

The Prospect of the Proposed Currency Union on Intra-Regional Trade: Southern African Customs Union

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Abstract:

Formal currency union *with a common policy* is welfare superlative to formal currency union due to relatively greater transparency. The study evaluates whether adopting a common currency will lead to trade. Additionally, the study estimates whether countries are under trading or overtrading to investigate whether there exists trade potential. The results show there exists greater trade potential due to geographic and economic fundamentals therefore adopting a common currency will lead to trade. Also, the study showed that the financial markets served as a buffer for the volatility of the currencies notably the Rand. The study concludes that a currency union *with a common policy* could serve as a panacea when the appropriate institutional policy framework is adopted to reduce trade and non-trade barriers.

Keywords: currency union; overtrading; under trading; trade potential; Southern Africa Customs Union (SACU).

JEL Classification: E44; F14; F17; F41; G15.

Introduction

The South Africa Customs Union (SACU) is the oldest in the world and the most successful union in Africa. The SACU records the highest intra-trade flows compared to other trade blocs in Africa partly due to the practice of formal currency union coupled with a sound financial markets. Historically, the treaty was signed on 29th June 1910 with the sole aim of enhancing economic integration by harmonizing and coordinating economic policies of the Customs Union Convention (CUC), which emanated from the British Colonial Administration's effort to integrate its colonies. It was signed by five countries namely: Botswana (then Bechuanaland), Lesotho, Kingdom of Eswatini then Swaziland, South Africa, and Namibia. The establishment of the South African Reserve Bank (SARB) issued the South African pound as the first official currency for CUC in 1921 before countries gained independence and substituted for the Rand, in exception of Namibia (then South West Africa). The treaty allowed for the free movement of people, the implementation of a Common External Tariff (CET) and revenue sharing formula. Article 34 of the Treaty stipulated that excise duties were to be paid into a common revenue pool and shared accordingly via the revenue sharing formula. South Africa exercised its rights under the 1910 agreement, passed the highly protective Customs Tariff Act in an attempt to industrialize its economy and significantly raised its external tariff in 1925 (Grynberg and Motswapong 2012).

The treaty was renegotiated on 11th December 1969 to include additional excise duties and a new multiplier to increase the benefits to the Kingdom of Eswatini, Botswana, and Lesotho by 42%. However, the Agreement took a knock and hampered by a lack of common policies and common institutions. (Tralac 2018). Article 3 of the treaty cemented South Africa Customs Union (SACU) as the official name of the union and united the newly independent countries to peg their currencies to the South African Rand, to form the Rand Monetary Union (RMU). The Rand Monetary Union was signed by Botswana, Lesotho and South Africa on 5th April 1974. Swaziland (Kingdom of Eswatini) introduced its currency the same year and pegged to the South African Rand. Botswana withdrew from the Rand Monetary Union (RMU) due to enhanced exports in diamond and beef which monetarily strengthened the economic stance to ensure policy independence in 1975 (Tavlas 2008, Wang *et al.* 2007, Asonuma *et al.* 2012, Bank of Botswana 2007). Lesotho then established its central bank and issued its currency, the loti, at a one-on-one rate with the Rand in January 1980. This led to the signing of the Common Monetary Area (CMA) Trilateral Agreement in April 1986 by Lesotho, Kingdom of Eswatini (then Swaziland) and South Africa. The RMU was joined by Namibia after gaining independence from South Africa which led to the introduction of a Multilateral Agreement in 1992. The Namibian dollar was introduced in the subsequent year and pegged to the South African Rand. The

South African Rand was the anchor for the currencies of the CMA owing to the dominating role of the South African economy in the CMA, and the South African Reserve Bank serves as the de facto central bank of the CMA (Rossouw 2006, 155). The treaty was renegotiated in Botswana on 21st October 2002 to abolish tariffs set out by the South African Board of Tariffs and Trade. The revenue sharing formula was modified to dispense revenue as a share of intra-SACU imports constitutes which diminished the share to South Africa (Flatters and Stern 2005, Grynberg and Motswapong 2012). Article 18 of the treaty stipulated free movements of domestically produced goods within the region and explicitly established six institutions in the SACU based on article 7 to facilitate trade-related activities in the trade bloc. After 17 years of interruption, Swaziland authorized the use of the Rand with their lilangeni in the country in 2003 (Patroba and Nene 2013). The major impediments to trade were policy divergence due to double membership of members to other Regional Economic Communities (RECs) and revenue sharing due to its volatility (Tralac 2018).

Despite the chattering effort of SACU, the level of trade remained robust, below 17% of total trade (UNCTAD database 2018). Empirical results showed that developing countries have more trade barriers as compared to the developed countries (LooiKee *et al.* 2009). Undeniably, the SACU Agreement has no provision for free movements of persons and capital therefore not a common market (Mathis 2005). Additionally, the failure to implement many of the SACU Agreement provisions such as the institutions and the common policies signaled the flaws in the system. Furthermore, articles 38, 39, 40 and 41 as stipulated in the Agreement are treated on preferential terms which hinders trade. Currency union *with common policy* is viewed as a panacea for struggling economies, so SACU deems it fit to strengthen ties of member countries further to improve the standard of living through trade stimulation. The first proposal of a currency union *with a common policy* was aired in SADC, the REC that binds all SACU member states, after its creation as a Free Trade Area in August 2008. Under the auspices of the SADC Regional Indicative Strategic Development Plan, led to sets out a target to realize a SADC monetary union by 2016 and the use of a common currency by 2018.

Undoubtedly, this seems ambitious, given the frameworks and institutions that are required for a monetary area operation (Nene and Patroba 2013). The four convergence criteria were laid out ex-ante as a yardstick for joining the union. The four postponement of the common currency in SADC was due to the inability to attain the set out convergence criteria by all members signaling the unpreparedness of countries in the REC.

Currency union *with a common policy* is welfare superior to formal currency union due to price transparency across countries and intense trade within countries than merely trade among countries due to home bias (Rose 2000, Glick and Rose 2001, Rose and Wincoop 2002). The authors stipulate that currency unions generate incentives for private investors to actively indulge in international trade by creating a large market for tradable and non-tradable goods. Currency union *with a common policy* can ensure greater transparency to unearth the large informal sector in SACU. Also, currency union *with a common policy* decreases intra area nominal exchange rate, ensures positive externality resulting principally from savings in transaction cost, healthy competition, accrues counter-terrorism benefits, revenue from international seignior age and reduced need for foreign exchange reserves for sovereign currencies. According to Krugman (2009), when countries compete through trade, they both win. Additionally, price transparency will lead to fixing the cost of labor and it would change supply patterns resulting in more stabilized and fair sourcing of resources for firms and probably improving equality and certainty. Given this, a road map for diversification of the economies can be formulated and import controls can be enhanced with the formation of a currency union *with a common policy*. However, to achieve this feat there is the need for a new institutional policy framework to curtail the trade and non-trade barriers in SACU and ensure greater transparency. There is the exigency to transit from formal currency union to currency union *with a common policy* in SACU.

The underlying difference is the unification of interest rate, reduction of investment risk, relatively greater transparency through accountability, political stability, rule of law, control of corruption, unified political decision body and considerable savings as a result of a reduction in transaction costs which stimulate economic growth. Other advantages include the elimination of extreme nationalism, better access to capital, tourism due to free movement of persons, investments due to reduced transaction costs, deepened capital and money market among others. Meshach (2007) showed that some countries in the SACU that were financially integrated to South Africa inured financial development. To buttress, Nianda (2014) posits that the practice of formal currency union accrued benefits to Botswana, Lesotho, and Namibia. Given this, currency union *with a common policy* will ensure greater integration and enhance benefits to the countries in the union. To increase the long term competitiveness of the economies, there is the need for a common currency. The main disadvantage of adopting a common currency is the presence of asymmetric shocks among member states.

However, currency union can partly be stabilized against asymmetric shocks by providing credit facilities, integrated money and capital markets which benefits the financial market coupled with strict fiscal discipline by

national fiscal authorities in line with deliberating democracy, foreign aid and trade openness (Tapsoba 2011, Sakyi 2013). As trade increases, business cycles can in principle move either more asynchronously or more closely together to nullify shocks and converge (Rose 2001, Ofori-Abebrese 2006, Ncube *et al.* 2014). Moreover, Currency union is well documented as debt fueling due to the experience in EMU. Contrarily, the plight was attributed to public sectors been very large and social transfers of one form to another typically constitute a greater share of public expenditures, which are often funded by external debts. It is this large element of social insurance, along with the ability to borrow cheaply from the international markets in other to fund such expenditures. The striking advantage of developing countries in forming a currency union has to do with relatively lesser nominal rigidities, relatively small public sectors compared to EMU, greater trade potential, the elimination of greater cost associated with the use of sovereign currencies and the ability to navigate shocks compared to developed countries.

The strength of a currency depends on the interest rate, fiscal and monetary policies considering the debt stock, transparency in the economy and the stability of the government. In this context, it is evident that the SACU countries lack microeconomic and macroeconomic restraint. Dolamore (2014) emphasized the exigency for sound macroeconomic policy to inure several benefits in trade. The performance of the Rand has been arguably attributed to the significant performance of the financial market, which serves as a buffer for currency volatility for the union. The fear of worsening the Rand stance by skeptics has relegated a need to discourse further integration by weighing the cost and benefit of forming a currency union. The advantage in the use of a sovereign currency lies with the ability to devalue the currency to stimulate exports.

In this background, developing countries, especially in Africa will never become better off by devaluing consistently due to a relatively small contribution to global trade. Moreover, devalued currency leads to high inflation which leads to economic distortion hitherto reduction in average real income. Additionally, when developing countries trade with partners using an international trading currency of a non-partner, it inadvertently affects domestic currency since there is no direct linkage of shared resources between them. In the nutshell, developing countries are economically viable to eliminate the demand for foreign currencies to trade with one another to reduce external shocks. Theoretically, the endogeneity of the OCA posits that countries can form an Optimal Currency Area ex-post, therefore, the exigency to form a currency union *with a common policy* in SACU.

The SACU is plagued with trade and non-trade barriers leading to the low level of trade in the sub-region. In this background, intra-regional trade in SACU is consistently below 17% of total trade (UNCTAD database 2018). The non-trade barriers consist of smuggling, bribery, and corruption, embezzlement of national coffers, security-related issues, and lack of political commitment, Government involvement in trade-restrictive practices, wrong invoicing, frequent policy reversals, conflicts, crime, and theft among others. (Iqbal and Khan 1998; Oyejide *et al.* 1997; World Trade Organization 2009; UNECA 2012; AEO 2012; ADB 2016, 7; Elu and Prince 2014). These non-trade barriers increase the cost of trading and culminate in the large informal sector. Additionally, the political environment is subject to politicians' swing which has a damaging outlook on the growth of SACU. In this context, the implementation of laudable policies is bootied by the opposition parties which serves as a threat to the private sector and the long-term development of the trade bloc. Other significant barriers to trade in SACU are tariffs notably services, non-tariff notably customs and administrative entry procedures, limited growth in regional supply chains, thick borders, limited financial capacities, an inadequate workforce, labor regulations, road user charges as a complaint under Transport, Clearing and Forwarding, geographic remoteness, import restrictions and export restrictions utilizing bans, licensing and quotas (Russell 2005, Bausinger *et al.* 2015, Gillson and Charalambides 2012). Currency union *with a common policy* has proven to be a panacea of these ills in other regions.

Also, the practice of formal currency union in the SACU has deprived the area of healthy trade competition due to poor market segmentation and the absence of transparency in pricing. This has culminated in the challenge been faced with the revenue pool computation and how it is shared among members. The SACU members record different consumer price inflation which reflects the price differential and compounds to trade costs. On average, South Africa records consumer price inflation of 5.08%, Lesotho records 5.71%, Namibia records 5.73%, Botswana records 6.86% and the Kingdom of Eswatini records 6.48% using an averaged inflation data from 2003 to 2018 (IMF database 2020). In this context, the other currencies were circulating at some transaction costs that affected the profit margins of investors and increased risk of companies' therefore discouraging investment in those countries. Also, the volatility of the South African Rand resulting from the convertibility of the currency in line with the several trade treaties leads to currency speculation which affects the anchor currency and all other pegged currencies even though the stock market serves as a buffer in reducing currency volatility. In times of crisis, sharp declines in net capital flows can strain these smaller economies compounded by the absence of conversion costs between the local currency and the rand hitherto adversely affects economic growth (Basdevant *et al.* 2012, Asonuma *et al.* 2012, Manwa 2015).

Additionally, Ayayee (2010) unveiled the compounding effect of the influx of multilateral companies in South Africa to the stunted growth of small-scale companies in the SACU. Also, the different taxation systems adopted by members' accounted for the disparity that culminate in the mounted barriers to trade. Currency union *with a common policy* ensures discipline against inflation, eliminates all taxes that compounds to trade costs to generate a greater incentive for small-scale businesses and equalize price by generating a platform to judge the price differentials to ensure healthy competition. The effect will be low prices, high productivity and a change in the structure of taxation through intense trade within the countries. Lall (2004) stipulated that there is an exigency for proactive interventions, including infant industry support, to build and deepen the requisite technological capabilities for industrial development in a globalized digital era characterized by first-mover advantage. Currency union *with a common policy* could exploit additional trade potential and ensure price transparency in SACU.

Moreover, the heavy dependence on the primary sector by SACU countries has necessitated the need for diversification of the economies notably Namibia, Lesotho, Kingdom of Eswatini and Botswana (UNCTAD 2016, UNCTAD database 2017). In this background, the danger of climatic change and population growth will dwindle economic gains from the sector. According to the Intergovernmental Panel on Climate Change (IPCC), GDP across Africa is expected to reduce by 2% - 4% by 2040 due to climatic change.

This would represent a loss of about \$ 653 million to about \$1 billion in 2040 using exchange rates in 2018. In this background, necessitates the exigency for SACU countries to diversify their economies and initiate regional population control policies. Currency union *with a common policy* has proven to improve the economic stance of struggling economies through healthy competition and the practice of comparative advantage. Furthermore, the over-extraction of precious minerals will harm the long term growth due to the gains from agreements in percentage-wise. The projected future will run these resources redundant to stimulate growth due to shortage. Currency union *with a common policy* is a means of mobilizing national resources to tackle major problems in the region.

Furthermore, the 2008 International financial crisis was a major contagion of western plight on FDI inflow in developing countries notably Africa. Contrarily, the heavy reliance on FDI will not achieve the long term perspective of the union since it exposes the economies to greater external shocks and economic imbalance. The international financial crises altered the investment climate which led to the decline in private investors' contribution to capital inflows and halted developmental project notably Botswana due to heavy dependence of SACU countries on FDI (World Bank 2009, Suleiman and Kaliappen 2013, Friedman and Schady 2013, Honde and Abraha 2015). More so, South Africa recorded one of the largest decline in African financial markets at 47%. (Maswana 2010, Mongardini *et al.* 2010). Analytically, Arieff *et al.* (2010) stipulated that the global flow of foreign aid fell, as developed countries experience continued fiscal strains and political pressures to balance budgets. Additionally, developed countries trade more with one another compared to developing countries due to the high average trade cost associated with trading with developing countries. In this background, developing countries have to remove barriers to trade to stimulate intense trade within countries. To buttress, Ncube *et al.* (2014) argued that increased intra-regional trade will attenuate the effect of external shocks. In this background, developing countries can form a currency union to stimulate trade flows with one another which is a more relied source of FDI through cross-country investment. In this background, currency union *with a common policy* will actively indulge the private sector of member-states in international trade.

1. Significance of the Study

There exist limited studies on the feasibility of a common currency in SACU with much attention given to SADC. Contrarily, some studies evaluated the feasibility of a currency union in SACU using the OCA and other econometric dispensations (Jefferis 2007, Memela 2010, Patroba and Nene 2013, Chlond 2018). The results showed the SACU is not ready to adopt a common currency. In this background, the studies focused on the convergence of some macroeconomic variables and evaluated how compatible the countries are close together. However, the methodologies are rooted in the OCA. Theoretically, countries that have achieved a common market are liable to be evaluated with the OCA in line with maximized country-specific internal trade potential. Moreover, other studies focused on the long-run convergence of countries and conditionality (Ade 2008, Grandes 2003, Maleke 2008, Wang *et al.* 2007, Dlamini 2011, Bhowmik 2013, Bhowmik and Sen 2013, Rametsi 2015).

The results showed that adopting a common currency is a possibility without considering existing trade potential and other benefits currency union *with a common policy* will accrue to the region such as political incentive. Also, some indicators used in estimating currency union feasibility requires real convergence. In this context, it flaws common currency possibility due to different levels of structural and economic development of developing economies. Contrarily, these studies evaluated the feasibility of common currency without considering the impact of the currency union in stimulating trade, addressing current trade and non-trade barriers, attenuating shocks,

improving macroeconomic indicators by unveiling greater trade potential. In this context, a currency union *with a common policy* is a stepping stone for countries to enhance integration with one another. Arguably, countries of different structural and economic development will only converge based on a common policy framework and institutional architecture since sovereign currencies intensifies the costs to trade.

Theoretically, the endogeneity of the OCA posits countries can achieve an Optimal Currency Area ex-post. Thus, countries can adopt a common currency as a means of converging with one another to achieve an Optimal Currency Area. To buttress, empirical studies using the OCA criteria showed the European Monetary Union was not an Optimal Currency Area, before currency union (Komárek 2002, Vrnáková and Bartušková 2013). Despite the EMU, not an OCA, the currency union stimulated trade flows among member states (UNCTAD database 2018). A recent evaluation of the EMU countries based on OCA criteria showed countries were converging with the introduction of the Euro (Rose 2008, Mongelli 2008, Furrutter 2012, Crowley 2013). Countries converging would ensure a greater platform for African countries to catch up (Zyulu 2014). Given this, the study seeks to estimate the proposed currency union *with a common policy* on trade in the Southern African Customs Union using an augmented gravity model of international trade. Also, the study evaluates whether countries are overtrading or under trading. By so doing, it will unveil the trade potential of the SACU to show the exigency to maximize economic and geographic fundamentals.

2. Objectives of the Study

The main objective of the study is to estimate the effect of the proposed common currency on trade in SACU. The Specific objectives are as follows:

- To examine the trade potential of the SACU

3. Research Questions

To achieve the above objectives, the study seeks to address the following questions:

- Will the proposed SACU currency union with a *common policy* lead to trade?
- Is the SACU liable to unleash more trade opportunities?

4. Literature Review

4.1. Theoretical Literature

4.1.1. The Theory of Optimal Currency Area

The Optimal Currency Area (OCA) theory can be credited to Mundell (1961) and McKinnon (1963) during the 1960s. The theory postulates that countries with high labor mobility, a high degree of openness, substantial product diversification, sufficient flexible price and wage, effective monetary policy, similar inflation rates and the zeal to abandon their currencies will benefit from forming a currency union. Mundell contends that a common currency reduces transaction costs leading to trade creation. High factor mobility especially labor mobility among the countries was key in forming an OCA in a fixed exchange rate regime. McKinnon (1963) argued that the degree of openness as a relationship between tradable and non-tradable is crucial in forming an OCA. The more economies are opened to one another, the higher the tendency of forming an optimal area. For a currency area to be optimal, Mundell (1961) argued that asymmetric shocks can be nullified with free labor mobility by liberalizing factor markets in the area. McKinnon (1963) argues an OCA as a region with a common currency and within which monetary policies, fiscal policies, and flexible exchange rates can address issues related to price stability, employment and international payment which are conflicting. He suggested the need for the economies to be well integrated to reduce the exchange rate effect. He investigated the consequence of the size of currency unions and argued that small nations are more liable to trade and have lesser nominal rigidities. Therefore, suitable for the formation of a currency union.

Kenen (1969) introduced product diversification as an important criterion for an OCA. He argued that diversity in products of the countries and the number of single product regions in a currency union is most relevant to form OCA as compared to labor mobility. Product diversity is a key factor for labor to move within a region. He further argues that when a region has a well-diversified export sector and homogenous labor with high mobility, there is a tendency for the region to form an OCA. Mundell (1961) concentrated on the cost involved in joining a currency union whereas McKinnon (1963) and Kenen (1969) focused on the conditions for enhancing the benefit for an Optimal Currency Area. The OCA focuses on the balance between the benefit of reduced trade cost and the cost of abandoning monetary sovereignty and business cycle synchronization of the member states. The theory concludes that there is a need to experience symmetric reactions to external shocks to lower the cost of regionally

coordinated policies. Also, Mundell (1973) argued that using a common currency may help an area to be optimal. This will reduce unsynchronized economic shocks leading to the creation of an Optimal Area. Mundell further posits that purchasing power parities should exhibit steadiness overtime. Thus, with the free movement of capital, there is the tendency of attaining an OCA.

Exchange rate volatility shows the level of risk involved with changes in the exchange rate. Exchange rate volatility is associated with either rise or fall in the level of exports depending on the assumptions of the variable. Conventionally, exchange rate volatility is argued to hurt exports since it increases the risk or shock involved in international trade. The prospective gains from international trade by firms are uncertain due to exchange rate volatility due to currency risk (Broll 1994, 1995). Moreover, even with well-developed forward markets for some currencies, exchange rate volatility cannot be eliminated since it affects exporting firms in diverse channels of trade. An increase in exchange rate volatility increases the risk involved in trading, therefore, reduces the volume of trade with risk-averse firms. Contrarily, another theory on exchange rate volatility on exports shows even in the face of risk associated with volatility, it presents an opportunity for firms to maximize profits. In this background, exchange rate volatility can have a positive impact on the volume of trade. The option theory stipulates in alignment that firms with the option to export are better off when the exchange rate is volatile (De Grawe 1992).

4.2. Empirical Literature

Rose (2000) assessed the impact of currency union on Trade when exchange rate volatility is eliminated. The study focused on the European Monetary Union spanning 1970 to 1990 prior EMU currency union in 1999. The study used Ordinary least squares with country fixed effects. The study found a large positive effect on trade even though the negative effect of exchange rate volatility was minimal. The study showed that currency union was economically and statistically significant therefore countries in a union will trade three times more in a union than countries using their sovereign currency. It concludes that currency unions will yield a greater impact on international trade when countries integrate.

Bhowmik (2013) studied the convergence of macroeconomic fundamentals of countries in SACU spanning 1985 to 2012. The study adopted the optimal convergence criteria in evaluating the feasibility of a common currency. The paper concludes that the region SACU has every possibility to introduce common currency within a few years although it could not satisfy inflation and debt convergence in Beta criteria and inflation and interest rate convergence in sigma criteria and it faced asymmetric shocks of international reserves, capital account balance and the growth rate of money. It has a very low intra-trade as well as international trade shares but it has the largest share in SADC's trade where SADC is the biggest bloc in Africa. The study posits that if the bloc minimizes the problem of overlapping memberships, complete the trade integration and monetary integration process speedily and if it succeeds the financial reforms quickly, then SACU can circulate a common currency very soon to accelerate the feasibility of African Economic Unity.

Patroba and Nene (2013) assessed hypothetically the possibility of a monetary union in the Southern Africa Customs Union using data spanning from 2003 to 2011. The study investigated the possible challenges of forming a monetary union in SACU due to no agreed nominal convergence criteria set out for members. The comparative analysis was based on the nominal convergence set out by the Southern Africa Development Community using standard deviation. The results showed that there was strong convergence in reserve holdings, inflation, and debt levels even though divergence in the structure and size of SACU economies. To conclude, the study showed that SACU adopting a common currency will inure benefits to the sub-region.

Bhowmik and Sen (2013) assessed the impact of economic integration by adopting a common currency in SACU with data spanning from 1985 to 2012. The study used the Sala-i-Martin technique to test the beta and sigma convergence among countries. The results showed that there is a statistically beta convergence in interest rate and fiscal deficit but sigma convergence was statistically insignificant. The results showed that SACU records low intra-trade shares which are declining with international trade shares. The study concludes that adopting a common currency is feasible in the trade bloc even though the countries failed in the beta and sigma convergence of inflation and debt. The study recommends the elimination of overlapping memberships of countries in the trade bloc to ensure deepened money and capital markets among members.

Rametsi (2015) examined the possibility of SACU as an Optimal Currency Area (OCA). The data spanned from 1980 to 2015. The methodology used in the study was the Error Correction Model, central tendencies and standard deviation to establish a relationship between real exchange rate, real GDP, the external value of the currency and domestic value of the currency (inflation). The results showed that the error correction terms were statistically negative. The effect was that the cost and benefit of forming a currency union were based on how integrated the proposed members are to one another. The study further showed that there was a convergence of

macroeconomic indicators therefore there is a possibility that the trade bloc is an Optimal Currency Area and can proceed with adopting a common policy.

Chlund (2018) assessed hypothetically the possibility of using the rand as the common currency in the Southern Africa Customs Union using data spanning from 1960 to 2016. The study investigated the possible challenges and benefits of forming a monetary union in SACU and the asymmetry of shocks among members. The study adopted a structural VAR to measure the asymmetry of shocks among members. The results showed that forming a monetary union will come at a greater cost to Namibia, Lesotho, and Swaziland except for South Africa since the domestic component are high for all small CMA members. This indicates that economic shocks hit the area quite asymmetrically so that it is challenging for a common central bank to accommodate all economies using one monetary policy due to regional and global components estimated low. To conclude, the study showed that SACU adopting a common currency will not lead to trade.

5. Methodology

5.1. Dataset

The study used a dataset with 360 bilateral trade observations spanning from 2000 to 2017 (some observations are missing for the dependent variable). Export data was sourced from United Nations Conference on Trade and Development (UNCTAD), and International Monetary Fund Direction of Trades (DOTs). GDP and GDP per capita were sourced from World's Bank World Development Indicators (WDI), the distance was sourced from CEPIL, Real Effective Exchange Rate (REER) from United Nations Conference on Trade and Development (UNCTAD) and WDI.

5.2. Model specification

To evaluate the impact of adopting a common currency on trade, the study considers the augmented gravity model of international trade. The model is specified as follows:

- The Effect of a common currency on trade

$$X_{ijt} = \beta_0 + \beta_1 \ln(Y_i Y_j)_t + \beta_2 \ln(Y_i Y_j / Pop_i Pop_j)_t + \beta_3 \ln D_{ij} + \beta_4 Cont_{ij} + \beta_5 ComCol_{ij} + \beta_6 Incol_{ij} + \tau CU + r(V_{ij})_t + \delta Volat_{ij} + \varepsilon_{ijt} \dots \dots \dots (1)$$

where: i and j denotes countries, t denotes time, and the variables are defined as: X_{ijt} denotes the value of bilateral trade (exports) between i and j , Y is real GDP, Pop is population, D_{ij} is the distance between i and j , $Inst$ is the institutional quality variable represented with six indicators, $Cont_{ij}$ is a binary variable that is unity if i and j share a land border, $Lang_{ij}$ is a binary variable that is unity if i and j have a common official language, $ComCol_{ij}$ is a binary variable that is unity if i and j were colonized by the same colonial master, $Incol_{ij}$ is a binary variable that is unitary if a country colonized the other in SACU, CU_{ijt} is a binary variable that is unity if i and j use the same currency at time t , $V_{t(ij)}$ is the volatility of the bilateral (between i and j) real effective exchange rate in the period before t , ε_{ijt} is a vector of nuisance coefficients, and represents the myriad other influences on bilateral exports, assumed to be well behaved, $Volat_{ij}$ is a binary variable that is unitary if the exchange rate is low peaked in the period t (PEAKNESS). Where $I = 1, 2, \dots, N$ is the number of countries where $N = 5$, t is the time-series dimension of the data ($T = 18$ years), the coefficients $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ are parameters for their respective variables where β_0 is the constant and ε is the error term.

5.3. Estimation technique and Empirical Application

Monte Carlo simulation shows that the gravity model of international trade is best estimated using a nonlinear model (Silva Santos and Tenreyro 2011). The Poisson Pseudo Maximum likelihood is the best estimator for the gravity model due to the prevalence of zero trade-in data and its prowess of eliminating heteroscedasticity, autocorrelation, catering for model misspecification among others. Furthermore, the PPML estimates is efficient in both small and large sample size (Silva Santos and Tenreyro 2006). To buttress. The PPML is the best estimator for estimating the coefficients of the gravity model (Bobková 2012, Vavrek 2018).

5.4. Definition of Variables and Expected Signs

The export of goods was used as a proxy for bilateral trade between the reporting country and the partner in line with each country attempts to balance its trade with the other. The data on exports were reported at the levels to suit the non-linear estimation technique procedure. The variable was adopted in the model to represent trade flows between countries since the level of imports is usually underestimated. GDP was used to proxy for the economic mass of the country in the model. The study expected GDP to have a positive relationship with trade. It was measured as the log product of the GDP of country-pairs.

GDP per capita was used as a proxy for all other controls that were not specified in the model. The coefficient of GDP per capita used is expected to have a positive relationship with trade. It was measured as the log product of GDP per capita of the country-pairs in the model. Distance is the transportation cost involved in trading between the two countries. The coefficient of distance is expected to have a negative relationship with trade. The higher the transportation costs, the higher the price of the goods to be traded and vice versa. This is because, as distance increases the cost of trading among countries ostensibly increases thereby reducing the volume of trade.

Institutions are defined as 'sets of formal and informal rules governing the actions of individuals and organizations, as well as the interaction of participants in the development process according to the World Bank. The coefficient of institutions is expected to have a positive relationship with trade.

Border is defined as the geographic boundaries of political entities such as countries, provinces, states amongst others. The coefficient of sharing a land border is expected to have a positive relationship with trade. Spatial theory of trade depicts that countries sharing border tends to cooperate to enhance trade. The dummy was represented with 1 if country-pairs share the same border and 0 otherwise.

The coefficient of Language is expected to have a positive relationship with trade. Adam Smith argued in 'Wealth of Nations' that common language enhances trade and exchange utilizing effectively communicating the task in hand to the trading partners and easily convincing parties to know it is in their best interest. The dummy was represented 1 if country-pair shared a common official language and 0 otherwise. The dummy was represented 1 if the country-pair is currently in a currency union and 0 otherwise. This is because, countries using the same currency tend to trade more compared to countries with independent currencies (Rose 2000).

Exchange rate volatility was computed as the standard deviation of the moving average of the natural log of real effective exchange rate (REER). The study used real effective exchange rate data in the computation of the exchange rate volatility using the standard deviation approach due to the latest development in exchange rate volatility measures (Serenis 2012, Serenis and Tsounis 2014). A recent development in trade stipulates countries are no more interested in the value of their currency with another country but rather how its currency is valued with their major trading partners. Real effective exchange rate is the nominal effective exchange rate (a measure of the value of several foreign currencies) divided by a price deflator or index of costs. The nominal effective exchange rate (NEER) is the weighted average of the currencies exchange rate with its major trading partners' currencies.

REER is a refinement on the nominal exchange rate with price inflation removed. The coefficient of exchange rate volatility between the countries is expected to have a negative relationship with bilateral trade. Historically, exchange rate volatility has a negative relationship with the volume of trade when countries use sovereign currencies. Ethier (1973) asserted that exchange rate volatility hurts international trade. This assertion has been backed by Clark (1973), Hooper and Kohlhagen (1978) and Gagnon (1993). Additionally, the coefficient of exchange rate peak ($Volat_{ij}$) is expected to have a negative relationship with trade. According to Serenis (2012), the main criticism of using standard deviation as a measure for exchange rate volatility fails to capture the potential effects of high and low peak values of the exchange rate. The high and low peak values refer to the unpredictable factor which affects trade. The peak of exchange rate volatility was computed as the average of the volatility, deducted from the various values and represented by 1 if low peaked and 0 otherwise. Highly peaked exchange rate discourages trade by increasing the cost of trading among trading partners whereas low peaked exchange rate volatility encourages trade.

Figure 1. The relationship between exchange rate volatility and intra-trade in SACU



Source: Author

Figure 1 shows the relationship between exchange rate volatility and intra-regional trade in SACU. From the diagram, the exchange rate was low peaked for most trading periods. In the years, 2004, 2005, 2006, 2007, 2010, 2011, 2015 and 2016 recorded exchange rate volatility to be low which led to high intra-regional trade. Also, there were periods where exchange rate volatility was high and intra-regional trade was low. In this context, 2003 and 2013 exhibited the high exchange rate volatility and low intra-regional trade. Moreover, there were periods characterized by high exchange rate volatility and high intra-regional trade. This scenario can be attributed to a fall in the value of the US dollar. Unsurprisingly, there was a period characterized by low exchange rate volatility and low intra-regional trade. In this background, the year 2008 exhibited such characteristics due to the international financial crisis which was a major contagion to the level of trade in the world. It is evident that the financial market of South Africa was a buffer to reduce exchange rate volatility (Odhiambo 2010, Khetsi and Mongale 2015). In the nutshell, exchange rate volatility had a strong impact on trade in SACU. In this background, the countries practicing formal currency union attenuated the impact of exchange rate volatility on trade. To achieve the long term development of the trade bloc, there is the need to pursue a common currency. A currency union *with a common policy* integrates the capital and money markets to ensure the financial market serves as an improved buffer for the volatility of the common currency.

In Table 1, the estimated coefficient is 1.683 for GDP is statistically significant at 5%. Interpreting the coefficient as semi-elasticity, a 1% increase in GDP leads to 0.017% increase in the level of trade. Specifically, this finding is not startling because a higher GDP will make it possible to raise the level of trade in the sub-region. The result is consistent with Alesina *et al.* (2005) argued that economic size matters for trade with other countries. In support, Vijayasri (2013) stipulated that countries will comparatively produce more of a particular commodity so as to trade with other countries for what existing resources cannot produce. As the countries produce more, economic activities in the economy rise in line with GDP, therefore, stimulating more trading effect.

GDP per capita is found to have a positive but statistically insignificant to trade with a coefficient of 1.637. GDP per capita used as a proxy for all other factors that were not specified in the model. The result shows that other relevant factors not specified in the model had insubstantial impact on trade.

Distance is found to have a positive effect on trade with an estimated coefficient of .152 but statistically insignificant. The result was startling but logically plausible because countries were geographically close to one another. This implies that as distance increases, the trade cost increases, therefore, reducing the level of trade among member states. It is evident in the level of trade flows among SACU members compared to other trade blocs. The result is in line with the Bausinger *et al.* (2015), the proximity of member-states facilitated trade. However, the costly road user charges were a major hindrance to intra-regional trade in SACU as reported by the Non-tariff Barriers Monitoring Mechanism under the Transport, Clearing and Forwarding category. In the study, attributing the ineffective integration of the supply chains partly to the inefficiencies in the transport system. Also, the landlocked nature of countries increases transportation costs. Furthermore, trade in food and manufactures dominants, therefore, creating complexity and difficulty in transport facilitation due to large-scale production and infrastructure demand (World Bank 2015).

Table 1. Results for the proposed common currency on trade

Variables	Coefficients
GDP	1.683** (6632502)
GDP per capita	1.637 (1.11855)
Distance	152 (2.086502 1)
Border	-.527 (.971615)
Colonizer	.606 * (3539668)
Incolo	1.068*** (.2302132)
Common Currency (CU)	505 (6972794)
Volatility	941 ** (476104)
Peakness	282 *** (1022529)
_cons	-28.79406 *** (11.00541)

Note: *, ** and *** represent rejection of null hypothesis at 10%, 5% and 1%; Robust Standard Errors are in the parenthesis.

The study estimates the effect of proposed common currency on trade

Source: Author's Estimates

Border is found to have a negative impact on the level of trade in SACU. The estimated coefficient of -.527 and statistically insignificant. The result is startling but logically plausible due to countries' intense trade with South Africa than other SACU members. Also, it can be attributed to many borders not operating at a 24 days /7 days a week basis, and the adverse effects of border clearance times which poses delays at the main corridors of SACU and its effect on trade (World Bank 2015). This implies artificial impediments have been mounted at the borders that compounds to trade costs.

Countries sharing the same colonizer is found to have a positive effect on trade. The estimated coefficient is 606 and significant at 10%. Thus, countries trade based on current strive of ameliorated conditions due to established colonial trade links and memberships of international organizations through treaties with colonizers. SACU countries sharing colonial ties substantially reduced the trade cost (Grynberg and Motswapong 2012, Kagochi and Durmaz 2018).

Incolo is a variable that represent a member of the union colonized the other. It is found to have a positive effect on trade and significant at 10%. The result is not startling because South Africa was Namibia's major trade partner within the union according to UNCTAD database.

Sharing a common currency is found to have a positive but significant impact on trade with an estimated coefficient is 505. The result shows that adopting a common currency reduces transaction costs, therefore, stimulating trade by means of saving but will not have appreciable impact on trade flows. The argument is in line with Rose (2000) that adopting a common currency increases trade flows within countries. Theoretically, adopting a common currency ensures greater integration by means of political, social, economic and cultural to attenuate ills in the trade bloc.

Exchange rate volatility is found to have a positive and significant effect on trade in sub-region. The estimated coefficient is 941 and statistically significant at 5%. Interpreting as semi-elasticity, exchange rate volatility is associated with an increase in trade considerably of about 0.009%. The result shows that the exchange rate plays a far more expected role in the level of trade in the sub-region. Thus, when exchange rate volatility is low, the level of trade increases among member states since it reduces the cost of trading. This shows that the exchange rate stimulates trade in the sub-region due to the practice of the currencies fixed to the South African Rand and the financial market serving as a buffer for the volatility of the rand. The result attests to the reason for being the most successful REC in Africa. However, adopting a common currency is superlative to practicing pegged currency due to greater transparency across countries and intense trading within countries than merely trade among countries.

Exchange rate peak is found to have a positive significant effect on trade. The estimated coefficient is 282 at 1%. The result shows that exchange rate was low peaked for most trading periods in the years under study. This

partly accounts for the relatively high level of trade among member states compared to other African countries in other trade blocs. The high or low peak captures the unpredicted variation of exchange rate volatility that had an effect on exports. The higher the value of unpredicted factors, the greater the adverse effect of volatility on exports hitherto trade. The higher the volatility (high peak), the greater the adverse effect on the level of exports (Serenis and Tsounis 2014, Panda and Mohanty 2015).

Table 2: Results for trade potential in the SACU

Variable	Observation	Mean	Standard deviation	Minimum	Maximum
Trade Potential	126	-2.78e+08	9.70e+08	-6.63e+09	9.32e+08

Note: The Minimum and Maximum depicts the range for trading; The study seeks to estimate empirically whether countries are over trading or under trading.

Source: Author's Estimates

The negative mean value depicts that countries in the SACU are under trading. In this context, countries will be trading more based on their economic and geographic fundamentals. The result shows there are impediments to trade in SACU. The use of a common currency can be a means of unleashing the trade potential in the sub-region.

5.5. Case Studies

The use of independent currencies is estimated to have adverse effect on trade. Contrarily, the use of some independent currencies poses certain technical characteristics that facilitates trade when currency arrangements are made which were not methodologically acknowledged by existing studies. Given this, the author develops a model as a building block to develop a model for the technical properties possessed in some sovereign currencies in a given region.

Conclusion

The pegging of currencies serves as a barrier to trade due to some currencies circulating at some transaction costs. In conclusion, the results show that adopting a common currency in the trade bloc will stimulate trade flows due to greater trade potential. In this background, the financial market played a key role as a buffer to reduce the volatility of currencies which lead to the positive impact of exchange rate volatility. The study recommends that a new policy framework should be developed for SACU on common currency to strengthen the existing institutions and infrastructure as a stepping stone to increase intra-regional trade in line with regional growth. Currency union *with a common policy* is a means of exposing the larger informal sector and attenuating trade and non-trade barriers to facilitate trade.

Per the analysis of the effect of the proposed SACU currency union on intra-regional trade, the study proposed the following policy implications. Empirical results indicate that selected variables have played a significant role on trade and hence economic growth.

Currency union *with a common policy* was found to have a positive impact on trade due to greater trade potential. In this background, SACU should focus on providing technical support to all member states to facilitate the attainment of the convergence criteria set out by SADC for the first phase of the policy to be realized.

Exchange rate volatility was found to have a positive impact on trade in the sub-region. In this background, the study showed that countries fixing their currencies to the South African Rand had a significant impact on trade due to the positive exchange rate volatility and the financial market was a buffer for currency volatility. Therefore, the need to move to a higher gear of integration which is currency union *with a common policy*. With the implementation of a common currency, exchange rate volatility and inflation bias among countries will be eliminated and ensure integration of the money and capital markets. In this context, SACU focus should be on the stability of the common currency to be adopted. Thus, SACU should focus on the policies to integrate the money and capital markets by indexing all financial assets using the common currency and building financial market buffers. Financial institutes on the stock market are to be listed in the common currency which in turn will attract potential investors to gain confidence in different SACU countries financial markets.

SACU should advise countries on the need to monetize their fiscal deficits, which depreciates the value of a currency and increases the debt servicing obligations of countries by adhering to policies initiated by the South African Reserve Bank. Also, the need for countries to adhere to the fiscal convergence criteria to ensure a sustainable currency union. Finally, the trade potential of the sub-region was estimated to unveil greater prospects of trade in the trade bloc and the need to be tapped. The result showed countries are under trading, therefore, the

focus of SACU should be centered on eliminating trade and non-trade barriers by forming a currency union *with a common policy*.

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