Influence of trade agreements on South Africa's trade patterns

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ABSTRACT: The paper seeks to look at the long standing argument pitting regional trade agreements versus multilateral agreements. Various studies have looked at the possible impact of the increase in regional trade agreements and how these have affected existing multilateral agreements and the trend of trade liberalisation. The paper will assess the trade performance of the South Africa in the context of regional agreements; these being SADC and SACU against multilateral agreements that South Africa is a party to. Using panel data the Study will utilise the gravity model to analyse the trade patterns that exist within the regional trade blocs and outside the regional trade blocs to determine the new trends that exist within South Africa's trading partners. It is of importance to ascertain the extent to which South Africa has benefited and gained over the years, from the year 1994 to 2011, from the two forms of trade agreements. The issues of trade diversion and trade creation are of great importance in assessing the long term benefits of regional trade agreements and the gravity model will help determine the extent to which these have influenced South Africa's trading.

Introduction

The change the landscape of trade agreements has resulted in questions being asked pertaining to how emerging countries have fared when compared with their participation under the more traditional multilateral trade agreement system. Trade agreements that have emerged over the past two decades have seen a significant increase in the number of regional trade agreements as compared to the multilateral system agreements. According to Gupta (2008:261) in 2002 Regional Trade Agreements (RTA) made up about a third of trade globally. These two forms of trade agreement structures have seen questions being raised about whether they complement each other or whether they are counterproductive. Such questions have been asked in terms of global trade and also to a lesser scale, in terms of individual economies. The 'spaghetti bowl effect' highlighted by Baldwin (2004:12) makes it a difficult and challenging to clear determine the benefits that can be attributed to either structure of trade agreements.

The World Trade Organisation's (WTO) trade drive involves multilateral discussions by parties that are signatories to the Organisation. This arrangement has seen a slow process of negotiating that has seen negotiations taking a number of years to be concluded. Mose and Rose (2012) note that it took just over 90 months to conclude the Uruguay round of talks and the Doha round of talks which began in 2001 and is still on-going to date. Mose and Rose (2012) highlight that amongst other factors the need for each individual country to put forward its preferred conditions is one of the reasons for negotiations to span over long periods of time. According to the WTO all countries should reach a consensus on all issues, yet getting a consensus is likely to be difficult (WTO 2013). With this view it is, therefore, important to note that countries have opted for the regional agreements which allow for more tailor made agreements that suit the signatories and require a shorter period in terms of negotiations.

The Multilateral trade system involves countries coming together to trade based on the principles of the WTO, the most important being the Most Favoured Nation (MFN). They discuss and reduce any trade barrier amongst themselves in line with the negotiations done under the auspices of the WTO. Multilateral trade agreements (MTA) aim to even out the

platform for all the countries that are involved in the agreement, and are very beneficial to less competitive countries that have signed to be part of the agreement (MTA).

Regional trade agreements are a result of countries coming together to create a relationship that facilitates trade between the two countries and other developmental goals. The process may involve reduction of tariffs, or elimination of tariffs, removal of quotas and other trade barriers. The agreement usually covers specified products and services amongst the member states and the agreements are discriminatory in nature.

In this study we look at these two trade structures and put them in the South African context and will analyse how the performance of regional agreements has fared when compared with the multilateral system. In other words, we will analyse the influence of trade agreements (bilateral and multilateral) on the South African economy via trade. A gravity model will be used for the analysis. The interest is particularly on the new economic environment of trade flows between South Africa and its major trading partners. From this gravity estimation, we shed some light on the respective integration effects that arise from these trade agreements. Various studies have focused on panel data and cross sectional data under the Computable General Equilibrium (CGE) model when analysing the effect of regional agreements and multilateral agreement. The CGE is popular when making simulations pertaining to welfare effects of trade agreements (Gilbert et.al, 2001). The study focuses on time series data and uses the gravity model to capture the country specific behaviour and effects of a shift towards regional agreements over the last two decades.

The paper is organized as follows. Section II provides background information, Section III gives a brief literature review on the influence of trade agreements on trade and on the economy. Section IV highlights the methodology applied which is a brief explanation of the gravity model. The details of data and the empirical results are presented in Section V. Finally, some concluding remarks are made in Section VI.

Section II Background

According to the WTO one of the principles that govern world trade negotiations is that trade should not discriminate. This is the Most favoured Nation (MFN) rule that should apply to every country that is involved in the trade negotiations. Regional Trade Agreements

(RTA) are an exception to this principle but have to meet a stipulated criteria in order for their preferential agreements to be recognised by the WTO[1]. Nuemann (2009:381) states that RTA can be classified as being preferential trade agreements (PTA), Free Trade Agreements (FTA) Customs Union (CU) common markets and Economic Unions.

South Africa has a number of trade agreements in place and these include an FTA which falls under the auspices of Southern African Development Community (SADC), CU which is Southern African Customs Union (SACU). These RTAs have allowed South Africa to negotiate preferential agreements outside the scope of MFN rule. The view is that such agreements should therefore be more beneficial to South Africa when compared to the benefits that arise out of the multilateral system. The main benefits that Nuemann (2009:384) highlights are an improvement in the welfare effects, arising from namely reduced trade diversion and an increase in trade creation and the issues pertaining to ease of negotiations. Gupta (2008: 260) notes that these benefits arise from first mover advantages and also creating permanent markets.

RTAs have been portrayed as being both beneficial (building block) and also as being counterproductive (stumbling blocks). The proponents of RTA say that they help reduce the tariffs and thus support the greater goal of the WTO. According to Baldwin (2004:4) the view that RTA do not hinder multilateral trade agreements but aid, has gained popularity[2].

The EU was forced to reduce tariffs significantly to close to 50 developing countries. The tariff reduction by the EU was done with the expectation that the trade between the EU and developing economies would increase and benefit the developing countries. This is a concept commonly referred to as trade creation, which is a result of the preferential agreement with the developing countries by the EU with the aim of enhancing free trade and aiding the growth of the developing countries. Trade creation helps improve on the

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[1] The WTO requires that the preferential agreement in a FTA should benefit member countries more than any negotiation done under the MFN rule.
[2] Experience has shown that multilateral agreements have been concluded even with the advent of RTA and negotiations have been on-going. The view also points the countries that participate in RTA also participate in the WTO negotiations.

welfare of trading partners which can then as a secondary wave filter to the rest of the world if its effect is greater than trade diversion.

The other side of the coin would be the scenario experienced by developed countries that are exporting similar products as the developing countries which will experience trade diversion as less of their products are exported to the EU in favour of the products from the developing countries. An overview of exports and import trends of South Africa show a significant increase in both imports and exports from most trading regions.

FIGURE 1: SELECTED SOUTH AFRICAN IMPORTS
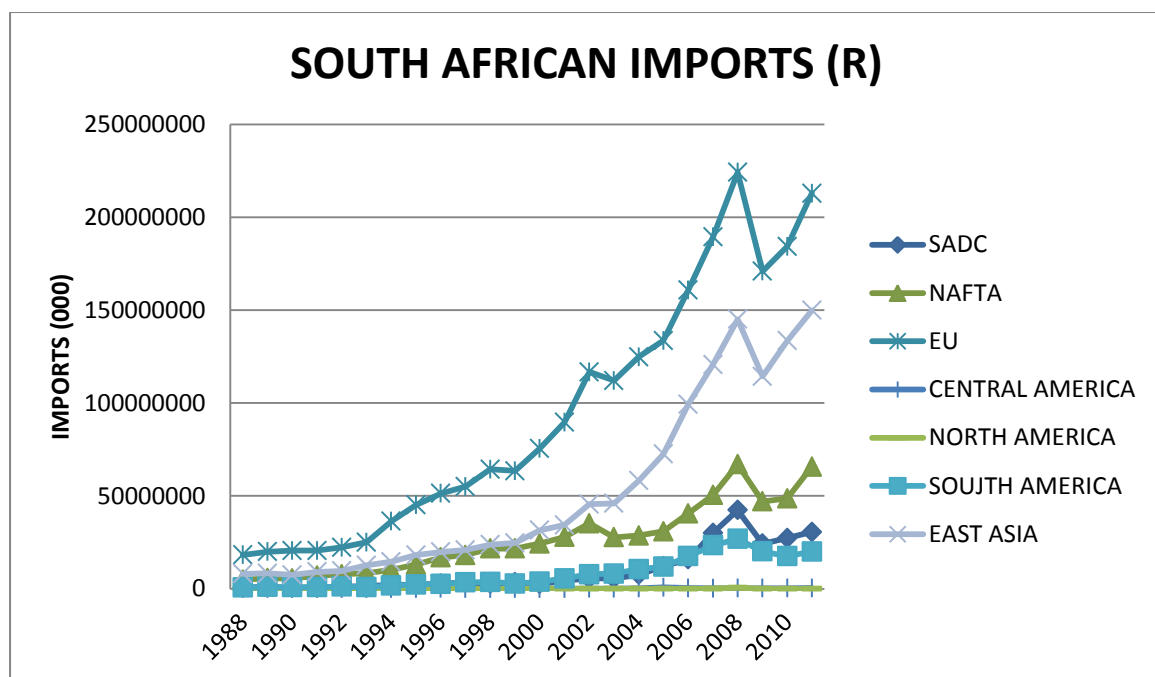
Source: Department of Trade and Industry (2013)

Looking at figure 1, South Africa's imports have been increasing steadily after Independence peaking in 2008. The Government under the Reconstruction and Development Programme sought to shift an outward strategy of encouraging exports and shifted from the strategy of import substitution. The focus therefore turned from limiting imports to expanding exports. The opening up of the economy allowed South Africa to access goods and services externally to meet local demand. The EU has, since independence, been the biggest supplier of goods and services to the South African economy while the past decade has seen East Asia emerging as the second biggest source of imports, outperforming NAFTA. SADC has seen a

steady but low growth in terms of its imports. Figure 2 shows that the emergence of East Asia is driven by the exponential growth of imports from China and to a certain extent Japan. The improved competitiveness of the East Asian region has been the driving force behind its performance in the global trade arena.

Figure 2: SELECTED SOUTH AFRICAN IMPORTS

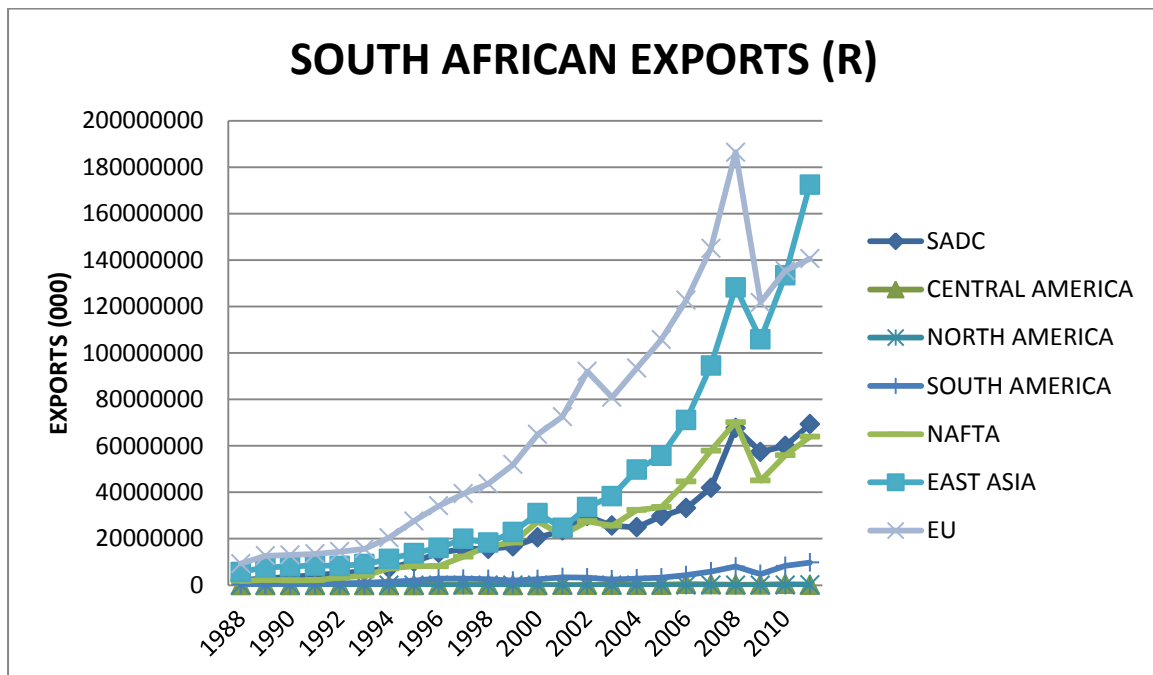**SOUTH AFRICAN IMPORT (R)**
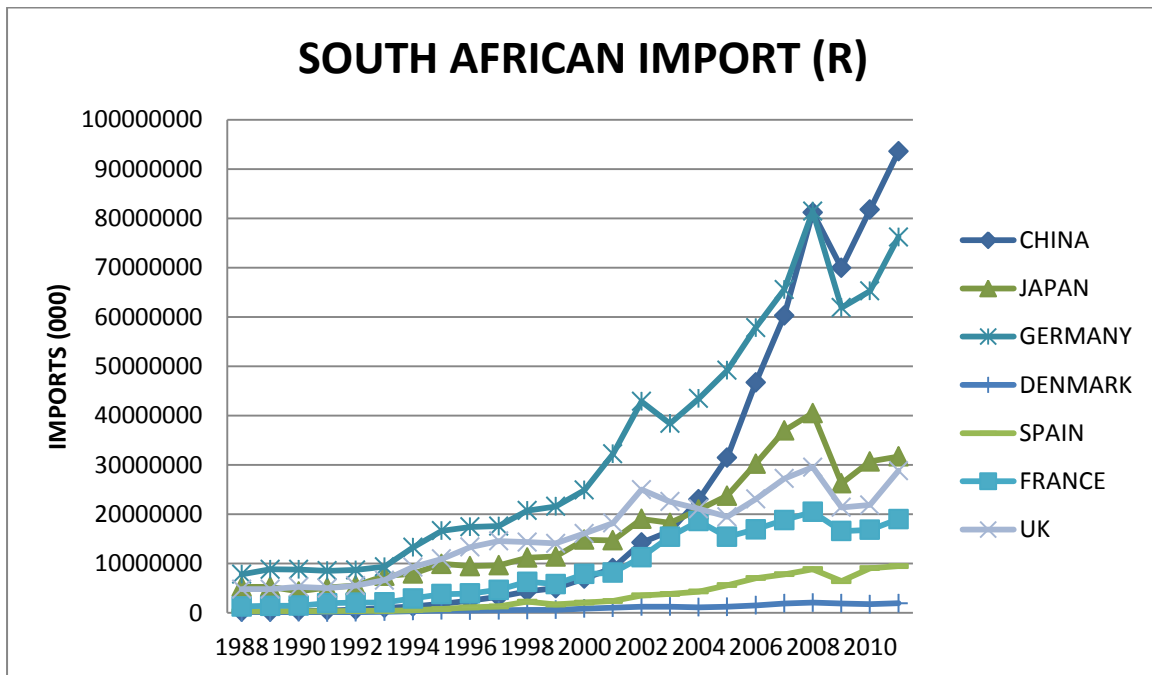
Source: Department of Trade and Industry (2013)

Looking at figure 3, the growth of exports has also been led by East Asia and the EU. Furthermore, export growth to SADC has kept pace with exports to NAFTA. This is a positive trend for the South African government. One of the goals of the South African Government is to help develop SADC as a significant market for South Africa.

Figure 3: SELECTED SOUTH AFRICAN EXPORTS

Source: Department of Trade and Industry (2013)

Table 1 : SOUTH AFRICA'S EXPORT TO GDP RATIO %

Year	SADC	CENTRAL AMERICA	NORTH AMERICA	SOUTH AMERICA	NAFTA	EAST ASIA	EU
1994	1.5145716	0.012082	0.000431269	0.31465244 5	1.50142 3	2.34044 3	4.23280 8
1998	2.1072627	0.010099	0.000259603	0.3452730 87	2.25316 7	2.46805 5	5.88627 9
2000	2.2205403	0.004266	0.000118263	0.2782097 34	2.97482	3.35976 7	7.04291 2

2002	2.5390313	0.012004	0.000221556	0.280783398	2.349905	2.868605	7.861194
2006	1.8781994	0.029446	0.000113225	0.244531488	2.524302	4.021445	6.942492
2008	3.0015414	0.011854	0.000101289	0.357284016	3.110853	5.682394	8.261279
2010	2.2537109	0.020184	0.000377004	0.311691249	2.104282	5.01665	5.091773
2011	2.3765432	0.007125	0.006926442	0.335238581	2.190852	5.91195	4.819379

Source: Department of Trade and Industry (2013)

The Year 2008 is the highlight for exports to SADC (3%), NAFTA (3%) AND EU (8%) in terms of the export to GDP ratio for South Africa. This is shown in Table 1. The East Asian region peaked in 2011 (6%) and has shown greater momentum since 2008 when compared to other regions. From table 1 the trend is that exports have followed the same trend and have maintained a range in which they the ratio of exports to GDP fluctuates. This could be a worrying trend as this could highlight a lack of expansion in terms of goods and services that are being exported to different trading partners.

SECTION II Literature Review

The literature reviews inspects the theoretical underpinning of the study and assess the empirical works available to date, at local, regional and international scale of analysis. There are many ways of controlling and promoting international trade today. The methods range from agreements among governments—whether bilateral or multilateral—to more ambitious attempts at economic integration through supranational organizations, such as the European Union (EU).

The two main drivers of international trade are comparative advantage and economies of scale. Along both dimensions, one would expect developing countries to trade little with each other. First, low-income countries tend to have similar relative factors supplies; therefore the incentive to trade with each other is smaller than for dissimilar countries.

The Absolute Advantage

Businessmen naturally compare the money cost of the same good in different locations to draw inferences about the direction of trade. Absolute cost advantage appears to imply that a nation imports goods that are cheaper abroad and exports goods that are more expensive abroad. The reasoning is insidious because it makes sense in many contexts.

Endogenous Advantage

Many goods are traded because they are simply unavailable from local production. Some kinds of availability are exogenous to the interaction of nations — diamonds and oil are found only in a few locations. Endogenous availability is in contrast driven by advantage arising from the economic interaction of nations. Endogenous advantage normally coexists with comparative advantage but it is simpler to consider special cases independent of comparative advantage. Theory focuses on endogenous advantage resulting from economies of scale

The Heckscher-Ohlin theory

Comparative advantage differences between nations are explained by exogenous differences in national characteristics. Labor differs in its productivity internationally and different goods have different labor requirements, so comparative labor productivity advantage was Ricardo's predictor of trade patterns. Ricardian trade theory is useful in its simplicity and even rather loosely confirmed by empirical evidence. The factor proportions theory of Heckscher-Ohlin added relative factor endowment differences to the exogenous explanation of comparative advantage (Jones, 1987). More capital abundant countries have higher labor productivity, but the advantage gained relative to the less abundant countries varies with the relative capital intensity of the good's technology. Combining technology and endowment differences appears to account well for actual trade patterns (Davis and Weinstein, 2002).

The Domino theory of regionalism

Baldwin (2004) notes that the theory the deepening of a RTA and the more integrated the RTA gets, this lead to a notion that non-member countries are attracted to the RTA. The Non- member countries will experience what they perceive as a disadvantage in terms of costs. The view is stronger the integration within the RTA, the greater the trade diversion for non-member countries. The non-member countries will experience a drop in terms of profit, and this will lead them to lean towards being part of a RTA. As the RTA expands the non-member countries that will experience the greatest level of trade diversion will sign preferential trade agreements with the RTA thus creating domino effect.

Empirical Evidence

Venables (2003) concluded that a low-income country is best off forming a trade agreement with a high-income country, since "trade creation is maximized and trade diversion minimized with such a partner".

According to Boumellassa, Gouel and Laborde (2007), the implementation of the free trade area benefits almost all member countries. The model used showed that, gains are especially high for Latin American countries, which significantly increase the Latin American agricultural exports commodities and food. In same vein, Bouet et al (2011) noted that the agreement reinforces existing patterns of specialization, with Latin American continuing to produce agrifood products and Asian countries maintaining specialization in the industry.

On the other hand, Mayda and Steinberg (2008) argue that South-South trade agreements are proliferating: Developing countries signed 70 new agreements between 1990 and 2003, yet the impact of these agreements is largely unknown. The authors' investigated the impact of the Common Market for Eastern and Southern Africa (COMESA) on Uganda's imports between 1994 and 2003. Based on a difference-in-difference estimation strategy, the paper finds that COMESA's preferential tariff liberalization has not considerably increased Uganda's trade with member countries, on average across sectors. The effect, however, is heterogeneous across sectors. In addition, the paper finds no evidence of trade diversion effects.

Korinek and Melatos (2009) did an examination of the trade effects of three regional trade agreements (RTAs) – the ASEAN Free Trade Agreement (AFTA), the Common Market for Eastern and Southern Africa (COMESA) and the Southern Cone Common Market (MERCOSUR)- in the agricultural sector. Results from a gravity model suggest that the creation of AFTA, COMESA and MERCOSUR have increased trade in agricultural products between their member countries. As in Mayda and Steinberg (2008), there is no robust indication of trade diversion with respect to imports from outside the region. The agreements are therefore net trade creating. There is no robust indication however that there has been strong trade creation with non-members in the case of any of the RTAs under study. The study noted that trade costs such as transport and logistics seem to remain important factors in determining agricultural trade flows. In some RTAs, countries have a comparative advantage in exporting many of the same agricultural products, thereby decreasing the impact of the preferential market access. A number of implications for South Africa's trade can be drawn from examining these very different agreements.

Bouet et al (2011) examined the potential impact of free trade agreement (FTA) between Latin American and Asia using a mirage computable general equilibrium (CGE) model of the world economy between the periods 1989 through 2007. The study aimed at analyzing the potential trade and investment opportunities that would arise from free area between the counties of Latin Americans and Asia. The study adopted the Mirage model to evaluate the consequences of trade integration between Asia and Latin American, with the idea that this kind of agreement could have important implications for both trade flows and foreign investments, (Bouet et al (2011:15).

Various models have been implemented in this area of research, most commonly mirage, and the gravity model. According to Bouet et al (2011) mirage model is a multi-country, multi-sector computable general equilibrium model of the world economy. According to Bouet et al 2011) in the past in order to introduce tariffs in computable general equilibrium (CGE) model, measures such as simple trade or weighted average tariff were employed , but these had no or lack theoretical foundation and may introduce significant biases in estimation. The problem with the trade weighted average being that the weight on tariff declines as average rises. The new approach to this was implemented by Anderson and Neary (1994) and according to this approach a uniform tariff that yield the same value as

the original differentiated tariff structured should be maintained. The unifying feature of these aggregators is that they return the uniform tariff rate that yields the same value of a specific objective function as the actual, non-uniform tariffs (Bouet, 2011). The general idea is that expenditure on aggregate of good j at domestic price must equal expenditure on the good at boarder prices plus the value of the tariff.

On the other hand, the gravity model allows an *ex post* analysis of the impacts of phenomena such as regional trade agreements. Traditional gravity models, which are analogous to Newton's equation of gravity, use the incomes (economic masses) of trade partners as well as the distance between them to explain bilateral trade flows. Distance is typically used as a (crude) proxy for trade costs. These models also typically include indications of common language and culture, and historical ties to explain trade patterns not based on comparative advantage and complementary endowments. In such models, a dummy variable captures the effect of RTA membership on past trade flows (OECD, 2006). Recent gravity models have gone further in capturing country-specific and bilateral country-pair specific effects on trade. They include dummy variables for country fixed effects and country-pair fixed effects to account for all the possible cultural, historical and other factors that influence trade.

The use of the gravity model is appealing for this study based on its popularity as an instrument in empirical foreign trade analysis. According to Tayyebi and Hortamani (2005) the gravity model states that exports from country i to Country j are explained by their economic sizes (GDP or GNP), their population, direct geographical distances and set of dummies incorporating some kind of institutional characteristics common to specific flows.

Methodology and estimation of the gravity model

The gravity model is a work-horse of international trade analysis which is used to analyse the patterns of bilateral trade flows between countries and regions. It was first introduced independently by Tinbergen [1962] and Pöyhönen (1963) mainly to analyse the trade flows between the European countries. Theoretical support for research in this field was originally weak, but since the second half of the 1970s several theoretical developments have appeared in support of the gravity model (Anderson [1979]; Bergstrand [1985, 1989]; Helpman [1987]; Deardorff [1997]; Anderson and Wincoop [2003].

The model has increasingly been used to assess effects of international trade flows. According to this model, exports from (or trade between) country i to country j are explained by their economic sizes (GDP or GNP), their populations, direct geographical distances, and a set of dummies incorporating some type of institutional characteristics common to specific flows. A number of empirical applications in the literature on international trade have contributed to the improvement of the performance of the gravity equation. Some of them are related to this work. Firstly, in recent papers, Matyas [1997, 1998]; Breuss and Egger [1999] Egger [2000] improved the econometric specification of the gravity equation. Secondly, Soloaga and Winters [1999]; Limao and Venables [1999]; Bougheas et al., [1999] among others, contributed to the refinement of the explanatory variables considered in the analysis and to the addition of new variables.

According to the generalized gravity model of trade, the volume of trade / exports / imports between pairs of countries, Xij, is a function of their incomes (GDPs), their populations, their geographical distance and a set of dummies which either facilitate or restrict trade between pairs of countries. Using our data set, we estimate a gravity model of South African trade - (exports + imports). For the estimation of this model we follow Rahman (2003). The gravity model has bilateral trade as the dependent variable and the product of GDP, the product of per capita GDP, distance between country i and country j as well as contiguity between country i and country j as independent variables. In addition, dummy variables that represent existence of preferential trade arrangements between the trading countries are also included as independent variables. The gravity model of bilateral trade is as follows:

$$lX_{ijt} = \alpha_0 + \alpha_1 l(GDP_{it} \times GDP_{jt}) + \alpha_2 l(PCGDP_{it} \times PCGDP_{jt}) + \alpha_3 lDist_{ij} + \alpha_4 Contiguity + \alpha_5 RTA + \alpha_6 GATT + \mu_{ij} \qquad (1)$$

Where: l denotes variables in natural logs

X_{ijt} = Total trade between South Africa (country i) and country j

GDP_i (GDP_j) = Gross domestic product of country i (j)

$PCGDP_i$ ($PCGDP_j$) = Per capita GDP of country i (j)

$Dist_{ij}$ = Distance between country i and country j

$Contiguity$ = Dummy variable indicating that country i (RSA) and country j share a land border

RTA = Dummy variable indicating that country i (RSA) has a regional trade agreement with country j

$GATT$ = Dummy variable indicating that country j (the trading partner) is a member of World trade organisation (WTO).

μ_{ij} = error term; t = time period, α_i = parameters.

The model has been transformed to log-linear form as this is simpler and easier for interpretation. Note that the dummy variables take the value one when a certain condition is satisfied (e.g. sharing a regional trade agreement) and zero otherwise. These dummy variables are used as a means of evaluating the effects of preferential trading agreements and according to Rahman (2003), these trading arrangements have been found to be trade-enhancing and statistically significant. We, therefore, expect all the dummy variable coefficients to be positive.

According to Frankel (1993: 4), "entering GDPs in product form is empirically well established in bilateral trade regressions and can be justified by modern trade theory under imperfect competition[3]". This product of GDPs represents the size of the economy and as the size of the economy grows, there will be increased trade between the two countries. We, therefore, expect a positive coefficient of the GDPs. Similarly, the product of the per capita GDPs is also expected to be positive. This is because per capita GDP provides a good proxy for the level of development and infrastructures that are crucial for conducting trade, and as such the more developed the countries are, the more would be the trade between the pairs of countries due to specialisation (Frankel, 1993).

Transportation cost is another important factor of trade and distance between trading partners is the preferred proxy that is used to capture transportation costs. Thus distance

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[3] The specification implies that trade between two equal-sized countries will be greater than trade between a large and small country

between a pair of countries naturally determines the volume of trade between them. Furthermore, the distance coefficient is expected to be negative. The essence of this gravity model of bilateral trade is "to see how much of the level of trade can be explained by simple economic factors common to bilateral trade throughout the world and how much is left over to be attributed to a special regional effect" (Frankel, 1993:3).

Trade effects and trade relationships, in classical gravity models, have generally been estimated using cross-section data. However, Rahman (2003) asserts that cross-section data that is observed over several time periods (panel data methodology) result in more useful information than cross-section data alone. The advantages of this method include the point that relevant relationships among variables can be captured over time when using panels as well as that with panels it is possible to monitor unobservable trading-partner-pairs' individual effects (Rahman, 2003). With reference to the above discussion, the panel data methodology will, therefore, be applied in this article to estimate the above empirical gravity model of trade (equation 1).

Sample Size and Data Issues

The countries are chosen on the basis of importance of trading partnership with South Africa and availability of required data. These countries (together with the regions they belong to) are presented in Table 1 below.

Table 2 – Countries included in the study

Countries	Region	Trading agreements that SA has with the country
Angola	Southern Africa	SADC
Botswana	Southern Africa	SADC
Lesotho	Southern Africa	SADC
Mozambique	Southern Africa	SADC
Malawi	Southern Africa	SADC

Namibia	Southern Africa	SADC
Swaziland	Southern Africa	SADC
Tanzania	East Africa	SADC
Zambia	Southern Africa	SADC
Zimbabwe	Southern Africa	SADC
Cote d'Ivoire	West Africa	None
Ghana	West Africa	None
Nigeria	West Africa	None
Cameroon	Central Africa	None
Gabon	Central Africa	None
Algeria	North Africa	None
Egypt	North Africa	None
Morocco	North Africa	None
Ethiopia	East Africa	None
Kenya	East Africa	None
Germany	Europe	EFTA - SA
Spain	Europe	EFTA - SA
France	Europe	EFTA - SA
United Kingdom	Europe	EFTA - SA
Italy	Europe	EFTA - SA

Brazil	South America	Newly formed BRICS
China	Asia	Newly formed BRICS
India	Asia	Newly formed BRICS
Japan	Asia	Newly formed BRICS
Russia	Europe	Newly formed BRICS
United States of America	USA	None

All countries included in the sample are members of the World Trade Organisation (WTO) and the sources of data used are GeoDist, World Bank's World Development Indicators as well as World Bank's Trade, Production and Protection database.

This study uses panel data which is from 1988 to 2012. The period of time was determined by the availability of data. Sources of data that were used are GeoDist, World Bank's World Development Indicators (WDI; available online) and World Bank's Trade, Production and Protection database (Nicita and Olarreaga). The variables included are GDP (which is measured in current million US dollars), GDP per capita (which is also measured in current million US dollars), Population (in millions), bilateral trade between SA and its trading partners (which is measured in current million US dollars) as well as the distance (in kilometres).

Estimation and interpretation of results

This article is focusing on the gravity model of South African trade, whereas most research has been on Europe, APEC region as well as the ASEAN region. In order to meaningfully investigate the extent to which regional policy initiatives are influencing trade patterns, it is necessary to hold constant for natural economic determinants, hence the inclusion of the GDP variables. A method of panel estimation was used to estimate the model. The estimated coefficients and the corresponding *t*-statistics and p-values are reported in Table 3 below.

Table 3 – Results

Variable	Coefficient	*t*-statistics	p-value
$GDP_{it} \times GDP_{jt}$	1.099	10.02	0.000
$PCGDP_{it} \times PCGDP_{jt}$	0.535	5.73	0.000
Distance	-0.521	-4.53	0.000
Contiguity	-0.018	-0.54	0.589
RTA	1.485	5.4	0.000
GATT	2.064	4.59	0.000

As expected, the product of GDPs, the product of GDP per capita, and the distance are highly significant in the model. The estimate of the coefficient for the product of GDPs is 1.099. This positive coefficient means that the larger the economic size of the exporting and importing countries, the larger the quantity of goods the exporting country can produce as well as sell. The coefficient is greater than one which indicates that trade increases more than proportionately with the size of the economies. Therefore, the data supports the hypothesis that trade increases with the size of the economy. The positive coefficient of the product of GDP per capita also confirms the hypothesis that as South Africa becomes more developed, its trade with trading partners will increase. Distance has a negative coefficient as expected which means that trade is higher for two countries that are closer to each other. A coefficient of -0.521 indicates that when distance between two countries is higher by 1%, the trade between them falls by 0.52.

The contiguity variable is insignificant and has a negative sign. However, the most noteworthy findings in this study are connected with the dummy variables representing the trade preference organisation (regional trade agreements). RTA and GATT were included in the equation in an effort to test the effect of membership in a common regional grouping i.e. in an effort to quantify any additional trade that usually occur if both trading partners are members of the same preferential trading arrangement. The coefficients for the dummy

variables (RTA and WTO) are positive and highly significant. This means that 2 countries that are in an RTA traded with each other more than they would have if they did not share a common regional agreement. Similarly, if both countries are members of the WTO they would trade more with each other than they would if they were not members. Comparing the magnitudes of these 2 coefficients of RTA (1.485) and WTO (2.065), it indicates that there is more trade between South Africa and a trading partner that is a member of WTO than a partner that is just a member of an RTA.

Conclusion

Toward the goal of determining the importance of regional trade agreements, we estimated a gravity model of trade for South Africa. From the analysis, we conclude that trade in South Africa increases with the size of the economy. Furthermore, the dummy variables representing regional agreements as well as WTO membership indicate that South Africa trades more with trading partners that are members of WTO and with those that share an RTA with South Africa.

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