Intra-Regional Trade Potential: An Analysis of the Ecowas Zone

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Author's contribution

The sole author designed, analyzed, interpreted and prepared the manuscript.

Original Research Article

ABSTRACT

The main objective of this paper is to evaluate and analyse the potential of intra-regional trade in the ECOWAS zone. Given the unavailability of data for some countries, only data from 10 countries could be collected over the period 2001-2019. The methodology we used is based essentially on the gravity model, a model whose use in international trade is widely justified with solid theoretical foundations. The method for calculating countries' trade potential is inspired by the work of Ghazi, T. and Msadfa, Y. (2016). The results obtained show that Nigeria and Côte d'Ivoire top the ranking, respectively 1st and 2nd, of countries whose trade potential is best exploited. In 2001, Ghana ranked 4th and Senegal 3rd, but in the years since, Ghana has improved its position and Senegal has regressed. Countries such as Mali, Burkina Faso and Niger saw their trade potential increase between 2001 and 2019. In contrast, countries such as Guinea and Benin regressed over this period. These results call on the authorities to encourage the relevant economic policies taken for countries that have seen an improvement in their trade potential. On the other hand, countries with slow or low levels of progress need to be supported by effective development programs to improve their position.

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Keywords: trade potential; intra-regional trade; ECOWAS.

1. INTRODUCTION

Faced with the profound changes affecting the world economy, integration appears to be an appropriate response to the phenomenon of globalisation. Integration is a process by which two or more countries seek to eliminate discriminatory barriers between themselves and establish an economic space. Regional integration is the political, economic and social convergence of a group of countries that are aware of the limitations of national policies and wish to optimise their chances of development. [1,2]. International trade theories developed by authors such as [3] have highlighted the importance of specialisation in production.

The continent's share of world exports has fallen steadily from 7.3% in 1948 to 3.3% in 2016 [4]. The same trend can be observed for imports. Africa's share of world imports fell sharply from 8.1% in 1948 to 3.1% in 2017 [4]. In fact, international trade has been characterised over the last two decades by: the emergence of a triad (Western Europe, Asia and North America); the marginalisation of other regions including Africa, Latin America and Eastern Europe [5].

Despite a high degree of trade openness (67% on average), Africa has remained on the margins of world trade. Indeed, even though trade has grown rapidly from 1960 to the present, rising from nearly 15.8 billion USD in 1960 to an annual average of 1066 billion USD over the decade (2010-2020), its share of world trade has remained low and has gradually fallen; averaging nearly 5% over the period 1960-1970. This share is around 3% over the last decade (2011-202). By way of comparison, the proportions of trade within the continents of Asia, Europe and America have reached levels of 40%, 37% and 18% respectively [6]. Intra-African trade stands at around 12%, well below intra-regional trade in Europe, North America and the Asian countries with 60%, 40% and 30% respectively [7].

Following several attempts at integration in West Africa, on 28 May 1975 the Heads of State and Government adopted the Treaty of Lagos establishing the Economic Community of West African States (ECOWAS). ECOWAS is a diversified organisation comprising French-speaking (8), English-speaking (5) and Portuguese-speaking (2) states, with the language barrier not being an obstacle to integration. With 386,474,000 inhabitants, it is the continent's most populous economic grouping.

The Community's objective, set out in Article 3.1 of the Treaty, is to : "to promote cooperation and integration with a view to achieving an economic union in West Africa, with a view to raising the standard of living of its peoples, maintaining and enhancing economic stability, strengthening relations between Member States and contributing to the progress and development of the African continent".

The Analysis of intra-African trade by regional bloc over the last five years ranks ECOWAS in 4th position (9.4%), behind EAC (21.3%), SADC (20.8%), and COMESA (10.4%) [8].

The Analysis of the intra-regional trade evolution in West Africa highlights the trade potential of ECOWAS member countries. On a regional scale, trade between ECOWAS member countries has averaged 9.4% of total exports in recent years (2015-2020). Before the ECOWAS CET came into force, this figure was 8.4%, representing an average increase of 1% point over the period. In terms of exports over the 2015-2019 period, the locomotives at regional levels are Nigeria, Ivory Coast and Senegal, which on average provide 29.4%, 23.2% and 18.2% respectively of total intra-Community exports. Despite the performance of trade within ECOWAS, there is still untapped commercial potential. Not all ECOWAS countries have taken advantage of the opportunities of trade integration because there are disparities in terms of trade potential.

In view of the above, we pose the following research question: what is the trade potential of ECOWAS countries within the framework of intra-regional trade?

The aim of this paper is to assess and analyze the potential for intra-regional trade in the zone. This objective is based on the following hypothesis: ECOWAS has untapped trade potential.

To approach this work, it is necessary first to carry out a literature review on trade potential, followed by an exploratory analysis of the import flows of ECOWAS member countries, before concluding with an assessment and analysis of the trade potential of ECOWAS countries.

2. REVIEW OF LITERATURE

With a particular focus on sub-Saharan Africa (SSA), Foroutan and Pritchett [9] applied the traditional gravity model for 19 SSA countries, based on proximity, economic size and other characteristics. They used the Tobit maximum likelihood estimation method to correct for the censoring bias produced by the ordinary least squares (OLS) method. Actual trade data were compared with model forecasts. Despite the low level of intra-African trade, Foroutan and Pritchett [9] found that reported intra-African trade was higher than the potential predicted by the model. Sub-Saharan Africa's actual share of trade averaged 8.1%, whereas the gravity model estimated a slightly lower average of 7.5%.

Fajimolu and Olayemi [10] find through an augmented gravity model that GDP (wealth), population and political stability of exporting countries will significantly favour intra-regional bilateral trade flows, while variables such as size, landlockedness and distance will significantly reduce bilateral trade flows within the region. The variables of population, landlockedness, political stability and perception of corruption of importing countries do not prove to be statistically significant within ECOWAS.

Turkson et al. [11] find sub-regional trade agreements within Sub-Saharan Africa and especially among Economic Community of West African States and Southern Africa Development Community members to have had a positive and significant impact on bilateral trade. Financially integrated trading partners also traded more, while we also found distance, landlockedness, common currency and colonial link to have an impact on trade costs and bilateral trade flows within SSA.

Cassim [12] conducted an empirical study on the determinants of intra-regional trade in Southern African countries using the gravity model with a Tobit maximum likelihood estimation method. He found that intra-regional trade in the South African Development Community (SADC) is in fact in line with international standards, meaning that trade in this region is beyond its potential. He confirmed that fundamental economic factors such as the economic and geographical size of trading partners, measured by GDP and land area, have a significant impact on trade flows, while transport costs have a negative effect on bilateral trade. However, this result is distorted by the high volumes of exports from South Africa to the rest of

the members. In fact, the model used by Cassim [12] shows that intra-SADC trade excluding South Africa is low, indicating the existence of potential for increased exports.

Alemayehu and Haile [13] replicated the gravity model using a Tobit formulation to test the determinants of bilateral trade flows and assess the prospects and challenges of regional integration in the Common Market for Eastern and Southern Africa (COMESA). The results show that standard gravity model variables such as GDP of exporting and partner countries, bilateral distance and contiguity have the expected signs, with the exception of the common language variable. This reinforces the hypothesis that trade between similar countries tends to be more important. However, the coefficient of the regional integration dummy variable is negative and insignificant, meaning that regional trading blocs in Africa fail to promote intra-regional trade.

Alemayehu and Edris [14] re-examined the potential of intra-African trade with the aim of advancing regional economic integration through trade. They used various gravity models for two groups of countries, one characterised by an advanced level of integration (West and Central Africa) and the other compromising the rest of the continent (North, East and Southern Africa). The model was estimated using the Pseudo Poisson Maximum Likelihood (PPML) technique Silva et Tenreyro [15].

A simulation exercise was then carried out to analyse the potential for intra-African trade for each group of countries, given the model parameters. This potential was then compared with the actual trade of each country. The results showed significant potential for intra-African trade, albeit mitigated by the lack of complementarity between exports and imports, weak infrastructure and the relative competitive position of potential suppliers of African exports.

Even if the level of intra-African trade is low, it may not be too low compared to trade between countries with economic characteristics similar to those of Africans. Foroutan and Pritchett [10] studied this question for 19 sub-Saharan African countries between 1980 and 1983. They concluded that trade flows between African countries were not below expectations. Sub-Saharan Africa's median share of intra-Community trade averaged 8.1%, compared with a slightly lower expected value of 7.5%. However, this result does not rule out the possibility of an

increase in intra-African trade potential. Indeed, while Foroutan and Pritchett's conclusion may hold at continental level, the situation varies from country to country.

3. METHODOLOGY

The methodology we have used is essentially based on the gravity model, a model whose use in international trade is widely justified with solid theoretical foundations [16]. Given the multiplicative nature of the gravity equation, the standard procedure for estimating a gravity equation is simply to take the natural logarithms of all the variables and obtain a log-linear equation that can be estimated by ordinary least squares regression (much easier than non-linear estimation methods). We obtain the estimating equation:

$$lnX_{ij} = lnG + lnS_i + lnM_j + ln\emptyset_{ij} \quad (1)$$

Or, more precisely, in the case of the Anderson and van Wincoop model:

$$lnX_{ij} = a_0 + a_1lnY_i + a_2lnY_j + a_3lnt_{ij} + a_4ln\Pi_i + a_5lnP_j + \varepsilon_{ij} \quad (2)$$

The standard gravity model can be augmented with additional variables and dummy elements to examine the effects of other factors on bilateral trade flows [17].

In our work, we intend to use an augmented gravity model to incorporate as many variables as possible in order to better identify the factors that explain the evolution of intra-regional trade within ECOWAS (see Ndao, 2023 [18] [1] for more details).

The method for calculating countries' trade potential is inspired by the work of Ghazi, T. and Msadfa, Y. [19].

> rade Potential = Observed Imports / Estimated Imports * 100

A ratio below 100% means that there is untapped trade potential. With a ratio above 100%, we can say that the country is either exceeding its trade potential, or that there is no positive trade potential.

3.1 Exploratory Analysis of Import Flows and the Economic Weight of Ecowas Countries

The data collected comes from the UN Comtrade and World Development Indicators databases. Due to the unavailability of data for some countries in the region, only data for 10 countries could be collected for the 2001-2019 time horizon.
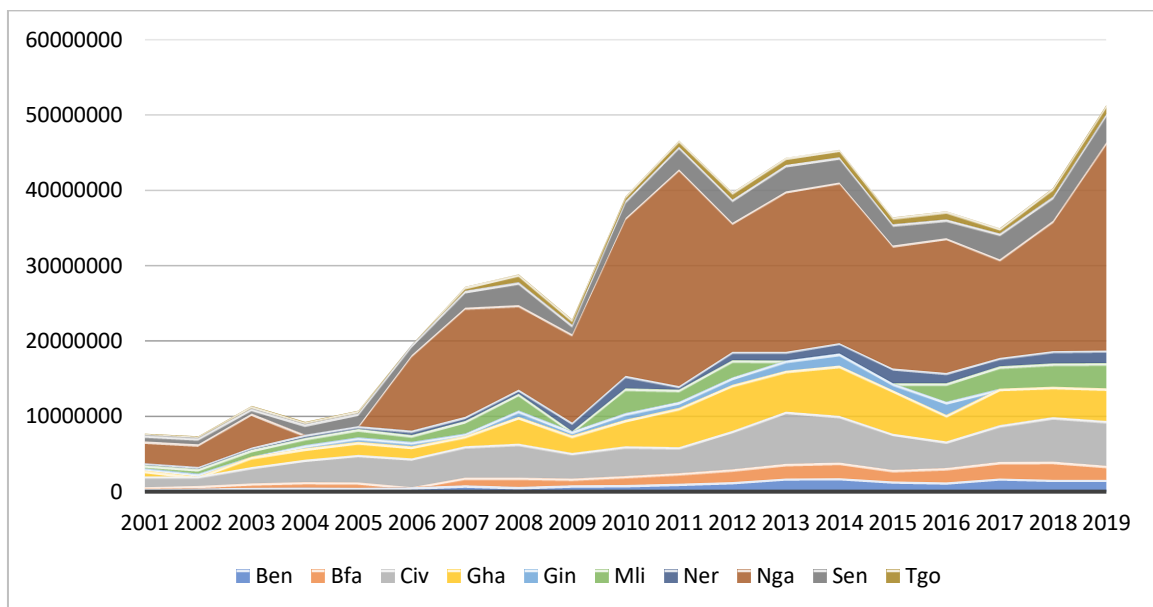

Fig. 1. Evolution of import flows (in US dollars) in ECOWAS countries from 2001 to 2019
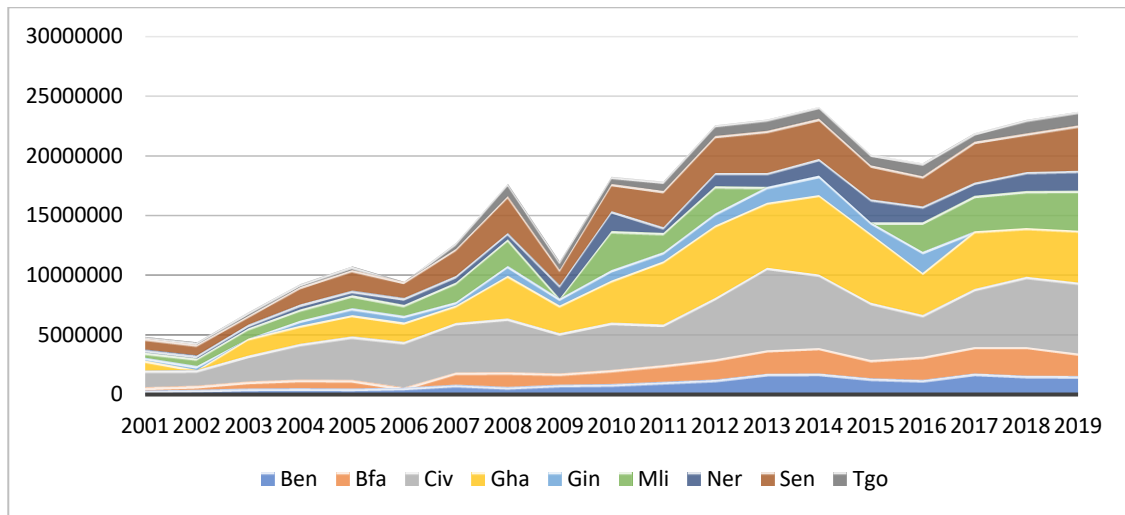*Source : UN Comtrade, World Development Indicators, Calculs de l'auteur*

Fig. 2. Evolution of import flows (in US dollars) in ECOWAS countries (excluding Nigeria) from 2001 to 2019
Source : UN Comtrade, World Development Indicators, Calculs de L'Auteur

Table 1. Descriptive statistics on ECOWAS import flows (2001 to 2019)

Country Code	Amount	Average	Gap-type	Min.	Max.
Ben	19 567 004	68 656	101 670	0	582 895
Bfa	24 102 569	89 269	117 414	3	544 875
Civ	78 127 692	274 132	514 358	8	2 893 246
Gha	63 891 154	236 634	458 586	10	2 478 709
Gin	12 234 361	54 375	113 449	0	769 602
Mli	27 804 824	123 577	197 947	45	1 136 002
Ner	17 960 845	63 021	122 769	0	994 786
Nga	259 473 855	1 017 545	2 091 889	0	12 064 658
Sen	44 826 646	157 286	263 425	0	1 367 349
Tgo	12 474 086	46 200	77 887	0	531 993
All ECOWAS	560 463 036	211 097	748 206	0	12 064 658

Source : UN Comtrade, World Development Indicators, Calculs de l'auteur

3.2 Import Flows from ECOWAS Countries

As Fig. 1 shows, imports into all ECOWAS countries increased over the entire period. Nigeria dominates the share of imports into the Community zone. Even if imports are growing overall, we can observe remarkable dips for certain countries in certain years. In 2009, for example, imports fell sharply from the previous year in Togo, Senegal, Nigeria and Niger.

Following Nigeria and Ivory Coast, Ghana and Senegal in the ranking of ECOWAS's biggest importers (see Fig. 2). It should also be noted that in 2016 (see Fig. 2), imports fell remarkably in certain countries of the region, notably Togo, Senegal, Niger, Mali, Guinea, Ghana and Ivory Coast.

The statistics in Table 1 show that total ECOWAS goods imports amounted to over 560 million US dollars between 2001 and 2019. On average, these imports amounted to US$211,097 per year for the region as a whole, and it should be noted that Nigeria, Côte d'Ivoire and Ghana had annual average goods imports of US$ 1,017,545, US$274,132 and US$236,634 respectively, higher than the overall average. It should also be pointed out that disparities are observed in these three countries, where standard deviations are higher than averages: imports fluctuate widely in these countries.

4. RESULTS AND DISCUSSION

The methodology we have used is based essentially on the gravity model, which is a model whose use in international trade is widely justified with solid theoretical foundations.

Fig. 3 shows that there is untapped trade potential in countries such as Benin, Burkina Faso, Cote d'Ivoire, Ghana, Guinea, Mali and Niger.

Countries such as Nigeria (since 2002), Senegal and Togo are surpassing their trade potential.

4.1 Ranking of ECOWAS Countries by Trade Potential

Overall, Nigeria and Ivory Coast are at the top ranking, at 1st and 2nd respectively, as the countries whose trade potential is best exploited. In 2001, Ghana ranked 4th and Senegal 3rd, but in the years since, Ghana has improved its position and Senegal has fallen back.

Countries such as Mali, Burkina Faso and Niger saw their trade potential increase between 2001 and 2019. In contrast, countries such as Guinea and Benin regressed over this period.

These results call on the authorities to encourage the relevant economic policies taken for countries that have seen an improvement in their trade potential. On the other hand, countries with slow or low levels of progress need to be supported by effective development programs to improve their position.

These results contribute to the literature by adding value to work on the trade potential of ECOWAS countries.
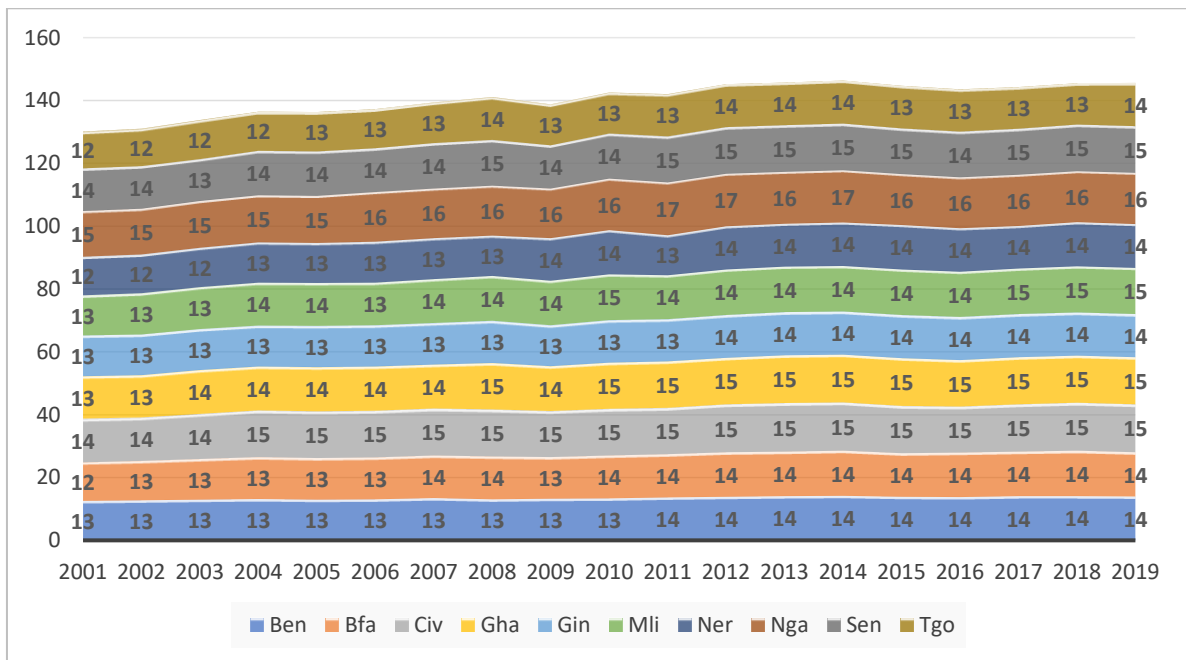

Fig. 3. Trade Potential of ECOWAS Countries

Table 2. Ranking of ECOWAS Countries by Trade Potential

Pays	2001	2010	2019
Nga	1	1	1
Civ	2	2	2
Gha	4	3	3
Sen	3	5	4
Mli	6	4	5
Bfa	9	7	6
Ner	8	6	7
Ben	7	9	8
Gin	5	8	9
Tgo	10	10	10

5. CONCLUSION

We have shown that Nigeria and Ivory Coast are at the top of the ranking, respectively 1st and 2nd, of the countries whose commercial potential is best exploited. In 2001, Ghana was ranked 4th and Senegal 3rd, but in the years since, Ghana has improved its position and Senegal has regressed.

The added value of this paper lies in its contribution to the analysis of the trade potential of ECOWAS countries.

These results lead us to formulate the following policy implications, addressed to the authorities of the sub-region's integration structures.

1. Accelerate the process of rationalising all ECOWAS entities, a necessary reform for the implementation of genuine RECs in West Africa. Indeed, multi-membership, by dispensing financial resources, severely handicaps the implementation of the reforms needed to develop trade.
2. Encourage member states to implement the reforms needed for a transition to an effective customs union, and then to a genuine common market that ensures factor mobility. In addition, we need to invest in infrastructure capital by promoting major integration projects, and build better institutions capable of forcing governments to apply Community decisions.
3. Encourage the authorities to support programs to modernise and develop the region's SME fabric.
4. Encourage the authorities to promote the development of the local value chain.
5. Encourage the authorities to support modernisation programs and the development of the region's SME fabric.
6. Encourage Authorities to promote the development of local value chains.

All these measures would contribute to the structural transformation of the community, which, coupled with a genuine diversification strategy, would ensure viable commercial integration. On the strength of these results, the need to promote economic integration in general and trade integration in particular in Africa is justified by the very characteristics of the continent's economies. These are low-income economies, with compartmentalised and sparsely-populated markets, underdeveloped production structures and poor-quality, inadequate infrastructure.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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