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Working Paper

Southern African economic integration: evidence from an augmented gravity model

IZA Discussion Papers, No. 4316

Provided in Cooperation with:
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Suggested Citation: Warin, Thierry; Wunnava, Phanindra V.; Tengia, Optat; Wandschneider, Kirsten (2009) : Southern African economic integration: evidence from an augmented gravity model, IZA Discussion Papers, No. 4316, Institute for the Study of Labor (IZA), Bonn, https://nbn-resolving.de/urn:nbn:de:101:1-20090825553

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DISCUSSION PAPER SERIES

IZA DP No. 4316

Southern African Economic Integration: Evidence from an Augmented Gravity Model

Thierry Warin
Phanindra V. Wunnava
Optat Tengia
Kirsten Wandschneider

July 2009

Forschungsinstitut
zur Zukunft der Arbeit
Institute for the Study
of Labor

Southern African Economic Integration: Evidence from an Augmented Gravity Model

Thierry Warin
Middlebury College

Phanindra V. Wunnava
Middlebury College and IZA

Optat Tengia
Brown University

Kirsten Wandschneider
Occidental College

Discussion Paper No. 4316
July 2009

IZA

P.O. Box 7240
53072 Bonn
Germany

Phone: +49-228-3894-0
Fax: +49-228-3894-180
E-mail: iza@iza.org

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IZA Discussion Paper No. 4316
July 2009

ABSTRACT

Southern African Economic Integration: Evidence from an Augmented Gravity Model*

This paper investigates the feasibility of creating a common-currency union consisting of 16 countries in Southern Africa. We estimate an augmented-gravity model that includes public deficit, public debt, public expenditure, inflation, and the foreign reserves position. We also integrate Africa-specific variables such as existing economic blocs in the region, colonial heritage, and the convergence of living standards. Our analysis shows that the prospect for further integration in Southern Africa is promising, but many challenges still persist. The existing economic blocs can provide a first stepping stone to a larger currency union, but countries continuously have to cultivate good governance and fiscal discipline.

JEL Classification: F1, F3, F4, O24, O55

Keywords: optimum currency area, gravity model, Southern African integration, endogenous optimum currency area theory

Corresponding author:

Phanindra V. Wunnava
Warner Hall 502F
Middlebury College
Middlebury, VT 05753
USA
E-mail: wunnava@middlebury.edu

* We'd like to thank John Anyanwu for his comments, and William Warren for his constructive editorial suggestions. The usual caveat applies.

I. Background

Political and economic instability are still widespread in Africa. To ease these crises, donor countries, multilateral aid agencies, and international financial institutions have prescribed stronger economic integration for the area. Empirical studies, such as cross-country analyses of bilateral trade flows, show that participating in a common currency zone has a positive impact on trade and economic growth (Anyanwu, 2003). Wane et al. (1996) for example, reveal that among the Sub-Saharan African nations, membership in the French African Community (FAC) has led to higher productivity and investment growth. Regional economic communities in Africa have initiated proposals to advance economic integration. Members of the Southern African Development Community (SADC) have drafted formal plans to create a monetary union by the year 2016 that will be preceded by the formation of a SADC-wide free market area in 2015.

But despite the anticipated benefits of the proposed currency union, the feasibility of economic integration among the economies of Southern Africa remains contentious. The Southern African region is currently characterized by a mosaic of intersecting economic areas with varying degrees of economic integration. This confounds any attempts to analyze the viability of wider and more advanced economic blocs in the region.

In this paper we investigate the feasibility of creating a common-currency bloc that consists of a cluster of 16 countries, occupying the whole of the southern tip of the African continent. This group includes the 14 SADC members, plus Kenya and Uganda.[1] We test whether this cluster of 16 countries creates an optimum common-currency area. Based on an augmented gravity model, we design a Southern African economic integration model that considers bilateral trade intensity between the member countries, as well as components of the SADC convergence criteria: public deficit, public expenditure, public debt, inflation, and the foreign reserves position. Our analysis shows that the prospect for further integration in Southern Africa is promising.

The paper proceeds by relating the history of economic integration in Southern Africa and by explaining the existing economic communities. Section III reviews the Optimum Currency Area

[1] The SADC member countries include: Angola, Botswana, the Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, the United Republic of Tanzania, Zambia and Zimbabwe.

(OCA) literature, and Section IV introduces the methodology and presents the empirical analysis. Finally, conclusions and policy implications are discussed in Section V.

II. Economic Integration in Southern Africa

Southern African countries have a long history of social, economic and political integration, dating back to the colonial period. Understanding these regional blocs is vital for casting the future of Southern African integration. Currently, functional economic blocs in Southern Africa, in addition to the SACU include: the Southern African Development Community (SADC), the East African Community (EAC), and the Common Market for East and Southern Africa (COMESA). Table 1 shows the memberships of these four trade blocs in Southern Africa.

Table 1: Economic Blocs Membership

	SADC	COMESA	SACU	EAC
Angola	X	X		
Botswana	X		X	
Congo, D.R	X	X		
Kenya		X		X
Lesotho	X		X	
Madagascar	X	X		
Malawi	X	X		
Mauritius	X	X		
Mozambique	X			
Namibia	X		X	
South Africa	X		X	
Swaziland	X	X	X	
Tanzania	X			X
Uganda		X		X
Zambia	X	X		
Zimbabwe	X	X		

Dating back to 1910, the Southern African Customs Union (SACU) is centered around a free-trade area for goods and services between member states and a common external tariff imposed on the rest of the world. In 1974 the Rand Monetary Area (RMA), including Lesotho, Swaziland and South Africa, was formed. At that time Namibia was still a protectorate of South Africa and thus included in the RMA, whereas Botswana opted out. In 1986 the RMA was replaced by a Common Market Area (CMA) that consisted of Swaziland, Lesotho and South Africa. Members of the SACU use the South African currency, *Rand*, while also issuing their own national currencies. In addition, the South African Reserve Bank influences the monetary policies of each member state.

The Southern African Development Community (SADC) was created in 1980. The SADC, then known as Southern African Development Coordination Conference (SADCC), was simply a loose alliance of nine majority-ruled states in Southern Africa. The original aim of the SADC was to coordinate development projects in order to reduce economic dependence on the *apartheid* regime in South Africa. The transformation of the organization from a "coordinating conference" to a development community took place on August 17, 1992 in Windhoek, Namibia. Today the SADC plans to introduce a single Southern African currency and a common central bank by 2016. A common Southern African market, following the model of the European Union (EU), will also be established by 2016. To achieve this, the SADC envisions: forming a SADC-wide customs union by 2010, and establishing a common market that includes free movement of labor and capital by 2015. SADC members have stipulated inclusion criteria identical to those for the Economic and Monetary Union (EMU) for the proposed currency union. To emphasize the resemblance, SADC members proposed that once inside the monetary union, there will not be an opt-out clause for countries that fail to stay within the agreed targets specified by the inclusion criteria.

Members of the East African Community (EAC) have a long history of co-operation under successive regional arrangements. These include: the Customs Union between Kenya and Uganda in 1917, which then Tanganyika (now Tanzania) joined in 1927; the East African High Commission (1948-1961), the East African Common Services Organization (1961-1967), the East African Community (1967-1977) and the East African Cooperation (1993-1999). The present EAC was formed in 1999 as a successor to the former East African Cooperation. In January 2002, the East African Community Customs Union was created and plans are underway for the formation of a monetary union.

The Common Market for East and Southern Africa (COMESA) was formed to replace the earlier preferential trade area but has not achieved its objective of fostering trade among the member states. The refusal of South Africa to join the community seems to contribute to COMESA's difficulties (Oyejide et al., 1999; Khandelwal, 2004). Moreover, Botswana and Namibia, which are two of the stronger economies in Southern Africa, are not members of COMESA. In addition, the SADC has established that membership in COMESA is incompatible with SADC membership and that its members should effectively withdraw from COMESA.

III. Optimum Currency Areas

The theory of Optimum Currency Areas (OCA) goes back to Mundell (1961), with extensions by McKinnon (1963) and Kenen (1969). McKinnon (1963) states that for economies that are highly open, the nominal exchange rate is a weak policy tool for adjustment. Therefore, loosing this adjustment mechanism does not have adverse effects on the economy. Kenen (1969) adds the product diversification criterion, which states that countries with similar economic structures, and whose production and exports are widely diversified, constitute an optimum currency area. Moreover, Frankel and Rose (1998) show that a monetary union is beneficial for a small open economy since it reduces transaction costs that emanate from exchange rate conversions. Open economies are integrated in terms of capital flows and labor mobility, which diminishes the need to maintain the exchange rate as a policy instrument. Warin et al. (2009) in their empirical work, covering the period from 1994 to 2005, illustrate that the integration process towards the EMU was also beneficial for FDI flows, which doubled within the EMU, complementing the impact on trade as measured by Frankel and Rose (1998).

Since many African countries lack the strong political institutions necessary for governments to demonstrate credible commitments to monetary and financial stability, monetary unions in Africa will provide an alternative solution for achieving sound macroeconomic policies. Anyanwu (2003) studies the effects of monetary union on bilateral trade flows and output in the case of the West African Economic and Monetary Union (WAEMU) and the Economic Community of West African States (ECOWAS) and concludes that joining a monetary union strongly and positively affects the members' output even more that it affects bilateral trade. However, some studies have shown certain disadvantages and possible problems of currency unions in Africa (Benassy-Quere and Coupet, 2005; Guillaume and Stasavage, 2000; Cobham and Robson, 1994). According to Cobham and Robson (1994), Southern African nations suffer from greater income disparities than European countries. Also, the African countries and even the regional economic blocs are small in terms of GDP, trade flows, and money supply. African economies have fewer organized financial arrangements and the existing ones often pass through informal intermediaries. Some Southern African countries will only benefit moderately from lower transaction cost due to their limited participation in intra-regional trade. High specialization of most countries in a small number of commodities, which are often different

from one another, yields high cost of abandoning independent monetary policies. Moreover, African countries have low integration into the world markets (Frankel, 1998).

Moreover, OCA tests using the 'orthodox' OCA theory have been applied to different country clusters in the region. Overall, the empirical literature covering the prospects of crafting monetary unions in Africa paints a pessimistic portrait. Bayoumi and Ostry (1997), for example, conclude that it is unlikely that all countries of Sub-Saharan Africa will benefit from a large monetary union. But research that concentrates on smaller existing regional economic communities leaves room for hope. For the EAC, Mkenda (2001) has shown that even though the EAC members score low on trade openness and product diversification, the EAC constitutes an OCA. All EAC members are heavily agricultural and rely on the export of similar cash crops and on the import of crude oil and manufactured goods. In addition, macroeconomic adjustment programs have added to the correlation of output and prices. Regardless of the mixed verdicts on the feasibility and eventual success of economic integration in Southern Africa, African policy makers have the advantage of learning from the experience of the Euro area.

IV. Methodology

This paper uses a variation of the gravity model of trade, based on a pair wise panel data framework. The approach is inspired by similar estimation methods used in Warin (2005) and Warin et al. (2009) to examine fiscal convergence and foreign direct investment flows in the European Union.

An 'augmented' gravity model uses bilateral trade intensity as a proxy for economic integration in Southern Africa as in Anyanwu (2003). It integrates the monetary and fiscal variables: inflation, public deficit, public expenditure and public debt, which are based on the convergence criteria set up by the SADC. To test for the endogenous OCA theory, we include a variable capturing the effects of existing trade blocs. The assumption here is that if these foreign-trade accords have led to trade expansion, then a currency union would be bound to foster better trade relations.

The modeling of macroeconomic variables faces problems of endogeneity. In our case, since the intention is to investigate the effect of the convergence variables on bilateral trade, the most direct solution to this problem is the use of the gravity model. As Frankel and Rose (2002) explain, by using the gravity model explanatory variables are truly exogenous but are at the same time highly correlated with trade. In addition to the convergence variables, we include the

traditional gravity-model variables, which are the product of the economic sizes of trading partners and their geographic distance. We also incorporate other key variables that are widely used in modeling bilateral trade flows, such as contiguity between countries and shared official languages. Further control variables are incorporated in the model and include differences in standard of living, as captured by GDP per capita, and similarities in colonial past.

The proposed theoretical model is as follows:

$$\begin{aligned}\ln(TRADE_{ij,t}) &= \alpha_0 + \alpha_i + \alpha_1 \ln(ECSIZE_{ij,t}) + \alpha_2 \ln(DIST_{ij,t}) + \alpha_3 BORD_{ij,t} \\ &+ \alpha_4 AGR_{ij,t} + \alpha_5 COLN_{ij,t} + \alpha_6 GDPCAP_{ij,t} + \alpha_7 DEF_{ij,t} + \alpha_8 INF_{ij,t} + \alpha_9 RESV_{ij,t} \\ &+ \beta_1 EXP_{ij,t} + \beta_2 DEBT_{ij,t} + \beta_3 LANG_{ij,t} + \delta_{ij,t}\end{aligned} \quad (1)$$

where *ij* represent bilateral country pairs for the 16 countries, resulting in 120 bilateral pairs; and time *t*=1995, 1996,…, 2003. Trade, the dependent variable, is defined as $TRADE_{ij,t} = X_{ij,t} + M_{ij,t.}$ where $X_{ij,t}$ are exports from country *i* to country *j*, and $M_{ij,t}$ are imports from country *i* to country *j*. The explanatory variables $DEF_{ij,t}$, $INF_{ij,t}$, $RES_{ij,t}$, $EXP_{ij,t}$, and $DEBT_{ij,t}$ are the absolute values of the differences between the respective variable for countries i and country j:

$$DEF_{ij,t} = \left|deficit_{i,t} - deficit_{j,t}\right|$$

$$INF_{ij,t} = \left|inflation_{i,t} - inflation_{j,t}\right|$$

$$RES_{ij,t} = \left|reserve\ position_{i,t} - reserve\ position_{j,t}\right|$$

$$EXP_{ij,t} = \left|expenditure_{i,t} - expenditure_{j,t}\right|$$

$$DEBT_{ij,t} = \left|debt_{i,t} - debt_{j,t}\right|$$

Furthermore, $ln(\text{EC}SIZE_{ij,t}) = ln(GDP_{i,t} * GDP_{j,t})$, $DIST_{ij,t}$ is the geographic distance between the commercial capitals of country *i* and *j*, and $GDPCAP_{ij,t}$ is the absolute value of the difference between the GDP per capita of countries *i* and *j*. Additionally, $AGR_{ij,t}$ is a dummy variable which takes a value of one if a pair of countries *i* and *j* belong to a trade agreement, or zero otherwise, $BORD_{ij,t}$ is a dummy variable that takes a value of one if countries *i* and *j* share a land border; while $LANG_{ij,t}$ is a dummy that takes a value of one if countries *i* and i share an official language. Similarly, $COLN_{ij,t}$ is a dummy variable that takes a value of one if countries *i* and *j* have had the same colonizer at any time period after 1945. Finally, α_i represents fixed effects and $\delta_{ij,t}$ represents all unobserved bilateral effects. We expect that if countries in Southern Africa that manifest convergence in monetary and fiscal variables have higher bilateral trade flows than

non-converging nations, the signs of the coefficients of the convergence variables will be negative.

A. Data: Data on public deficit and public expenditure, both expressed as a percentage of GDP, were collected from the African Development Bank (ADB). The data on GDP, GDP per capita, GDP growth, real interest rates, public debt, inflation and foreign exchange reserves are taken from the World Bank's World Development Indicators. The GDP values are expressed in current US dollars, whereas the GDP per capita values are expressed in current international dollars corrected for Purchasing Power Parity (PPP).[2] Public debt is expressed as a percentage of GDP and GDP growth is the annual percentage growth rate of GDP at market prices based on constant local currency. The real interest rate values are the lending interest rates adjusted for inflation as measured by the GDP deflator. The inflation data used is measured by the consumer price index. The unit of the foreign exchange reserves is months of import cover. Data on bilateral distances, colonial history, country adjacency and common official language are taken from a database maintained by the *Centre d'Etudes Prospectives et d'Information Internationales* (CEPII). The bilateral distances, measured in kilometers, are distances between the countries' major commercial capitals.

B. The Estimation Procedure: There are *(16 x 15)/2=120* bilateral relations per time period. The analysis covers a nine year time span from 1995 to 2003; hence, the total potential sample space includes *N=9x120=1080* observations. The final dataset contains fewer than 1080 observations because some countries either do not trade with each other or lack trade records for some years.

With this longitudinal data, estimation of the model with a simple Ordinary Least Square (OLS) regression is impossible (Warin et al. 2009). To test for autocorrelation, we use both Baltagi and Wu's (1999) Locally Best Invariant (LBI) test and a modified Durbin-Watson test designed by Bhargava et al. (1982), that handles unequally spaced panel data. The LBI test rejects the null of zero autocorrelation with a test statistic of 1.7672. The modified Durbin Watson concludes a presence of positive serial correlation with a *d*-statistic value of 1.2823. Hence, a Feasible Generalized Least Square (FGLS) procedure is applied. We use the Kmenta-Parks method, which assumes an autoregressive error structure of the first order AR(1) and a contemporaneous error correlation among cross-sections (Kmenta, 1997; Parks, 1967). The Kmenta-Parks method thereby accounts for panel heteroscedasticity and serial correlation if present.

[2] An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States.

The Kmenta-Parks method is applicable in both a fixed effects and a random effects framework. The descriptive statistics and the disparate nature of the Southern African economies strongly suggest cross-sectional heterogeneity in the panel that warrants the use of fixed effects estimation. An appropriate formal test is conducted to justify the choice between random and fixed effects. Using Hausman's specification test, the null hypothesis - the coefficients estimated by random effect model are similar to those estimated by a fixed effects estimator - is rejected.[3] Thus, fixed effects estimators are used. The results of the estimation are detailed below.

C. Results: Convergence in public debt and public expenditure, and use of a shared official language are statistically insignificant determinants of bilateral trade volumes; hence, these variables were dropped from the original model. The final model estimated is:

$$\ln(TRADE_{ij,t}) = \alpha_0 + \alpha_i + \alpha_1 \ln(ECSIZE_{ij,t}) + \alpha_2 \ln(DIST_{ij,t}) + \alpha_3 BORD_{ij,t} + \alpha_4 AGR_{ij,t} + \alpha_5 COLN_{ij,t} + \alpha_6 GDPCAP_{ij,t} + \alpha_7 DEF_{ij,t} + \alpha_8 INF_{ij,t} + \alpha_9 RESV_{ij,t} + \delta_{ij,t} \quad (2)$$

The Kmenta-Parks FGLS estimates and descriptive statistics of the variables used in the final empirical analysis are reported in table 2. Our estimates are indeed robust and hardly change under alternative specification and variable definitions.[4]

(a) Traditional Gravity Model Variables: The estimated model is consistent with the gravity model assumptions. The model predicts that in Southern Africa, bilateral trade between country pairs is positively correlated with the product of the economic size of the countries in a given pair. According to the estimated model, if the product of the national income of two trading nations changes by one percent, their bilateral trade volumes will change by .4 percent in the same direction, *ceteris paribus*. As the theoretical and empirical analyses of the gravity model stipulate, bilateral trade volumes are also inversely related to the distance between trade partners in Southern Africa. If two trading partners are one percent closer to one another, their bilateral trade volumes are .48 percent higher, holding all else constant. In addition, countries that share a

[3] For the Hausman Test: $\text{Prob} > \chi^2 = .1010$.

[4] In terms of the specification sensitivity, we estimate a model excluding the additional country pair dummies for common language, adjacency, common colonizer, and existing trade agreements. In other words, a nested model is estimated using only the SADC convergence variables and the two main gravity model variables which are economic size and distance. A Likelihood Ratio test shows the model presented in this paper is preferred. These sensitivity analyses can be obtained upon request.

land border experience trade volumes that are approximately 296 percent higher than those of non-adjacent countries.[5]

Table 2: The Gravity Model Coefficients based on the Kmenta-Parks FGLS estimates
Dependent variable: $\ln(trade_{ij,t})$ mean:2.29 ; SD:2.45

Independent variables :	Mean	SD	Coefficient	z
Traditional Gravity Model Variables				
• Economic Size	23.66	1.15	0.4108***	2.7
• Distance	7.46	0.72	-0.488**	-2.14
• Adjacency	0.3	0.46	1.3753***	6.98
Integration Variables				
• Trade Agreements	0.084	0.28	1.9028***	4.2
• Colonial Link	0.042	0.49	-0.6837*	-1.8
• Difference in Standard of Living	3987	3798	0.00006***	3.15
Convergence Variables				
• Deficit Convergence	3.49	4	-0.0098**	-2.34
• Inflation Convergence	43.04	283	0.0002***	3.09
• Foreign Reserves Position Convergence	2.98	4.49	0.0508***	4.55
Constant			-8.94**	2.21
Country fixed effects:				
Angola			0.958	1.46
Kenya			2.73***	9.82
Lesotho			-0.9301**	-2.14
Madagascar			0.6972	1.55
Malawi			2.5549***	8.5
Mauritius			2.7097***	10.66
Mozambique			0.7415*	1.76
Namibia			0.2715	0.67
South Africa			4.7761***	7.86
Swaziland			2.5234***	7.12
Tanzania			1.8834***	7.21
Uganda			1.0698***	3.92
Zambia			1.7859***	8.8

Wald $\chi^2_{22} = 5395.51$ (p-value = 0.000)
No. obs = 303 ; No. groups = 51

(b) Integration Variables: Empirical evidence in support of the Endogenous Optimum Currency Area theory suggests that increased trade after adopting a common currency may eventually lead to synchronization in business cycles. Therefore results indicating an *ex ante* currency union are inconclusive as far as the success of a currency union is concerned (Frankel and Rose, 1998).

[5] That is $e^{1.3753} - 1 \cong 2.96$.

The estimated model shows that the EAC and SACU trade agreements have actually stimulated foreign trade between their members. The coefficient on *AGR* confirms that pairs in which both countries belong to the two active customs unions in Southern Africa have increased trade volumes by approximately 570 percent,[6] compared with country pairs that do not belong to trade arrangements. This result refutes the claim that African trade agreements for the most part are "on-paper treaties." The estimation also suggests that instituting a common market by 2015, and subsequently a common currency by 2016, should lead to an increase in trade for the whole region. As the Endogenous Optimum Currency Area theory suggests, this will lead to further economic integration.

The two other Southern Africa specific variables, historical ties and similarity in standard of living, have been widely used in investigating bilateral trade flows in other empirical studies. The common-colonizer variable that we use as proxy for historical ties gives an indication whether Southern African countries should draft economic blocs following colonial ties. For example, could the former British colonies in Southern Africa create a Southern Africa British Pound zone similar to the existing Western African Franc zone? Undoubtedly, such an endeavor would also need to be supported by the former colonial power. But the estimated model shows that in Southern Africa, country pairs which shared a colonizer after 1945 have lower economic integration. Hence, drafting economic blocs following these colonial ties would not be beneficial. Countries that shared a colonizer after 1945 have bilateral trade volumes that are approximately 49 percent[7] lower than country pairs without similar colonial history**.**

The second Southern Africa specific variable measures differences in the standard of living as captured by GDP per capita. It could be disconcerting to fathom a viable currency area involving a disparate cluster of countries in terms of standards of living. In the region, GDP per capita values corrected for PPP range from around $10,000 in Mauritius and South Africa to around $500 in Malawi and Tanzania. Interestingly, the estimated model shows that countries with converging living standards have weak trade ties. The predicted coefficient of the GDP per capita convergence variable shows that, if the difference in GDP per capita between a country pair narrows by one international dollar corrected for PPP, bilateral trade volume falls by .006 percent. This result suggests that Southern Africans should not worry about the disparity in

[6] That is $e^{1.9028} - 1 \cong 5.70$.

[7] That is $e^{-.6837} - 1 \cong -.49$.

standards of living that currently exists. Moreover, in terms of human development as defined by the United Nation Development Program (UNDP), most Southern African countries are placed in the low human development category. All Southern African nations, except the small island of Mauritius, score below 0.7 on the Human Development Index (HDI).[8]

(c) Convergence Variables: With respect to the SADC targets, integration is not determined by convergence of fiscal and monetary variables. Convergence in public debt and government expenditure yields statistically insignificant estimates. In turn, similarity in inflation rates and in the foreign-reserve position has a negative impact on bilateral trade in the period investigated. However, the model shows that public-deficit convergence in Southern Africa has a positive effect on trade. If the difference in public deficit as a percentage of GDP between two nations narrows by one percent, trade volumes increase by approximately .98 percent, *ceteris paribus*.

It should be noted that the objective of the convergence targets by the SADC includes the desire to level-off the nations' fiscal and monetary economic variables before adopting a common currency. This is crucial for the stability of the common currency that is eventually introduced. In this analysis target variables are included to give an indication of the suitability of the convergence criteria designed by SADC members.

(d) Country Fixed Effects: To separate country fixed effects, symmetric country dummy variables are generated. These dummies are proxies for countries' participation as either sources of imports or destinations of exports. As seen in Table 2, South Africa, the biggest economy in the region, boasts the highest bilateral trade interactions with the rest of the world, whereas smaller economies such as Lesotho show minimum trade interactions with other countries. Economies that are small but growing and thus massive importers, such as Mauritius and Swaziland, also have soaring trade interactions.

V. Conclusion and policy implications

Our analysis indicates that the future for Southern African integration looks encouraging, but many challenges still have to be overcome. The augmented gravity model illustrates that, for the whole region, convergence in fiscal and monetary variables as specified in the "SADC targets" is a weak determinant of economic integration. Thus, it is unlikely that trade stimulation will ensue right after the adoption of the currency union. But South African states that are similar in

[8] The HDI values range from 0 to 1. Norway scores 0.963, the highest HDI in 2003. All developing countries averaged 0.694 with Sub-Saharan countries averaging 0.515. Other than GDP per capita, the HDI includes human development measures such as literacy levels and life expectancy.

governance do manifest strong economic integration. However, convergence in public debt and public expenditure do not determine integration in Southern Africa. As reflected by converging inflation rates, similarity in monetary policy leads to lower bilateral trade intensity. Likewise, countries with converging amounts of foreign reserves share weak trade ties. Bilateral trade flows in Southern Africa are highly dependent on the gravity model variables, which include economic size, distance, and contiguity between nations but not the use of a shared official language. Furthermore, in Southern Africa converging living standards do not lead to increased bilateral trade intensity as the Linder theory would predict.

The existing small-scale trade agreements nurture integration among its members. The model confirms that trade links, which the EAC and SACU foster through tariff reduction, cultivate economic integration. The proposed currency union would equally boost intra-regional trade if the terms of the treaties are adhered to. Nevertheless, countries with similar colonial ties have not maintained strong trade links; hence, drafting plans for advanced economic communities along the lines of colonial history, as it has been done in West Africa, is undesirable in Southern Africa.

At the moment, in Southern Africa, small currency unions consisting of the existing trade blocs are optimal. But small currency unions might be less beneficial since their meager economic size will hinder their influence in the global markets. Large currency unions offer their members larger markets and a broader space for investment. Gains from capital mobility are higher if the union is large. For these reasons, the European Monetary Union, for example, has continuously promoted enlargement. Southern African countries should aim at speeding up economic integration that will lead to the establishment of a large currency union. But basic economic integration is necessary before forming large blocs. Moreover, Southern African nations that envision wider and advanced economic integration can speed up the process by promoting cooperation on a small scale. Hence, if the terms of the proposed SADC-wide customs union created in 2008 are fully implemented, trade stimulation for the whole region is likely. As the Endogenous OCA theory stipulates, increased trade may promote business cycle correlation leading to deeper economic integration.

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