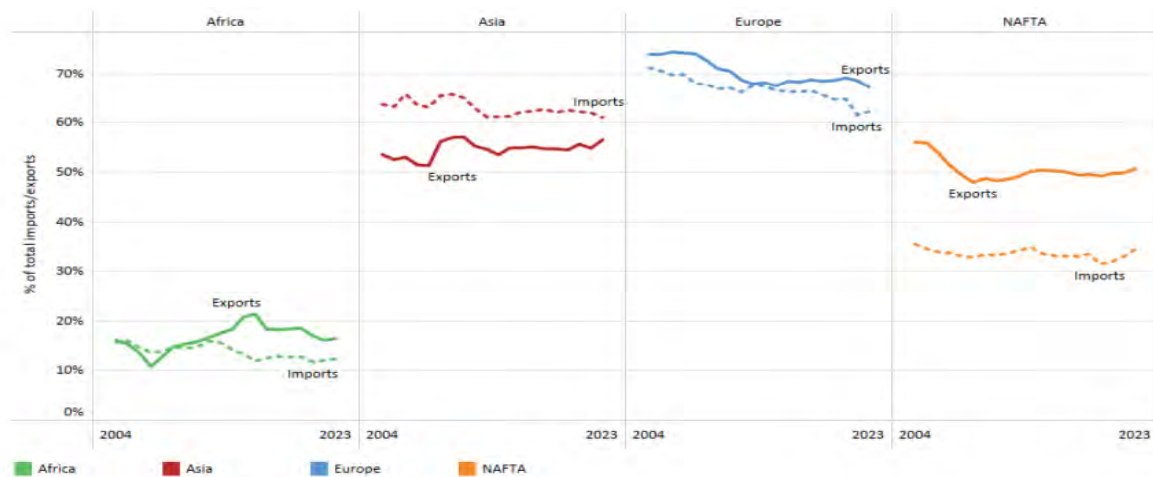
Figure 3.1: Intra and extra-African trade



Source: Chipanda and Cilliers (2025)

Figure 3.1 depicts trade between Africa and the rest of the world. The trend shows a trade deficit over time as Africa's exports are always lower than its imports worldwide. Regardless of the many RECs in Africa, Intra-African trade remains relatively low which has averaged between 10% and 15% over time and was 14.8% in 2021 compared to other continental regions such as Asia and Europe which were 54.5% and 68.4%, respectively (Chipanda and Cilliers, 2025: 12). To further contextualise this, Figure 3.2 compares intra-Africa with extra-Africa trade.

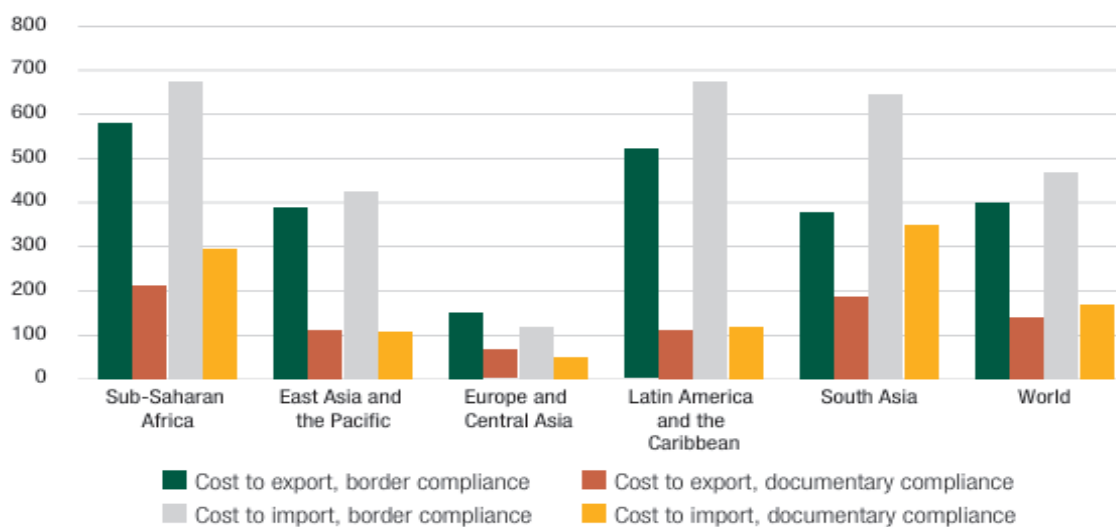
Figure 3.2: Intra-Africa trade vs extra-Africa trade (2004 – 2023)



Source: Chipanda and Cilliers (2025)

Figure 3.2. compares intra-African trade with other regions. Intra-regional trade for Africa is far below its export destination markets. This suggests that the integration efforts in Africa have limited trade promotion between African countries because of NTBs (Chipanda and Cilliers, 2025: 4; UNCTAD, 2019: 33; Lawal, 2024). These authors argue that Africa has been promoting regional integration through tariff reduction, which does not address poor transport infrastructure, which impacts the transportation of goods, complicated border and document compliance, which cause delays and sometimes block the shipment. Therefore, many countries across Africa have a greater preference for foreign markets (Zongwe, 2024).

Figure 3.3: Import and Export Costs in (\$)



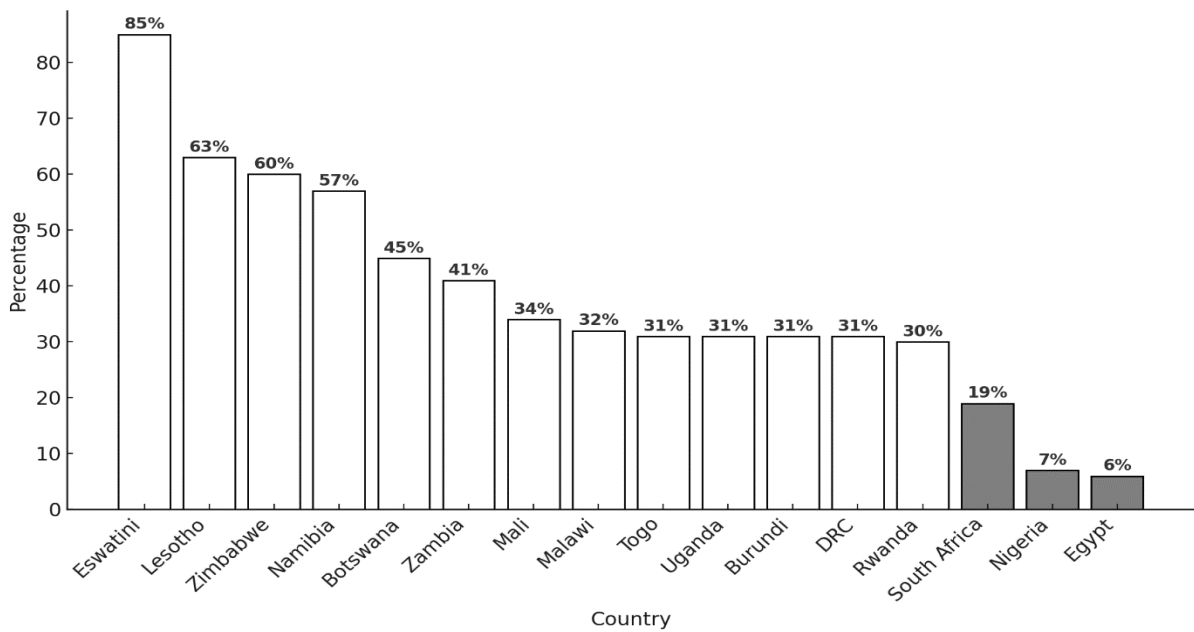
Source: UNCTAD (2019: 33)

Figure 3.3 compares trade compliance costs between regions, and Africa tops all categories. This makes Africa the most expensive region in which to do business. Similarly, Fofack (2018: 50) highlighted that container importing costs about \$2,492 in Africa, compared to \$935 in East Asia and the Pacific and \$1,488 in Latin America and the Caribbean. This means that Africa's imports are 6.1% more expensive than non-African imports (Lawal, 2024). As a result, high trade costs impede intra-African trade and African global competitiveness (Afonso and Vergara, 2022: 145).

Several studies, such as Lawal (2024) and WITA (2021), point out that the method used to measure intra-continental trade is not sufficient to capture the complexities of Africa's trade, which has a substantial share of informal cross-border trade (ICBT). Therefore, trade flows between African countries are severely underreported. Chipanda and Cilliers (2025: 13) argue that ICBT can boost intra-African trade by double or even triple, while Mold and Chowdhury (2021) state that intra-African trade is underreported by between 11% to 40%. Therefore, intra-African trade may not be as low as currently reported if these relatively underreported factors are adequately considered (ECA, 2022; Mold and Chowdhury, 2021).

There is a consensus in the African literature about the significance of ICBT, which is currently overlooked. ECA (2021: iii-11) states that ICBT accounts for between 7% and 16% of formal intra-African trade, and 30% and over 70% of trade between African neighbouring countries. Afreximbank (2020: 11) and Okwatch (2023) further substantiated that the ICBT accounts for up to 42% and 80% of Western and Eastern African regions, respectively. In SADC and COMESA, it counts for about 30-40% and 40%, respectively (ECA, 2019: 84). Mold and Chowdhury (2021) went beyond the ICBT narrative and identified additional factors contributing to the low intra-African trade levels. The first one is systematic errors, which states that the comparison made with other continental regional blocks is frequently misleading and does not compare like with like. The authors went on to state that intra-African trade is distorted by large-scale commodity exports to destinations outside the continent by a few countries. Figure 3.4 illustrates the issue of systematic errors.

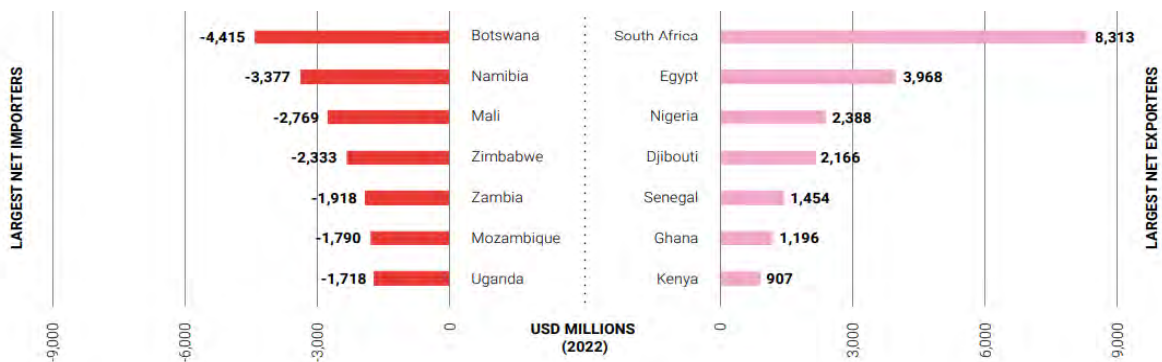
Figure 3.4: Intra-Africa trade of small vs big economies



Source: Mold and Chowdhury (2021)

Figure 3.4 shows that Africa's aggregated trade tends to underestimate intra-African trade significantly. Mold and Chowdhury (2021) argue that, on a disaggregated level, African countries tend to trade more with each other compared to countries in other regions such as Asia (Central and Southern Asia) and ASEAN. For example, intra-country trade is 85%, 63%, and 57% for Eswatini, Lesotho, and Namibia. However, their contributions are masked by the trade patterns of larger economies such as South Africa (19%, Nigeria (7% and Egypt (6%) that focus on extra-continental markets. Therefore, disaggregated trade illustrates that smaller economies drive regional integration and provide a higher intra-African trade.

Figure 3.5: Improve Intra-continental trade through the import regime (2022)



Source: Brookings (2024: 97)

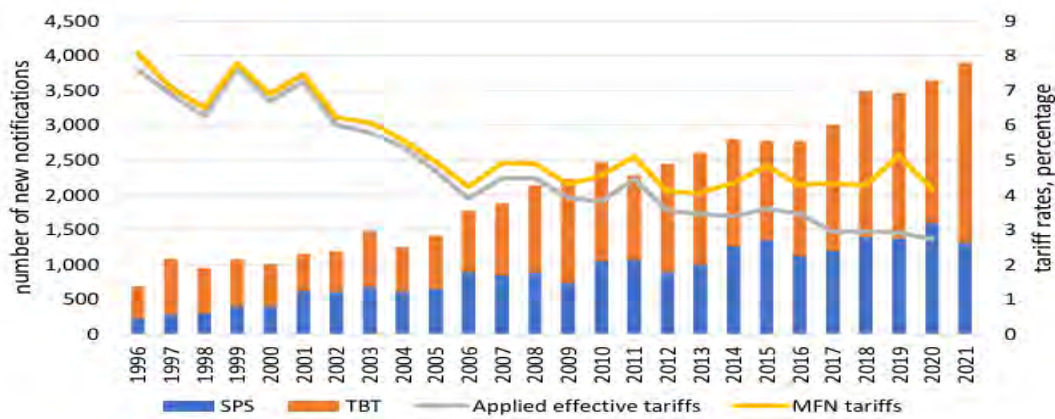
Figure 3.5 shows that in 2022, South Africa, Egypt, and Nigeria were the highest top 3 net exporters of \$8313 million, \$3968 million, and \$2388 million, respectively, while the highest top 3 net importers were Botswana (-\$4415 million), Namibia (-\$3377 million), and Mali (-\$2769 million). Therefore, Brookings (2024: 97) suggests that one way to improve intra-African trade is for the three largest African countries to increase their trade within the continent, such as by increasing imports from African countries.

There are successful RECs in Africa that have formalised the ICBT such as EAC and COMESA which the AfCFTA can benchmark to institutionalise and formalise informal trade because as of now, they are not explicitly included in the AfCFTA (ECA, 2019: 84). This view highlights the extent to which AfCFTA must utilise ICBT along with the framework of RECs to address the underreporting of intra-Africa trade raised by Lawal (2024), WITA (2021) and Mold and Chowdhury (2021) and also to ensure a sustained food security economy with increased employment, as most of these informal traders are an unemployed individual providing food products. ECA (2019: 84) states that the role of informal traders in responsiveness to food crises is more critical than that of formal trade.

### *3.3.2 Intra-Africa Trade by REC*

The previous section considered continental trade within Africa, and in this subsection, trade analysis for RECs is presented as they account for a substantial share towards promoting intra-African trade. For instance, the AfCFTA is expected to boost intra-African trade by 52.3%, and 67% of this growth is generated from RECs (AUDA-NEPAD, 2023).

Figure 3.6: Tariffs vs NTMs



Source: Kravchenko et al. (2022: 39)

The last decades have witnessed Africa’s journey towards economic integration through the creation of several RECs. These efforts have successfully facilitated trade and economic development, but only within their specific regions (IBA, 2021). Figure 3.6 shows that RECs in Africa have played a major role in lowering tariffs within their regions (ECA, 2023: iii; Fofack, 2018: 50). However, despite their successes, these RECs have often been limited by restricted geographic scope, overlapping memberships, and persistent increasing non-trade barriers, including poor infrastructure and regulatory inefficiencies (Fofack, 2018: 51).

Figure 3.7: Intra-REC by RECs



Source: Compiled by author based on Tralac (2022a)

Figure 3.7 emphasises the extent of trade relationships within geographically neighbouring RECs, which illustrates that geographic proximity establishes a key barrier to advancing regional integration, consistent with the predictions of the gravity model of trade. For instance, COMESA displays its most significant trade interaction with SADC (51.45%), while EAC trades predominantly with COMESA (36.65%) and SADC (30.96%). In addition, strong trade relations also exist between ECOWAS and SEN-SAD, with a rate of 64.13% confirming once again that proximity matters regarding trade networks. SADC represents an important trade centre as it has significant trade links with many RECs, including COMESA (36.33%), CEN-SAD (25.14%) and ECOWAS (21.52%). In contrast, Figure 3.6 also shows limited trade relationships between far-distant RECs. For example, IGAD and ECCAS (0.77%) or AMU and ECOWAS (2.62%) indicate significant challenges in cross-regional integration as they have extremely low trade shares. Regions such as AMU and ECCAS have lower connectivity with other regions, displaying barriers like distance, poor infrastructure, and trade policy fragmentation.

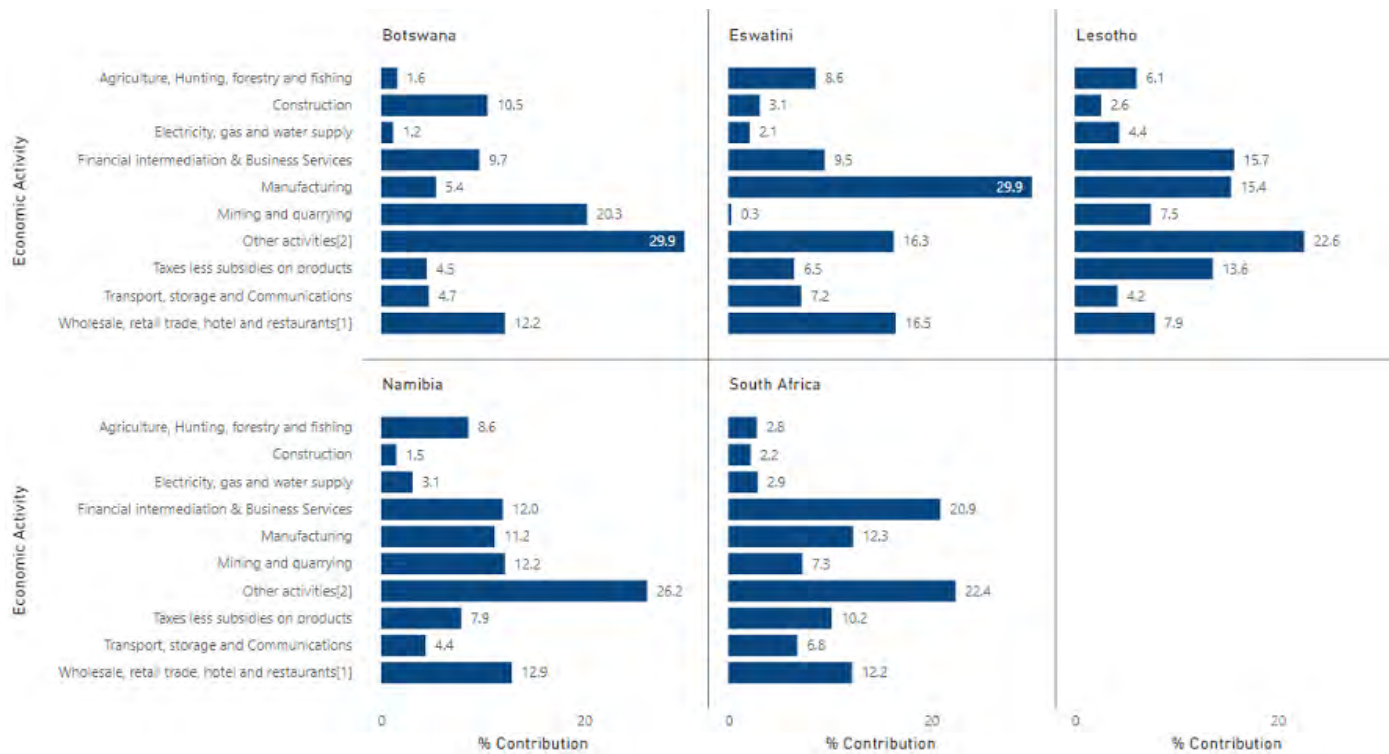
### *3.3.3 Intra-SACU Trade*

With over a century of experience promoting economic integration through establishing duty-free trade, SACU has nevertheless been critiqued for not tackling critical non-tariff barriers. According to scholars such as Nkala (2023), issues like poor infrastructure, delays in administrative processes, and disjointed regulations have limited the extent to which trade in the union has reached its maximum potential. SACU's tariff-free system was supposed to promote high levels of trade, but its effects are marginal, with low intra-regional trade levels. Unless these underlying inefficiencies are addressed, SACU risks stagnating in its integration initiatives, making member states excessively reliant on external trade partners.

Intra-SACU imports increased from R185 billion to R207 billion between 2017 and 2021, while exports increased from R192 billion to R202 billion. These figures suggest **growth, but they are a small percentage of SACU's trade with the rest of the world.** Intra-SACU imports constituted only 12% of total imports in 2021, and intra-SACU exports were just over 10% of total exports. These figures show the **low level of internal trade, which indicates the power of external markets in SACU's economy. If SACU**

wants to make the most of AfCFTA trade benefits and reach deeper levels of economic integration, it should tackle the persistent structural and policy challenges (Nkala, 2023).

Figure 3.8: Contribution to GDP by Economic Activity in 2022 (%)

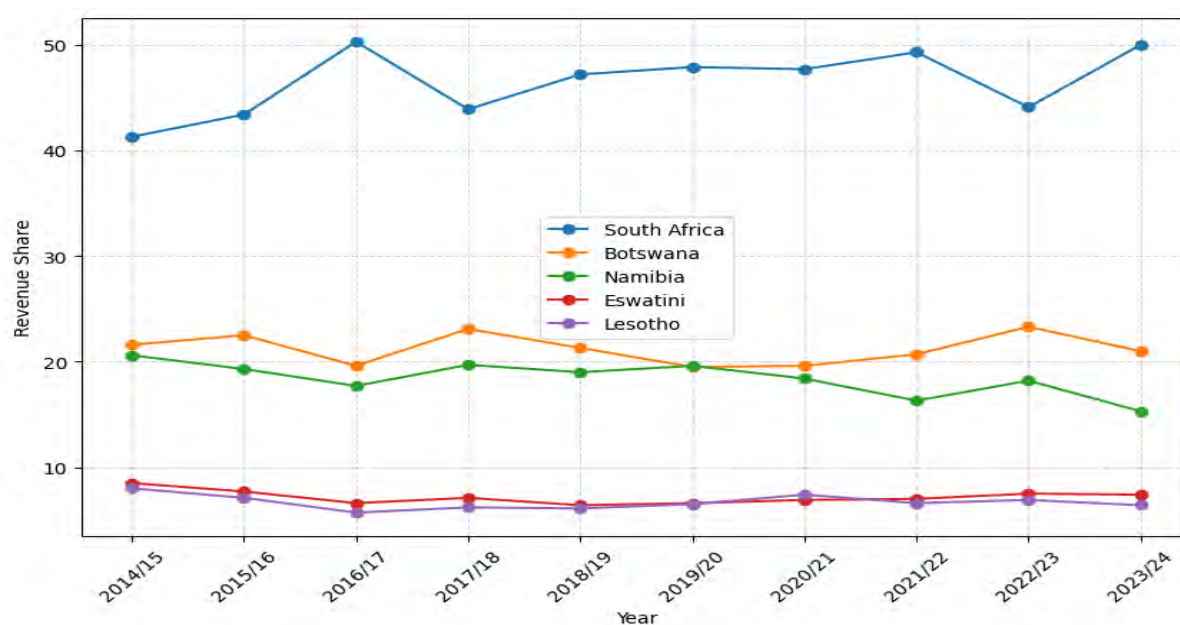


Source: SACU (2023: 9)

The GDP of SACU member states are influenced by different economic activities, which vary across the countries. Other activities largely dominate the economies of SACU countries. However, surprisingly, Eswatini's manufacturing sector (+29.9%) outperformed other activities (+16.3%) by a significant margin, which suggests the sector's considerable importance in the country. The second highest economic activities are mining and quarrying (+20.3%), wholesale (+16.5%), services (+15.7%), wholesale (+12.9%), services (+20.9%) for Botswana, Eswatini, Lesotho, Namibia, and South Africa, respectively. These sectors or economic activities are on which SACU countries should capitalise to enjoy the potential gains of AfCFTA. The "Other Activities" Category, as presented in Figure 3.8, comprises Public Administration and Defence; Education; Health and Social Work; Real Estate Activities; Community, Social and Personal Services (SACU, 2023: 11).

In 2019, SACU collected R120 billion in customs and excise revenue, with South Africa collecting the most significant share (48%) due to its economic dominance. Botswana came next with 19.7%, while Namibia came at 18.5%. The two smaller economies of Lesotho and Eswatini both captured a 7% share (Nkala, 2023). Those funds have historically been important to national economies, contributing about 21% of Lesotho's GDP, 12% each for Namibia and Eswatini, 9% for Botswana, and 2% for South Africa. This reflects member states' varying economic dependence on the SACU revenue fund pool (Nkala, 2023; WTO, 2023: 4-5).

Figure 3.9: SACU Revenue Share by Member State (%)



Source: WTO (2023)

Figure 3.9 shows that in 2023/24, half of SACU's revenue went to South Africa (50%), accounting for only 2.9% of South Africa's total government revenue. WTO (2023) found that, on average, for 2014/15 to 2023/24, South Africa has been getting 40% or above from the revenue pool, whereas Lesotho has been the lowest. On the contrary, Lesotho and Eswatini only got a share of 6.6% and 7% respectively in 2022, but these shares contributed 46.8% and 36.2% towards the total government revenue.

The revenue-sharing arrangement of SACU will greatly cushion the fiscal losses resulting from eliminating tariffs under the AfCFTA. The system functions through a central revenue pool that receives all customs and excise revenue raised in the union.

These collections are then apportioned among member states by a formula considering various factors, including intra-SACU trade and GDP shares (Nkala, 2023). Notably, the bulk of the customs revenue component is directed towards the smaller, most trade-dependent economies, such as Lesotho, Eswatini and Namibia, cushioning them against immediate losses from tariff reductions.

This redistributive mechanism functions as a natural stabiliser in the event of fiscal shocks, particularly in those countries where customs duties are an important source of state revenues. For example, SACU's customs revenue is primarily generated by South Africa. However, it gets less in GDP terms, giving a higher share to countries with a high dependence on tariffs, such as Lesotho, where tariff revenue is 46.8% of all taxes collected, to get a larger share than they would have got if their share were strictly based on receipts. This will allow these less powerful economies to still consolidate fiscal stability even after reducing tariffs under AfCFTA, ensuring a more gradual (as described by Economic Integration) transition towards deep regional integration. The institutional architecture of SACU represents an alternative form of compensatory macroeconomic (fiscal) integration, one that has the potential to cushion fragile economies from trade reforms. As tariff revenues fall, continued operation of a pooled, redistributive system mitigates uneven fiscal pressure, helping maintain cohesion and equity within the customs union.

### 3.4 THE AFRICAN CONTINENTAL FREE TRADE AGREEMENT

The AfCFTA is conceptually distinct from these earlier RECs in that it seeks to establish a single trading bloc with the potential to include all 55 members of the AU, as opposed to being limited to a specific economic community. Therefore, by the number of participating countries, the AfCFTA is the largest free trade area in Africa and globally since the WTO was established in 1995 (Debra *et al.* 2024: 3; The World Bank, 2020: 1). The AfCFTA would not act as a replacement for the pre-existing RECs but would continue to use their successes and failures as lessons in its implementation (Tralac, 2022: 13; IBA, 2021). According to ECA (2023: iii), even though SACU is not among the eight selected RECs, the AfCFTA significantly benefited from the SACU arrangement ECA (2023: iv) since it has previously made positive progress toward promoting regional integration and intra-regional trade (ECA, 2023: iii).

The RECs have focused on creating greater regional integration, while the AfCFTA is intended to align and harmonise trade policies across the continent by eliminating tariffs on 90% of goods traded and addressing NTBs through broader agreements on trade facilitation, services, and investment (IBA, 2021). The eight endorsed and other African RECs fail to cover the scope of NTBs, which is largely why intra-African trade is low. In addition, the AfCFTA is accompanied by mechanisms for growing regional value chains, allowing African countries to diversify their economies while shifting away from raw material exports.

### 3.4.1 *The history of AfCFTA*

The AfCFTA originates from the Abuja Treaty of 1991, and its formal proposal was submitted during the 18th AU Summit in January 2012, when African countries acknowledged the importance of a continental market to promote intra-African trade and industrialisation in Africa (IBA, 2021). Manboah-Rockson (2020: 5) asserts that the AfCFTA agreement aligns with Agenda 2063, while ECA (2023: iii) alluded that the AfCFTA is a steppingstone towards forming a Continental Customs Union.

The AfCFTA negotiations began in 2015 and were concluded and adopted in March 2018 when 44 member states signed the agreement. The agreement came into force in May 2019, depositing the 22nd instrument of ratification, and the operational phase began in July 2019. According to Luke and Macleod (2019), the period 2006 to 2015 was the fourth phase of Africa's regional integration. The formal commencement of trading under the AfCFTA started on 1 January 2021 (ECA, 2023: iv; Tralac, 2024). The negotiations were organised into three successive phases. Phase one of the AfCFTA primarily addressed trade in goods and services, concentrating on tariff elimination, which led to the 90% tariff liberalisation, the reduction of non-tariff barriers, and the establishment of rules of origin to promote intra-African trade (Tralac, 2024). The second round applied to investment, intellectual property rights, and competition policy and established a common foundation for a common regulatory environment to facilitate the growth and innovation of the private sector. The third phase discussed the inclusion of digital trade, women, and youth in trade as the AfCFTA aims to promote inclusive economic growth and tackle contemporary issues in the global trade landscape (Debra *et al.* 2024; Tralac, 2022).

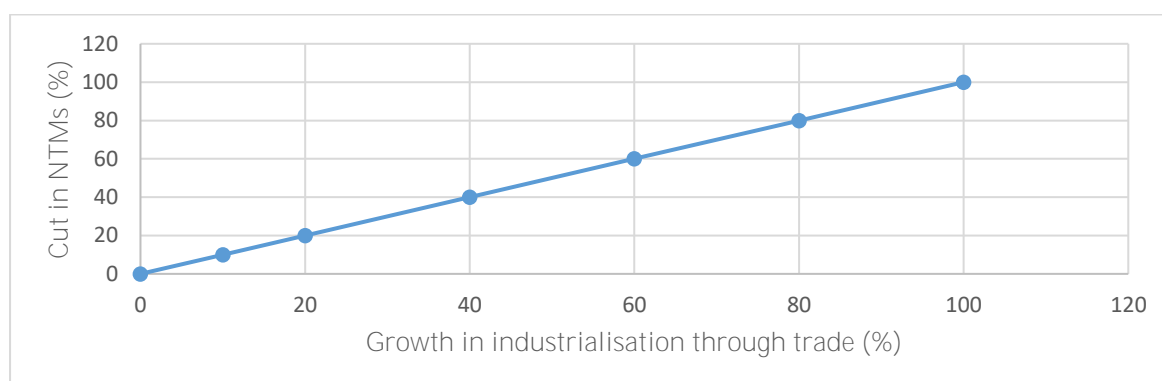
Table 3.3: The general modalities for tariff reductions under AfCFTA

Under AfCFTA	Tariffs reduction	Timeframe for Non-LDCs	Timeframe for LDCs
Non-Sensitive Products (Schedule A)	90%	5 years	10 years
Sensitive Products (Schedule B)	7%	10 years	13 years
Excluded Products (Schedule C)	3%	Excluded	Excluded
LDCs = Least Developed Countries			

Source: *Tralac (2024)*

The reduction of tariffs under AfCFTA is a major move toward increasing intra-African trade but extra effort from member states is required also to address the issue of non-tariff measures (NTMs) (Okwatch, 2023) which impact the trade flow and limit the AfCFTA opportunities (UNECA, 2021: 3; Tröster and Janechová, 2021: 7). At a disaggregated level, NTMs include a range of measures, such as complex customs procedures, technical trade barriers (TBTs) that arise from different product standards and labeling requirements, and sanitary and phytosanitary measures (SPS) that govern agricultural and food products (Abrego *et al.* 2020: 15).

Figure 3.10: NTMs vs Industrialisation



Source: *ECA and CIEM (2021: 3)*

The AfCFTA did not specify a specific reduction percentage for NTMs (Abrego *et al.* 2019: 20). However, **ECA and CIEM (2021: 3) predicted that “the more ambitious the cut in non-tariff measures (NTMs), the greater the possibility for Africa to industrialise through trade”.** Therefore, African countries should reduce most NTMs to unlock more potential. Table 3.4 shows how many NTMs each African country has.

Table 3.4: AfCFTA agreement status and total NTMs in place by member state

Countries	Status	Total NTMs	Countries	Status	Total NTMs
Algeria	0	DNA	Liberia	0	25
Angola	0	DNA	Libya	1	DNA
Benin	1	8	Madagascar	1	55
Botswana	0	106	Malawi	0	32
Burkina Faso	0	19	Mali	0	43
Burundi	0	16	Mauritania	0	DNA
Côte d'Ivoire	0	36	Mauritius	0	67
Cameroon	0	18	Morocco	0	70
Cabo Verde	0	4	Mozambique	0	7
Central African Republic	0	13	Namibia	0	22
Chad	0	DNA	Niger	0	DNA
Comoros	0	DNA	Nigeria	0	37
Congo Republic	0	DNA	Rwanda	0	216
Democratic Republic of Congo	0	3	Sao Tomé and Príncipe	0	DNA
Djibouti	0	DNA	Senegal	0	27
Egypt	0	309	Seychelles	0	8
Equatorial Guinea	0	DNA	Sierra Leone	0	DNA
Eritrea	-1	DNA	Somalia	1	DNA
Eswatini	0	3	South Africa	0	489
Ethiopia	0	2	South Sudan	1	DNA
Gabon	0	4	Sudan	1	DNA
Gambia	0	14	Tanzania	0	294
Ghana	0	12	Togo	0	DNA
Guinea	0	865	Tunisia	0	54
Guinea-Bissau	0	DNA	Uganda	0	1055
Kenya	0	4	Zambia	0	93
Lesotho	0	DNA	Zimbabwe	0	7

[Signed and ratified agreement = 0, Signed agreement but not yet ratified = 1, Not signed agreement = -1 (as at August 2024)]; (DNA = Data Not Available, NTMs = Non-Tariff Trade Measures as at 2018)

**Source:** Author's adaptation based on Debrah *et al.* (2024: 3) & Abrego *et al.* (2020: 15)

As of 17 January 2025, the AfCFTA achieved major milestones in its implementation concerning membership and ratification (Arbisman *et al.* 2025; Tralac, 2024). Table 3.4 highlights the signatory status of the AfCFTA agreement among African countries as of August 2024 (Debrah *et al.* 2024: 3), while the NTM data as of 2018 (Abrego *et al.* 2020: 15). Eritrea is the only country that did not sign the agreement, indicated by -1. Six countries signed the agreement but have not yet ratified it, which are marked

with a status of 1. The other countries have already signed and ratified the agreement, with a 0 (zero) status.

Table 3.4 also highlights the presence of NTMs for each country, which differ widely across countries. Uganda has the most NTMs (1,055), followed by South Africa (489) and Tanzania (294). On the other hand, multiple countries, including Mauritania, Chad, and Comoros, lack any NTM data (indicated as DNA). This variation illustrates the different types of NTBs that member states need to reduce to establish a frictionless trade ecosystem that enables member states to harness the full economic potential of the AfCFTA, which will be four times higher than tariff reduction (UNECA, 2021a: 3).

### *3.4.2 AfCFTA efforts and achievements*

To enable countries to trade under the agreement, the AfCFTA adopted a provisional tariff schedule called Guided Trade Initiative (GTI), also known as a pilot programme, in October 2022 (Tralac, 2024; Zongwe, 2024). The GTI is meant to explore AfCFTA implementation capabilities to help boost trade and set up new trade flows (Okwatch, 2023). The GTI started small, covering only eight countries<sup>7</sup>, which increased to 35 countries in 2023 (ISS, 2024) and expanded to 39 countries by September 2024, and Intra-Africa Trade grew by 3.2% over the two years (PAP, 2024).

The GTI have limited trade volumes of the selected 96 products, such as tea, coffee, sugar, and processed meat products, amongst others (Tralac, 2024). Most of these products are the same products that the LPA subjected to reduced tariffs in 1984. The growth in the number of countries participating in the GTI programme demonstrates commitment and political will to implement the AfCFTA agreement, which has boosted intra-African trade as empirically estimated.

The GTI programme is running concurrently with the AfCFTA Preferential Trade protocols. Preferential Trade under AfCFTA protocols represents the negotiated outcomes of AfCFTA protocols among the 54 member states (Tralac, 2024). South

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<sup>7</sup> The eight countries are Cameroon, Egypt, Ghana, Kenya, Mauritius, Rwanda, Tanzania, and Tunisia

Africa launched its preferential trade under AfCFTA on 31 January 2024, which enables the country to export its first shipment (refrigerators, home appliances, and mining equipment) to 12 African countries (Lawal, 2024). These include SACU countries, Algeria, Cameroon, Egypt, Ghana, Kenya, Rwanda, Tunisia, and Mauritius (Fillis, 2024).

To facilitate trade under AfCFTA through the GTI and preferential trade, in 2023 the AfCFTA established the Africa Trade Gateway (ATG) Zongwe (2024), and the AfCFTA adjustment fund ISS (2024) worth \$10 billion which started to operate in quarter of 2024 Brookings (2024: 96). The ATG is a digital platform designed to help with the operationalisation of the AfCFTA agreement by overcoming structural and informational barriers that inhibit trade across Africa while the AfCFTA Adjustment Fund is a policy designed to assist countries in absorbing revenue losses and facilitating economic adjustments during tariff phase-outs as they make the transition.

### 3.5 THE EMPIRICAL CONTEXT OF AFTCFTA

The AfCFTA promises massive potential benefits to Africa and the rest of the world. **The saying “Rome was not built in a day” is applicable as the AfCFTA will not be built overnight** (Brookings, 2024: 97), extra effort is required to enjoy the potential gains, and this requires African countries to simultaneously reduce tariffs and NTMs and improve trade facilitation such as improved efficient and transparent customs procedures (Cook and Wong, 2023; Tröster and Janechová, 2021: 7).

Table 3.5: Effect of AfCFTA on GDP and Welfare

AfCFTA	Tariff Removal			NTB Reduction			Tariff and NTB Removal			
	GDP	AW	WW	GDP	AW	WW	FDI	IAT	Inc	TRL
Mhonyera and Meyer (2023)		\$93.10 M								
Simola <i>et al.</i> (2021)	0.42									8.20%
The World Bank (2020)	4.20%	2%							7%	0.01
Abrego <i>et al.</i> (2019)	---	0.05	0		1.7	0.03		2.1	0.04	
AFDB (2019)	---	0.1		1.3	---	---	1.4	---	---	
AW = Africa Welfare, WW = World Welfare, Inc = Income, TRL = Tariff Revenue Losses, IAT= Intra-Africa Trade, FDI = Foreign Direct Investment										

Source: Compiled by the author

Table 3.5 presents the implications of AfCFTA on different indicators and variables. Brookings (2024: 94) highlights that the literature shows NTBs to have more benefits than tariff reductions. The studies in Table 3.5 qualify the statement, as it is nearly universal that tariff elimination bears a small effect compared to NTB. Abrego *et al.* (2019) found that the overall African welfare will increase by 0.05 and 1.7 under tariff and NTB reduction, respectively, while the rest of the world's welfare increases by 0.04. The World Bank (2020) estimated that Africa's overall income will be boosted by 7%, tariff reduction has a share of 0.2%, and the removal of NTBs and improved trade facilitation have a share of 6.8%. The World Bank (2020) also estimated that the wages of skilled female workers are expected to increase by roughly 11% while those of males are expected to increase by more than 9%. The wages of unskilled workers from manufacturing, construction, and agriculture are expected to grow exponentially.

Mhonyera and Meyer (2023) estimated \$93.10 million in welfare in Africa and further found the AfCFTA to be trading creating (\$619.87 million) than trade diversion (\$382.86 million), and the rest of the world also observed global trade creation of \$2.15 billion. Significant increases in intra-African exports and overall exports are noted in the AFDB (2019), which estimated a 107% increase in intra-African exports. Tariff revenue losses vary significantly, with Simola *et al.* (2021) indicating a notable loss of 8.2% at the continental level. On a country level, AFDB (2019) estimated that Burkina Faso, Zimbabwe, Malawi, and Ghana face the largest total revenue losses. Overall, studies show small negative government revenue losses from the proposed tariff removal of AfCFTA. The World Bank (2020) reports minimal government losses and justified the small losses by stating that i) most African countries get less than 10% of their tariff revenues from imports coming from other African countries, ii) Countries can use the 3% exclusion lists to protect most of their tariff revenues from being affected by AfCFTA. This is because a very small number of products (1% of tariff lines) generate over 75% of the tariff revenues from intra-African trade for almost all African countries.

### 3.6 CONCLUSION

This chapter demonstrates that regional integration in Africa emerged through the aspirations of Pan-Africanism and African economic self-reliance, which have gone through structured phases from the initial roots of establishing different RECs to the continental ambitions of the AfCFTA. The analysis shows that intra-African trade is lower than in most regions. This statistic is significantly understated due to the exclusion of informal cross-border trade (ICBT), which forms a substantial share of trade activities across the continent. RECs' successes and challenges have established a basis on which the AfCFTA is premised. However, high non-tariff barriers (NTBs), fragmented regulatory environments, and poor infrastructure persist as barriers to efficient trade and establishing regional value chains. The empirical evidence shows that removing NTBs, rather than liberalising tariff measures only, yields the highest potential increase in intra-African trade, industrialisation, and welfare gains. The chapter emphasises the need for a coordinated and practical application of the AfCFTA, drawing on the successes and failures of prior integration initiatives. It requires holistic approaches that institutionalise ICBT, enhance logistics and digital trade facilitation, and ensure balanced benefits for large and small economies in Africa. Only then can the continent harness the change process from a unified African market.

## **CHAPTER FOUR:**

### METHODOLOGY AND DATA DESCRIPTION

#### 4.1 INTRODUCTION

This chapter outlines the methodology used to investigate the sectoral competitiveness and welfare impacts of AfCFTA on the SACU region using 2019 annual data. This study employs a CGE model with GAMS and is calibrated using a balanced SAM. This method has been widely adopted since the early 1990s to assess public policy impacts, particularly FTAs with tariff reduction. Results are reported at a country level, and fiscal revenue will be integrated into a revenue loss pool at the regional level (SACU).

This chapter is organised as follows:

- 4.1: The introduction
- 4.2: Methodology and Data,
- 4.3: Mathematical Model Description,
- 4.4: Evaluation of the CGE Model and
- 4.7: The Conclusion

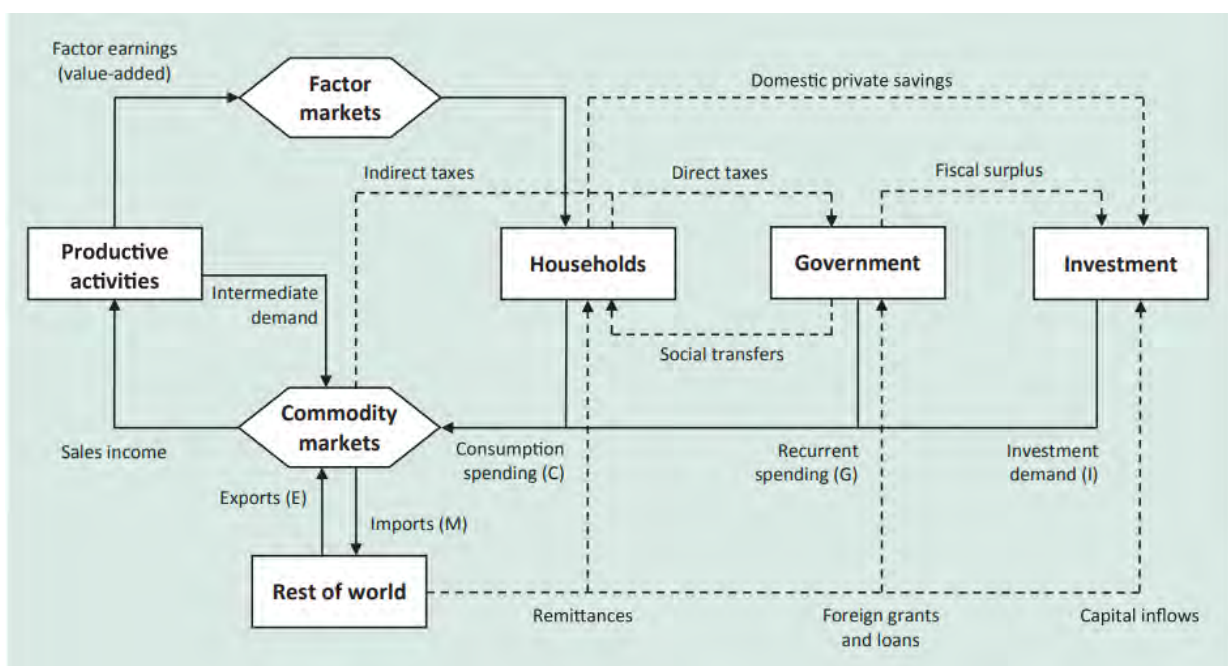
#### 4.2 METHODOLOGY AND DATA

##### *4.2.1 Model Structure*

A CGE model, which is coded in GAMS, is used to perform the tariff reduction simulation on SACU countries (Lofgren *et al.* 2002: 1-2). The CGE models predict that reducing tariffs and NTBs increases welfare through increased consumption and output. This occurs because distortions are minimised, which improves efficiency (Abrego *et al.* 2019: 21). The CGE became popular in the 90s for simulating public policy impacts, particularly FTAs (Bolarinwa, 2024: 159) and is described by Plummer *et al.* (2010: 20) as an ex-ante empirical model used to quantify the potential economic effects of FTAs.

Lkhanaajav (2016: 3-4) and Bourguignon and Pereira da Silva (2003: 301) defined the CGE model as mathematical equations rooted in neoclassical economics that represent the behaviour of producers and consumers within one accounting period. These equations represent a circular flow economy and are consistent with the neo-classical production functions, emphasising optimal choices and demand functions. Producers maximise costs and profit while consumers maximise utility using utility functions within their budget constraints (Abrego *et al.* 2019: 15; Bourguignon and Pereira da Silva, 2003: 301).

Figure 4.1: CGE Circular Flow Framework



Source: Breisinger *et al.* (2010: 1)

Figure 4.1 illustrates an open circular flow where the economic participants interact to determine the overall economic equilibrium. Equilibrium is achieved when supply and demand are equal, which determines prices (wages and rent) for goods and production factors (labour and capital) (Plummer *et al.* 2010: 21). The open economy is divided into supply and demand forces. The supply side consists of the factor markets that provide factors of production (labour and capital) to producers. The producers create final goods using the factors of production, and in return for these inputs, producers pay factor costs (wages, rents). The final goods are sold in the product markets, and producers earn revenues. The product market comprises various buyers from

households, the government, and foreign markets (exporters and importers) (Seventer, 2014: 5-9; Salem, 2004: 4-5).

The demand side consists of households that receive remuneration for providing their production factors to producers. They use the remuneration to pay taxes, save and consume privately. The government collects taxes from producers and households and uses the tax revenue to spend on government expenditures. The investment presents the flow of funds into investment demand sourced from domestic private, government, and foreign savings. The rest of the world affects the economy via imports and exports. The CGE framework captures the circular flow relationship in the SAM model (Seventer, 2014: 5-9; Salem, 2004: 4-5).

The circular flow of income and expenditure is then translated into a SAM matrix (Bourguignon and Pereira da Silva, 2003: 302). A SAM is an integrated, economy-wide framework representing the circular flow of income and expenditure within an accounting framework. The income and expenditure are recorded in a square matrix, Wong *et al.* (2009: 5), using the accounting double-entry principle. If one account is debited, the other must be credited. A simple illustration is that, if a producer pays the households for factor inputs, the producer's bank account is debited while the household bank account is credited. According to Breisinger *et al.* (2010: 1) and Wong *et al.* (2009: 5), the accounting principle ensures consistency in recording income and expenses, enabling the SAM to balance since receipts will equal expenditures.

Sometimes, the SAM does not balance even after carefully applying the accounting double-entry principle. The SAM is therefore balanced using two different forms. The first one is called loose balance and ensures that the sum of total rows equals the sum of total columns, which signals that the transactions are recorded consistently. A simple illustration is that, if you have a 3 by 3 matrix (3 rows and 3 columns) that includes activities as the 1st row and 1st column, commodities as the 2nd row and 2nd column, and households as the 3rd row and 3rd column, then a loose balance suggest that the total of all three rows must equal the total of all three columns. The activities total in the 1st, 2nd, and 3rd rows equals those in the 1st, 2nd, and 3rd columns. The second type is a strict balance that ensures that the sum of each row matches the sum of each column. The illustration above suggests that the total of the 1st row must equal

the total of the 1st column, the total of the 2nd row must equal the total of the 2nd column, etc. This ensures that the SAM is balanced and the CGE model will reach equilibrium.

In this study, the initial SAM was balanced using the loose definition, but was not balanced using the strict definition. The data sources used differ in terms of the methodology, time lags, and data revisions which combined cause inconsistencies in the SAM (Breisinger *et al.* 2010: 3). The study by Fofana *et al.* (2005) further highlighted that the challenge of harmonising data arises from having to integrate diverse sources of data, which tend to report data at different periods or be available at different levels of aggregation such as input-output tables, national accounts, and household surveys. The inconsistencies lead to an unbalanced SAM, which requires a subsequent technique to balance the SAM.

For this CGE analysis, the cross-entropy method is used to balance the SAM because of its flexibility, robustness, and suitability in incorporating many constraints simultaneously, such as total aggregates and sector-level balances. This method maintains the balanced SAM as closely as possible to the pre-unbalanced data while satisfying the accounting double-entry principle. It has been applied in the literature, such as in the work of Arndt *et al.* (2001) on the SAM for Mozambique; Salem (2004) and Mainar-Causapé *et al.* (2018). Fofana *et al.* (2005: 7-8) mentioned that this approach is preferred by most researchers, and in the same study, the authors outlined the Cross-Entropy framework to balance the SAM in GAMS.

Trade flows from the balanced SAM become an initial equilibrium state for a CGE model (Abrego *et al.* 2019: 18; Breisinger *et al.* 2010: 1), which Bourguignon and Pereira da Silva (2003: 303) called the benchmark data for CGE calibration. The CGE model is also calibrated using the elasticities derived from the literature. They include **sigma ( $\sigma$ ) in the Armington assumption, which represents the substitution elasticity**, constant elasticity of substitution (CES), and elasticity of transformation of exports and domestic (sigmaX). In this study, a 0.65 elasticity of substitution is selected as recommended by (Devarajan *et al.* 2023: 2-3), and the elasticity of the transformation of exports and domestic (sigmaX) is 1.43 as per (Kumar, 2009: 21).

A SAM is constructed by collating data from different national accounts (input-output tables, household surveys, and government fiscal accounts) and arranging them in a matrix form. The matrix is organised using rows and columns, where each row is an income the account receives, whereas each column is an expenditure made by that account (Breisinger *et al.* 2010: 1; Lofgren *et al.* 2002: 3-4). According to Bourguignon and Pereira da Silva (2003: 321), a SAM serves as a flexible framework based on a standardised core structure that can be adjusted to reflect the unique characteristics of the country's economy. Once the dataset is collected, creating a SAM is simple. However, the quality of a SAM is based on its data coverage and completeness. Therefore, all income and expense flows and interactions must be mapped accurately because any gaps or weaknesses in the data reduce the potential for the SAM to deliver significant insights about the economy.

This study adopted the Macroeconomic-SAM outlined by Bourguignon and Pereira da Silva (2003: 307). Macroeconomic-SAM presents transactional accounts as an aggregate description of the economy prepared by the System of National Accounts (SNA, 1993). The world has relied on the SNA to ensure international comparability of national accounts. The same approach is followed by Macroeconomic-SAM, where essential economic flows like production, consumption, and flow of income are presented in a matrix. It aligns with international standards and provides a simplified yet comprehensive view of the economy; thus, it is suitable for the relatively high-level analysis required in this research.

Figure 4.2: The Basic SAM structure used in the CGE model

		Expenditure columns							Total
		Activities C1	Commodities C2	Factors C3	Households C4	Government C5	Savings and investment C6	Rest of world C7	
Income rows	Activities R1		Domestic supply						Activity income
	Commodities R2	Intermediate demand			Consumption spending (C)	Recurrent spending (G)	Investment demand (I)	Export earnings (E)	Total demand
	Factors R3	Value-added							Total factor income
	Households R4			Factor payments to households		Social transfers		Foreign remittances	Total household income
	Government R5		Sales taxes and import tariffs		Direct taxes			Foreign grants and loans	Government income
	Savings and investment R6				Private savings	Fiscal surplus		Current account balance	Total savings
	Rest of world R7		Import payments (M)						Foreign exchange outflow
	Total	Gross output	Total supply	Total factor spending	Total household spending	Government expenditure	Total investment spending	Foreign exchange inflow	

Source: Breisinger *et al.* (2010: 1)

Table 4.2 represents a SAM that illustrates the interdependence of economic flows. The Activities account includes producers from various industries, such as agriculture, manufacturing, and services. The Commodities account represents markets where outputs from production activities are sold (Gronau and Winter, 2018: 6-7). The Factors account includes the factors of production. These commodities are consumed as intermediate inputs by the production activities account and as final demand by domestic and international consumers. The domestic and foreign consumptions are referred to as the composite demand.

The Government account shows the total government revenue collected from different agents and economic activities. The Savings-Investment row represents sources of savings from the government, households, and the rest of the world. These savings are transformed into investment spending in the Savings-Investment column. The rest of the world row shows foreign income from selling commodities to the domestic market. The SAM provides insights into both micro and macroeconomic indicators. Individual entries in the SAM represent microeconomic indicators used to calculate macroeconomic indicators such as GDP (Breisinger *et al.* 2010: 1).

#### 4.2.2 Primary Data Sources and Justification

The data sources used in this study can broadly be divided into descriptive analyses and simulation data. The descriptive analysis offers an overview of trade dynamics in the pre-AfCFTA SACU landscape. It includes trade indicators such as the share of GDP, weighted mean tariff rate applied across the SACU countries, customs and other import duties (% of tax revenue), import diversification, and export concentration indices. The data sources include OWID, the World Bank, and UNCTAD.

Based on the UNCTAD formula description, the Import Diversification Index is calculated as follows:

$$S_j = \frac{\sum_i |h_{ij} - h_i|}{2}$$

Where:

$h_{ij}$  = share of product  $i$  in total imports of country or country group  $j$

$h_i$  = share of product  $i$  in total world imports

The Import Index with a value closer to 1 indicates a lack of diversification, which means the country relies on a few imports. UNCTAD last updated this on 21 October 2024.

Based on the UNCTAD formula description, the Export Concentration Index is calculated as follows:

$$H_j = \frac{\sqrt{\sum_{i=1}^n \left(\frac{x_{ij}}{X_j}\right)^2} - \sqrt{1/n}}{1 - \sqrt{1/n}}$$

Where:

$H_j$  = country or country group index

$x_{ij}$  = value of export for country  $j$  and product  $i$

$$X_j = \sum_{i=1}^n x_{ij}$$

$n$  = number of products (SITC Revision 3 at 3 – digit group level)

The Export Concentration Index, by contrast, measures the concentration of a country's exports across specific products. An index closer to 1 indicates the dependence of exports on a few large sectors. UNCTAD last updated this on 21 October 2024.

In import diversification and export concentration indices, higher values indicate increased concentration on a few goods or trading partners and increasing vulnerability to external shocks. In contrast, values close to zero (0) suggest a balanced trade structure where imports and exports are distributed across many categories, diversifying the risk, and contributing to economic resiliency (The World Bank, 2010).

The adoption of import diversification is motivated by the ISS (2024), which stated that import diversification has the potential to foster Africa's structural transformation and industrialisation. With the focus on increasing intra-African trade and regional value chains, the AfCFTA provides opportunities for countries to diversify their import sources. This limits dependence on imports and reduces vulnerability to interruptions in Global Trade. In addition, importing a diverse range of products

benefits local businesses, as access to many inputs encourages innovation and productivity. ISS (2024) asserts that this process can make African economies more competitive, thus encouraging policymakers to develop policies that promote import diversification as part of the strategies for understanding and analysing how regional integration will impact African economies, especially through the AfCFTA.

According to Brookings (2024: 98), the AfCFTA will deliver economies of scale and competitiveness, allowing African member states to shift their investment focus away from a narrow range of exports. This transition facilitates the economic diversification of countries from reliance on the export of raw materials to high-value goods. Diversification of economic sectors can simultaneously promote economic resiliency and competitiveness within regional and global markets. These considerations render export concentration diversification a key element for assessing the economic consequences of the AfCFTA.

The primary data sources for simulating the CGE model are obtained from major international organisations. The two primary data sources that are used to feed the macroeconomic SAM are the UNSD<sup>8</sup> (national accounts data) and SACU<sup>9</sup> (merchandise trade statistics). In addition, the World Bank<sup>10</sup> provides data on the official exchange rates (LCU per US\$) for 2019, which convert local currency to the common USD dollar. This will ensure consistency in monetary values across the countries and comparability as SNA requires. OWID is a popular open-access database with high-quality data on many important global issues, such as trade, economic development, health, and the environment. OWID is a Global Change Data Lab (GCDL) project, a non-profit based in the UK that works with universities, including the University of Oxford, to keep its data accurate, current, and reliable (GCDL, 2025). Its credibility is further emphasised by frequent citations in academic research, which is cited by (Harvard University, 2025; Bepacific, 2024; Kamara *et al.* 2024; and ICCROM, 2025).

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<sup>8</sup> Available at: <https://unstats.un.org/unsd/nationalaccount/pubsDB.asp?pType=3>

<sup>9</sup> Available at: <https://www.sacu.int/uploads/documents/377c65608256537fca773585094e0a7d8d26e25c.pdf>

<sup>10</sup> Available at: <https://data.worldbank.org/indicator/PA.NUS.FCRF>

The UNSD database was chosen for this CGE analysis because it provides detailed and high-utility information on national accounts, which are important data inputs when constructing the Macro SAMs. The UNSD offers over 200 countries in its primary aggregates and sectoral breakdowns of economic data. This database has been recognised by the UNCTAD (2022) and the United Nations Economic and Social Commission for Asia and the Pacific (Mikic and Gilbert, 2009) for its use in trade statistics and economic modelling, respectively. Moreover, the **World Integrated Trade Solution (WITS) glossary from the World Bank cites the UNSD's trade data via its Comtrade database as a base source for CGE studies (WITS, 2025).** The database has also been used in journals such as the *Journal of Global Economic Analysis* (Kravchenko *et al.* 2022: 42-47 and 56).

The official exchange rates published by the World Bank were employed to convert the country's data from local currency into a common currency (USD). Using each country's 2019 year-specific conversion exchange rate improves the data reliability and ensures historical accuracy. This helped ensure uniformity in comparing and consolidating economic data within SACU countries. All economic data from each country's local currency were converted and aggregated to a common currency (USD) to create an initial SAM for each country with a base year of 2019.

#### *4.2.3 Model Assumptions and Criteria*

This study focuses on a 100% tariff reduction scenario, which was also applied by Saygili *et al.* (2018), African Development Bank (2019), and Jensen and Sandrey (2015). The model assumes perfect competition, whereby the producers and households are price takers. Producers maximise profit by minimising costs, and households seek to maximise utility based on income constraints. All the markets reach an equilibrium point where supply equals demand for goods, labour, and capital. The prices for domestic goods, composite goods, world goods, and factors of production (labour and capital) are normalised to 1 for computational simplicity.

The extreme disruptions to global trade caused by the COVID-19 pandemic influenced this study to choose the 2019 dataset for the CGE model analysis. This pandemic started impacting economies in early 2020, leading to a massive disruption in trade

flows and logistics. Later datasets in 2020, 2021, and 2022 may not represent usual trading conditions because of these disruptions. Lockdowns, supply chain issues, and changes in consumer behaviour have greatly affected international trade (Mihalakas and Malkawi, 2024). Therefore, the 2019 pre-pandemic year is selected as the baseline year, which enables a more precise evaluation of the potential effects of the AfCFTA that are uninfluenced by the impact of a global health crisis. Focusing specifically on 2019 allows the research to provide insights that reflect more realistic economic circumstances and validate the study more robustly (Kamara *et al.* 2024).

The model of this study is static and incorporates the Walrasian assumption to reach equilibrium. It is a two-country framework (SACU country and the rest of Africa) under a perfectly competitive market. Comprising two sectors (Bourguignon and Pereira da Silva, 2003: 20). To determine the policy shock implication, the new equilibrium (after tariff reduction) is compared against the old equilibrium (before tariff reduction) and the variation sign indicate whether the effect is positive or negative (Manja and Silumbu, 2020: 3; Plummer *et al.* 2010: 21).

The manufacturing and agriculture sectors are selected based on existing literature indicating that these two sectors have high potential for value addition and employment generation from AfCFTA tariff reductions (Fofack, 2020: 3; The World Bank, 2020; Abrego *et al.* (2019: 22); ECA, 2019; Caliendo and Parro, 2015). For example, Emeka and Rita (2024: 48) highlight that the AfCFTA promotes the creation of value-added chains in agriculture, auto manufacturing, and textiles. These sectors are more responsive to tariff policy changes than capital-intensive sectors like mining. Therefore, they are the most suitable for analysing the short-term effects of the agreement on competitiveness and welfare. As a result, focusing on agriculture and manufacturing could offer a more policy-relevant and economically grounded assessment of AfCFTA's sectoral impacts within SACU. Brookings (2024: 99) emphasises the importance of manufacturing under AfCFTA by noting that intra-African exports are projected to grow by 109%, primarily driven by the manufacturing sector. According to ECA (2019: 75), "Because agriculture, manufacturing, and services gain new trade opportunities through the AfCFTA, they must focus on adding value in various production chains to increase intra-African exports."

The mining industry was purposefully not included in the sectoral competitiveness analysis because it was found to have a low compensatory rate emanating from a tariff liberalisation under AfCFTA. Compared to agriculture and manufacturing, both well-embedded in regional value chains and directly affected by trade policy, mining is highly capital-intensive, dependent on foreign direct investment, and geared towards exporting outside of Africa. It tends to work under long-term contracts and country-specific licensing arrangements, which reduces the sensitivity to short- and medium-term tariff reforms. In addition, empirical evidence (World Bank, 2020; UNECA, 2019) demonstrates that mining makes an insignificant contribution to intra-African trade and regional integration objectives. For this reason, mining was left out of the study to concentrate on the sectors where the impact of AfCFTA is more likely to affect competitiveness, welfare, and trade performance.

SACU was selected for this research because of its exceptional institutional structure and relevance to implementing the AfCFTA. SACU is the oldest customs union in the world, with functioning CET and a shared revenue pool, which is uncommon among other African RECs. As a result, in 2022, SADC generated the lowest average tariff rates compared to all AU-recognised RECs, a simple MFN rate of 9.6% and a trade-weighted average of 8.0%. This relatively low tariff level is associated with the presence of SACU members in SADC (UNECA *et al.* 2025: 185). The CET makes SACU a more developed and liberal (open) REC than many African regional blocs. In other words, SACU is the only RECs with a shared revenue pool. This revenue-sharing arrangement functions as a natural stabiliser in the event of fiscal shocks (in this case, tariff reduction), in those countries where customs duties are an important source of state revenues. The redistribution mechanism allows these less powerful economies to still consolidate fiscal stability even after reducing tariffs under AfCFTA, ensuring a more gradual (as described by Economic Integration) transition towards deep regional integration.

This institutional architecture of SACU represents an alternative form of compensatory macroeconomic (fiscal) integration, one that has the potential to cushion fragile economies from trade reforms. As tariff revenues fall, continued operation of a pooled, redistributive system mitigates uneven fiscal pressure, helping maintain cohesion and equity within the customs union. This revenue-sharing model

is significant to AfCFTA, as it provides a concrete means of addressing the fear of revenue losses from tariff liberalisation, which has emerged as one of the main debates among African countries in the form of the AfCFTA Adjustment Fund (South Centre, 2025: 22). Furthermore, SACU membership, which includes South Africa, a KENSA country with industrialised sectors, and LDCs and landlocked countries such as Lesotho and Eswatini, further reflects the economic variance found in the African continent. This diversity makes **SACU a good case study for examining AfCFTA's** sectoral, fiscal, and welfare effects. It draws lessons that may be adopted for the successful adoption at the Pan-African level (AfCFTA). The empirical literature estimated that the Southern Africa region had the most significant export potential (Afreximbank, 2024: 13), and in 2023, it contributed 41.1% towards the growth of Intra-Africa trade (Afreximbank, 2024: 67). Therefore, this suggests the significant role SACU countries stand to play in AfCFTA.

### 4.3 MATHEMATICAL MODEL DESCRIPTION

#### 4.3.1 *The Cross-Entropy Model*

The cross-entropy method minimises the difference between the original unbalanced matrix and the resulting balanced matrix. It formulates the objective function as minimising the Kullback-Leibler (KL) divergence between the initial unbalanced SAM and the balanced SAM. Kullback–Leibler divergence measures how one probability distribution differs from a second reference probability distribution (this divergence measures the "distance" between the two matrices (Robinson *et al.* 2001). In the case of SAM balancing, it measures how much the adjusted (balanced) SAM deviates from the original (unbalanced) SAM. The KL divergence minimisation ensures that the balanced SAM is as close as possible to the original data point while being consistent and satisfying balance constraints (Salem, 2004). This problem can be mathematically presented as an objective function, which is written in the form of:

**Objective Function to minimize:**

$$\text{Minimise } \sum_{ij} A_{ij} \ln \left( \frac{A_{ij}}{B_{ij}} \right)$$

*Where:*

$A$  = The initial unbalanced SAM matrix

$A_{ij}$  = The elements of the balanced SAM

$B_{ij}$  = The elements of the initial unbalanced SAM

The following constraints are applied to guarantee the balance of the SAM:

**Constraints Function:**

$$\sum_j A_{ij} = r_i$$
$$\sum_i A_{ij} = s_i$$

*Where:*

$s$  = Target column sums

$r$  = Target row sums

$$\sum_j A_{ij} = r_i$$

= The column sums in the balanced SAM should equal the target column sums

$$\sum_i A_{ij} = s_i = \text{The row sums in the balanced SAM should equal the target row sums}$$

To achieve the optimal solution, the optimisation solver minimises the cross-entropy between the initial SAM and adjusted SAM, while subject to the row and column constraints. To avoid undefined issues for zero values (empty cells in SAM) within the logarithmic function, it is numerically safe to add a small positive constant called epsilon to ensure numerical stability. This normalisation is significant, especially if the first SAM has empty cells. In this study, the Cross-entropy method has been implemented in Python because a language that supports powerful libraries like SciPy and NumPy, which are perfect for optimisation and matrix operations, is required (Britz, 2021; Robinson *et al.* 2001).

### 4.3.2 The CGE Model

The model consists of two variable categories split into exogenous and endogenous variables. The exogenous variables are predefined which remain fixed and constant through the simulation and act as inputs to control the overall economy and drive endogenous variables to optimal outcomes (Plummer *et al.* 2010: 21). The exogenous variables consist of labour supply (LS), capital supply (KS), world prices (PWM), tariff rates (dd and ddx), technological parameters (A), elasticities (alpha, beta, sigma, sigmaX), and Armington coefficients (a\_D and a\_M).

On the other hand, endogenous variables are determined by the model itself and arise in a system of equations in which supply and demand across different markets are in equilibrium (Plummer *et al.* 2010: 21). They include income (Inc), consumption (C), production (Y), labour demand (LD), capital demand (KD), prices (P: General price level, PC: Composite price of goods, PM: Import price, PD: Domestic price), imports (M), exports (X) and domestic demand (D).

#### *Cobb-Douglas Production Function*

The Cobb-Douglas production function represents the transformation process by which labour and capital inputs are used to produce outputs, and it is considered the supply equation (Cobb and Douglas, 1928: 183). The following is a modified function derived from (Mohajan, 2021: 273). The modification only occurs to include own characters and sectors and exclude the exchange rate function (Lofgren *et al.* 2002) because this study does not model the effects of exchange rates. The SAM values are already converted into USD, and three SACU countries, except for Botswana, have their currency pegged to that of South Africa (WTO, 2023: 4).

$$Y_i = A_i * KD_i^{a_i} * LD_i^{(1-a_i)} \quad [Eq. 1]$$

*Where:*

$Y_i$  = Total output in sector  $i$  ( $i$  = Agriculture and Manufacturing)

$A$  = Total factor productivity,

$KD_i$  = Capital Demand, represents the quantity of capital employed in sector  $i$ ,

$LD_i$  = Labour Demand, denotes the quantity of labour used in sector  $i$ ,

$a_i$  = Output elasticity of capital for sector  $i$

$1 - a_i$  = Output elasticity of labour

### *Derivation of the labour demand function*

To derive the labour demand equation from the Cobb-Douglas production function, the principles of marginal productivity and cost minimisation are applied as described by Mohajan (2021: 271) and Mohajan (2021). Step 1 requires holding capital constant; the marginal product of labour (MPL) is given by taking the partial derivative of the Cobb-Douglas production function with respect to labour ( $LD_i$ ) (Mohajan, 2021: 274).

$$MPL_i = \frac{\partial Y_i}{\partial LD_i}$$

Taking the partial derivative of [Eq. 1] with respect to  $LD_i$ :

$$MPL_i = A_i * KD_i^{a_i} * (1 - a_i) * LD_i^{(1-a_i)-1}$$

Simplifying, we get:

$$MPL_i = A_i * KD_i^{a_i} * (1 - a_i) * LD_i^{-a}$$

Step 2: Firms minimise their costs by choosing the optimal combination of labour and capital. In a perfectly competitive market, firms hire labour until the marginal product of labour equals the real wage ( $\frac{W_i}{P_i}$ ).

$$MPL_i = \frac{W_i}{P_i}$$

Substituting the expression for  $MPL_i$  above:

$$A_i * KD_i^{a_i} * (1 - a_i) * LD_i^{-a} = \frac{W_i}{P_i}$$

Step 3: Rearrange the equation to solve for the Labour Demand Function (LD)

$$A_i * KD_i^{a_i} * (1 - a_i) * LD_i^{-a} = \frac{W_i}{P_i}$$

Multiply both sides by  $LD_i^{a_i}$ :

$$A_i * KD_i^{a_i} * (1 - a_i) * LD_i^{1-a} = \frac{W_i * LD_i^{a_i}}{P_i}$$

Recognise that  $A_i * KD_i^{a_i} * (1 - a_i) * LD_i^{1-a} = Y_i$ , and the term  $a_i$  on the right-hand side appears in the expression for  $MPL_i$  but not in the final equation for labour demand because we use the production function itself to substitute for the combination of capital and labour inputs. This substitution step directly relates the total output to the inputs, eliminating the need for explicit  $a_i$  terms when expressing the labour demand equation in terms of total output, price, and wages (Mohajan, 2021). Therefore:

$$Y_i * (1 - a_i) = \frac{W_i * LD_i}{P_i}$$

Multiply both sides by  $P_i$

$$P_i * Y_i * (1 - a_i) = W_L * LD_i$$

*Labour demand function*

$$W_L * LD_i = (1 - a_i) * P_i * Y_i \quad [Eq. 2]$$

*Where:*

$W_L =$  wage rate;  $LD_i =$  Labour demand;  $P_i =$  Producer price

The labour demand equation ensures that firms hire labour up to the point where the value of the marginal product of labour  $[(1 - a_i) * P_i * Y_i]$  equals the labour costs ( $W_L * LD_i$ ). This is derived from the cost-minimising behaviour of firms in a competitive market where they seek to balance the cost of hiring additional labour with the additional revenue generated from that labour. Thus, the allocation of labour across different sectors 1 and 2 reflects the optimal decisions of firms based on productivity, wages, and prices.

*Derivation of the Capital demand function*

Holding labour constant, the marginal product of capital (MPK) is given by taking the partial derivative of the Cobb-Douglas production function with respect to capital.

$$MPK_i = \frac{\partial Y}{\partial K}$$

Taking the partial derivative of [Eq. 1] with respect to  $KD_i$ :

$$MPK_i = A_i * a_i * KD_i^{a_i-1} * LD_i^{(1-a_i)}$$

Firms minimise their costs by choosing the optimal combination of labour and capital. In a perfectly competitive market, firms rent capital until the marginal product of capital equals the rental rate of capital ( $\frac{R_i}{P_i}$ ). Substituting the MPK into the following equation:

$$MPK_i = \frac{R_i}{P_i}$$

Substituting the expression for  $MPK_i$  from above:

$$A_i * a_i * KD_i^{a_i-1} * LD_i^{(1-a_i)} = \frac{R_i}{P_i}$$

Rearrange the equation to solve for the Capital Demand Function ( $KD_i$ )

Multiply both sides by  $KD_i$

$$A_i * a_i * KD_i^{a_i} * LD_i^{(1-a_i)} = \frac{R_i * KD_i}{P_i}$$

Recognise that  $Y_i = A_i * KD_i^{a_i} * LD_i^{(1-a_i)} = Y_i$

$$a_i * Y_i = \frac{R_i * KD_i}{P_i}$$

Multiply both sides by  $P_i$

$$a_i * Y_i * P_i = R_i * KD_i$$

Capital demand function:

$$KD_i * W_K = a_i * P_i * Y_i \quad [Eq. 3]$$

Where:

$W_K = \text{Capital price (rent)}$ ;  $KD_i = \text{Capital demand}$

The capital demand equation ensures that firms rent capital until the value of the marginal product of capital ( $a_i * P_i * Y_i$ ) equals the rental bill ( $KD_i * W_K$ ). This is derived from the cost-minimising behaviour of firms in a competitive market where they seek to balance the cost of renting additional capital with the additional revenue generated from that capital.

*Import price function*

$$PM_i = PWM_i * (1 + dd_i) \quad [Eq. 4]$$

This equation defines the import price ( $P_M$ ) in the goods domestic market (local currency) as a function of the world prices ( $PWM_i$ ) plus the tariff rate ( $dd_i$ ). This means that the local consumer pays the final price, which includes the tariffs (Lofgren *et al.* 2002: 19).

*Export demand function*

$$X_i = \gamma_i * \left( \frac{PWM_i}{P_i * (1 + ddx_i)} \right)^{\sigma_x} \quad [Eq. 5]$$

Where:  $X_i = \text{demand for exports}$ ;  $\gamma_i = \text{Scale parameter for exports demand}$ ;  $\sigma_x = \text{Elasticity of exports demand}$ ;  $ddx_i = \text{export taxes}$ .

This equation represents the export demand ( $X_i$ ) as a function of the world price, the domestic price, and the elasticity of export demand ( $\sigma_x$ ). The demand for exports is

determined by the price of exports with respect to the price of imports. If the producer price ( $P_i$ ) increases, export demand decreases due to the expensive prices.

#### *Domestic demand function*

$$D_i = aD_i * C_i * \left(\frac{PC_i}{P_i}\right)^\sigma \quad [Eq. 6]$$

$D_i =$  demand for domestic goods;  $aD_i =$  Armington coefficient for local products  
 The ratio  $aD_i$  represents the allocation of total consumption between domestic and foreign goods at a corresponding relative price level. This equation represents the demand for locally produced goods ( $D_i$ ) as a function of consumption, the relative price of composite goods to domestic goods, and the elasticity of substitution  $\sigma$ . The  $\sigma$  shows how the demand for domestic goods changes with respect to a change in the demand for imports, given the price changes. If the domestic price ( $P_i$ ) increases, the demand for domestic goods will decrease ( $M_i$ ).

#### *Demand for imported goods function*

$$M_i = aM_i * C_i * \left(\frac{PC_i}{PM_i}\right)^\sigma \quad [Eq. 7]$$

$M_i =$  Import demand function;  $aM_i =$   
 Armington coefficient for imported products;  $C_i =$  consumption

This equation represents the demand for imported goods ( $M_i$ ) as a function of consumption, the relative price of composite goods to imported goods, and the **elasticity of substitution  $\sigma$** . If the price of imports ( $PM_i$ ) decreases, the demand for imports is expected to increase ( $M_i$ ).

#### *Consumption price function*

$$PC_i * C_i = PD_i * D_i + PM_i * M_i \quad [Eq. 8]$$

This equation calculates the composite price ( $PC_i$ ) as a weighted sum of the domestic price ( $PD_i$ ) and the import price ( $PM_i$ ) based on the quantities consumed. The notion ( $PC_i * C_i$ ) represents total domestic consumption that includes two baskets of goods (domestic consumption and import consumption).

*Domestic price with taxes function*

$$PD_i = P_i * (1 + tx_i) \quad [Eq. 9]$$

*PD<sub>i</sub> = Prices of domestic goods ; tx<sub>i</sub> = taxes (Value Added tax)*

This equation defines the domestic price (*PD<sub>i</sub>*) as the market price (*P<sub>i</sub>*) plus the tax rate (*tx<sub>i</sub>*). It analyses price determination and how these price changes influence production, consumption patterns, and a country's competitiveness in the global market.

*Income function*

$$Inc = W_L L + W_K K + Customs + taxes \quad [Eq. 10]$$

$$Inc = WL * LS + WK * KS + \sum_i (dd_i * M_i * PWM_i) + \sum_i (tx_i * P_i) * D_i$$

*Where: Inc = Total income*

This equation calculates total income (*Inc*) as the sum of labour income, capital income, customs duties on imports, and taxes on domestic demand.

*Goods demand function*

$$PC_i * C_i = \beta_i * Inc \quad [Eq. 11]$$

This equation defines the consumption (*C<sub>i</sub>*) in sector *i* as a function of total income and the budget share *β<sub>i</sub>*. This CGE model assumes that the total output (*Y<sub>i</sub>*) is proportional to the product of domestic demand and exports, which is represented as follows:

*Goods market equilibrium function*

$$Y_i = D_i + X_i \quad [Eq. 12]$$

This equation ensures that the total output (*Y<sub>i</sub>*) in sector *i* equals the sum of domestic demand *D<sub>i</sub>* and exports *X<sub>i</sub>*. The notation (*D<sub>i</sub> + X<sub>i</sub>*) represents a combined or aggregated demand. It balances what is produced (supply) and what is desired (demand).

In CGE models, the total labour supply (*L<sup>s</sup>*) and capital supply (*K<sup>s</sup>*) are given exogenously. This means they are predetermined and do not change in response to economic conditions within the model.

### *Labour market equilibrium function*

$$L^s = \sum_i LD_i + Leon \quad [Eq. 13]$$

**Where:**  $L^s$  = total labour supply;

**Leon** = balancing variable to ensure overall consistency

The labour supply equilibrium function ensures that the total labour supply  $L^s$  equals the sum of labour demand across all sectors, plus any adjustment represented by the Leontief variable (**Leon**). The Leon variable comes with the CGE model, and it helps to play the role of market "forces" which enable the economy to be in equilibrium. It is adopted from Leontief's input-output analysis, which explains inter-industry relationships (Bolarinwa, 2024: 159). This variable must be added to one of three functions: the goods market, labour market, or capital market. If the model is not balanced (not in equilibrium), it cannot simulate any shock. The "Leon variable" is embedded with the principles of Walras' Law, which states that the total excess of either demand or supply across all markets must equal zero. The Leon variable helps CGE models converge by eliminating small numerical inconsistencies that may otherwise produce infeasible solutions. Therefore, this variable ensures that the CGE model reaches a feasible solution reflecting economic equilibrium.

### *Capital market equilibrium function*

$$K^s = \sum_i KD_i \quad [Eq. 14]$$

$K^s$  = total capital supply

The capital supply equilibrium function ensures that the total capital supply ( $K^s$ ) equals the sum of capital demand across all sectors. These equilibrium conditions ensure that the supply of labour and capital matches the demand across all sectors, which is crucial for the overall consistency and balance of the CGE model.

### *Trade balance function*

$$\sum P_i * X_i = \sum PWM_i * M_i \quad [Eq. 15]$$

The equation above represents trade balance equilibrium. This equation ensures that the value of total exports ( $\sum P_i * X_i$ ) equals the value of total imports ( $\sum PWM_i * M_i$ ), maintaining a trade balance.

### 4.3.3 The method to measure fiscal revenue and welfare

Abrego *et al.* (2019) measured the welfare effect through the changes in consumption from the CGE results. A sensitivity welfare analysis is one of the key approaches to improve the robustness of the CGE Welfare results as defined by Abrego *et al.* (2019) and to make the theoretical and methodological assumptions closer to real life. Hence, this study conducted a sensitivity welfare analysis using the CGE results in the following equations. The consumer and producer surplus estimates in this study followed the methodology described by Ramli (2016: 15) and published in the OIDA International Journal of Sustainable Development. This approach is consistent with established economic theory, which ensures accurate measurement of the changes in welfare due to changes in prices and quantities. Its previous use in assessments of market impact in the literature and its strong theoretical grounding make it an ideal method for assessing AfCFTA tariff reductions on SACU countries in determining the fiscal and welfare effects. The report by WTO (2023: 40) provides the pre-tariff rate at 8.5% and the post-tariff rate at 7.7%, reflecting the AfCFTA's phased tariff reductions. Using these official rates ensures that the analysis reflects actual trade policies in place, thus resulting in meaningful estimates of fiscal and welfare impacts for SACU countries. The sum of consumer and producer surplus, minus fiscal losses, determines welfare. A net positive indicates welfare gains, while a net negative indicates welfare loss.

#### **Consumer Surplus Function**

$$\Delta CS = \frac{1}{2} * (\Delta P * \Delta Q) \quad [Eq. 1]$$

Where:

$\Delta P$  = Change in prices obtainable from  $(PM_{post} - PM_{pre})$

$\Delta Q$  = Change in consumption obtainable from  $(M_{post} - M_{pre})$

#### **Producer Surplus**

$$\Delta CS = \frac{1}{2} * (\Delta P * \Delta Q) \quad [Eq. 2]$$

Where:

$\Delta P$  = Change in domestic prices obtainable from  $(PD_{post} - PD_{pre})$

$\Delta Q$  = Change in output obtainable from  $(Y_{post} - Y_{pre})$

### **Government Fiscal Revenue Loss (GFRL)**

$$\Delta GFRL = (\text{Tariff Rate}_{pre-shock} * M_{pre}) - (\text{Tariff Rate}_{post-shock} * M_{post}) \quad [Eq. 3]$$

### **Net Welfare Change ( $\Delta W$ )**

$$\Delta W = \Delta CS + \Delta PS - \Delta GFRL \quad [Eq. 4]$$

## 4.4 EVALUATION OF THE CGE MODEL

### 4.4.1 *Strengths of the CGE model*

The method is preferred because its assumptions are based on a micro and macro-economic framework (Bourguignon and Pereira da Silva, 2003: 20), ii) the ability to simulate either tariff elimination or/and reduction implication on sectors other than goods markets, iii) can easily assess how gains and losses from an FTA are distributed across participating members and iv) the ability to simultaneously simulate the demand and supply forces (Plummer *et al.* 2010). They provide an interconnected view of the economy by stimulating the interplays of the sectors, households, and public entities in an integrated analytical framework. This interconnected method assesses how policy changes affect the economy, capturing the immediate and longer-term ripple effects (Bolarinwa, 2024: 163).

CGE models are also well-suited for examining the aggregate effects of multiple policies. They explain how changes in one part of the economy, whether trade or tax policy, can have spillover effects on other sectors. This ability is relevant for policymakers who want to formulate strategies considering cross-sectoral effects and interdependencies. A key characteristic of CGE models is the capacity to integrate structural characteristics with behavioural patterns in consumers and producers. Adding behavioural changes enhances the robustness of the model, increasing the accuracy of predictions. For example, CGE models are valuable in assessing policies such as tax reforms and are likely to induce behaviour changes or patterns amongst firms and households. Therefore, the principles of CGE models lead to robust and realistic insights into the interactions of complex economic systems (Bolarinwa, 2024: 163).

#### 4.4.2 Weaknesses of the CGE model

The CGE models have inherent features that hinder the credibility and accuracy of their projections. One of the biggest challenges is the need for detailed and accurate data. CGE models need detailed data on production functions, demand structures, and economic agents in various sectors and regions. The accuracy of this data affects the quality of the model's output, and insufficient or inconsistent data may lead to uncertainty and biases that provide misleading insights. This problem is especially prominent within developing economies where most data infrastructures remain undeveloped (Bolarinwa, 2024: 163).

Another key limitation concerns the simplifying assumptions applied in CGE models. While such models are analytically tractable and computationally efficient, they are often based on simplifying assumptions that may not accurately capture real-world complexities. For instance, assuming perfect competition in all markets when industries can show a monopolistic or oligopolistic structure is unrealistic for every industry. In addition, fixed behavioural parameters are widely employed, which can be inappropriate as economic agents adapt to changing conditions. The assumptions are, therefore, oversimplified. Though these assumptions are needed to make the model solvable, they also carry oversimplified risk, impacting the robustness of the results (Bolarinwa, 2024: 163).

The equilibrium focus of CGE models adds another source of potential bias. These models naturally assume that economies evolve towards equilibrium, which may not adequately mirror the reality where disequilibria persistently prevail. The static equilibrium does not always capture shocks dynamically, such as innovation, continuous adjustments and structural changes associated with economic systems. Thus, despite CGE models providing a useful framework to analyse policies, their results must be interpreted carefully given their limitations (Bolarinwa, 2024: 163-164).

#### 4.4.3 Caution for interpreting the results

Given the presence of the CGE limitations and assumptions adopted for this model, the results should be interpreted with caution, since the findings may overestimate the effects of AfCFTA, as it assumes immediate removal of tariffs to zero compared to the gradual phase-down in the actual AfCFTA agreement. For instance, Edwards *et al.* (2023: 2) suggest customs revenue losses are expected to be less than 0.2% of total government revenue for most African countries after gradually reducing tariffs. Many countries have minimised potential revenue losses by exempting key tariff lines (Schedule C) and postponing tariff reductions on sensitive lines (Schedule B). This means that the estimated effects of this study on SACU members are exaggerated and could be lower or higher.

#### 4.5 CONCLUSION

This chapter provided the methodological basis for analysing the AfCFTA on SACU member states using a Computable General Equilibrium (CGE) model and using a macroeconomic Social Accounting Matrix (SAM) that is calibrated based on 2019 pre-pandemic data and balanced using the cross-entropy method, which ensures compliance with the System of National Accounts (SNA, 1993) and consistent economic theory. Thus, the model produces a credible baseline for simulating the impacts of tariff liberalisation. The emphasis on agriculture and manufacturing, which are high-value-added activities, ensures that the analysis is based on the developmental priorities of AfCFTA.

The importance of this methodology is that it allows for accommodating sectoral competitiveness and welfare dynamics in a unified policy framework. The static CGE model includes different layers of the economy: households, producers, the trade sector, and government revenue, allowing multiple interpretations of the effects of AfCFTA. SACU has a distinctive institutional architecture, including a common external tariff and revenue pools, which makes the analytic use of the region as a **microcosm of wider African integration more useful. SACU's unique institutional structure, particularly its common external tariff and revenue-sharing mechanism,**

enhances the analytical relevance of the region as a microcosm for broader African integration.

Despite the CGE static approach taken by this study and the overly simplified market specifications, the CGE framework is still a solid and policy-relevant method to simulate the impacts of trade policy. As the AfCFTA is gradually being rolled out, the findings of this study provide evidence that could inform policy debates on prioritising sectors, fiscal consolidation, and strategies for integration. Further, the adopted CGE framework could be improved in future studies through dynamic modelling by incorporating the NTBs and value chain upgrading to provide a more nuanced **understanding of Africa's structural transformation agenda.**

## **CHAPTER FIVE:**

### EMPIRICAL RESULTS AND DISCUSSION

#### 5.1 INTRODUCTION

The SACU member states differ greatly in size, stages of development, and economic diversification. Three countries are upper-middle-income (South Africa, Namibia, and Botswana). In contrast, Eswatini and Lesotho are classified as lower middle-income and LDC, respectively (WTO, 2023: 4). The 2024 population data shows that Botswana, Eswatini, Lesotho, Namibia, and South Africa had 2.5, 1.2, 2.1, 2.6 and 63 population (in millions), respectively (SAUC, 2025). Member states also differ widely in economic size. South Africa, the region's largest economy, has a GDP of more than US\$400 billion compared to that of Eswatini and Lesotho, below US\$5 billion. Evidence in the literature shows that regional integration arrangements that include advanced and small economies with varying sizes and stages of development result in advanced economies benefiting excessively. In contrast, less advanced states appear to lose rather than gain, at least on a short-to-medium-term basis (ISS, 2024).

This chapter examines the economic implications of AfCFTA on the SACU. Descriptive trade analysis, CGE simulation, and welfare calculations are used to investigate the sectoral competitiveness and welfare effects of a 100% tariff liberalisation scenario using the 2019 calibration data. The economic structure of SACU economies is varied. However, these structural differences are critical in determining how each member state adjusts to trade liberalisation under AfCFTA.

5.1: The Introduction

5.2: Descriptive analysis

5.3: CGE simulation results and

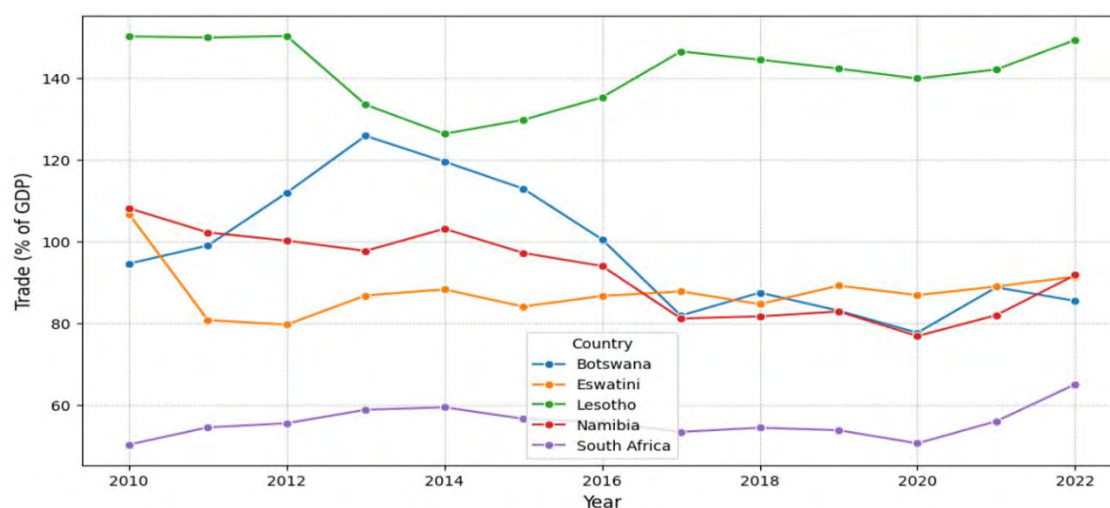
5.4: The Conclusion

## 5.2 DESCRIPTIVE ANALYSIS

### 5.2.1 Trade as a share of GDP for SACU Countries

Trade-to-GDP ratios are used as an indicator to measure how much a country's trade is open to the rest of the world or region (World Bank, 2020). For SACU member countries, particularly small and open economies such as Lesotho and Eswatini, the high trade-to-GDP ratios suggest they strongly depend on external markets. This means they are very sensitive to trade shocks and regional arrangements, such as the AfCFTA. These ratios are affected by regional trade agreements, which are associated with lowered trade barriers and, in turn, result in higher trade flows relative to GDP (UNECA, 2019). In addition, the average intra-African trade in Africa is relatively low (about 15%) (Brookings, 2024: 98). However, SACU economies, particularly those with advanced logistics and production bases like South Africa, are better positioned to benefit from AfCFTA due to increased trade integration (trade openness) (Abrego *et al.* 2020).

Figure 5.1: Trade as a share of GDP for SACU Countries



Source: Compiled by the author based on the data from OWID<sup>11</sup>

The trade-to-GDP ratios of SACU members are depicted in Figure 5.1, covering the period 2010 to 2022. A higher ratio implies stronger trade dependence, while a lower ratio suggests a more closed economy. Figure 5.1 illustrates varied trends across the

<sup>11</sup> Available at: <https://ourworldindata.org/grapher/trade-as-share-of-gdp>

region, shaped significantly by the economic disruptions of the COVID-19 pandemic in 2020 and the subsequent recovery.

South Africa has been showing a relatively stagnant trend below 60% over time, but post-2020, it increased from 50.7% in 2020 to 65.1% in 2022. Botswana similarly rose from 77.7% in 2020 to 85.5% in 2022. Botswana and Lesotho show opposite trends, with Lesotho maintaining an average high ratio of below 120% and showing no significant growth or contraction between 2010 and 2022. Botswana observed a significant decline from 2013 to 2017, closing the gap with Eswatini and Namibia. 2017 shows interesting trends; those with declining trends had reductions in 2017, and those with upward trends had growth. The gap between Botswana, Eswatini, and Namibia has thus narrowed over time, especially after 2017. Eswatini has shown consistent growth over time, from 81% in 2011 to 91.4% in 2022, showing increasing dependency on trade. On the contrary, Namibia exhibits a downward trend from 108% in 2010 to 92% by 2022, suggesting improvements in economic activities and slightly decreasing dependence on trade, but the ratio is still high.

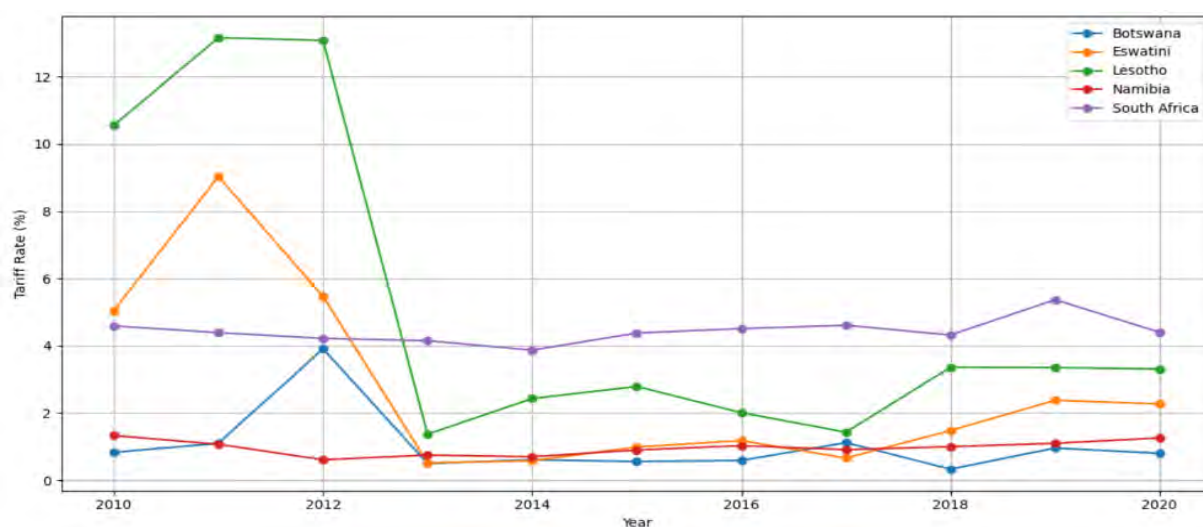
These findings are consistent with previous empirical evidence. Mmolawa and Kahaka (2024: 8077) emphasise the excessive dependence of SACU economies on trade and the devastating effect of the pandemic, especially on trade-sensitive components of GDP. The WTO (2023: 4) projects a significant post-COVID trade recovery in SACU, where trade-to-GDP was projected to have reached 68% in 2022, with the main drivers being South Africa, along with Botswana. This supports the observation from 5.1.1 of increasing trade reliance after the pandemic.

However, literature also indicates diverging opinions as to the relevance of intra-SACU trade. The empirical findings based on panel regression by Lee *et al.* (2024: 894) show that intra-SACU trade (intra-SACU exports and imports) has not substantially affected GDP growth. The author highlighted that domestic investment plays a much larger role. This raises important questions about the quality and structure of trade, not just its volume, and emphasises that while SACU economies are highly trade-integrated, they may need deeper regional value chains and productive investment to capitalise on trade openness fully. According to Lee *et al.* (2024: 891), economic growth is determined by both internal factors, such as labour input and domestic

investment, and external factors such as trade openness and FDI. Therefore, for SACU countries to accrue benefits stemming from AfCFTA, they should focus on strategies beyond trade openness. This further aligns with the popular argument from chapter 3 that removing trade barriers alone will not produce long-term benefits (Abrego *et al.* 2019 and the World Bank, 2020).

### 5.2.2 Tariff Rate Applied to All Products for SACU Countries

Figure 5.2: Tariff Rate Applied to All Products for SACU Countries



Source: Compiled by the author based on the data from OWID<sup>12</sup>

SACU countries show low tariffs compared to the preferential tariff rates for Africa (applied MFN) 8.5% (WTO, 2023: 41), implying a commitment to liberalise trade and integrate regionally, which is aligned with Free Trade Theory as discussed in chapter 2. The tariff structures of Eswatini and Lesotho show greater fluctuations and sharp declines in 2011 and 2012, respectively. The low and stable tariff profile in Botswana and Namibia implies a relatively open and predictable trade regime as opposed to more erratic patterns in the tariff profiles of Eswatini and Lesotho. South Africa shows high tariff rates compared to other SACU countries, which signals industry protection. Edwards *et al.* (2023) show that the government revenue effect of AfCFTA is significant for those countries with high tariffs, and those tariffs contribute substantially to their government revenue sources.

<sup>12</sup> Available at: <https://ourworldindata.org/grapher/tariff-rate-applied-weighted-mean-all-products>

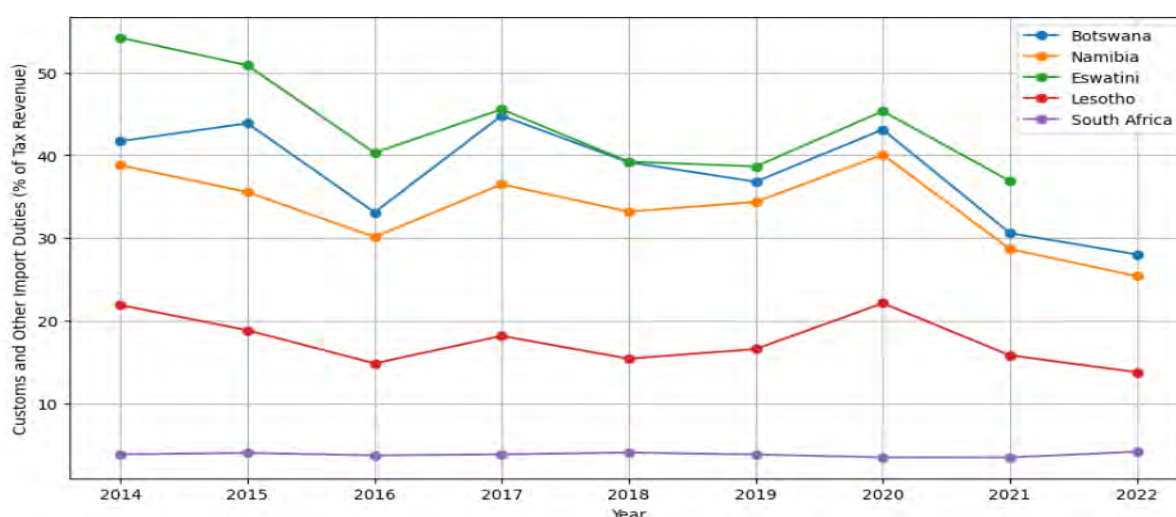
Recent statistics reveal that the applied MFN tariffs of SACU for 2022–2023 range **between 4% and 8.5% which are much lower than Africa’s average continental rate of** about 10.6% to 12.8%, depending on whether it is on a trade-weighted or straightforward basis (UNECA *et al.* 2025: 185). In 2022, SADC generated the lowest average tariff rates compared to all AU-recognised RECs, a simple MFN rate of 9.6% and a trade-weighted average of 8.0%. This relatively low tariff level is associated with the presence of SACU members in SADC (UNECA *et al.* 2025: 185). As described by Balassa (1961), the CET makes SACU a more developed and liberal (open) REC than many regional blocs in Africa.

In theory, such openness should increase intra-African trade, investment, and productivity, particularly under AfCFTA, which seeks to eliminate the outstanding barriers. However, the literature in Chapter 3 demonstrates that mere openness is not enough. Other policies, such as NTBs and structural preparations, are required to fulfil the AfCFTA commitments, such as increasing intra-African trade. **In addition, SACU’s** lower tariff statistic is consistent with the premises of Regional Integration Theory (standard customs union theory), which highlights tariff harmonisation and deep integration as central aspects of successful economic unions.

### *5.2.3 Import Duties as % of Tax Revenue for SACU Countries*

Figure 5.3 depicts customs duties as a share of total tax revenue, which shows the fiscal dependency of SACU countries on trade-related revenues. A high ratio reflects the reliance on import duties and lack of domestic sources of revenue, and a low one signifies revenue diversification.

Figure 5.3: Import Duties as % of Tax Revenue for SACU Countries



Source: Compiled by the author based on the data from the World Bank<sup>13</sup>

Based on the observation in Figure 5.3, South Africa has continued to have a low level of dependence of less than 5%, indicating a portfolio of revenue sources, which means it is less sensitive to liberalisation of tariffs. This fact is confirmed by UNECA *et al.* (2025: 184), which indicates that South Africa's dependence on trade taxes stood at a mere 3.2% in 2021, one of the lowest on the continent. By contrast, observations from Figure 5.3 show Eswatini and Botswana as the top high-trade tax dependent in SACU, with Eswatini rising above 39 % in 2019 and Botswana fluctuating from 40 to 44% before falling to 28% in 2022. These trends suggest a substantial fiscal risk from tariff cuts, particularly from AfCFTA. Lesotho, by comparison, came down from a historically higher (31%) to just over 13% by 2022. UNECA *et al.* (2025: 184) also emphasise Namibia's trade tax ratio of 27.3% and that of Botswana at 20.7%. This suggests small SACU economies are exposed to considerable fiscal pressures under AfCFTA, calling for compensatory measures and domestic tax reforms as trade liberalisation intensifies. However, the overall overtime SACU trend shows a declining trend, which suggests gradual diversification of revenue sources as the region becomes less import dependent.

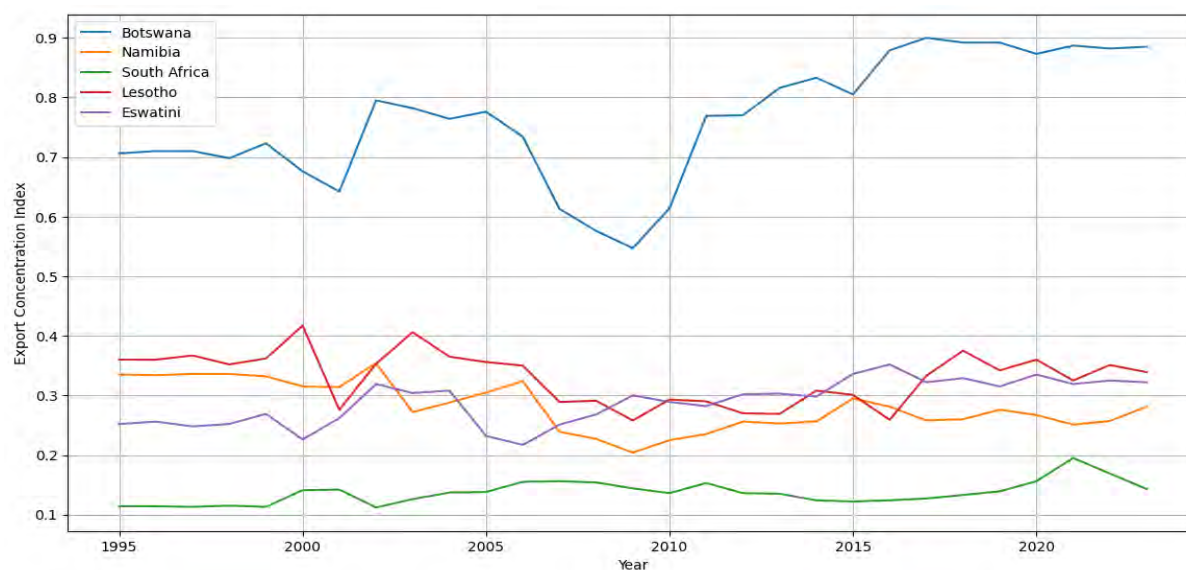
<sup>13</sup> Available at: <https://databank.worldbank.org/source/world-development-indicators/Series/GC.TAX.IMPT.ZS#>

#### 5.2.4 SACU Import diversification index and export concentration index

**Analysing the structure and robustness of SACU's trade profile is important for** assessing the prospective benefits of AfCFTA. Chapter 4 discusses two frequently used indicators, the Import Diversification Index and Export Concentration Index. These indicators **demonstrate a country's trade dependency and export competitiveness.** Observations from Appendix 1 show that the Import Diversification Index of SACU as a region has fluctuated over the years, with a slight improvement from 0.266 in 1995 to 0.216 in 2010, indicating more diversification and sources of imports. However, the index exhibited an inverse trend post-2010 with a maximum of 0.299 observed in 2022, indicating growing reliance on fewer import adapters. Contrary to this, the Export Concentration Index has increased from 0.124 in 1995 to a maximum of 0.181 in 2021 and then fell back to 0.137 in 2023, indicating a slight trend towards more diversified exports. The upward trend from 2010 to 2022 confirms that SACU economies have become more import-dependent over time, suggesting decreased diversification and greater dependency on fewer import sources or products. UNECA *et al.* (2025: 180) also found SACU and AMU to be import-dependent. They argued that regional groupings with high import dependence (e.g., SACU members, see Appendix 2) may find it difficult to harmonise tariffs due to their fiscal vulnerability and constrained productivity stemming from reduced customs revenues.

Theoretical trade **models suggest that diversifying an economy's sources of imports** makes it less vulnerable to shocks and supply shortages. The recent US tariff threat is an example. South Africa, which has the US as a major export destination for citrus fruits, automotive parts, and minerals, was hit with a steep 30% tariff, risking approximately 35,000 citrus-related jobs (Banya, 2025). This example illustrates how depending on one market can render countries vulnerable to unexpected policy shocks, one of the very reasons diversified trade relationships, such as those enabled by the signing of the AfCFTA, can make a country more resilient.

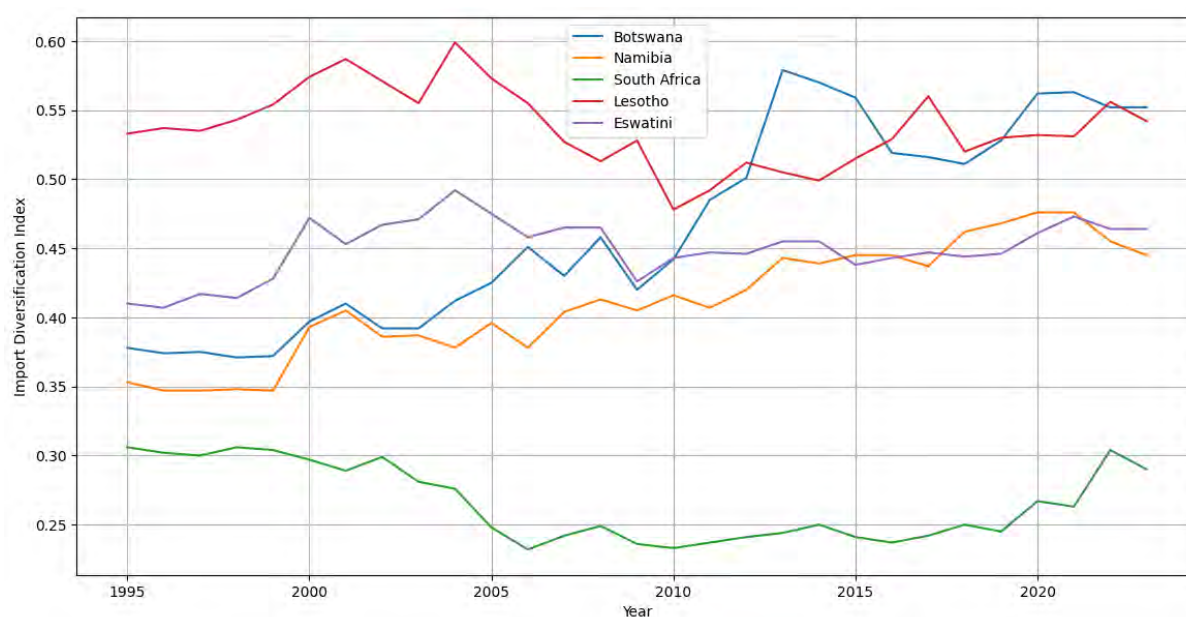
Figure 5.4: Export Concentration Index by country



Source: Compiled by the author based on data from UNCTAD

Botswana is the most concentrated in the entire period, with values above 0.6 and reaching up to 0.9 in some years. These findings mirror those of Schilirò (2022: 3) and report that Botswana's export profile depends mainly on the export of diamonds, which accounted for about 85% of its exports and approximately 40% of government revenues in 2022. The 0.9 is high compared to other countries and is close to 1, suggesting high dependence on a small number of export products. On the other hand, Lesotho and Eswatini have moderate export concentration indices, indicating that they rely on relatively few industries, such as textiles for Lesotho and sugar for Eswatini (the World Bank, 2022: V). Lesotho and Eswatini have moderate export concentration indices, and South Africa consistently has the lowest, which signifies a better diversified export portfolio. Such diversification reduces risks from price fluctuations in global markets, tariff reforms, and strengthens economic resilience, and therefore, will need to make fewer fiscal adjustments (UNECA *et al.* 2025: 182).

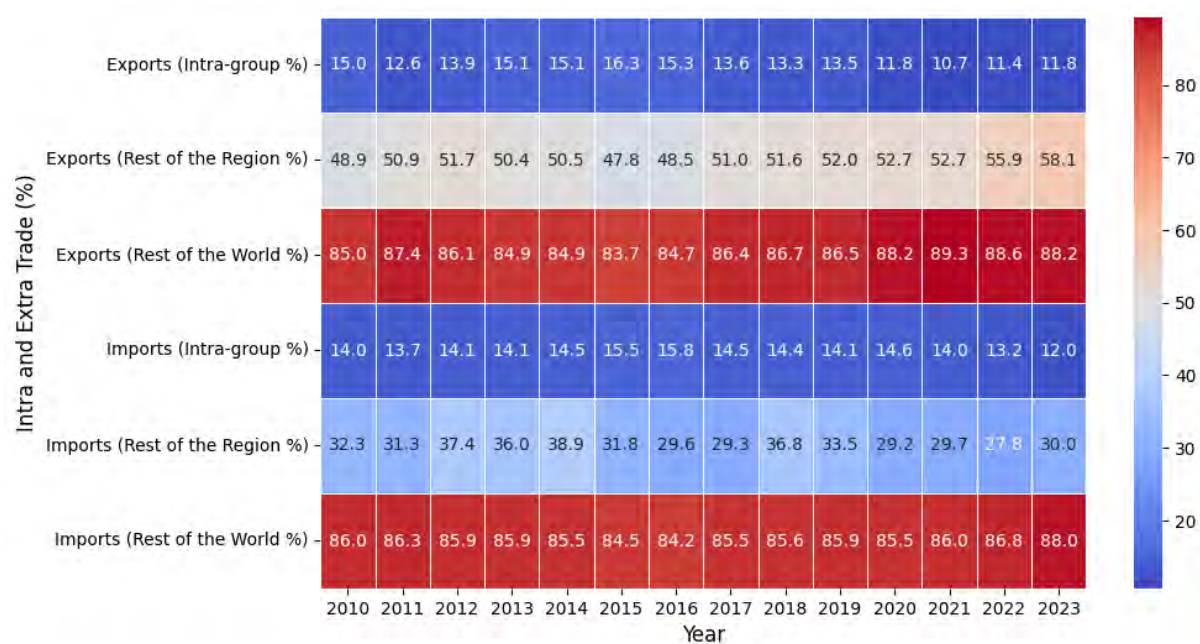
Figure 5.5: Import Diversification Index (1995-2023)



Source: Compiled by the author based on the data from UNCTAD

Figure 5.5 shows that South Africa has the highest level of import diversification within the SACU region from 1995 to 2023, with an index that fluctuates between 0.22 and 0.30, which means an even spread of imports across different types of products. Namibia and Eswatini have moderate levels of import diversification, which implies some degree of dependence on certain imports, but with a relatively broad base. Botswana and Lesotho record relatively low levels of import diversification, with indices consistently above 0.4. Among other countries, UNECA *et al.* (2025: 178) also identified Lesotho as an import-dependent country, asserting that a greater reliance on limited goods imports makes small economies vulnerable to external shocks such as tariff reform. However, Botswana exhibits long-term diversification (consistently increasing diversification), which aligns with the policy paradigm to reduce reliance on a few key products.

Figure 5.6: SACU Intra and Extra Trade (2010 – 2023)



Source: Compiled by the author based on the data from UNCTAD

Figure 5.6 shows intra- and extra-SACU trade. These trade patterns reveal a high dependence on external markets, as extra-trade with the "Rest of the World" consistently accounted for over 85% of total trade from 2010 to 2023. Intra-SACU trade is lower, between 12% and 16%, indicating relatively low levels of trading with each other compared to outsiders. SACU's exports to the rest of the region (African countries outside SACU) range from 27% to 39%. While this highlights some regional connectivity, it also suggests that intra-African trade can be strengthened. When combining the intra-SACU with the rest of African trade, the share increases to between 40% and 50% of trade, which is still far below the 85% with extra-SACU markets. The increasing proportion of trade with the Rest of the World calls for greater efforts to boost intra-African trade as an opportunity to reduce dependence on global markets and to promote sustainable growth consistent with AfCFTA objectives.

## 5.3 EMPIRICAL FINDINGS OF THE STUDY

### 5.3.1 CGE simulation results

This section discusses results from CGE simulations with a 100% tariff liberalisation scenario for SACU members, focusing on agriculture and manufacturing. The analysis covers varying effects of trade liberalisation on capital demand (KD), labour demand (LD), income (Inc), wage remuneration (WL), capital remuneration (WK), consumption (C), sectoral output (Y), import price (PM), composite price (PC), exports (X), imports (M), domestic price (PD) and domestic demand (D). These results are interpreted within the context of trade theoretical expectations and existing empirical literature findings on AfCFTA. The argument will compare and contrast the consistency of findings with the theoretical expectations and empirical findings within the context of answering the research question.

Table 5.1: South Africa variation (%) analysis by indicator and sector

Sector	KD	LD	Inc	WL	WK	P	C	Y	PM	PC	X	M	PD	D
AGR	-100.59	-100.64	0.89	-18.56	13.65	7.34	6.89	-100.6	-0.05	-5.62	-9.64	2.97	7.34	-3.65
MAN	88.42	162.69				-3.89	-2.99	122.74	-0.01	3.99	5.84	-0.48	-3.89	3.52

*Source: Compiled by the author based on the CGE simulation*

Table 5.1 presents the CGE simulated results for South Africa. The findings show that the 100% tariff reduction generated an immediate decrease of -0.05% in import price, in which agriculture displays less competitive characteristics as it relies on the increased imports (+2.97%) to satisfy its increased domestic consumption of +6.89%. On the contrary, the effect of a decrease in import price is more negligible for manufacturing (-0.01%) than for agriculture. As such, imports for manufacturing decreased by -0.48% with an increase of +5.84% and +3.53% in exports and domestic demand, respectively. This contradicts the FTT expectations but is consistent with the NTT because the local producers in manufacturing display a sectoral competitive advantage.

The domestic producers significantly adjusted their resource allocation between these two sectors to accommodate the new trading environment. As a result, more production factors have been assigned to manufacturing. For instance, the results for

manufacturing show an increase of +162.69% and +88.42% in labour and capital demand, while those of agriculture decreased by -100.64% and -100.59%, respectively. These relocations have caused the output for manufacturing to increase by +122.74%, with agriculture decreasing by -100.60%. Subsequently, wages dropped by -18.56% while capital remuneration increased by +13.65%, suggesting that agriculture and manufacturing are respectively labour-intensive and capital-intensive, which is consistent with Brookings' (2024: 86) report, which showed that the agriculture sector in Africa is more labour-intensive than manufacturing. In addition, Brookings (2024: 90) presented the evolution of the manufacturing sector from 1990 to 2018 and found that South Africa's employment rate and value-added have dropped, indicating that the sector is contracting towards South Africa. This is consistent with the drop of -18.56% in wages for manufacturing.

The increase in labour and capital demand in the manufacturing sector also caused income to grow by +0.89%. Expectedly, the increase in income caused the consumption of agriculture to increase due to low import prices. This is aligned with the increase in import demand and decrease in domestic demand. However, the consumption for manufacturing has decreased by -2.99% because South Africa is competitive in manufacturing. Therefore, local producers prioritise external demand (exports) over domestic demand, which decreases the availability of manufactured goods in the local market. However, this is contrary to customs union theory that expects price decrease to have a positive consumption effect (Pasara and Diko, 2020: 5). Since the increase in export demand (+5.83%) is more than the increase in domestic demand (+3.52%). Theoretically, the export-oriented output and the substitution effect explain the decrease in manufacturing consumption, while the import substitution effect explains the increase in agricultural consumption.

Table 5.2: Namibia variation (%) analysis by indicator and sector

Sector	KD	LD	Inc	WL	WK	P	C	Y	PM	PC	X	M	PD	D
AGR	-32.47	2426.51	-28.1	-97.43	6.56	-64.47	8.51	101.19	-0.06	-33.59	335.44	-16.9	-64.47	40.9
MAN	35.16	4997.95				-72.33	-7.6	412.32	-0.09	-22.03	521.65	-21.45	-72.33	65.54

Source: Compiled by the author based on the CGE simulation

Table 5.2 presents the CGE simulated results for Namibia. Namibia displays strong sectoral competitiveness compared to South Africa, where tariff reduction decreased by -0.06% and -0.092% in import prices for agriculture and manufacturing, respectively. Contrary to the expected theory, the imports decreased for agriculture and manufacturing by -16.90% and -21.45%, with a simultaneous increase in exports by +335.44% and +521.65%, respectively.

Regardless of the country dynamics between South Africa and Namibia, manufacturing is growing faster than agriculture. As a result, more workers (labour demand increased by +4997.95%) are demanded in manufacturing compared to agriculture (+2426.51%). This has influenced the output for manufacturing (+412.32%) and agriculture (+101.19%) to increase in the same proportional weight. Due to the capital intensity of manufacturing, a +35.16% rise is observed in capital demand for manufacturing, while agriculture decreases by -32.47%. This is because manufacturing absorbed a large share of available capital, causing a shift from agriculture to manufacturing. This change made agriculture dependent on labour, enhancing the argument that agriculture is naturally labour-intensive.

The significant increase in labour demand for agriculture and manufacturing strongly indicates that labour supply exceeded demand, putting downward pressure on wages, **thereby driving wages down by -97.43%. The findings for wages suggest labour oversupply that causes wages to decrease despite the increase in labour demand.** The decline of -28.10% in income demonstrates a substantial decrease in wage levels. The expected relationship between income and consumption is ambiguous because income has declined significantly, but agricultural consumption increased by +8.51% and manufacturing consumption decreased by -7.60%. On an aggregated level, Namibia's consumption of +0.91% [8.51%+(-7.60%)] aligns with customs union theory (Pasara and Diko, 2020: 5).

Table 5.3: Eswatini variation (%) analysis by indicator and sector

Sector	KD	LD	Inc	WL	WK	P	C	Y	PM	PC	X	M	PD	D
AGR	- 45.78	-61.45	19.43	48.39	5.5	10.73	28.41	- 48.34	- 0.55	-6.99	-13.56	22.95	10.73	11.78
MAN	4.06	-26.02				18.55	-4.4	-7.39	-0.2	24.93	-21.59	10.63	18.55	6.93

Source: Compiled by the author based on the CGE simulation

Table 5.3 presents the CGE simulated results for Eswatini. The export and import trade dynamics for Eswatini are completely opposite compared to those of South Africa and Namibia. Import prices decreased by -0.55% and -0.20% for agriculture and manufacturing, which was followed by the expected increase in imports of +22.95% and +10.63%, respectively. Exports declined for both sectors, with agriculture decreasing by -13.56% while manufacturing decreased by -21.59%. This signals a lack of sectoral competitiveness and a growing dependence on imports to supply domestic demand. This has caused the factor utilisation to drop as imports replaced domestic production. For instance, labour and capital demand decreased by -61.45% and -26.02 % in the agriculture and manufacturing sectors, respectively. Agriculture also recorded a decline in capital demand of -45.78% while manufacturing increased by +4.06%. Subsequently, this directly decreases the output for agriculture and manufacturing by -48.34% and -7.39%, respectively.

The composite price in agriculture decreased by -6.99% while manufacturing increased by +24.93%. Lower composite agriculture prices made agricultural goods less expensive and more appealing to local consumers. As a result, domestic demand for agriculture grew by +11.78% which is more than the +6.93% increase in manufacturing. Wages and rent have risen by +48.39% and +5.5% respectively, regardless of the declines in output, exports, labour, and capital demand. This has boosted income to grow by +19.43% and the income effect translated into an increased consumption of +28.41% in agriculture, but manufacturing declined by -4.4%. Overall, the income increase is significant enough to enable the country to satisfy the increase in domestic demand and demand for imports.

Table 5.4: Botswana variation (%) analysis by indicator and sector

Sector	KD	LD	Inc	WL	WK	P	C	Y	PM	PC	X	M	PD	D
AGR	45	-45.91	14.75	63.63	-38.67	7.94	18.07	-17.25	-0.71	-	-10.43	16.2	7.94	9.2
										2.84				
MAN	-	-100.02				-	7.79	-98.17	-	6.42	8.3	12.38	-	18.96
	95.46					5.52			0.26				5.52	

*Source: Compiled by the author based on the CGE simulation*

Table 5.4 presents the CGE simulated results for Botswana. After the tariff cut, agricultural and manufacturing import prices decreased by -0.71% and -0.26%, respectively. This resulted in import growth for agricultural and manufacturing by +16.2% and +12.38%. The agricultural sector witnessed a lack of competitiveness and as a result, its exports decreased by -10.43%, which is confirmed by a decrease of -17.25% in output. Demand for labour and capital decreased by -100.02% and -95.46%, respectively, causing the output to decrease significantly by -98.17%. The manufacturing findings are exciting because output declined significantly, yet exports increased by +8.3%. This effect is ambiguous, meaning imports fulfil the +18.96% increase in domestic demand.

The decrease in output and exports for agriculture lowered the desire to produce domestically, which has caused demand for labour to fall by +45.91%. Interestingly, Botswana is the only country with increased capital demand for agriculture (+45.00%), which signifies a shift towards capital intensity within agricultural production. Income received a boost of +14.74% from the net change in factor remuneration, where wages' decline of -38.67% is compensated by the +63.63% increase in rent. This income growth fed directly into higher levels of consumption and the lower composite prices (-2.84%) in agriculture compared to the higher composite price in manufacturing (+6.42%), which enabled the consumption in agriculture (+18.07%) to outpace that of manufacturing (+7.79%).

Table 5.5: Lesotho variation (%) analysis by indicator and sector

Sector	KD	LD	Inc	WL	WK	P	C	Y	PM	PC	X	M	PD	D
AGR	-3.4	20.13	-9.58	-22.17	-3.21	-10.43	-4.7	4.38	-0.47	-5.13	17.06	-7.62	-10.43	-2.87
MAN	0.91	25.49				-9.58	0.16	8.02	-0.49	-9.73	15.49	-5.99	-9.58	-3.47

Source: Compiled by the author based on the CGE simulation

Table 5.5 presents the CGE simulated results for Lesotho. The findings for Lesotho follow those of Namibia, where tariff reduction led to lower import prices for agriculture (-0.47%) and manufacturing (-0.486%), causing imports to decline by -7.62% and -5.99%, with an increase in exports by +17.06% and +15.49%, respectively. Even though agricultural exports seem to have performed better than manufacturing, during the input factor relocation, manufacturing observed higher labour demand (+25.49%) compared to **agriculture (+20.13%) which is contrary to Brookings' (2024: 86)** findings that did not find any relocation of labour from agriculture to manufacturing in the period 1990 to 2018. Therefore, the increase in agricultural exports is explained through the price effect, where agricultural goods become cheaper and more competitive in international markets as the agricultural price of -10.43% dropped by more than that of manufacturing (-9.58%). The proportional weight in factor inputs influenced the output for manufacturing (+8.02%) to be more than that of agriculture (+4.38%). Both sectors demonstrate strong sectoral competitiveness with export potential, which seems to neglect domestic demand because both sectors have experienced a drop in domestic demand by -2.87% and -3.47% in agriculture and manufacturing, respectively.

Factor remuneration decreased in both sectors, with wages declining by -22.17% and rent by -3.21% which caused a -9.58% reduction in income. Because more goods for agriculture are exported to foreign markets, plus the decrease in income, the consumption for agriculture has therefore decreased by -4.70% while that of manufacturing slightly increased by +0.16%. The price effect has played its role because the relatively larger reduction in composite price for manufacturing (-9.73%) than for agriculture (-5.13%) made it comparatively more appealing for external markets, thereby increasing consumption of manufacturing compared to agriculture.

### 5.3.2 Contextualise the CGE findings

Free trade is expected to boost production efficiency, promoting exports with increased consumption. However, for South Africa, exports declined by -9.64%, imports increased by +2.97%, and output decreased by -100.6%. This is associated with producer inefficiencies and lack of competitiveness, and as a result, domestic demand declined by -3.65, suggesting that the increased domestic consumption is satisfied by imports. The theory of comparative costs asserts that if a country does not have a comparative advantage in a specific product (agriculture), it should import and export the one with a comparative advantage (manufacturing) to ensure mutual benefits (Saygili *et al.* 2018: 6).

Namibia shows a different country dynamic, as an increase in exports does not necessarily mean a decrease in domestic demand, as seen in South Africa. For Namibia, the findings show an increase of +40.90% and +65.54% in domestic demand for agriculture and manufacturing. The exports increased in both sectors, while imports decreased in both sectors; such trends suggest a greater dependence on domestic production to meet local and international demand. This reduces dependence (self-reliance) on foreign goods and encourages sector competitiveness. Therefore, Namibia shows characteristics of import substitution potential opportunities (Freire and Slany, 2023: 7).

In aggregate, Eswatini has the highest import growth (+33.58%) across SACU countries. Brookings (2024: 97) highlights that liberalised imports inevitably promote regional value chains due to industries taking advantage of the AfCFTA opportunities. Botswana is the only country with increased consumption in both sectors. Nonetheless, the findings for Botswana are ambiguous. For example, the manufacturing exports increased, yet its output decreased, suggesting that the increase in exports is not necessarily linked to the competitiveness of manufacturing. Overall, Botswana's results deviate from free trade theoretical expectations because it does not show any causation in its indicators or variables. Botswana is the only country showing agriculture as the capital-intensive sector, which is very interesting.

The capital intensity of the agricultural industry in Botswana has both positive and negative implications. On the positive side, increased capital inputs like machinery **and technology will improve productivity and efficiency, especially given Botswana's** dry environment, where mechanisation and climate-resilient practices are critical to increasing crop yields. In the longer term, this could also promote competitiveness and food security. However, the industry's capital intensity constrains its potential to produce employment at the mass level, which gradually diminishes its role in inclusive growth. Moreover, it creates barriers to smallholder farmers, who may not have the funds to afford expensive machinery. It may also increase the gap between the richer and poorer farmers in the rural economy. Second, a capital-intensive industry is relatively more exposed to external supply challenges such as exchange rate volatility and global input price variation due to reliance on imported machinery and agricultural inputs. Therefore, although Botswana's agricultural model might enhance productive capacity, it is potentially weak in terms of inclusivity with respect to society and responsiveness to trading opportunities unless supported by complementary policies for enhancing access and resilience.

With increased agricultural exports and output, SACU countries, such as Lesotho, are positioned to play a critical role in providing food security products. Simola *et al.* (2021: 4) assessed the implications of AfCFTA on food systems and food security and found increased agricultural output in the Southern Africa region. According to UNCTAD data, Africa's unrealised export potential stands at +\$21.9 billion, which is +43% of intra-African exports (Okwatch, 2023). Therefore, the export growth observed in some of the SACU countries is expected to play a key role in the growth of intra-African trade. Abrego *et al.* (2019) measured the welfare effects of a CGE simulation through changes in consumption. When using this method, Botswana obtains the highest aggregate welfare of +25.86%, followed by Eswatini (+24.01%), then South Africa (+3.9%) and Namibia (+0.91%), with a negative welfare loss of -4.54% for Lesotho. However, this study performed a sensitivity welfare analysis to ensure robustness of the welfare results by capturing the effects of three entities: consumers' surplus, producer surplus and government revenue loss.

### 5.3.3 Sensitivity Welfare Analysis Effects

Table 5.6: Welfare analysis by country and sector

Country	Sector	Consumer Surplus	Producer Surplus	Fiscal Loss	Net Welfare
South Africa	Agriculture	-14.2	1.91	15.82	-28.11
	Manufacturing	2.49	-6.46	83.92	-87.9
Namibia	Agriculture	894.17	-547.58	14.09	332.5
	Manufacturing	474.78	-1272.64	8.71	-806.57
Botswana	Agriculture	-4.1	4.66	1.11	-0.55
	Manufacturing	-1.5	-0.61	3.04	-5.15
Lesotho	Agriculture	15.63	-7.94	1.69	5.99
	Manufacturing	19.8	-26.13	1.64	-7.97
eSwatini	Agriculture	-3.84	3.5	1.44	-1.79
	Manufacturing	-103.42	112.88	4.09	5.37

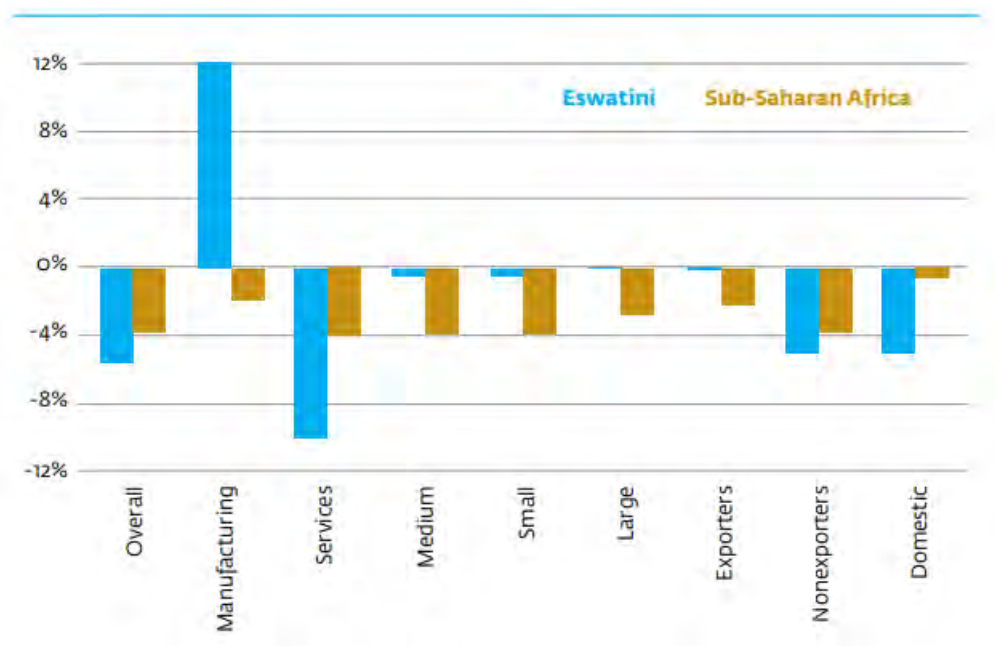
Source: Compiled by the author based on CGE Sensitivity calculations

Table 5.6 presents the sensitivity welfare analysis results for SACU countries. The general expectation of regional integration is that it should improve societal welfare (Mhonyera and Meyer, 2023: 4). However, the findings for SACU suggest varying benefits across different spheres of the economy. For example, some countries benefit through consumer surplus, others through producer surplus, wages, income, increased consumption, etc. Namibia experienced the highest overall net welfare loss (**-\$474.08 million**), which is driven by large manufacturing declines of **-\$1272.64** million in producer surplus, which outweighs producer surplus from agriculture of +\$332.50 million. South Africa observed an aggregate net welfare loss of -\$116.00 million, mainly due to the aggregated fiscal losses of -\$99.75 million, coupled with a decrease of -\$6.46 million in producer surplus for manufacturing. Both sectors in Botswana and Lesotho have benefited consumers more than producers, as consumer surplus increased in both sectors, while producer surplus decreased in both sectors. Botswana and Lesotho recorded relatively small overall net welfare losses compared to South Africa and Namibia, which were \$5.70 million and \$1.98 million, respectively.

Eswatini is the only country with a net welfare gain of +\$3.58 million, largely attributable to producer surplus in manufacturing (+\$112.88 million), compensating for consumer surplus reduction in both sectors. These findings reveal unique dynamics between consumer and producer gains from trade, which differ across countries and sectors. The CGE simulation results indicate that manufacturing

performance was driven by domestic demand and not exports. The salary (+48.39%) and capital returns (+5.5%) growth from the manufacturing sector increased household income, promoting internal consumption and local production. In addition, the increase in consumption (+28.41%) and domestic demand (+6.93%) in the manufacturing sector also suggests a movement toward import substitution and internal market absorption. As a result, the country yielded large positive income effects (+19.43%), higher than any of the other members of the SACU. The income effect is primarily driven by manufacturing as opposed to agriculture. For example, Table 5.3 shows that agriculture is mostly imported (22.95%) compared to manufacturing (10.63%). In addition, Eswatini's agricultural exports declined by -13.56%, and manufacturing exports declined even more sharply by 21.59% under the AfCFTA trade liberalisation scenario.

Figure 5.7: Firm Productivity Growth between 2007 and 2016



Source: *The World Bank (2022: 13)*

The 2016 Enterprise Survey (Figure 5.7) reported by the World Bank shows similar findings to those in this study, where manufacturing in Eswatini is strong to the extent that it promotes domestic economic activity and welfare gains rather than through external performance. The Eswatini findings align with the literature. For example, the World Bank (2022: III) highlights that Eswatini has a comparative advantage in

manufacturing and agribusiness. In addition, World Bank (2022: 12) reported that the productivity among formal firms in Eswatini contracted by 5.1% between 2007 and 2016. However, manufacturing firms experienced steady productivity increases during this time, which built upon a trend that started in 2003. This is counter to export-led models and emphasises the role of internal factor utilisation and consumption-led growth, especially in small economies with a low level of export diversification. **Overall, this has boosted Eswatini's manufacturing sector to outperform despite lower exports.**

#### 5.3.4 Contextualise the sensitivity of welfare effects

Abrego *et al.* (2019: 22) state that trade theory predicts that small countries gain more from positive shifts in terms of trade caused by lowered trade costs, which raises their welfare through enhanced efficiency. Conversely, larger economies tend to see a substantial decline in their terms of trade, potentially offsetting any welfare gains from improved resource allocation. This contradicts the claims of Chipanda and Cilliers (2025: 4) and ISS (2024) that have highlighted that advanced African economies are anticipated to benefit more than small economies within the short to medium term. The welfare effects of this study mirror closely the argument made by Abrego *et al.* (2019), as South Africa (a large and diversified country) experienced a welfare loss of -\$116.01 compared to Eswatini (a small and landlocked country) with a positive welfare of +\$3.58. In addition, Abrego *et al.* (2019: 22) argue that the strength of trade connections to other African countries is key in determining gains from trade. In other words, the volume of a country's trade with existing or potential partners in other African states will allow it to easily exploit market opportunities as opposed to countries having minimal trade access with neighbouring states.

For example, Figure 3.4 shows that the intra-Africa trade of Eswatini and Lesotho were the top 1 and 2 out of the 16 countries that were presented by Mould and Chowdhury (2021), suggesting that they trade more with African countries. Therefore, the welfare results of this study follow this trend, as Eswatini topped number 1 and was followed by Lesotho with a negative welfare loss of -\$1.98, the smallest negative welfare loss across SACU countries. Furthermore, SACU as a region trades more with the rest of the world, as indicated by Zongwe (2024); therefore, the welfare results of this study

align with the fact that SACU intra-regional trade amounts to only a fraction of the continent's overall trading activities.

According to WTO (2023: 4), Botswana is dominated by the mining and quarrying sector, while Lesotho and Eswatini are dominated by the manufacturing sector and on average, agriculture only accounts for 3% of the SACU GDP. This explains why Eswatini and Lesotho have estimated better outcomes. The welfare results of this study are not far-fetched from the literature. For example, Abrego *et al.* (2019: 21) also found Eswatini to be the top number 1 welfare gain out of 45 African countries. SACU countries dominated because the top 1, 2, and 3 welfare gainers were Eswatini, Namibia and Botswana, while Lesotho and South Africa were positioned 11 and 19, respectively.

Table 5.7: Relationship between openness and Welfare effects.

Country	South Africa	Namibia	Botswana	Eswatini	Lesotho
Openness position	5	2	1	3	4
Welfare Position	4	5	3	1	2

*Source: Compiled by the author based on the CGE simulation*

According to free trade theory, there is a positive relationship between openness and welfare. A country with the highest level of openness is expected to achieve the highest welfare gains (Abrego *et al.* 2019: 21). However, based on Figure 5.2, which shows the level of openness of SACU countries, the results of the sensitivity welfare analysis do not align with the degree of openness. For example, Botswana is the most open economy across SACU, but it still incurred a negative welfare loss, ranking third. However, when the sensitivity results are disregarded and the consumption method is applied, the theory, on average, holds. Nonetheless, the openness vs welfare expectations do not hold true for all the countries, and this supports the claim that these theories are Eurocentric and fail to model African economies characterised by poor infrastructure and limited access to technology. However, their findings cannot be completely ruled out as they still provide good insights for understanding international trade relations.

Table 5.8: Customs Union Theory Channel vs Consumer and producer effects

	Consumer Effect		Producer Effect	
	Consumption (%)	Consumer Surplus (\$ Million)	Output (%)	Producer Surplus (\$ Million)
South Africa	3.9	-11.71	22.14	-4.55
Namibia	0.91	1368.95	513.51	-1820.22
Botswana	25.86	-5.6	-115.42	4.05
Lesotho	-4.54	35.43	12.4	-34.07
Eswatini	24.01	-107.26	-55.73	116.38

Source: Compiled by the author based on the CGE simulation and sensitivity analysis

SACU countries reveal interesting findings, on an aggregated level, SACU results contradict the expectations of customs union theory. As described by Pasara and Diko (2020: 5), the channel is that price reduction leads to increased consumption, thereby increasing consumer welfare. However, Table 5.8 shows opposing effects between consumption and consumer welfare and output and producer surplus. According to Cohen *et al.* (2022: 478), demand uncertainty harms consumers and disturbs the usual positive relationship between consumption and welfare. Signs of demand uncertainty can be traced through CGE simulation results. For example, South Africa's income increased by +0.89%, domestic demand for agriculture decreased by -3.65%, while manufacturing increased by +3.52%, signalling unstable consumption patterns. Namibia's labour demand increased by +4997.95% for manufacturing, yet consumption decreased by -7.6%, indicating uncertainty in spending behaviour.

There is also a mix of wages and income. For instance, Botswana's wages for agriculture increased by +63.63% yet labour demand decreased by -45.91% pointing to an unstable relationship between employment and earnings. The contradictory trends between imports and exports are another characteristic of demand uncertainty. **For example, South Africa's exports and imports decreased, which contradicts the** expectations of free trade, implying uncertainty concerning foreign market access. The SACU findings show that higher consumption does not necessarily translate to higher consumer surplus, consistent with Bar-Grill *et al.* (2023: 6-7) on algorithmic pricing and firm pricing behaviour (monopolistic) as introduced in the NTT. For instance, in Botswana's manufacturing sector, consumption increased by +7.79%, while consumer prices also increased by +6.42%, indicating that firms are pricing their

**output closer to consumers' willingness** to pay, thus limiting consumer surplus (gains).

Similarly, **in Eswatini's agriculture sector, consumption grew by +28.41% with** simultaneous domestic price hikes of +22.95%, suggesting that prices undermine potential consumer benefits. In Namibia's manufacturing sector, there was a significant export increase of +521.65% but also a reduction in consumption (-7.6%) and compounded reductions in prices (-22.03%), suggesting that firms mainly produced for exporting markets. At the same time, local consumers enjoyed little to no price relief. These consumer and producer patterns indicate that trade liberalisation and strategic firm pricing translated into higher consumer costs, offsetting the expected welfare gains, and decreased overall consumer and producer surplus. The negative relationships can also confirm the concerns raised by some studies (Davies, 2019; Okafor and Aniche, 2017) who criticised trade theories and regional integration approaches as Eurocentric, failing to capture African economies characterised by underdeveloped infrastructure. Manboah-Rockson (2020: 307-308) echoed this point by stating that the regional integration theories are not designed to **explain Africa's economic integration but that of Europe.**

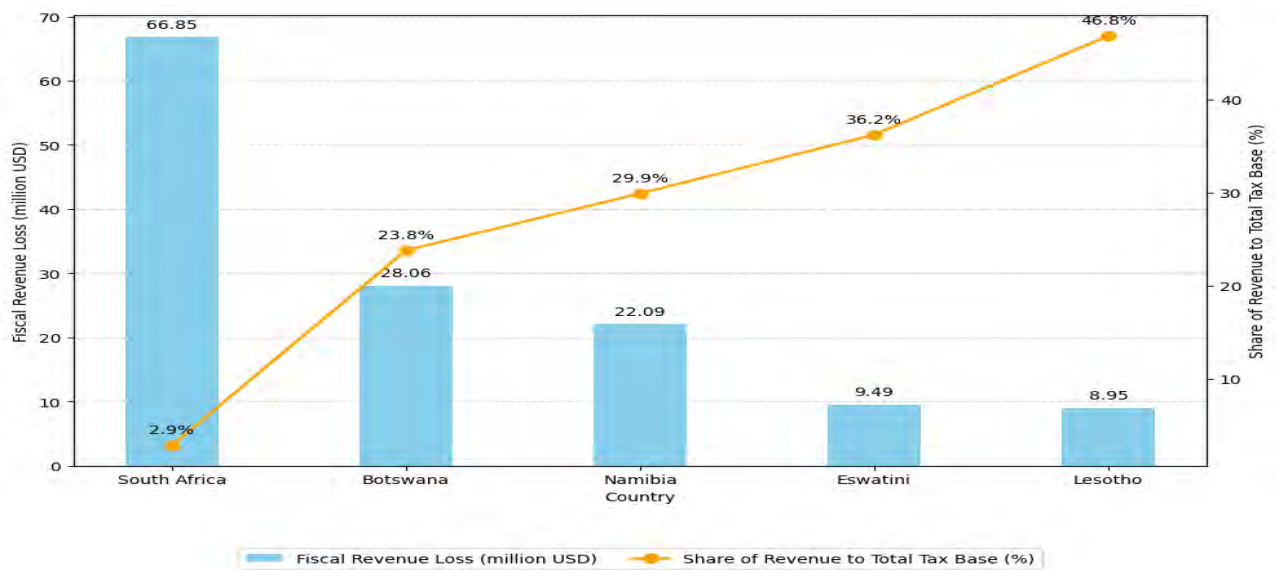
Most benefits accrued by SACU countries emanate from the manufacturing sector, which is consistent **with the literature. The study's findings and the literature suggest** that the manufacturing and agriculture sectors favour Eswatini and Lesotho, which mirrors their realist economic structures. For example, WTO (2023: 6-7) found the service and manufacturing sectors to be the top-performing sectors in 2023 for Eswatini and Lesotho. The service and manufacturing sectors contributed over 50% and 30% towards Eswatini's GDP, respectively. According to the WTO (2023: 6-7) estimates, the service and manufacturing sectors contributed about 60% and 20% to Lesotho's GDP. Agriculture only accounted for about 9% and 7% of Eswatini's and Namibia's GDP in 2023, while the service sector accounted for about 70% of South Africa's GDP. Namibia's manufacturing accounted for about 12% of the manufacturing. This explains why Eswatini was the only country with a positive net welfare gain, which Lesotho followed. In the absence of the service sector, the manufacturing sector dominates.

The study by Abrego *et al.* (2019: 22) also found manufacturing to be the key driver for improved income, which was then followed by agriculture. The literature concurs that the manufacturing sector has the most AfCFTA potential gains. Therefore, this agrees with the literature as most SACU countries in this study generated their gains from the manufacturing sector.

### 5.3.5 SACU Revenue Loss Pool

The AfCFTA will initially present enormous challenges, especially for small African economies. According to the ISS (2024), eliminating tariffs will cause a loss of government revenues, disruptions in industries, shifting value chains, and jobs lost in some sectors. These consequences will lead to diminished government revenue, greater inequality, and more joblessness. In the short term, these effects are inevitable unless proper policy measures are implemented to help workers transition into new jobs and take advantage of job opportunities in other parts of the economy. Since SACU is within a pooled revenue-sharing fund, the fiscal losses experienced by each country have been aggregated and deposited into a SACU revenue loss pool of \$135.56 million. These losses were redistributed based on each country's revenue-sharing share, as the WTO's (2023: 11) report outlined.

Figure 5.8: Fiscal Revenue Loss vs Share of Revenue to Total Tax Base



Source: Compiled by the author based on the CGE simulation and the WTO (2023)

The primary y-axis on the left of Figure 5.8 shows the fiscal losses-based SACU revenue sharing pool, while the secondary y-axis on the right shows customs revenue as a share of each country's total tax base according to (WTO, 2023: 40). The redistribution of fiscal revenue losses shows that South Africa has the highest revenue loss of \$66.85 million. However, its relative fiscal burden is very low because the customs revenue **only constitutes 2.9% of South Africa's tax base. Botswana and Namibia received a loss** of \$28.06 million and \$22.09 million, respectively, with customs revenue ratios of 23.8% and 29.9% respectively, indicating moderate to high dependency on customs revenue.

Eswatini and Lesotho have received the lowest revenue losses of \$9.49 million and \$8.95 million, respectively, but have the highest customs revenue ratios of 36.2% and 46.8% in the region, which indicates that they are dependent on customs revenue and, as a result, they are vulnerable to tariff reduction. In the AfCFTA, these losses will be progressive, not instant, suggesting that they will not dominate the welfare (ECA and CIREM, 2021: 4). Small economies such as Lesotho should utilise the AfCFTA Adjustment Fund, which seeks to support countries experiencing fiscal challenges as they transition (Afreximbank, 2022). Nonetheless, Saygili *et al.* (2018: 11) explained that revenue losses are necessary as they serve as a trade-off that is better in the long run, as it encourages countries to diversify their revenue sources, which increases overall regional trading efficiency.

One possible explanation for the adverse net welfare effects suggested for SACU countries is that an equivalent reduction in NTBs did not accompany the reduction in tariffs. Lack of NTB reform could have resulted in the less-than-anticipated benefits of trade liberalisation on this measure, as indicated in prior work (e.g., World Bank, 2020; Simola, 2021). The empirical literature highlighted that when NTBs are considered, welfare benefits tend to outweigh those of tariff reduction. For example, Simola *et al.* (2021: 9) found that COMESA is losing 3.97% of its tax revenue due to tariff removal and argued that without addressing NTBs, revenue losses cannot be fully compensated by trade and production gains, which is reflected in the negative welfare observed in the SACU countries.

## 5.4 CONCLUSION

This chapter presented the findings from the CGE simulation, which had varying effects across SACU countries. The welfare analysis results show that reducing tariffs resulted in an uneven impact across the SACU region. The literature, such as Abrego *et al.* (2019: 20), claims that the welfare gains from tariffs are generally small; in this study, they are even negative for SACU countries, except for Eswatini. Namibia experienced the highest export growth and consumer surplus, with the highest producer losses and net welfare losses in both sectors. On the contrary, Eswatini observed declines in exports for both sectors, yet it is the only country that achieved a positive net welfare gain, emanating from the competitiveness of the manufacturing sector. South Africa's sectoral performance aligns with free trade theories and new trade theories. At the same time, Lesotho's is better explained by the price effect, and an ambiguous effect dominates Botswana's sectoral performance. In addition, Botswana is the country with the highest capital intensity in agriculture.

Manufacturing is the most competitive sector in most SACU member states, especially in South Africa, Namibia, and Eswatini, while agriculture is competitive in Botswana and Namibia. The agricultural sector performed poorly in South Africa and Eswatini, with contractions in output and exports. At the same time, it showed moderate competitiveness in Lesotho, which is characterised by stable but lower output and exports compared to manufacturing. The economic structure of SACU economies varies. For instance, Lesotho and Eswatini rely highly on manufacturing exports, while Botswana and Namibia display a mix of reliance between agriculture and manufacturing. South Africa shows a more balanced trade portfolio with a lower reliance on tariff revenue than the other SACU members. Eswatini and Lesotho received the lowest fiscal revenue loss compared to South Africa, Botswana, and Namibia. However, these losses constitute 36.2% and 46.8% of the tax base for Eswatini and Lesotho, while only accounting for 2.9%, 23.8%, and 29.9% for South Africa, Botswana, and Namibia, respectively, suggesting that Eswatini and Lesotho show the most reliance on import revenue.

## **CHAPTER SIX:**

### CONCLUSIONS

#### 6.1 SUMMARY OF FINDINGS

This study emphasises the potential for transformational opportunities for SACU nations emanating from AfCFTA, focusing on tariff reductions. Drawing from international trade theories, including comparative advantage and NTT, the study shows that SACU countries can reap gains from specialisation, economies of scale, and enhanced export diversification. These theories provided context for how the AfCFTA enables SACU members to shift from reliance on exporting raw materials to having more intra-trade in value-added products, which has the potential to position SACU to be less vulnerable and grow economically, thereby boosting Africa's global trade (Brookings, 2024: 106).

The AfCFTA presents opportunities, and SACU is responsible for building regional value chains and increasing intra-African trade and global market integration. For example, greater regional cooperation can expand Botswana's diamond beneficiation industry and Lesotho's garment production. The SACU countries have, overall, performed very well, but the government revenue losses have dominated the aggregated consumer and producer surplus, which puts a strain on the welfare, suggesting that this study may have exaggerated fiscal losses due to the "instant" assumption.

The AfCFTA represents an opportunity to overcome fragmented markets and drive structural transformation for the SACU countries. The benefits from this study are evident through export growth, increased income and consumption and a decrease in import reliance across the sectors under review. The study also highlights the importance of supportive policies to mitigate revenue loss, improve trade facilitation and develop competitive industries. With these opportunities, SACU members could facilitate their role in Africa's economic integration and long-term growth, thereby improving intra-African trade.

The underreporting of informal cross-border trade (ICBT), as pointed out by Chipanda and Cilliers (2025: 13; ECA, 2019: 84), represents a key limitation for the analysis of intra-African trade. Despite attempts to measure regional integration through formal trade, much of Africa's trade is informal and is not captured in official statistics. Despite attempts to measure regional integration using formal trade flows, a significant proportion of intra-regional trade in Africa is informal and not captured by official data. That also suggests that the real volume of trade in SACU, and throughout the continent, could be much higher than is being reported. Therefore, the total benefits of the AfCFTA may be underestimated, especially in those sectors with relatively high informal trade (Afreximbank, 2020: 11; and Okwatch, 2023).

## 6.2 POLICY IMPLICATIONS AND RECOMMENDATIONS

This study recommends that African nations isolate trade policies but use the AfCFTA to foster inclusive policies and cooperation because the AfCFTA will only be sustainable when it is rooted in prudent policy approaches. Implementing AfCFTA at the continental level must ensure strategies that increase export diversification, nurture small sectors and industries, promote regional value chains, trade facilitation, and cross-border infrastructure, as well as short-term measures to prevent loss of government revenues. A range of studies and reports strongly support these strategies, such as ISS (2024), Freire and Slany (2023), and UNECA (2023).

Export diversification remains a core policy recommendation for the SACU countries to mitigate economic vulnerability and attain sustainable development. With an export diversification policy, SACU countries can expand their export portfolios beyond raw commodities such as diamonds, sugar, and textiles, improving their resilience to external shocks and developing sustained economic stability. For example, Eswatini and Lesotho could diversify into high-value manufacturing and processed agricultural products, while Botswana could develop diamond beneficiation industries. Therefore, SACU countries can take advantage of the AfCFTA to move up the value chain and enhance their export competitiveness, as noted by Freire and Slany (2023), that export diversification is fundamental in driving structural transformation, as it signifies reduced dependency on global commodity markets, which is among the challenges many SACU states find themselves in.

Strengthening value chains regionally to promote intra-regional trade and industrialisation is another vital recommendation for SACU countries. The AfCFTA provides SACU members a unique platform for developing integrated value chains, especially in agriculture, textiles, and minerals. For example, raw materials (e.g., copper and iron ore) in Namibia and South Africa could be processed into finished products. At the same time, Lesotho could pursue an enhanced garment-manufacturing role in regional markets. Regional value chains are key to driving industrialisation and exploiting economies, as highlighted by the ISS (ISS, 2024). In addition, the previous Africa regional integration progress has been undermined by non-compliance (Brookings, 2024: 96). Therefore, to ensure compliance with implementing these NTBs issues, the AfCFTA should prioritise enforcing the reporting and monitoring of the NTBs progress by each member state or by region in the case of SACU.

NTBs, trade facilitation and infrastructure improvement within SACU are integral to cutting trade costs and promoting smooth cross-border movement of goods. Therefore, to quickly enjoy the benefits of these NTBs, SACU countries should accelerate the process of identifying these NTBs to effectively use the continental Non-Tariff Barriers Mechanism as adopted by AfCFTA (Brookings, 2024: 96). For example, UNECA (2023) suggests investments in road networks, ports, and streamlined customs procedures will ensure SACU countries fully utilise the AfCFTA to unlock diversification opportunities in exports and access to different markets, while Brookings (2023: 101) states that improved infrastructure and regional connectivity promote cross-border trade flows. Therefore, SACU should prioritise the implementation of NTBs and trade facilitation policies to increase its trade with neighbouring countries, which will ensure that their benefits are tripled (Chipanda and Cilliers, 2025: 13) or even be four times more (ECA and CIREM, 2021: 3). Infrastructure development also helps perishable goods to reach their destination within the anticipated time quickly (Simola *et al.* 2021: 9).

To mitigate losses of potential government revenue from tariff reductions under AfCFTA, SACU countries need to adopt short-term revenue policies. One of the key recommendations is to develop domestic fiscal space through alternative revenue streams by strengthening domestic tax collection systems. For example, Lesotho and

Eswatini, heavily dependent on SACU revenue shares, can adopt measures to broaden their tax bases by formalising informal sectors and ensuring compliance in high revenue-generating sectors. Adopting such policies will ensure that SACU states stay fiscally robust while progressing their trade integration ambitions as part of the AfCFTA. While trying to implement the above three recommendations, which can be completed within the short to medium term and long term, SACU countries can immediately utilise the AfCFTA Adjustment Fund to mitigate their short-term government losses (Afreximbank, 2022).

The policy should focus on integrating informal cross-border trade (ICBT) in national and regional trade analysis. As reported by Brookings (2024) and observed by Chipanda and Cilliers (2025: 13; ECA, 2019: 84), ICBT represents an essential part of trade in Africa, particularly of agricultural and low-value manufactured products. For better implementation effectiveness of the AfCFTA and accurate data, governments and regional blocs should invest in systems to capture informal trade, including structured border surveys, harmonised regional data platforms, and digital tracking tools. Acknowledging ICBT would also provide for more empirically grounded policy discussions and enhance the tracking of the AfCFTA's effectiveness.

### 6.3 AREAS FOR FURTHER RESEARCH

Regardless of the discussed limitations, the CGE model still offers a rigorous and advanced analysis of the trade dynamics and insights of the countries under study. Future studies may build on these results by including dynamic effects, evaluating NTBs, or applying the same approach to other sectors for better understanding and informing policies, especially for the long-term run.

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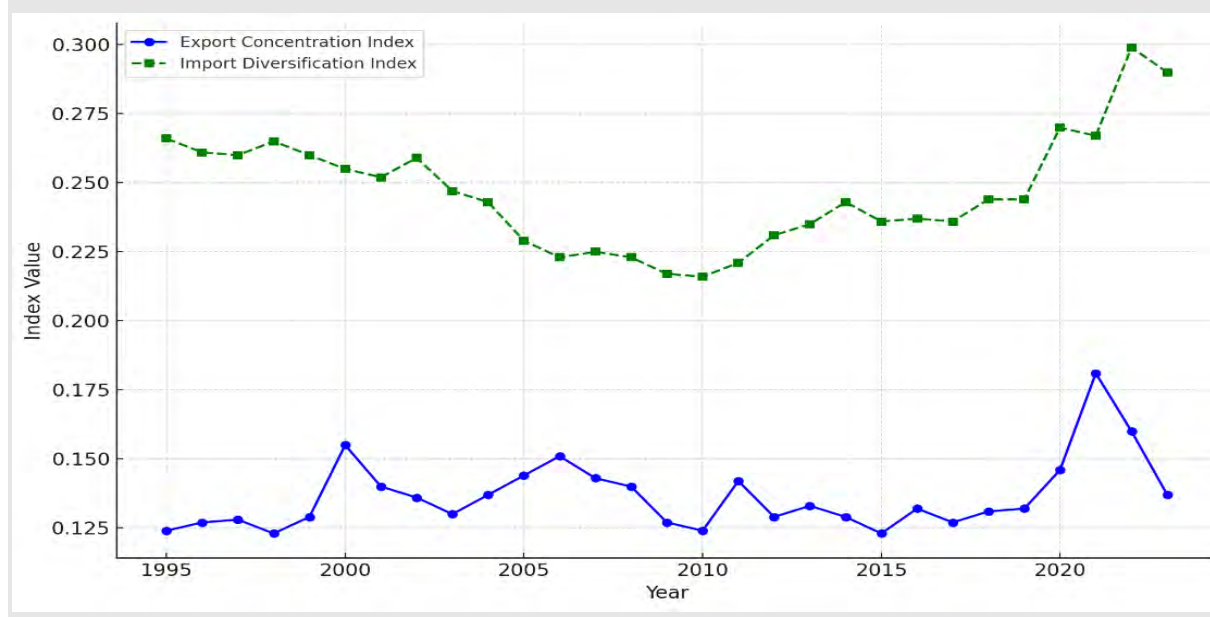
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## APPENDIX SECTION

### Appendix 1: SACU Export Concentration and Import Diversification



Source: Compiled by the author based on the data from OWID

### Appendix 2: Import dependency by regional grouping in Africa (2022)

REC (NUMBER OF MEMBERS)	MERCHANDISE EXPORTS, F.O.B. (\$ MILLION)	MERCHANDISE IMPORTS, C.I.F. (\$ MILLION)	GDP, CURRENT (\$ MILLION)	IMPORT DEPENDENCY (IMPORTS/GDP) (PER CENT)
AMU (5)	161,856	171,742	427,748	40
COMESA (21)	187,415	258,212	1,105,860	23
CEN-SAD (26)	286,381	372,327	1,532,040	24
EAC (8)	48,719	60,526	316,088	19
ECCAS (10)	116,600	51,091	283,032	18
ECOWAS (15)	125,189	136,886	757,964	18
IGAD (8)	24,208	65,695	340,948	19
SADC (16)	260,643	246,387	810,739	30
SACU (5)	140,491	156,031	445,569	35

Note: c.i.f. = cost, insurance, freight; f.o.b. = free on board. AMU = Arab Maghreb Union; COMESA = Common Market for Eastern and Southern Africa; CEN-SAD = Community of Sahel-Saharan States; EAC = East African Community; ECCAS = Economic Community of Central African States; ECOWAS = Economic Community of West African States; IGAD = Intergovernmental Authority on Development; SADC = Southern African Development Community; SACU = Southern African Customs Union.

Source: ECA based on WTO (n.d.) and World Bank (n.d.).

Source: UNECA et al. (2025: 182)

## RESEARCH ETHICS DECLARATION

To be included in the Appendices of research papers / dissertations / theses submitted for postgraduate examination where research did not involve interaction with human participants, or the use of animal subjects, and therefore did not require research ethics approval.

Candidates whose research did require ethics clearance must include their ethics approval letter in the Appendix of their examination submission.

Name of Candidate: Vusimani Prian Kubhayi

Name of Supervisor: Professor Tsitsi Effie Mutambara

Name of Co-Supervisor: Professor Meshach Aziakpono

Degree: Master of Commerce (Financial Markets)

Title of research: Evaluating the sectoral competitiveness and welfare effects in SACU economies under the AFCFTA framework

### DECLARATION

I declare that my research did not require ethical clearance because (tick all that apply):


I used previously collected data that had already received ethics clearance.	<input type="checkbox"/>
I analysed documents / open-access digital texts that are freely available in the public domain.	<input checked="" type="checkbox"/>
I did a literature review/analysis of theoretical or secondary material only.	<input checked="" type="checkbox"/>
I used human datasets of non-sensitive information that are either anonymous (identifiers were never collected) or have been deidentified (identifiers have been completely removed).	<input type="checkbox"/>
I used commercially produced human biological material (e.g., established human cell lines).	<input type="checkbox"/>

I observed people in public spaces and natural environments where they had no reasonable expectation of privacy and I did not interact with them or intervene in any way.	
I used non-living animal materials (eg bones of already deceased organisms or fossils) while complying with any custody and/or jurisdiction requirements.	
I did a content analysis of public media (newspapers, advertisements, and social media posts).	
I did a simulation study with no real-world consequences and does not involve disturbing or distressing content.	✓
I observed flora, fauna, and ecosystems without interfering with or disturbing their natural state while complying with any jurisdiction requirements.	
Other (Please provide details):	

Signature of Candidate:  \_\_\_\_\_

Date: 12 February 2025  
\_\_\_\_\_

Signature of Supervisor:  \_\_\_\_\_

Signature of Co-Supervisor:  \_\_\_\_\_

Date: 28<sup>th</sup> February 2025  
\_\_\_\_\_