The Impact of Southern African Customs Union on Botswana's External Trade

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ABSTRACT

The aim of the study was to analyse the impact of a regional agreement South African Customs Union (SACU) on a member state, Botswana's external trade. As one of the oldest trade agreements in the world SACU agreement renewed in 2002, where the members other than South Africa, Botswana, Lesotho, Namibia and Eswatini, in order to benefit more from the union. Study focused on the period 2002-2021, both due to analyse the impact of new amended agreement as well as the availability of data. In order to test the impact of Customs Union on Botswana's trade Gravity Model is used. Beside the model's major variables as total trade value, real GDP and distance, real exchange rate is added as an independent variable and membership to SACU, border country status and common language added as dummy variables to the model. For the sample of the model 22 countries selected consisting of major trade partners of Botswana. Panel regression is used to estimate the impacts of independent variables total GDP, geographic distance and real exchange rate and dummy variables as union membership to SACU, common border with Botswana and common language variables are used. Sample of the study selected as the 22 major trading partners of Botswana. Regression results as expected shows that as the GDPs of partner countries is increasing, it influences the trade volume positively.

On the other hand, as the geographical distance increases between trade partners volume of trade negatively affected, similarly any deterioration in exchange rates influence the trade between partners negatively. Bilateral trade among trading partner countries is affected when Botswana's currency Pula depreciated or appreciated against the partner country's currency. Magnitude of effect may change in every

partner country depending on the elasticity of demand for imports or supply of exports however that was beyond the aim of this study. For the union membership and having common border among the partners have given a positive sign as expected however results are not found statistically significant.

Keywords: SACU, Customs Union, Economic Integration, Gravity Equation, Botswana, Trade Agreements.

ÖZ

Bu tezin amacı bölgesel bir ticaret antlaşması olan Güney Afrika Gümrük Birliği'nin (SACU) üyesi bir ülke olan Botswana dış ticaretine etkisini ölçmektir. Dünyadaki en eski ticaret antlaşmalarından olan Güney Afrika Gümrük Birliği 2002 yılında Güney Afrika dışındaki üyeler Botswana, Namibya, Lesotho ve Eswatini'nin de daha etkin faydalanması amacıyla yenilenmişti. Çalışma hem düzenlenen antlaşmanın etkilerini analiz edebilmek hem de veri bulunurluğundan dolayı 2002-2021 dönemlerini kapsamaktadır. Yenilenen antlaşmanın Botswana dış ticareti üzerindeki etkileri analiz etmek için Gravity Model yaklaşımı kullanılmıştır. Modelin temel değişkenleri olarak bağımlı değişken olarak İkili Toplam Ticaret (değer olarak), bağımsız değişken olarak Toplam GSYH, coğrafi uzaklık yanında Reel Döviz kuru, kukla değişken olarak ta SACU üyeliği, komşu ülke konumu ile ortak dil kullanılmıştır. Çalışmanın örneklemi için Botswana'nın önemli ticari ortakları olan 22 ülke seçilerek oluşturulmuştur. Regresyon analiz sonuçları beklendiği gibi ticaret ortaklarının GSYH büyüklükleri arttıkça ticaret hacminin arttığını, coğrafik mesafe arttıkça ticaret hacminin azaldığını göstermiştir. Ayni şekilde kurdaki değer kaybının da ticareti olumsuz etkilediği sonuçlarına ulaşılmıştır. Botswana'nın para birimi Pula'nın ticaret partneri ülke para birimlerine karşı değer kaybetmesi durumunda ikili ticaretin olumsuz etkilendiği görülmektedir. Bu değişimin büyüklüğü ithalata olan talep esnekliği ve ihracatın arz esnekliğine bağlı değişebilmektedir ancak bu unsurlar çalışmanın kapsamı dışındadır. Gümrük Birliği üyeliği etkisini ve ortak dil kullanımını ölçen katsayılar pozitif olmasına rağmen istatistiki olarak anlamlı çıkmamıştırlar.

Anahtar Kelimeler: SACU, Gümrük Birliği, Ekonomik Entegrasyon, Gravity Denklemi, Botswana, Ticaret Antlaşmaları.

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LIST OF SYMBOLS AND ABBREVIATION

β	Beta
AfcTA	African Continental Free Trade Area
BLS	Botswana, Lesotho and Swaziland
BOBS	The Botswana Bureau of Standards
CES	Constant Elasticity of Substitution
EAC	The East African Community
EU	European Union
HCT	Humanitarian Country Team
Ln	Natural Logarithm
MENA	Middle East and North Africa Region
SACU	Southern African Customs Union
SADC	Southern African Development Community

Chapter 1

INTRODUCTION

A fundamental part of our everyday life is the ability to trade amongst ourselves. The world practically revolves around this concept, trade enables economic growth and helps to raise living standards (Balassa,1989). Trade is the voluntary act of buying and selling goods and services between economic actors. By economic actors we are talking about individuals, countries and even businesses (Phillips,1996). This study focused on the trade relations of a middle-income level African nation Botswana.
Mainly its trade structure and the impact of a regional customs union South African Customs Union (SACU) on Botswana's trade. It is tried to be tested whether the customs union caused any change in the both volume of trade as well as the direction of trade for Botswana in time. In other words, as a welfare impact of economic integration does it have any trade creation or trade direction impacts on Botswana's external trade.

South African Customs Union (SACU) being the most significant trade agreement that Botswana is a part of to date. Although the oldest trade agreement that still exists, the agreement plays an important role ensuring effective trade between neighbouring countries. Botswana is the second largest economy of all the members. Being that the nation's economy is mainly diamond led or a natural resource led economy. Botswana's economy and external trade is led by the diamond industry. It is within the coverage of this study to see how the country's external trade has improved or not after being member of SACU for a long period of time. Whether the impact of SACU is a

positive or negative one has always been a topic of discussion. There are some studies in the literature suggesting that the trade agreement is only favourable to its most powerful nation South Africa and it is detrimental to its other inferior members (Engstrom and Verdier, 2013). South Africa being the most powerful member in the Union, it has the advantage to lead the union and benefit solely from the tariff revenues generated through SACU up to 2002. The trade agreement was challenged by other members pleading for involvement not only in decision making but have fair share across all the members of SACU. This research analyses whether the amendment made in 2002, has had a positive or negative impact on the trade of second largest member economy Botswana (Kirk and Stern, 2005).

In the measurement of the impacts of the agreement, gravity model is implemented, which states that countries with shorter distance and have higher GDPs tend to trade in higher volumes. Major motivation of the study was the small size of Botswana economy that trade constitute an important role in economic development of the country. Furthermore, in increasing the trade volume of an economy, trade agreements liberalising the trade plays a further important role to enlarge the volume of trade. According to Majeed (2016), theoretical study on growth and commerce implies that more international trade may help long-term economic growth.

Imports of high-technology commodities help technological growth in importing countries, possible source of knowledge and technology dissemination so for Botswana both imports and exports are important element economically with its small and limited market size with 2 million population. Specially relations with border nations as well as external markets beyond Africa plays crucial role in trade linkages of Botswana.

Botswana is one of the stable economies in Africa but high dependency on diamond trade creates a fragility in steady economic growth. Although the country's lack of diversification is quite evident, but this study aims to test whether the trade of goods beside diamond is also having any role in external trade of Botswana (Malefane and Odhiambo, 2016). This makes difficult to carry out research in because other industry's trade in the country is almost insignificant in comparison to the trade in the diamond industry as it occupies a large amount of the country's exports and also imports

Another motivation of the study is lack of sufficient studies in literature dealing with the external trade of Botswana. Specially in terms of the impact of SACU on Botswana's trade relations. Study analyses the how the amended SACU agreement affected the pattern of trade. Botswana's trade as stated before is mainly focused on diamonds however it is highlighted that other industries also play a role in the country's trade specially with neighbour countries. Despite the lack of data for many African economies trade data is generally available therefore with the available series it is tried to measure the impact of trade relations of Botswana and its trade partners.

SACU is not the only trade agreement that Botswana is member. The country has trade agreements with unions like EU, SADC and AfCTA, in which most of the trade agreements are created to enable countries to trade with each effectively, by controlling trade barriers such as tariffs and how they are imposed on the members. Although Botswana shares multiple trade agreements with its fellow African nations, it is identified that most of the country's diamond exports travel outside the continent of Africa to countries in Asia and Europe but non diamond exports to mainly African countries. It was also obtained that even the diamond market is changing through the

years by shifting from EU market to Asian and Middle Eastern markets like Israel, UAE, Hong Kong and Singapore.

Gravity model in trade as one of the popular trade models is implemented in the study. Van Bergejik and Brakman (2010), the gravity model mainly analyses the impact of total GDP between trading partners as well as the geographical distance between trading partners. Suggesting that higher the GDP (which indicates the market size of economies) higher the volume of trade among partners. On the other hand, the distance between partners represents a barrier on trade in terms of cost of transportation where influence the trade volume negatively (Kepaptsoglou, Karlaftis and Tsambolus,2010). In this study beside GDP and distance, real exchange rate and as dummy variables SACU membership, border country status and common language is used as well. Sample countries are selected as the major trade partners of Botswana (in terms of both imports and exports). Sample consist of twenty-two countries with the highest export and import markets of Botswana. As the period of the study 2002-2021 period is selected. That is because of both the availability of data as well as the period represent post amendment period of SACU agreement between members.

Chapter 2

BOTSWANA ECONOMY AND TRADE PATTERN

2.1 General Economic Outlook

Botswana as a small country with an estimated population of two million, is a success story of how the country has been able to maintain a stable economic growth since it gained its independence in 1966. Located in the Southern part of Africa, the country is landlocked and shares borders with countries; Namibia, South Africa, Zambia & Zimbabwe. For a country deemed to be unfavourable for development and economic growth. In terms of the economic status, Botswana is considered to be a country with one of the largest sets of middle class in Africa. Firstly, the country is located in a region that frequently defined by underdevelopment and conflict has managed to achieve continuous long-term economic progress (Acemoglu, Johnson and Robinson, 2002).

Botswana falls under the definition natural resource-based economy; In this economy majority of the country's income is generated from natural resource found in that country (Quixina & Almeida, 2014). Many countries that are natural resource led economies have hard times achieving democracy, peace within the country and managing corruption. In the case of Botswana, the country while being a natural resource-rich emerging country that has managed to combine natural resource dependence with economic success, significant social development, and peaceful political maturity.

The country has a mixed economic system in which there is private freedom incorporating centralized economic planning and regulation and management by the government. The country's wealth is based on the mining industry of natural resources. These natural resources include; diamond, nickel, soda ash, salt, gold and coal. The diamond mining industry occupying majority of the country's exports and wealth. Hillbot & Bolt (2018), mention that, the country's outstanding diamond-led economic development record since independence has attracted the interests of both scholars and policymakers.

Social development is a major concern in Africa, when it comes to the government of Botswana, has made many efforts to improve the lives of the citizens throughout the years. The necessary or sustainable actions put in place for the benefit or wellbeing of the citizens of a nation. Access to electricity of the population is one of the indicators of the social development in that sense. For the last 15 years ratio of population having access to electricity raised from 40% levels up to 70% level. In developing countries like Botswana, it is important that social development is part of the government's agenda. Sustainable community development is of importance in developing countries because it is constantly presented as a cluster solution to the issue of relative economic underdevelopment and the high poverty rate that is prevalent in developing countries (Sachs, 2005).

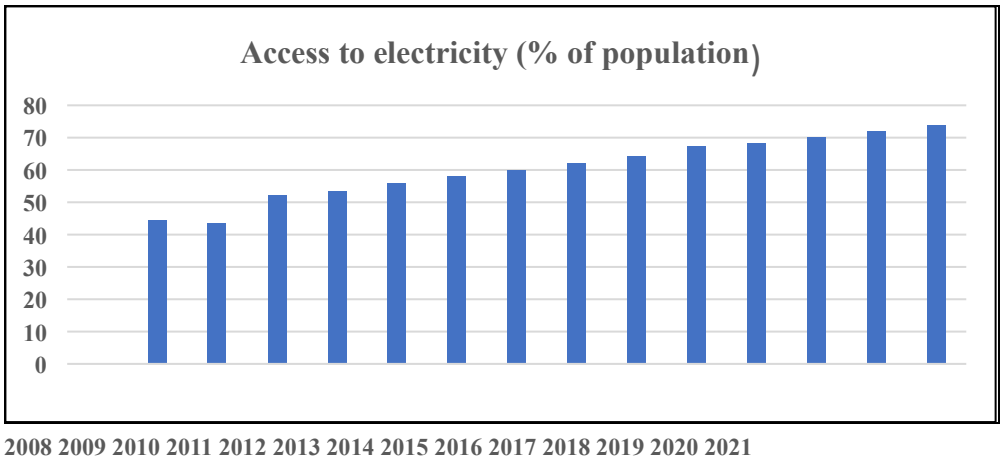

Figure 2.1: Botswana's population access to electricity
Source: World Bank, World Development Indicators

Botswana has been able to maintain a stable macroeconomic, political and fiscal environment. Throughout the years the country's GDP per capita (which indicates an average income level) has been achieved a growth from the levels of $3000 per head to the level of $7000 in recent years. This can be explained both with the positive global situation as well as with right policy choices of the government

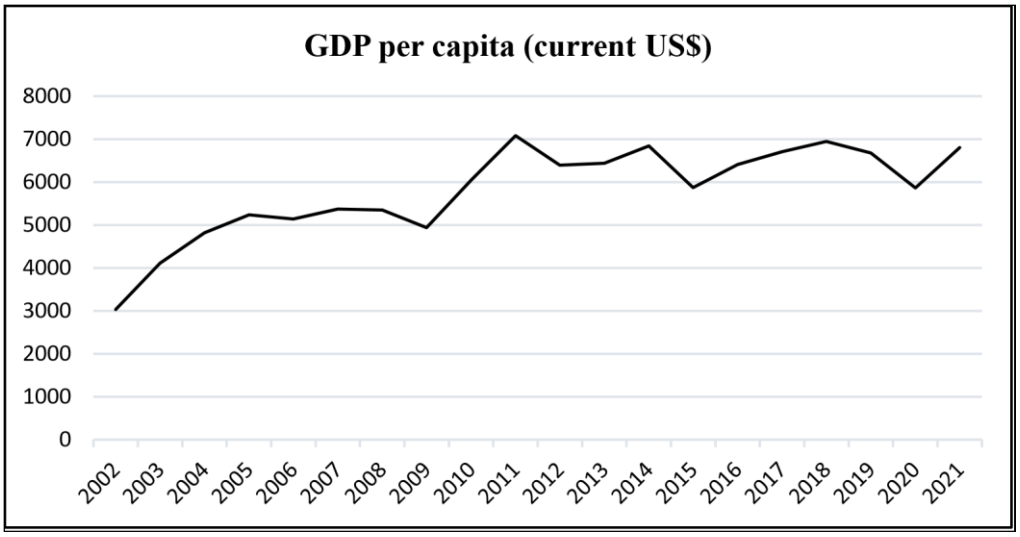

Figure 2.2: GDP per capita of Botswana (2002-2021)
Source: World Bank, World Development Indicators

Similar to GDP per capita, level of GDP which is an indicator of economic size of a country, stabilized around US$ 6 billion throughout the years 2014 – 2018. In 2019 the GDP was US$ 6.6 billion but dropped in the year of 2020 to US$ 5.8 billion due the impact of a global pandemic. At the same time Real GDP growth performance of the country is also performing ups and downs but usually managing to sustain positive rates around 3 to 6 percent per year. Figure 2.3 below shows the fluctuations in GDP growth rates for the last 13 years.

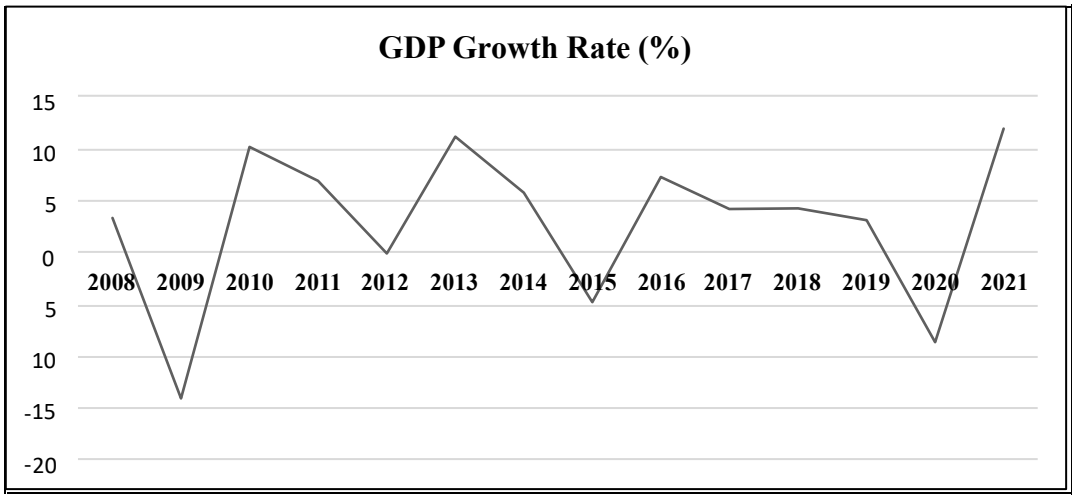

Figure 2.3: GDP Growth Performance (2008-2021)
Source: World Bank, World Development Indicators

2.2 Leading Role of Diamond in Economy and Trade

Diamond as a precious stone is the leading factor in the economy of Botswana. Not only in the exports of the country but in the economic activities and the employment facilities created as well. Botswana is home to two top ranking diamond mines in the world; Jwaneng diamond mine and Orapa diamond mine. The Jwaneng mine was named the world's richest diamond mine for the first third of 2022, as it produced 10.3 million carats. In 2021, Botswana produced 23 million carats, an increase of about 26% from the previous year, making Botswana the second largest producer of diamonds in that year. As it was stated before, Botswana is a natural resource led

economy in which the country's revenue is mainly dependent on the mining sector particularly the diamond sector (Hillbom,2014).

Table 2.1: Physical volume of diamonds extracted

Year	Quantity of Diamond Extraction (000 carats)
2016	20,892
2017	22,941
2018	24,496
2019	23,687
2020	16,868
2021	22,696
2022	24,479

Source: Statistics of Botswana

Considering the contributions of sectors to GDP, services seem the highest however majority of services produced in the country are diamond related services such as trade, transport, financial etc. The diamond market plays an important role in the economic growth of Botswana. The diamond trade market holds account of the vast majority of Botswana's exports and in total the economy. It takes up to 80% of Botswana's exports, therefore it is what has sustained Botswana's economy thus far and it contributes up to 30% to the country's GDP.

Table 2.2: GDP and Employment Shares of Major Sectors (2021)

SECTOR	GDP Shares (%)	Employment Shares (%)
Agriculture	**1.7**	**9.5**
Mining	**26.7**	**1.8**
Construction	**11.1**	**7.1**
Manufacturing	**7.1**	**8.3**
Services	**53.4**	**73.3**

Source: Statistics of Botswana (2022)

As another mining activity beside diamond is coal mining which is rising as an important economic activity in Botswana. Effect of coal mining on the nations GDP is not as dominant as the diamond mining sector but the coal production in Botswana is of importance to the economy (Gaolathe,1997). Botswana has 212 billion metric tons of known coal resources, the great majority of which are medium to low-grade sub-bituminous coal. The majority of the coal reserves are concentrated in the Central Kalahari Karoo Basin. This resource is primarily used by the country as a combustion fuel for power generation at the Morupule Power station.

Tourism industry is another emerging economic area in Botswana. Since the country faces the lack of economic diversification, government views tourism as the sector that could help contribute to diversifying the economy from its reliance on the mining sector. In the year of 2021, tourism contributed about 13.1% to the country's GDP. Tourism only became a prominent subject in Botswana in 1990 in the hopes of improving diversification within country, due over reliance on diamonds and beef as the main contributing factors to the economy (Stone and Mbaiwa, 2017).

Botswana is home to the Okavango delta, and this is where most of the tourist attraction is in the country. Just like most South African countries, Botswana's tourism is deeply reliant on wildlife, nature reserves and international leisure tourism. Apart from the wildlife and wilderness the country has, there are other under developed natural tourist attractions that may have potential. Some of the popular destinations in Botswana include the Chobe national park, which is located in the Okavango delta. In this national park you get to see huge mammals in their natural habitat and experience living within the park surrounded by wildlife and beautiful nature. The most popular tourist activities include boat ride in the Okavango delta, Safari/ Game drives within

the national park which is home to over 120,000 African elephants and other wild animals.

Within the safari are hotels ranging from the lowest stars to five-star hotels in which accommodate all types of tourists travelling to the country. This is advantageous because when travelling to the safari you get to experience it from your accommodation which accounts for a wonderful experience without having to do much travelling as everything is in the same vicinity. Tourism accounts for only 8.9% of the country total employment. In which this number could increase if the government would involve local citizens more in the travel and tourism industry, creating more job opportunities. A huge part of Botswana's natural resources has not been developed to accommodate tourists, there is a lot more tourism in Botswana that has been neglected by the government which could play a major role in issues of diversification and unemployment in the country.

Table 2.3: Number of Tourist Arrivals (in millions)

Year	Number of Arrivals
2000	1.10
2002	1.27
2004	1.52
2006	1.43
2008	2.10
2010	1.97
2012	1.61
2014	1.97
2016	1.57
2018	1.83

Source: Statistics Botswana

From this table we can identify that in comparison to the year 2000, a lot more tourists have visited the country. There has been a steady and consistent growth. However due to the COVID-19 pandemic, the numbers dropped down to about 328,500 due to the nation-wide lockdown that took place. The tourism industry has however shown immense potential to grow and become a major part in the country economic growth.

The agriculture sector as a traditional sector in Botswana plays an important role in the rural areas. It only takes up to 1.7% of the GDP, however the employment rate in this sector is about 10% of the population. This discrepancy between output and employment rates indicates the labour-intensive structure of agriculture. Cattle farming is the biggest dominating this sector as the population which also shows that majority of farming activities are done for subsistence by the families living in rural areas.

Although the country claims an upper-middle-class status according to the world bank, the country is faced with challenges such as having high rates of economic inequality and unemployment. The labour market of Botswana is not as diverse as their not a lot of job opportunities. The table below shows the employment figures in the leading sectors of the labour market of Botswana as of 2020;

2.3 Trade Relations and Changing Trade Pattern of Botswana

Botswana’s trade strategy over the years has heavily been influenced by the country’s partnership/membership in the regional agreements like SACU and SADC organisations. The country continues to be in pursuit of trade with its neighbours in an agenda to promote free movement of goods among member countries. Botswana’s trade liberalisation process activated through the reduction of tariffs on imported raw materials, the policy has also aimed to improve Botswana's access to industrial raw

materials in order to meet the country's objectives of diversifying both its productive activities and its economic exports (Marandu, Phambuka-Nsimbi, 2021).

The Botswana Bureau of Standards is a government organization which is responsible in ensuring that standards for trade in Botswana are being upheld. BOBS plays a role in that whatever trade takes place in Botswana it is done in an ethical manner taking in account of things like human health issues and safety. Botswana and four other border nations; Lesotho, Namibia, South Africa and Swaziland formed an economic union called The Southern African Customs Union. The main objective of the SACU is to allow member states to establish a sense of freedom and trust in cross-border movement of goods across each other territories as well as following the common external tariff to the trade with third parties. In doing so member countries are able to diversify their economy, develop their economy and increase investment opportunities in the common customs area. Beside SACU Botswana joined the African Continental Free Trade Area (AfCTA) in 2021, which comprises of 55 countries. Its objective is to have a more integrated Africa economically, by increasing economic drivers such as investments, boosting trade, creating better opportunities for employment, efforts to eradicate poverty and increasing shared prosperity. Following table shows the trade agreements Botswana signed and become a member of it (Phambuka-Nsimbi,2018).

Table 2.4: Trade Agreements of Botswana

Organization	**Members**	**Products/Goods**	**Total GDP of Members (2021)**
AfCTA (The African Continental Free Trade Area)	Benin,Botswana,Burundi, Cameroon,Comoros,Egypt, Ghana,Kenya,Lesotho,Mauratius, Nigeria,Rwanda,Somalia,South Africa,SudanTanzania,Togo,Tunisia, Uganda.	Beef, breeding animals, unprocessed salt, vaccines for veterinary medicine, pharmaceutical	**$2.83 Trillion**

		products, copper and copper products.	
SADC (Southern African Development Community)	Angola, Botswana, Comoros Democratic Republic of the Congo, Eswatini, Lesotho, Madagascar, Mauritius, Malawi, Mozambique, Namibia, Seychelles, South Africa, Tanzania, Zambia, Zimbabwe.	SADC member states get trade on a tariff free basis and duty-free access of goods among themselves. (South Africa being the largest exporter). Botswana imports most products from there	**$935.80 billion**
SACU **(**Southern African Customs Union)	Botswana,Lesotho,Namibia,South Africa, Swaziland.	Duty free, quota free access for Botswana goods, Common External Tariff to third countries	**$474.95 billion**
EU-SADC Economic Partnership Agreement (**EPA**) With EU	EU and SADC Countries as above	(Duty-free, quotafree for all products from Botswana into the EU market) Textiles, fine jewellery, organic fertilizer, canvas tents, auto parts.	**$6.97 Trillion**

Source: Botswana Unified Revenue Service, World Trade Organization, International Trade Administration.

Even though the most of the trade agreements of Botswana is signed with African nations (mainly neighbour countries) but the major export markets are non -African countries. It used to be Belgium and Switzerland before but nowadays mainly Asian and Middle Eastern partners are more common. South Africa as a neighbour and SACU member country is the largest share African partner for Botswana's exports. In comparison to SADC, SACU only has five members and therefore analysing the impact it has on Botswana's economy is easier to navigate unlike SADC that has a wide range of countries (16 members). Therefore we decided to narrow our study to

the impact of SACU. In the case of imports, pattern is completely different rather than Asian countries EU countries and other African nations lead the import markets of Botswana. Following table shows the major export markets of Botswana in 2021.

Table 2.5: Major Export Markets (2021)

Countries	Value ($million)
United Arabia Emirates	**1,940**
Belgium	**1,660**
India	**1,310**
South Africa	**684**
Israel	**451**

Source: International Trade Center (www.intracen.org)

As explained before major export product of Botswana is diamond. Beside diamond some other mining products like coal, or copper or copper made materials are also exported. Another popular export item for Botswana is beef and cattle meat. Beside these products which ae exported mainly to outside of Africa some manufactured products like textiles, tents, fertilisers are exported mainly to the neighbour countries mainly to South Africa. Following table shows the major exports of Botswana in 2021.

Table 2.6: Major Exports products (million dollar)

Export Products	2000	2005	2010	2015	2020
Diamond	2,710.0	3,630.0	3,260.0	4,760.0	3,940.0
Gold	0.9	25.6	78.7	28.5	90.9
Insulated Wire	11.4	3.8	52.9	110.0	81.7
Bovine (Cattle/beef)	31.4	45.2	85.2	82.9	46.1
Copper Ore	140.0	443.0	42.7	158.0	26.1
Total Exports	**3,300.0**	**5,080.0**	**5,090.0**	**5,930.0**	**4,520.0**

Source: Global Edge, Botswana: Trade Statistics

Coming to the imports, Botswana has almost a balanced trade. Export revenues are nearly backing the country's imports. Major import markets are South Africa, Namibia as the border countries and again some of the export markets like UAE, Belgium due to the diamond trade. Botswana is in the first three diamond producer in the world. In order to make diamond processing more efficient country imports some raw diamonds from other countries in form of temporary import and soon after processing them re export it back to those countries. Beside raw diamond, fuel is the second largest import item due non-sufficient oil production of the country. Due to the large area and low population density of the country, electricity is partly imported from the neighbour countries through the borders. Vehicles and some military materials are among the major imports as shown in the following table.

Table 2.7: Major Import Products (million dollars)

Major Import Products	**2000**	**2010**	**2020**
Diamonds	39,3	659	1,083
Refined Petroleum	164,0	1,042	520
Electricity	5,7	146	148
Tanks & Armoured Vehicles	na	135	148
Delivery Trucks	47,3	143	115
Total Imports	**2,018**	**7,063**	**6,001**

Source: Global Edge, Botswana: Trade Statistics

To further prove Botswana's economy dependence on the diamond industry. Below graph is showing the average share of diamonds out of total exports between two periods of 2002-2011 and 2012-2021. Share of diamond has always been high but only experienced a drop during 2007 2010 and then increased its share out of total exports up to 87% levels in recent years. This increase in share of diamond in total exports is

not solely depend on quantity increase but somehow relative increase in prices of diamonds and other precious stones and metals in recent years compared with the prices of other traditional manufactured and agricultural export products.

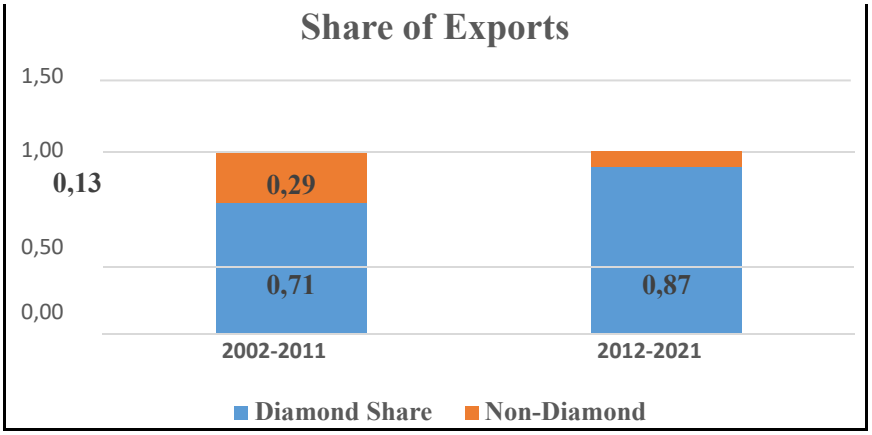

Figure 2.4: Average Share of Diamond and non-Diamond Exports
Source: International Trade Center (www.intracen.org)

At the same time, it's not only the share of diamond increased but the direction of exports had changed in time as well. Until the mid-2000s Botswana's major trade partners have basically remained the same throughout the years. Belgium and Switzerland from Europe were the major buyers of diamond. During the period of 2012-2021, exports to EU from Botswana declined massively, from 70% to 31%. This may be due to reduction of foreign direct investment (FDI), by countries such as United Kingdom which were second major export partners to Botswana after Belgium within the EU. However, after 2012 Botswana's diamond shifted to new markets in Asia and Middle East. While Botswana's diamond importers turned to be UAE, Israel in Middle East and Singapore and Hong Kong in Asia. Not only the diamond export markets diversified but the traditional manufactured and agricultural export markets diversified as well. As can be seen from the below figure while the share of EU countries in exports declining share of exports to Asia and MENA countries increased tremendously. This

was mainly due to the leading role of Diamond as well as the progressing relations with border and member countries in Africa under various trade agreements. Botswana's exports to the UAE, amounted to $1.94 billion, in which the top three products were diamonds ($1.93 billion), electrical parts and Industrial oils & alcohols. In Asia exports increased massively from 2% to 24%. The reason being that in recent years Botswana has exported $1.29 billion worth of diamond out of the total exports ($1.31 billion), therefore India plays an important role in the diamond industry of Botswana.

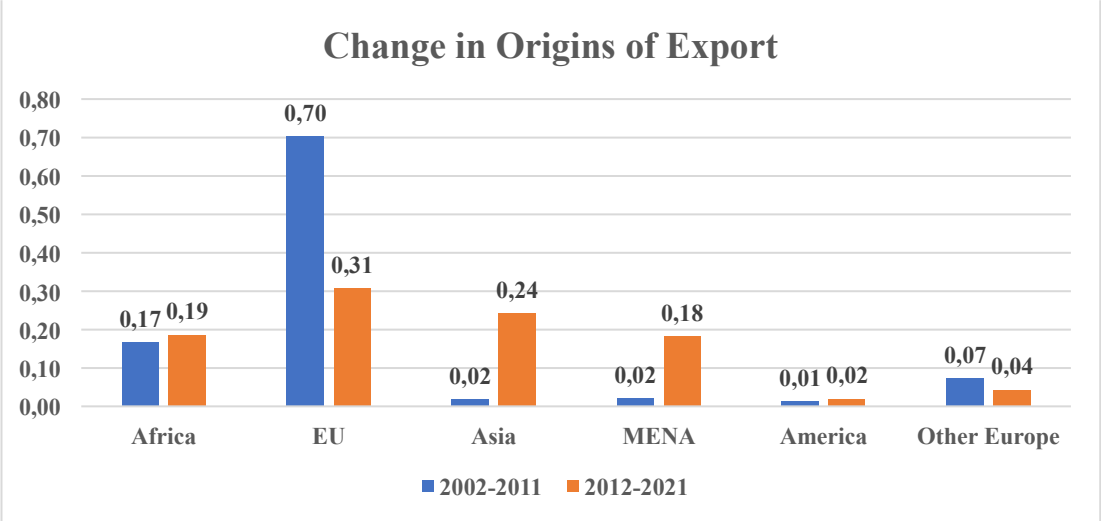

Figure 2.5: Changes in Origins of Export
Source: International Trade Center (www.intracen.org)

Overall, there is a clear trade diversion in terms of origin of exports. The EU is still a major export partner surpassing all the other partners even though the exports have declined tremendously when compared. Followed by fellow African nations, Asia and MENA. America does not occupy a massive share of the Botswana exports.

When looking at only diamond industry exports origin, EU is still leading buyer. Although EU's share declined tremendously over the years, most of Botswana's

diamond are still exported to the EU. Furthermore, more diamond is being exported to fellow African countries (mainly to South Africa and other neighbour countries within the content of SACU) in the years 2012-2021 unlike in previous years which there were no diamond exports from Botswana to other African countries as seen on the above figure 1.11. Asian and MENA countries, share almost similar amounts of exports being at 0.27 and 0.21.

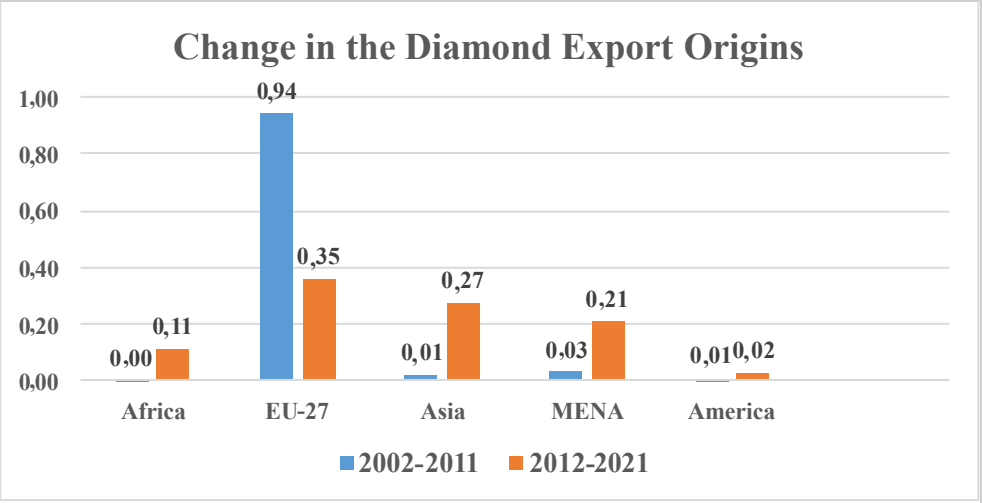

Figure 2.6: Change in the Diamond Export Origins
Source: International Trade Center (www.intracen.org)

Chapter 3

THEORY OF ECONOMIC INTEGRATION: A REGIONAL CUSTOMS UNION - SACU

3.1 Theory of Economic Integration

Appleyard & Field (2014) state that, when nations form economic coalitions, it represents a partial shift towards free trade and an effort for each member country to reap some of the benefits that come with opening up an economy while being able to retain control over goods and services that cross their borders, and thus complete control over consumption and production structure.

Countries in a region may join a free trade area agreement where all trade barriers in the form of tariffs and quotas are minimized or completely demolished. However, member nations are able to retain authority over determining trade policies over their commodities with the outside world in the form of an individual tariff (Plummer,2007).

In other cases, nations sign what is known as preferential trade agreements, in this process tariffs applied to the member nations commodities are lower than the rates on similar products that are brought from non-member countries. Another form of agreement known as customs union which normally occurs within a region where members surrender their independence to determine individual tariff instead a common external tariff is shared among members (Appleyard & Field, 2014). Two or more nations come together in which they establish a free movement of goods and services

by creating a common trade policy. The primary operation of a customs union is not only dependent on internal borders or custom controls, but factors such as government policies which include security, taxes, citizen protection and intellectual property protection (Fernandez & Portes, 1998). Early analysis of customs union was made with the impressions that they were inferior because economic welfare could generally be improved unilaterally by moving from tariff-ridden situation free-trade, terms of trade issues aside (Krueger, 1997).

3.2. Literature on Trade Creation and Diversion

Viner (1944), raises an issue concerning whether the customs union concept is of benefit to participating parties or not. In that analysis the scholar concludes that customs unions are either trade diverting or trade creating which are fundamental factors in analysing and acknowledging the effects of economic integration. Viner's explanation for trade creation is that by geographical allocation of production, more global output of a commodity may be procured for the same sacrifice of alternatives, whereas trade diversion means that a higher number of the world output of a commodity can be obtained for the same sacrifice of other alternatives that less is obtained for the same sacrifice.

In his analysis of customs union and the impact that they have on member countries trade, Viner (1950), the concepts of trade creation and diversion are both outcome from formed economic integration of states shifting the supply of products from one state to another and to a third state under consideration. Both concepts seem to provide better valuing or prices due to the elimination of tariffs. However, they differ in the sense when trade creation results in a real net improvement in price, whereas trade diversion occurs when trade from the cheapest supplier state is diverted to a state

within the union that became cheaper only due to tariff reductions but is actually more expensive when compared to the rest of the world (Dalimov,2009)

A customs union agreement causes, relative prices in the member nations' domestic markets alter because the taxes on some imported goods are eliminated. These price increases are having two early effects. First, they may have an impact on the location of production globally in the several ways exhaustively examined by Viner.

Second, they will have a similar influence on the location of global consumption (Lipsey, 1957). Yang and Zarzoso (2014), state that when imports from a low-cost extra-bloc country are substituted by imports from a higher-cost member country because the intra-bloc country has exclusive access to the market and does not have to pay tariffs, trade diversion emerges. Trade creation causes a shift in the origin of a product from one intra-bloc producer with higher resource costs to another intra-bloc producer with reduced resource costs.

Viner's approach was developed in a time where presumed "shallow" or surface level, trade agreements mainly focused on bilateral tariff liberalization. Mattoo, Mulbadic and Ruta (2019), Shallow contracts are contentious because they are inherently biased. Members provide each other tariff concessions while maintaining duties on non-member goods. Tariff preferences will almost certainly promote trade between members (trade creation), but they may also lead to members substituting imports previously purchased from non-members for PTA products (trade diversion).

"A tariff that is high, but uniform in its treatment of imports regardless of their origin, may divert trade from the channels which it would follow if allowed freely to choose

its own path much less than would a moderate tariff which applies different treatment to imports according to their country of origin" (Viner, 1944).

Furthermore, trade creation occurs when the value of trade is increasing due to the positive effects of countries that decide to participate in a customs union. Member countries are transitioning from producing at higher price to a less expensive producer.

Viner, (1944) goes to explain the effect of customs union on terms of trade. Assuming that other things are equal, the greater the economic area of the tariff-levying unit the prominent the likely development in its terms of trade along with the rest of the world as a result of its tariff. Boosting the efficacy of the tariff in improving the conditions of trade of the tariff-levying region relative to the rest of the world by expanding territory that runs under a single tariff is one of the benefits of a customs union.

The greater the elasticity of demand and supply of a nation that want to join a custom union, the bigger the trade creation. The higher the prior tariff among the nations that formed the union, the greater the trade creation. When two opposing economies form a union, trade creation and benefit are superior. When the new custom union's external tariff imposed on third countries is low, trade diversion will be reduced. The greater the custom union's reach, the less likely trade diversion.

Contrary to Viner's approach of trade diversion having only a negative impact and, in his analysis, Viner does not take into account of inter commodity substitution or consumption effects (Cooper and Massell, 1965). Lipsey (1960) challenges this theory, under the pretence that when consumption effects are accounted for, the idea that trade creation is "beneficial" and trade diversion is "non beneficial" becomes invalid. In

Lipsey's analysis he shows how trade diversion can still be beneficial to the member states, by forming a customs union dutiable goods that were previously imported from outside sources are now imported from a fellow member country, duty-free although at a higher real price. The transition to higher-cost source of supply, helps reduce the country's real income and consequently its consumer welfare. Once the second effect is effective and surpass the first effect, then there will be a visible increase in welfare.

Cooper and Massell (1965) opposing view that unilateral trade liberalization organizations are more successful than customs union. The principal of for regional economic integration is not exclusively to accomplish the most auspicious conditions for elevating welfare however to advance the security of business markets and tariffs. A different approach to the concept of customs union is presented by the scholars, arguing that the purpose of such a structure is not to improve trade and welfare but rather to create conditions that are favourable to the supply of public goods. As a result, research on customs unions ought to focus on how these conditions can be used to advance strategic policies.

For a country to benefit from a customs union, there should be economies of scale, because with that there is a possibility of a larger market which will help reduce costs even of new import substitution industries, if the state is willing to protect the upcoming industries (Corden, 1972). A customs union formed by nations which collectively produce commodities at factor prices that would prevail in a full global free trade equilibrium, the welfare benefits of a customs union would be the equivalent to that of free trade (Kreinin, 1964).

Scholars Engstrom and Verdier (2013), raise an issue pertaining the benefits of the trade integration in the Southern African customs union. The SACU has faced criticism as a trade agreement that only benefits its larger and dominant member country, South Africa while being detrimental to the other smaller countries, Botswana, Namibia, Lesotho and Swaziland.

According to Michaely (2009), the gains of trade for small economies are normally expected to be large. Reason being, gains from specialization which occurs because of trade. When there is no trade, in contrast to the parallel comparison for a large nation, the local production costs of the goods that would otherwise be imported would be particularly high, or, to put it another way, relative prices under autarky would be significantly different from what they are globally (in the potential trade partners), which explains the large gains from trade for small economies. Furthermore Michaely (2009) states another particular reason as to why small countries may benefit more from trade than larger country. The major country chooses the price that will prevail in exchanges between the two, establishing a set of pricing most advantageous to it. (A high price for its export commodities relative to its purchases from the small nation) to the small country's detriment.

Around the world and in the African continent nations participate in customs union. The East African community (EAC) customs union is one that is based in the eastern part of Africa established in the year 2005. The member countries include Burundi, DR Congo, Kenya, Rwanda, South Sudan, Tanzania and Uganda. The agreement between these nations' states that EAC member states have consented to a free trade arrangement on goods and services among themselves and settled on a common external tariff (CET). Imported goods from nations outside the EAC region are

subjected to a similar tariff when being traded to any EAC member state. According to Buigut (2012), Free Trade agreement do not always have the same effect on member states, and that is the case in this customs union. The customs union has had different effects on its member's imports and exports. Some of the member countries have experienced a significant increase in intra exports and other in intra imports.

3.3 South African Customs Union (SACU)

Countries engage in trade with each other and to make that possible they sign trade agreements amongst themselves. We focus our research on an active trade agreement that operates in the Southern part of Africa. As the world's oldest trade agreement, the Southern African Customs Union also known as SACU, was formed in 1910, where five countries; Botswana, Lesotho, Namibia, South Africa and Swaziland signed a joint agreement in which the countries will participate in what is called a customs union trade agreement.

South African Customs Union (SACU) was formed in 1899, by the Customs Union Convention between the Orange Free State Boer Republic and the British Colony of Cape of Good Hope. In 1910, the Union of South Africa and the British high commission territories joined and a new agreement was signed. Nations, Basutoland (Lesotho), Bechuanaland (Botswana), and Swaziland at that time became part of the union. Prior to becoming a member South West Africa (Namibia), was a default member due to the fact that it was a part of South Africa. The 1910 agreement included, a common external tariff for all goods that are imported into the region from outside; a pool of customs charges based on total external trade volume; and excise taxes based on total production and consumption of excisable commodities. Furthermore, the agreement stated that members of SACU should maintain a tariff similar to that of

South Africa. Secondly, territories are to receive a fair portion of the tariffs levied on commodities moving through the union and vice versa. It is also stated that South African products are required to be interchanged freely between the union and its members. According to Gibb (2006), in 1910, the union was formed under the ruling of South Africa in terms of decision making of tariffs and the allocation of revenue. The Treasury and the board of Trade and Industry of South Africa were given authority to run the Customs union, therefore at that time there was no room for joint decision making among members or even allowance of change in the union. Between 1910-1969, BLS was faced with economic vulnerability and political uncertainty due to the over reliance in the union for revenue and markets. The country's had no control over their own destiny as it was dependent on events in the union in which they had little to no control over.

The first amendment of the agreement came about only 59 years later 1969, after fellow members BLS (Botswana, Lesotho and Swaziland), opposed to the unfairness of the agreement. The negotiations for a new customs union agreement came about only after the three nations gained their independence (Botswana & Namibia gained independence in 1966 and Swaziland in 1968). They contested for inclusivity and allocation of revenue among the union. The rising unfairness of South Africa's import-substitution policy was a direct result of the 1910 customs revenue formula. As a result, there was an increasing disparity between the amount tariffs cost BLS customers and the amount of income HCTs got under the Customs Agreement. Therefore, the new agreement was to address these problems and the two major changes included: i) Excise duties would be included in the revenue. ii) introducing a multiplier within the formula for revenue sharing to enhance BLS revenues by at least 42 percent annually.

Although the changes were made to strip away some of South Africa's dominance in the union, the country still maintained its dominance in the union in terms of decision making, creating policies and access to other member countries markets. A trade diversion occurred in the era due to a high common tariff which resulted in trade barriers rising. Trade barriers rising therefore was a hinderance to trade among other Southern African countries and member of SACU. In this case only South African manufactures benefited.

The new 2002 agreement came about after the apartheid in South Africa subsided. The negotiations for a new customs union agreement started in 1994, again due to the lack of satisfaction from the 1910 to 1969 agreement. The main issues on to be addressed in the agreement included; Democratization and the establishment of a new institutional framework to manage the Customs Union. The agreement was to also address issues of improving the revenue sharing formula, new tariff regime and shared policies. Gibb (2006), states that an attempt was made to improve the decision-making structure in order to gain better understanding of the politics of intergovernmental relation among members.

SACU produced items are free to transit inside SACU without any tariffs or quantitative limits. A revenue-sharing formula (RSF) for distributing the union's customs and excise revenues is available. As mentioned above there are five members of SACU and the Economic situation of each member state is as follows:

South Africa

Definitely the largest member of the Southern African Customs Union in terms of both population and by the size of the economy is South Africa. While its population of 60.1 million as of 2022 making it most populated member and a GDP (PPP current

international 2021) of USD 868 billion largest economy. South Africa is the only member of the SACU that is highly developed and has advanced infrastructure. The country prides itself in being the largest producer of gold in the whole of Africa. Gold being one of the major exports of South Africa alongside other precious metals like platinum, iron ore, diamonds and coal. The country is rich with natural resources that have helped supported the economy to being Africa's second largest economy. Exporting mostly to China, United States of America, Germany, United Kingdom and India. Within the SACU, South Africa is the main exporter of duty-free goods to the fellow member countries. It is with no doubt that South Africa has the upper hand and has dominance in the SACU membership. Furthermore, South Africa has been a member of SACU since 1910. As SACU's largest economy, South Africa's trade policies have a substantial influence on the economic performance of the other SACU countries. Imports from SACU nations are exempt from customs and excise charges, with just a 10% VAT imposed (Manwa, Wijeweera and Kortt, 2019). South Africa has implemented considerable tariff reduction since 1994, and while exports in most sectors have increased, manufactured exports remain primarily dominated by resource-based items. In other words, tariff reductions have not resulted in the structural adjustments required in the economy to materially modify the export basket beyond the range of items reflecting South Africa's static comparative advantage. South Africa's best export success has been in more complex items, which have been built up by previous and current industrial strategy.

Botswana

As a small country with an estimated population of about 2 million, it is a success story of how the country has been able to maintain a stable economic growth since it gained

its independence in 1966. Located in the Southern part of Africa, the country is landlocked and shares borders with countries; Namibia, South Africa, Zambia & Zimbabwe. For a country deemed to be unfavourable for development and economic growth. In terms of the economic status, Botswana is considered to be a country with one of the largest sets of middle class in Africa. The country obtains a GDP of US$ 17.61 billion as of 2021 (World Bank). Botswana is a natural resource led economy in which the country's revenue is mainly dependent on the mining sector particularly the diamond sector. The diamond market plays an important role in the economic growth of Botswana. The diamond trade market holds account of the vast majority of Botswana's exports and in total the economy. It takes up to 80% of Botswana's exports, therefore it is what has sustained Botswana's economy thus far and it contributes 30% to the country's GDP.

Namibia

The country's population was recorded as 2.53 million as of 2021. Namibia is a small country in the SADC region with GDP estimated at UD$ 12.31 billion in 2021. Namibia's economy obtains a dualistic nature in which, includes a contemporary market sector that is based on capital - intensive manufacturing and farming (makes up majority of the country's wealth) as well as the traditional subsistence agricultural sector (Humavindu and Stage, 2012). Before Namibia became a member of the SACU after gaining its independence in 1990, it was a member by default due to the occupation by the South African government. Namibia claims the status of being a lower middle-income country. Namibia's major export good includes diamonds, radioactive chemicals and gold (OECD). With its major export country destinations being its fellow SACU member states, Botswana and South Africa.

Lesotho

A unique country that occupies a land within its neighbouring country and is still under the ruling of a monarchy to this day. Lesotho is a small landlocked country occupying a small piece of land in the heart of South Africa. With 2.28 million people inhabiting the land as recorded in 2021. The country's economy is built on subsistence agriculture and animal husbandry, as well as small-scale businesses such as garments, footwear, textiles, food processing, and construction. Lesotho's main exports goods are, precious stones & metals, apparels and knitwear. Top trade partners being South Africa, Belgium and United States. As of 2021, Lesotho's GDP was 2.496 billion USD which classifies it as lower-middle-income country according to the World Bank.

Swaziland (Eswatini)

Swaziland now known as the kingdom of Eswatini is also located in the southern part of Africa, also currently the ruling of a monarchy up to this day. Although it is not a colony of its neighbouring country South Africa, the country is highly dependent or rather highly influenced by the South African economy as its currency is pegged with the South African rand In comparison to the other four members of SACU, it can be said that Swaziland has not been able to reach the same level of trade liberalization as it is faced with a number of trade and administrative barriers resulting in its low ranking status in the SACU pact and competitiveness in the world as a whole (Schwab,2014). Its main exports include sugar, wood, pulp, beef and drink concentrates. Its main trading partners include South Africa, Mozambique, Botswana and Namibia. Although the country is not a major international trader, 80% of the country's exports are to South Africa and 60% of their imports from South Africa. As of 2021 the country's GDP was recorded at US$ 4.743 billion.

Chapter 4

MEASURING THE IMPACT OF ECONOMIC INTEGRATION

4.1 Gravity Model and the Relevant Literature

For many decades the gravity model has played an important role in the field of international trade. Scholars have implemented the model to help analyse and predict the effects of different economic variable and their effect on trade particularly bilateral trade (Kabir, Salim and Al-Mawali, 2017). Mostly utilized to determine and analyse the effects of economic integration agreement between countries, by using variables such distance, currency, language, GDP and population. Gravity model can also be used to measure the costs of trade on bilateral international trade flows (Bergstrand and Egger, 2013). Bergstrand (1989), states how the exports depend on income and also per capita income in a good bilateral trade.

There are four types of gravity models used in assessing trade; 1) Generalized gravity model 2) Intra-industry trade 3) Homogenous & heterogeneous products and 4) Structural Gravity model. Kabir, Salim and Al-Mawali (2017), when analysing the size of trade flows, supply chains, conditions of demand at destination country and influencers of trade flows are taken into account. Furthermore, countries that adopt intra industry trade with each have been favoured by the gravity equation rather than those who have adopted the traditional trade and with differing factor endowments.

The gravity equation is based on the stable economic concept that trade flows are stronger between countries with large economic clusters and so does neighbouring clusters and rather smaller in smaller economies. Kimura and Lee (2006), supports this by proving the concept that trade volume is larger between two trading partners that are far from the rest of the world unlike those that are close to rest of the world. A decrease in the distance coefficient translates to assuming that the geographic distant nations increase directly proportionally in relative with geographically close nations. An increase of the distances coefficient on the other hand indicates countries that are closer to each experience a rapid growth in trade than with distant countries.

In addition, nations with larger economies are bound to achieve economies of scales which leads to increase of exports due to their larger production capacity, therefore they have comparative advantage. Furthermore, large nations are most likely to have access to larger domestic markets in which benefits their imports as they are able to absorb a lot more.

Frankel, Stein and Wei (1997), emphasizes on the role played by geopolitical factors which include distance and border sharing & adjacency. Some of the economic variable included over the years in the gravity equation include non-tariff and tariff barriers, different cultural values and morals, speech, past or present colonial ties and institutional difference and technology. Sohn (2005), transport costs, delivery time and market access barriers are all a part of the trade barriers in which the distance variable is a trade resistance factor. According to this concept, trade flow is proportional to GDP and inversely proportional to the geographical separation between two different countries. According to Egger (2002) and Baier and Bergstrand (2007), this model

predicts that bilateral trade will rise as the economic size gap between the two countries narrows.

Overtime, scholars have presented their own modified version of the gravity equation depending on what they are trying to achieve. Scholars show that the results of the gravity equation could be derived from differentiation in products, or the trading of similar products. The gravity framework first piqued scholars' attention given that the log linear model presented a straightforward and obvious empirical technique to examine the link between bilateral trade flows, output, income, and variables that may potentially be seen as factors that distort bilateral trade.

Feenstra (1998) constructed a gravity equation from the reciprocal dumping model of trade with homogeneous products, uncovering an innovative kind of product differentiation model that utilizes factor endowment differences.

Leamer and Stern (1970), base their argument that the gravity equation is focused more on the probability theory and therefore it does not take account of prices and that the success of the gravity equation is because of the incorporation of trade demand and supply. Learner and Stern (1970) presented a probabilistic framework of bilateral trade flows whereby it was assumed that every exchange was of the same size and that the likelihood of an exporter in country reaching an agreement and making trades with an importer in country B were dependent on the trade capacity of each of the two countries relative to total trade.

Another scholar Anderson (1979), challenged and made improvements to the gravity equation by deriving a simple, frictionless version of the model. In a world where trade

costs do not exist and preferences are defined by homothetic preferences over a separate basket of products generated by each country.

The Armington model was created. The delegate agent's inclinations are determined over items in this model, where every product is created remarkably by one country; A constant elasticity of substitution (CES) is a characteristic of these preferences. By incorporating a layered CES demand structure, Bergstrand (1985), improved on Anderson's strategy and made it possible for the elasticity of substitution between imported goods and locally produced goods to differ.

However, the model has faced criticism from scholars, Linneman (1966), states that prices are nearly always left out in the gravity equation due to their ability to adjust any little change in the supply and demand. Estimation difficulties centred on the reliability of the log linear modification of the gravity equation in the presence of heteroscedasticity and zero trade observation (Gomez-Herrera, 2013). There are further challenges in determining permitted estimating methods in the scenario of zero trade values, which is a characteristic in trade data.

4.2 Model Specification

Major objective of this study is to find out whether the South African Customs Union is positively affecting Botswana’s trade or not. Since the South African Customs Union agreement readjusted in 2002 with a greater participation of all member states, it is expected to have positive impact on Botswana’s trade. Previous to 2002 South Africa was the sole member organising the rules and procedures of the agreement and collecting all the customs tariff revenues through the union by itself. In 2002 a new amendment in the agreement enabled all members’ active participation into the

decision making of the union, as well as revenue sharing schedule of the common tariff of the union and a common administration body has been established. In order to find out the impact of SACU on Botswana's trade, gravity model approach is implemented. According to the model, dependent variable is the total trade and major independent variables are Real GDP of trade partners, geographical distance between trading partners. Beside these major variables of GDP and distance some control variables like Real Exchange Rate, population, union membership, common language or neighbourhood of trading countries can be used as well.

$$X_{ijt} = A\,(Y_{ijt} / D_{ijt}) \qquad (1)$$

In this function X_{ijt} refers to total trade volume in values between country i and j at time t. Here exports of country i to country j are imports of j at the same time and exports of j are imports of i. X_{ijt} is equal to the sum of $X_{it} + X_{jt}$. On the other hand, Y_{ijt} refers to the multiplication of real GDPs of home country I at time t and with Real GDP of partner country j at time t. Y_{ijt} is equal to (Y_{it} x Y_{jt}). Multiplication of each country's GDPs shows the magnitude of two economies engaging into bilateral trade. D_{ij} stands for the geographical distance between countries i and j where it is fixed irrespective of time. The variable distance is measured in kilometres (km) and fixed for each year.

Total Trade (X_{ijt}) is an increasing function of GDP (Y) (where it indicates the sizes of respective countries). As GDP levels of trading countries increase trade volume is expected to increase as well. On the other hand the distance between two trading countries is decreasing function of the distance, indicating as the geographical distance increases trade volume between partners is expected to decrease, due to the difficulty and rising cost of transport between two nations. A in equation (1) stands for the all-

control variables which may influence the trade between the partner countries such as real exchange rate, union membership, common language etc.

In order to test the influence of other variables such as Real Exchange Rate RER), which is the change in the rate of domestic country (Botswana's) currency against the trade partner countries currency rates. RER variable is the exchange rate between Botswana Pula and partner country's currency for each period of year. Other than this control variable, three dummies added to the equation. Customs Union membership (SACU), either being a member of SACU or not is included to the equation as a dummy variable. Common language dummy which is a factor believed to influence trade positively is included as a dummy variable to the equation. Finally having common borders, in other words neighbourhood is another factor influencing trade positively is added as another dummy variable to the equation. This includes countries which share borders with Botswana which are Zimbabwe, Namibia, South Africa and Zambia. In which two of them are SACU members (South Africa and Namibia).

In order to calculate the impact of each independent variables on dependent variable logarithm of the function is taken. Taking the logarithm of function (1) gives us the percentage changes in each variable (in other words elasticity values for each independent variable).

$$\text{Ln } X_{ijt} = \beta_0+\beta_1 \text{LnGDP}_{ijt}+\beta_2 \text{LnDist}_{ij}+\beta_3 \text{Ln}\mathrm{RER}_{ijt}+\beta_4 \text{SACU}+\beta_5 \text{LANG} + \beta_6 \text{BORDER} + u_{ijt} \quad (2)$$

In equation (2), total volume of trade between home and partner countries is expected to be positively influenced by the volume of GDPs among partner countries. Since GDP figures indicate the size of an economy as the market size is increasing both

absorption capacity (demand for imports) and the supply capacity (supply of exports) increase therefore the expected sign of β_1 is positive. On the other hand, geographical distance between the trading partners negatively influences the volume of trade between the partners. That is mainly due to high cost of trade through transportation as well as the indirect cost of other services such as marketing activities, post-sale services etc. Therefore, the expected sign of parameter β_2 is negative. The sign of β_3 is also expected to be negative due the devaluation of a currency usually influences the foreign trade negatively (although it depends on the price elasticity of import demand and export supply but these are beyond the coverage of this study). For the three dummies in the equation which is thought have some influence on the trade of Botswana first one is membership to SACU. So being the member of the same union always enable trade between member countries due to certain free trade arrangements among members. Therefore, the expected sign of β_4 is positive as well. Common language (LANG) between the trade partners is another concept that ease the trade. Not only makes the communication among the firms more effective ease the following of bureaucratic procedures in each country more easily and lowers the cost of labelling, advertising brands in partner countries in a more cost saving way. So therefore, the expected sign of β_5 is also positive. Last dummy variable employed in equation (2) is the common border (BORDER). Neighbourhood in trade is another positive factor affecting the trade volume positively. Not only having lower transportation cost but enabling trade even with smaller vehicles and effective marketing through the cross-border facilities. Expected sign of β_6 is also positive showing that if two partners are having a common border its more likelihood that trade volume will be larger.

4.3 Data and Sample Selection

Use of gravity model as a tool to measure the impact of certain variables on the total volume of trade of a country requires the correct selection of partner countries. In case of Botswana who is a small size economy with a population of around 2 million makes the impact of foreign trade more important. While selecting the sample countries to be included into the model major trading partners of Botswana is chosen. For the model it has been chosen 22 countries whose are the major trade partners of Botswana in terms of both exports and imports. These countries are; Angola, Australia, Belgium, Canada, China; Eswatini, European Union, Hong Kong, India, Israel, Japan, Lesotho, Mozambique, Namibia, Singapore, South Africa, Switzerland, United Arab Emirates, United Kingdom, Unites States of America, Zambia and Zimbabwe. Trade of Botswana with these countries constitute more than 90% of its exports and imports on the average. For the period selection of the study both the data availability criteria as well as the SACU agreement amendment period has been taken into consideration. Since the major aim of the study is to test the impact of South African Customs Union membership on Botswana trade then it is required to select a period that includes amended period of SACU agreement which was 2002. SACU agreement was amended and reorganised in 2002, with the active participation of member countries. Not only they actively joined decision making procedures but benefited from tariff revenue sharing schedule of the union. So selected period for the study covers 2002-2021 periods with twenty years of data.

There are seven variables in equation (2), one dependent, three dummies and three independent variables. Trade data is collected from the IMF's Direction Trade database, which was collected according to the Botswana's selected 22 trade partners.

X_{ij} showing the total volume of trade between Botswana and each partner includes both exports of Botswana to that partner as well as Botswana's import from that jth partner which at same time constitute the export of the jth partner to Botswana. So X_{ij} is derived by adding the Exports and Imports of Botswana from each partner for the selected period 2002-2021. Gross Domestic Product values which are real GDP figures in US dollar are obtained from World Bank's World Development Indicator database. GDP_{ij} in equation (2) is showing the GDP figures of the Botswana and partner countries for each period. So GDP_{ij} is calculated by multiplying each partners' GDP with Botswana's GDP for each year. Rather than adding the partners GDP, multiplication was utilized to maximize the effect that large economies have on trade relations. Magnitude of this value indicates the market sizes of each economy throughout the years. Real Exchange Rate variable is again obtained from World Bank's World Development Indicator database. Each countries' currency's exchange rate against US dollar is obtained from the World Bank and then each rate is recalculated against for Botswana's Pula. For the dummies SACU membership is obtained from the official website of SACU (www.sacu.int). Second dummy was the Language dummy. In order to check for the English as the use of official language in the sample countries, Wikipedia sources used. English is used as one of the official languages in 11 countries out of 22 sample countries. For the neighbour countries Google map is used to determine the 7 neighbour countries where the Eswatini and Lesotho also two tiny landlocked countries considered as neighbouring countries.

Chapter 5

EMPIRICAL FINDINGS

5.1 Pre-Regression Results

In order to test the hypothesis created in the above chapter, panel data regression is employed. EViews 9.0 used to run the regression estimations. Collected data for the 5 variables, is for 22 countries and for 20 years, Due to the panel structure of the data panel estimation methods used for analysis. Three dummy variables are also included one by one to the model in order to test their validity for the model. Namely dependent variable is the Total Trade (Trade), independent variables are; GDP, Distance and Real Exchange Rate (RER) where three dummy variables are; Membership to SACU (Sacu), Border countries of Botswana (Border), common language among selected trade partners (Lang).

Table 5.1: Descriptive Statistics Results

	TRADE	GDP	DIST	RER
Mean	537815.2	3.16E+22	6250.244	2295564.
Median	77317.50	4.93E+21	7717.500	0.712057
Maximum	7750083.	3.40E+23	14539.00	9.85E+08
Minimum	152.0000	1.37E+19	1.432000	0.008707
Std. Dev.	1177415.	6.30E+22	4502.498	47546323
Skewness	3.214485	2.625659	0.009609	20.63982

Depending on the various sizes of economies included into the sample there are great differences in between maximum and minimum values of some variables, such as GDP. In most of the variable's medians are greater than mean and the degree of skewness shows the skewness in the distribution of the data.

In order to test the stationarity of the variables in the model, unit root test is applied. This test helps to find out whether the data is stationary or non-stationary. Augmented Dickey-Fuller, Philips-Perron and Im-Pasarran tests are used to evaluate the unit root tests of the data. Lag lengths are automatically chosen according to Schwarz Info Criterion for ADF test and Newey-West Bandwith for PP test. Null hypothesis assumes that the variable is not stationary (H_0=not stationary), where the alternative hypothesis (H_1=Not stationary) or the rejection of null hypothesis indicates the stationarity of the data. Variables are not found stationary at level therefore they are tested at first difference. All variables are stationary at their first difference with level and trend, with the exception of Distance (Lndist) for only ADF test. However, since two tests (Im, Pasaran&Shin W and PP Fisher Chi Square) out of three found the first difference of Lndist variable as stationary then the LnDist variable can also be considered stationary at first difference. So it can be concluded that all variables are stationary and I(1) at first difference. Following table shows the results unit root test results at their first difference form with intercept.

Table 5.2: Unit Root Test Results at first difference

Variable	**LnTrade**		**LnGDP**		**LnDist**		**lnRER**	
Tests	Statistics	Prob	Statistics	Prob	Statistics	Prob	Statistics	Prob
Im Pasaran&Shin W	-6.918	0.000	-8.717	0.000	-2.304	0.010	-6.503	0.000
ADF	126.120	0.000	151.067	0.000	4.617	0.099*	115.570	0.000
PP	260.926	0.000	389.692	0.000	10.034	0.006	258.696	0.000

*at 10% signifance level

5.2 Regression Results

In order to test the hypothesis that membership of SACU has positive impacts on Botswana's trade Logarithmic forms of equations are used in the regressions. Total trade of Botswana with its selected partners is taken as dependent variable and 3 independent variables chosen as GDP, Distance and RER. Beside the independent variables impact of 3 factors to trade is tested with dummies as membership to SACU, being a border country and finally the use of common language among trade partners.

$$LnX_{ijt}=\beta_0+\beta_1 LnGDP_{ijt}+\beta_2 Lndist_{ij}+\beta 3 LnRER_{ijt}+\beta_4 SACU+\beta_5 Border+B_6 Lang+u_{ijt} \quad (3)$$

Results of regressions are given at the below table. Values at each row shows the coefficient for each independent variable and values in parenthesis gives the standard error figures at 1% confidence interval. Figures with a * next to them indicate that there are insignificant at 1%, 5% and 10% significance levels.

Table 5.3: Coefficients of Equations

Independent Variables	Equation 1	Equation 2	Equation 3	Equation 4	Equation 5
C	-21.370 (2.0992)	-22.187 (2.2538)	8.429 (3.5258)	-21.284 (2.2458)	9.698 (3.7989)
LnGDP	0.902 (0.0578)	0.903 (0.578)	0.825 (0.0523)	0.901 (0.0605)	0.835 (0.0548)
LnDist	-1.495 (0.1365)	-1.406 (0.1633)	-4.301 (0.3068)	-1.493 (0.1382)	-4.509 (0.3452)
LnRER	-0.267 (0.0488)	-0.256 (0.0502)	-0.136 (0.0045)	-0.268 (0.0496)	-0.138 (0.0471)
dSACU		0.331 (0.3331)			-0.373 (0.3142) *
dBorder			-7.453 (0.7443)		-7.697 (0.7672)
dLang				-0.020 (0.1860) *	0.148 (0.1727) *
Adj R^2	0.413	0.413	0.529	0.412	0.531
Total panel Observation	429	429	429	429	429

Adjusted R squares for each equation is quite high indicating the power of independent variables to estimate the dependent variable. F statistics are also acceptable for the selected equations. Signs of coefficients are also as expected with the theory and model.

As the Gravity model is used to test the case of Botswana's trade relations, major variables of the model, GDP and distance are highly significant and valid as the model proposed. GDP variable which indicates the size of an economy and as the market sizes of partner countries is increasing (which means the absorption capacity and the supply capacity) volume of trade (dependent variable) increases as well. So, the expected sign for GDP was positive and in all equations GDP coefficients were found statistically significant and positive. Furthermore, in equation 1 GDP coefficient of

0.902 means that if the GDP of partner countries increases by 1%, total trade volume between partners will increase by 0.9%. Quite high contribution to volume of trade.

Second major variable of the model is geographical distance. Distance between trading partners is something influencing volume of trade between partners negatively. That is mainly due to increasing cost of trade through transportation as well as the indirect cost of other factors like difficulty in marketing or post sale services etc. So, the expected sign for this variable was negative. In all equations coefficient of distance is found statistically significant as well as with a negative sign, proving the negative impact on volume of trade. So again equation 1 a coefficient of distance variable of -1.495 indicates that 1% increase in distance among the partners lowers the volume of trade almost -1.5%.

Third independent variable added to the model was the Real Exchange Rate (RER). As it is known any deterioration in the exchange rate of a nation, in other words devaluation of its national currency affects the imports negatively and exports positively. Here in this model dependent variable is measured as total volume of trade (exports plus imports) between partner countries. So, from the literature as well as theory a negative sign was expected for the RER as well. RER variable was also found statistically significant in all equations with a negative sign as expected. Again, in equation 1 a coefficient of -0.267 for RER indicates that a 1% deterioration in Botswana's currency will reduce the volume of trade by 0.267%.

Coming to the dummy variables used in the model; SACU membership, being border country of Botswana (border) and use of common language (English) with trade partners (Lang) did not give very sound results in the regressions. When they used

together in equation 5, all together found statistically insignificant at both 1% and 5% levels. Except the border dummy but whose sign was contrary to what expected. Therefore each dummy is implemented to the model individually in order to see their contributions. In equation 2, SACU was implemented and found statistically significant as well as with an expected sign. Since SACU is a common custom union, it should be positively influence the trade between its members. According to the sign of the SACU variable which is 0.33 indicates that being a member of SACU increases the volume of trade by 0.33%. That is also considered as a sign of trade creation. Any trade agreement is potentially can create an additional volume of trade among the members due the elimination of any barriers on trade. So here the positive sign of SACU coefficient is an indicator of trade creation among members. Other two dummies of border and language not only statistically found insignificant but with a negative sign as well.

Chapter 6

CONCLUSION

Aim of the study was to analyse the impact of a customs union on a member's external trade. Botswana as the main focus of the study and its membership in the SACU Trade agreement is the factor. As a landlocked country Botswana depends on the trade with its neighbours. On the other hand trade agreements are mainly signed at regional basis among the neighbour countries. So it was definite that this kind of agreements influence the external trade of member countries positively. A gravity model approach is used in this study, where the total volume of trade between partner countries were the dependent variables of the model. GDP, distance, real exchange rate used as the independent variables of the model and SACU membership, having Border with Botswana and use of English as common language added to the model as dummy variables. Twenty two countries, each of them are major trade partners of Botswana included to the sample and a period of 20 years from 2002 to 2021 is covered. Pre 2002 period could not be included due to the unavailability of data for some of the countries specially in Africa as well as the amendment made in SACU agreement in the year of 2002 made it as the starting year of the model. Econometric results obtained from the regressions are statistically valid and aligned with the theory as expected. Meaning that while GDP is having a positive impact on the volume of trade, distance and real exchange rate have negative impacts. Therefore, countries with higher GDP are bound to have higher volume of trade but as partners are getting geographically apart from each other they are expected to have lower volume of trade.

In our assessment however we see that Botswana's major trade partners are all quite a distance and mostly out of the African continent. Of all the SACU members Botswana's trades the most with South Africa, and therefore the results may contradict this. From what the results suggest is that Botswana would have a larger trade volume if it trades more with its neighbouring countries however 80%-90% of Botswana's exports are travelling to European and Asian countries. This could be that Botswana's major export product happens to be diamonds (precious metal). The diamond industry is not as large in the African market and since the product is high priced luxury item, mainly exported to higher income countries rather than comparatively lower income level of African nations.

For the dummy variables; membership to SACU, cross-border (neighbourhood) and common language suggest a positive relation to the total trade volume of a country. In the case of Botswana, not only does the country share a border with the two largest economies of the SACU members (Namibia & South Africa), there is a common language (originating from the British colonial times) which is English. Although all dummies were expected to have positive signs and impact on trade but except the sacu dummy language and border dummies found statistically insignificant and with negative signs. However SACU membership also found as statistically significant and with a positive sign proving that common membership in that custom union is affecting the volume of trade positively. Furthermore this positive sign can be considered as trade creating influence of the regional integration.

The results from the analysis suggest that accessing to a regional trade agreement is positively influencing the volume of trade among the members. Results proved that positive relationship however being a member is not sufficient by itself diversification

of production is required. In case of Botswana dominancy of diamond is not only limiting benefits of trade partnership among members fully but creating fragility for Botswana economy. Any volatility in international prices of diamond as well as the leading company market power threatens the Botswana economy. This study was limited with the impact of SACU on external trade. So it didn't cover any specific issue related with diamond market or sustainability of a natural resource economically. Further studies may cover these areas as well and can look at the role of diamonds more closer both in terms of its trade conditions as well as its situation in international markets. Another deficiency of this study is lacking the economic analysis of SACU members. Although it's not a very large union, consisting of only five members but unequal level of development as well as lack of many data made it impossible to deepen the study covering those economies more into the study.

As mentioned in the literature throughout this research, we have seen that Botswana is a small size economy that is heavily dependent on natural resources which is diamond mining. Diamond mining is the major export product as well as the leading industry in terms of the economy of Botswana and it has been like that for as long as Botswana has been an independent country. A lack of diversification in a country may signify a lack of economic growth in a country. Therefore, there is a need for the country to develop their horizon and make the transition from mining to other sectors that have potential such as the tourism sector. Second to the diamond industry, the tourism sector has shown potential for growth if developed further. There are many parts or natural resources in the country that have not been developed which have the ability to captivate even more tourists to the country. This will encourage foreign investment, trade and employment.

As the results suggest that there is a negative relationship between distance and trade. The new approach to understanding diversification emphasizes the necessity for governments striving to more diverse trade flows to successfully minimize geographic distance by boosting connection between nations (Hoekman and Nicita, 2011). Other beneficial policies include lowering trade barriers, improving trade facilitation, promoting technological diffusion through educational exchange programs and investing in communication technologies like as broadband to assist the digital economy.

In this research we managed to cover the basis of Botswana's economy in regards to the country's pattern of trade, the different trade agreements Botswana joined throughout the years and how one of those being the customs union SACU. SACU being the focal point of our study, we managed to analyse and discuss the effects it has on the external trade of Botswana. However, we were unable to tap into the trade of diamonds taking into consideration that Botswana's main exports are focused on the diamond industry.

Due to lack of availability of sufficient data, the diamond industry was not well analysed as well as other sectors such as tourism. Trade relations between Botswana and the different members of the SACU are not well highlighted in this study due to the lack of data too. This is because of the five members of SACU; South Africa is the only member that has a large economy and therefore the other four members we faced a challenge of the lack of data as well.

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