Economic Integrations and their Role in Intra-Africa Trade

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Abstract:

This paper investigates the roles of economic integrations (EIs) in the development of trade within Africa region vis-à-vis Africa’s trade with the rest of the world. Specifically, we examine how the removal of trade barriers could eventually lead to harmonization of trade policies in Africa and in turn the growth of trade between the member countries. Our study focuses on a 20-year period in which we observe that as the domestic markets for the developing economies continue to expand, the expected trend is that their export competitiveness will also expand. However, data shows that while African Nations put EIs at the core of their development, only 10 percent of total value of African trade is intra-African in nature, and 90 percent is with countries outside the region. Using a gravity model adapted for African context, our analysis indicates that streamlining and employing similar policies encouraged and promoted trade. As trade entails the interaction of many other sectors, our results imply that policy reforms to deepen their economic integrations should proceed at a faster rate to stimulate investment flows from both intra-regional and extra-regional sources in addition to the diversification of products for export.

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1. INTRODUCTION

Extensive research through the ages consistently shows that the development of countries (developed or developing) and progressive economic growth is achievable and sustainable through International trade (Edwards, 1998; Sakyi, Villaverde and Maza, 2015). The general trade-led hypothesis emphasizes positive and dynamic effects of increased national incomes from export earnings, not only providing foreign currency required for importing necessary commodities not produced locally, but also helping governments finance their external debt. An existing debt of over $200 billion is cited as the single biggest obstacle to Africa’s development. The same hypothesis asserts that trade leads to allocation of resources according to the comparative advantage of individual economies, generating spill-over effects like interactive exchanges of knowledge and technology (Bergstrand and Feng, 2014). Consequently, exposure increases competition whilst ensuring and providing incentives for the development of new technologies (Romer, 1986). A bid to improve intra-Africa trade and recognition of these factors linking trade to perceived or actual economic growth, led to various strategies in Africa to ensure maximum gains from trade including: shifting from intervention policies such as import substitution strategies, to export-promotion strategies, and importantly, formation of Economic Integrations (EIs) (Bhagwati, 1995; Bhagwati and Krueger, 2001).

Following the neo-classical model, formation of EIs implies the removal of artificial barriers to optimal market operations and the deliberate introduction of strategies that liberalize economies by eliminating barriers to mobility of resources and

References:

1A total of almost $14 billion is spent on debt service every year in Africa, consuming funds that would otherwise be allocated to development enhancing programs and projects such as the management and prevention of HIV/AIDS – a rampant and malignant health issue in most of SSA (Sub-Saharan Africa), education, and infrastructural development among other important needs. See: http://www.africaaction.org/docs99/dbt9903b.htm

commodities, developing the economies via facilitating capital accumulation and economies of scale, increasing competition and productivity, as well as culminating in the harmonization and co-ordination of policies. This aims towards achieving market equilibrium, resulting in uniform prices and free movements of both commodities and factors. Viner (1950) notes that the rationale for formation and succession of EIs draws from the standard trade theory whose basic principle stipulates that ‘free trade is superior to all other trade policies’, as subsequently confirmed especially of Africa by Brueckner and Lederman (2015).

Though the neo-classical model is optimistic, Viner (1950) introduces the Customs Union (CU) theory observing that EIs are either trade creating or diverting depending on volume of trade resulting from their creation. While, Meade (1955), Summers (1991), and Wonnacott (1996) argue that the effect of EIs on trade depends on overall welfare impact and not just resultant volume of trade.

The history of EI initiatives within the continent, similar to the theories is long and eventful with attempts to come together in small and big groups (even continent wide – as noted of the African Union – AU). Irrespective of reported poor performance in the quest to achieve their objectives and the many obstacles preventing the smooth operation of EIs (Jung, 2017), African countries show a willingness, determination and renewed confidence to get things right, demonstrated in the signing of the Abuja Treaty in 1991 (enforced in 1994), which called for gradual formation of continent wide integration in phases and sub groups, starting with the elimination of tariffs on goods traded within the various regional economic communities to create free trade areas, eventually progressing towards a customs union, borrowing insights from the various successes of other trading blocs such as the European Union, NAFTA, and APEC.

This is just one among many initiatives. In studies to analyze the developments and effects of the CU theory, Krauss (1972) and later Baldwin (1997), note the importance for non-economic motivators to be considered in analyzing potential EI effects. In the development of the theory behind EIs, Fine and Yeo (1997) support this viewpoint and suggest a reorientation in the traditional focus on EIs, stating that especially in Africa, it is necessary to focus on the non-traditional concepts envisaged to result from formation of EIs such as means of achieving stable and sound national macro-economic policies and rapid accumulation of human and physical capital whilst focusing on infrastructural and natural resource development,

As most of the sub-Saharan African (SSA) countries are developing with few in the low incomes bracket (World Bank 2017-18), the EIs formed by these groups of countries are referred to in literature as ‘South-South’ agreements. As the domestic markets for the developing economies continue to expand, the expected trend is that their export competitiveness will also expand. Observed since the 1980s, the ‘South’s’ share in global trade has grown from about 7.0 percent to the current rate of about 13.0 percent globally, implying the South continues to rapidly become a more important destination for developed countries’ (otherwise referred to as the ‘North’) exports. Consequently, this implies the South is an important future engine of growth and dynamism for the global economy.

Taking into account the obvious importance of trade as well as given the above and observing that African Nations put EIs at the core of their development agenda with continued efforts to form African EIs, this paper seeks to investigate why only 10 percent of total African trade is intra-African in nature. Meanwhile, 90 percent is with the rest of the world. We assume that this low level of trading amongst and between African countries is the result of increased trade costs in the form of poor transport links, continued pre-existing tariff and non-tariff barriers, and perhaps also language impediments. Via the rigorous analysis carried out here, we observe formation of EIs will enhance intra-Africa trade, especially noted via reduction of said costs of transaction as well as providing for wider markets. Our results indicate that EIs have a significant contribution towards trade. In addition our dynamic approach also highlights other contributing factors to enhancing trade such as language.

To this end, the rest of the paper is organized into the following 6 Sections. The presentation of the specific problem (Section 2), we then highlight the main objectives of the research (Section 3), detailing a brief historical evolution of the Gravity model that embodies the methodology employed as well and identification of the data used (Section 4). Next, we discuss the analysis results (Section 5), finally concluding and indicating the possible policy implications (Section 6).

2. THE PROBLEM

Africa shares a common problem of slow and stunted economic growth and development, irrespective of wealth in variation of resources. Despite commendable efforts and a long history of experimenting with EIs, there is a general consensus that so far, EIs have had an overall less-than-satisfactory outcome towards achieving their intended objectives (Lyakurwa, 1997). Crippling these efforts and hindering the progress of economic integration in Africa is a distinct inexistence of macroeconomic stability in addition to which there is lack of a strong and sustained political commitment (Juma, 2018), as governments are unwilling to surrender sovereignty over macroeconomic policy making, while hesitating to discontinue existing economic ties with non-members and struggling to disconnect/reverse a trade legacy dominated by trade with former colonial rulers rather than with each other. For example, Senegal’s biggest trading

3 AU intends to achieve what the European Union has achieved by 2028 with comparative aspects shown under The European Union and the African Union, A statistical Report, (2015), Eurostat Statistical Books

4 In 1990, the IMF classified 75 per cent of countries in sub-Saharan Africa as having "restrictive" trade policies. In 2007, only 14 per cent were still considered restrictive.

partner is France and although Senegal surrounds Gambia, Gambia trades extensively with the UK and hardly with Senegal.

Ouattara (1997) notes that, African (and other developing) countries continue to face economic growth risks due also to capacity constraints in the form of poor and malfunctioning infrastructure. In addition to country specific problems, the continent also currently faces deteriorating predictions on its growth patterns in the immediate future as the on-going financial crisis no doubt spills over to it via reduced external demand and fall in commodity prices, including lowered private resource flows in the form of Foreign Direct Investments (FDIs), remittances and tightening of trade funds by major trading partners such as UK and U.S, leading to significant reductions in export earnings across the continent.\(^6\)

Hence, it would be useful to cultivate domestic markets and take advantage of the preferential treatment extended within the formation of EIs, as the rest of the global markets reduce their trade with Africa. Scholars have found this to be a feasible concept citing optimism that EIs could pave the way for increased future developments via new and wider markets.

In early 1993, it was noted by the Inter-Secretariat Working Group on National Accounts that, regional cooperation and integration was one of the key areas for the future development of Africa, providing export alternatives for local producers and helping rationalize the use of resources and talent as well as facilitating a means to negotiate more favorable terms with international counterparts (System of National Accounts, 1993).

### 3. STUDY OBJECTIVES

As indicated, only 10 percent of African trade is Intra-African in nature irrespective of the formation of EIs across the continent. The prevailing assumptions are that the low level of trading amongst African countries is as a result of prevalent trading costs in the form of both tariff and non-tariff barriers. Considering the observed importance of successful trade, the main objective of this study seeks to establish the significance (if any as implied by theory) of already created EIs with respect to the actualization of trade between and amongst African countries.

In addition, we seek to investigate if other trade enhancing factors such as proximity captured by distance, or relatability captured by language have equal or more significance in enhancing trade amongst African countries.

In general, we expect that the higher the level of integration as well as ease of market access via common language or distance, the higher the capacity to enhance trade amongst members.

### 4. METHODS AND DATA

To explore this idea this study employs the gravity model. The gravity model is a mathematical model and a relational theory describing the degree and level of interaction between two or more points by considering the distance between them (Anderson, 2011).

This model has been established as a standard tool for studying and analyzing trade flows and the effects of EIs, and its application can also be theoretically justified. It was first applied by Isard (1954), since then by Tinbergen (1962), Poyhonen (1963), and later expounded by Linnerman (1966). Consistent progression is established through the works of Anderson (1979), Bergstrand (1985, 1989), Helpman and Krugman (1985), Deardorff (1998), Anderson and van Wincoop (2001), and Eaton and Kortum (2001). All the above mentioned studies have shown statistically significant effects of EIs on trade with varying magnitudes, giving economically sound backing of both the theory as well as policy significance in pursuit of their formation. These projections are more recently evidenced in works such as that by Bergstrand, J. H., et al., (2015) in their observation that being part of EIs does have a substantial effect on trade as shown in their adjusted gravity model estimation.

With these assertions, the basic gravity equation proposes that bilateral trade flows are positively related to the GDPS of trading partners and negatively related to bilateral trade costs, proxied by the distance separating them.

Following the above literature and taking into account the circumstances of African trade, the specification of our gravity model takes the form below:

\[
\log(X_{ijt}) = \beta_0 + \beta_1 \log(Y_{it}) + \beta_2 \log(Y_{jt}) + \beta_3 \log(Pop_{it}) + \beta_4 \log(Pop_{jt}) + \beta_5 \log(Dist_{ij}) + \beta_6 Z_{ijt} + \beta_7 L_{ijt} + \beta_8 Z_{ijt} + \epsilon_{ijt},
\]

Where the subscript i indicates exporting country, j importing country, and t the time period (year) under investigation. For a given year t, the dependent variable \(\log(X_{ijt})\) is the log exports from i to j, \(\log(Y_{it})\) and \(\log(Y_{jt})\) are the log GDP of i and j respectively, \(\log(Pop_{it})\) and \(\log(Pop_{jt})\) are the populations of i and j respectively, \(\log(Dist_{ij})\) is the log distance between i and j, \(Z_{ijt}\) is dummy for sharing a common official language, \(Z_{ijt}\) is dummy for belonging to same EI, \(EL_{ijt}\) is the dummy for belonging to any EI, and \(\epsilon_{ijt}\) is the estimation error.

We try to ensure a mixture of countries that do and do not belong to existing EIs and share a language, including a majority of which carry out some form of recorded trade, (albeit biased by data availability). Also, the study allowed for a lapse of time to allow for stabilization and firm establishment of governments after the 1960s wave of newly gained independencies, and the trade reforms that followed shortly after, as the now independent states sought to grow and develop their young enterprises and via the introduction of structural adjustment programs – SAPs within the region.

We collect data for a sample of nine African countries: Cote d’Ivoire, Ghana, Nigeria, Kenya, Tanzania, Congo Rep, Egypt, South Africa, and Zambia, belonging to either or some of: COMESA, EAC, ECOWAS, SADC, and CEMAC (see Fig. 1).

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between 1980 and 2008. At the time of data collection, these economic integrations had the most consistent and complete data set within that range of years. Beyond that, there were either too many missing variables or too loose a definition of membership within which the advantages of joining were not clearly captured or measurable in reciprocated behavior, (Wang’ombe, W., 2012). These EIs have been particularly chosen as they show a relatively significant level of intra-EI interaction, and thus provide data to analyze the degree of trade amongst them. In addition to the above nine countries, Algeria is also included, because although there is little trade with other countries, it does not belong to any of the EIs taken into consideration. Below is a chart describing the inter-relationships established.

Fig. (1). The African Economic Integrations of Interest.

**5. ESTIMATION AND RESULTS**

We use both pooled two-stage least squares and GMM for this unbalanced panel data set.

The above methods are employed to ensure the integrity and dynamism of the model. For example, to ensure we control for any endogeneity that might arise with variables such as income and trade, we employ the TSLS approach that accounts for any such endogeneity and ensures a correctly specified model. In addition, as the panel is unbalanced, to ensure that the model, we also sought to find to what extent exactly previous period observations affected the current trade. This is then captured by running a GMM where lagged variables were included. By using these methods, the possibility of inconsistent parameter estimation due to endogenous regressors is then greatly avoided, (Wang’ombe, W., 2012).

Overall, we seek to establish how important variables such as national income, population, distance, common languages and most importantly, membership to an EI are in facilitating or hindering trade amongst and between African countries.

After collating all the relevant data and carrying out necessary checks such as unit roots tests and autocorrelation analysis, we proceed with estimating the models as specified and employing the above mentioned approaches.

Our results confirm that both national incomes of trade partner countries and their populations are highly statistically significant in influencing trade, indicating that the population of the destination country has an especially strong determining factor in total trade, which is in-line with economic theory.

The main concern for our study, however, was the effect of joining an EI on intra-Africa trade. We find it interesting to note that even as trade between African countries is noted to be so low, countries belonging to the same EI trade just a fraction more than countries that do not belong to the same EI.

**Table 1. Estimation Results.**

<table>
<thead>
<tr>
<th></th>
<th>Two-stage least squares</th>
<th>GMM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Log(Yi)</td>
<td>0.42***</td>
<td>0.41***</td>
</tr>
<tr>
<td></td>
<td>(2.81)</td>
<td>(2.81)</td>
</tr>
<tr>
<td>Log(Yj)</td>
<td>0.34</td>
<td>0.34***</td>
</tr>
<tr>
<td></td>
<td>(3.92)</td>
<td>(3.89)</td>
</tr>
<tr>
<td>Log(Pop_i)</td>
<td>0.94***</td>
<td>0.95***</td>
</tr>
<tr>
<td></td>
<td>(3.88)</td>
<td>(3.90)</td>
</tr>
<tr>
<td>Log(Pop_j)</td>
<td>2.29***</td>
<td>2.29***</td>
</tr>
<tr>
<td></td>
<td>(9.73)</td>
<td>(9.71)</td>
</tr>
<tr>
<td>Log(Dist_{ij})</td>
<td>-3.41***</td>
<td>-3.51***</td>
</tr>
<tr>
<td></td>
<td>(-13.20)</td>
<td>(-13.17)</td>
</tr>
<tr>
<td>L_{C} (Common language dummy)</td>
<td>0.31</td>
<td>0.28</td>
</tr>
<tr>
<td></td>
<td>(1.13)</td>
<td>(0.98)</td>
</tr>
<tr>
<td>Z_{C} (dummy for belonging to same EI)</td>
<td>0.52***</td>
<td>0.56***</td>
</tr>
<tr>
<td></td>
<td>(4.34)</td>
<td>(4.75)</td>
</tr>
<tr>
<td>E_{C} (dummy for belonging to any EI)</td>
<td>0.32***</td>
<td>0.47395***</td>
</tr>
<tr>
<td></td>
<td>(2.34)</td>
<td>(3.36)</td>
</tr>
<tr>
<td>No. observations</td>
<td>44,388</td>
<td>44,388</td>
</tr>
<tr>
<td>R-sq</td>
<td>0.64</td>
<td>0.64</td>
</tr>
<tr>
<td>Adj R-sq</td>
<td>0.63</td>
<td>0.63</td>
</tr>
<tr>
<td>Mean dependent var</td>
<td>2.16</td>
<td>2.16</td>
</tr>
<tr>
<td>S.D. dependent var</td>
<td>2.78</td>
<td>2.8</td>
</tr>
<tr>
<td>Sum squared resid</td>
<td>122,831.0</td>
<td>122,890.2</td>
</tr>
<tr>
<td>Durbin-Watson stat</td>
<td>0.93</td>
<td>0.93</td>
</tr>
</tbody>
</table>
In Model (1), we observe that both the national incomes of trade partner countries and their populations are highly statistically significant in influencing trade, even more so, the population of the importer country, which is seen to have a statistically more significant effect. With a coefficient of 2.29, the model indicates that the population of the destination (importer country) has an especially strong determining factor in total trade. This is in agreement with economic theory and rules of demand and supply, it’s therefore rational to expect that the more populous a nation, the wider the possible market share and the higher the demand. This also implies that considering all else constant, for every 1 percent increase in the population of an importer country, overall bilateral trade increases by 2.29 percent.

As expected, the coefficient of distance, a proxy of transportation costs, is observed to have a negative and statistically significant impact on bilateral trade within the region, this effect is however, devastatingly strong as the model shows that, if all else remains the same, then bilateral trade decreases by more than 3 percent, for every 1 percent increase in the distance between any two trading partners. In Africa, where transport and communication networks are now only beginning to be highly develop and advanced, it is not uncommon to find that some roads and rail services are out of commission for varying periods of time for among many reasons, natural wear and tear, repairs or reconstruction etc. As a result, whether or not there is a need for re-routing goods and services is a persistent concern for traders and producers.

By including the absolute difference of the log of real GDP for both partner countries, we hoped to test for the strength of the Linder hypothesis, which posits that the more similar the trading partners are the higher the interaction – or volume of trade, (Linder (1961) against the H-O hypothesis, continuing on to agree with the Linder hypothesis, observing a negative and highly significant coefficient, in all the models including the dynamic estimation shown in Model (4).

Whilst controlling for language by inclusion of the language dummy, we observe that although sharing a language has a positive effect on overall trade, it is not really an important part of determining the trade share between countries. The effect is not statistically significant in all three models and the inclusion of it does not change the rest of the variables’ impact or significance. This can be explained away in efforts that have since the early 1960s gone towards streamlining education systems. While English (and other international languages including Swahili and French) is not necessarily the national language or the language of instruction in all countries, the ministries of education often include these as subjects in both high school and primary school curriculums. This way, the majority of working class group have a working knowledge of most languages used for transaction purposes, few countries use little known languages as both national languages and language of instruction. An example is Tanzania whose national language is Swahili and so is the language of instruction, however, residents receiving a formal education are often taught English as a foreign language to improve on acquired skills. On the other hand, while Kenya and Congo both have Swahili as their national language, the official language of instruction in Kenya is English, while it is French in Congo.

Most importantly, given the main focus of the study, it is interesting to note that even as trade between African countries is noted to be so low, countries belonging to the same EI trade merely fractionally more than countries that do not belong to the same Economic Integration. This is highlighted by Model (3) which shows that belonging to the same EI, is highly significant to enabling trade within the region, and so is belonging to any EI as shown by Model (2). Model (1), however, shows that while belonging to any EI has a sufficiently significant positive impact on bilateral trade within Africa, belonging to the same EI has an even more significant and higher impact. These results are as expected and with the numerous and intertwined EIs within Africa, it does not explain why statistics drawn show that trade within the region amongst these countries is at minimum rates.

These results are as expected, in line with theory, and echo those found in numerous others studies consistently through time, from age old studies to newer ones, analyzing trade flows and their determinants. For example, formation of European trading blocs helped increase trade significantly in the 1960s and 1970s (Bergstrand, 1989). Much later so did Frankel and Wei (1995) and Frankel (1997) in Asia and North America, in the years between 1972 and 1992 (Frankel, 1995, 1997). In another study, Frankel and Rose (2001) confirm that trade blocks, here referred to as EIs do increase overall trade (Frankel, 2001).

By finding results that support the Linder hypothesis and in conjunction to the added observations of a strong positive effect of joining the same EI, the study confirms that being similar, streamlining and employing similar policies especially in this case, trade policies does indeed encourage and promote more trade.

For a more exhaustive analysis, we divided and arranged the data into subgroups through the time line and run the same models. An interesting find is observed when comparing the effects of EIs to bilateral trade over the different time periods. The results showed that while belonging to the same EI (denoted by dummy variable – Z) was highly significant in the formative years, between 1980 and 1988, it was not the case for the following years. We observed that between 1990 and 2000, the impact reduced, and in that time, belonging to any EI was beneficial to overall bilateral trade. As economic theory suggests, joining an EI can jump start trade as countries now acquire bargaining power in the early stages, however, that relationship needs continued effort on both parties, something that is perhaps lacking of the current trading environment, an observation that may explain the statistics showing less intra-Africa bilateral trade.

| J-statistic | 540.71 |
| Instrument rank | 360 |

Note: Standard errors in parentheses. ** and *** indicate statistical significance at 5% and 1% levels respectively.
6. CONCLUSIONS AND POLICY IMPLICATIONS

This study confirms that being similar, streamlining and employing similar policies, does indeed encourage and promote trade. A complete integration process also means that by removing restrictions and barriers to entry, factors of production; labor, capital and technology will move freely, encouraging investments and industrial growth. If all the factors are accessible and available, then it is possible that the manufacturing sector will expand, production will include value addition, so that while for example Ethiopia produces coffee in abundance, instead of only exporting the raw beans to Europe for further processing, they can do their own processing and export the final product within easily accessible neighboring countries.

With the current move towards more liberalized markets, one policy implication of these results is that although elimination of trade barriers and structural rigidities in any form of EI is especially useful, it is not enough by itself to encourage and promote bilateral trade within Africa. Trade entails the interaction of many sectors of the economy, advancing all is thus necessary and thus, measures to stimulates investment flows from intra-regional and also extra-regional sources should be sought. With respect especially to intra-Africa trade, it is suggested that the process of integration proceed at a faster rate, encouraging more openness especially with regard to importation of capital goods in addition to diversification of products for export.

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