Analysis of the Competitiveness and Sophistication of Exports in ECOWAS Countries: The Case of Measuring Trade in Value Added Products

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Analysis of the Competitiveness and Sophistication of Exports in ECOWAS Countries: The Case of Measuring Trade in Value Added Products

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Abstract

The objective of this study was first to analyse the participation of Economic Community of West African States (ECOWAS) countries in the global value chain. Then, an analysis was done of the export performance of these countries in value added trade through export competitiveness and sophistication. The results show that the participation of these countries in the global value chain is strongly driven by downstream integration, that is, exports of primary products. With regard to export performance in value added trade, the results suggest that the export basket of these countries is uncompetitive. The results also highlight the low sophistication of the export basket with a very high degree of heterogeneity between countries.

Keywords: Global value chains; upstream integration; downstream integration, export competitiveness and sophistication.

JEL classification: F10, F15, F60, O55

1. Context and issues

In an increasingly interconnected world economy, where more than 70% of trade is in intermediate goods and services, integration into today's global value chains will determine tomorrow's trade and foreign direct investment (FDI) patterns and growth prospects (OECD, WTO, 2014).

Indeed, since the 1990s, world trade has been undergoing rapid change. Lower transport and communication costs combined with technological advances and trade liberalisation have profoundly changed the way goods and services are produced (Baldwin, 2012). As a result, competition has increased and firms have had to rethink their organizational structure and production methods (Lorenzi, 2005). For most firms, this meant expanding geographically in some form (offshoring, outsourcing, etc.) to capture growth opportunities and gain competitive advantages, hence the emergence of so-called global value chains (GVCs). These refer to a decentralized and interconnected process from conception and design to manufacturing, marketing and commercialization of goods and services (Gereffi and Fernandez-Stark, 2011).

This new configuration of value-added trade offers new opportunities and possibilities for structural transformation to developing countries, which are no longer obliged to set up entire production units (Baldwin, 2012; Escaith, 2014). However, it can now integrate as links in GVCs according to their comparative advantages while benefiting from the transfer of foreign skills and know-how (Hausmann, 2014).

Indeed, integration into GVCs can have many advantages. Access to larger foreign markets could allow firms to exploit economies of scale, become familiar with new technologies and products, and become more innovative. Such integration would also facilitate access to cheaper intermediate products, a wider range of products or higher-quality foreign inputs, all of which can increase firm productivity (Grossman and Helpman, 1991). Productivity effects also stem from efficiency gains from international competition, access to tacit knowledge and foreign technology, and opportunities for specialization and economies of scale (Helpman and Krugman, 1985; Pietrobelli and Rabellotti, 2007; Egger and Egger, 2006; Crino, 2008; Bandick, 2015; Merlevede and Theodorakopoulos, 2016).

However, participation in a GVC does not automatically bring gains for participating countries; it also has drawbacks. It can increase vulnerability to global economic cycles (Altomonte et al., 2012), supply-side fluctuations, risks associated with relocation and FDI (Plank and Staritz, 2013) and employment levels (Mankiw and Swagel, 2006).

Moreover, some studies have stressed that value-added trade leads to diversification, competitiveness and export sophistication (López-Cálix, and al., 2010). Thus, for African countries, participation in the GVCs remains a strategic alternative

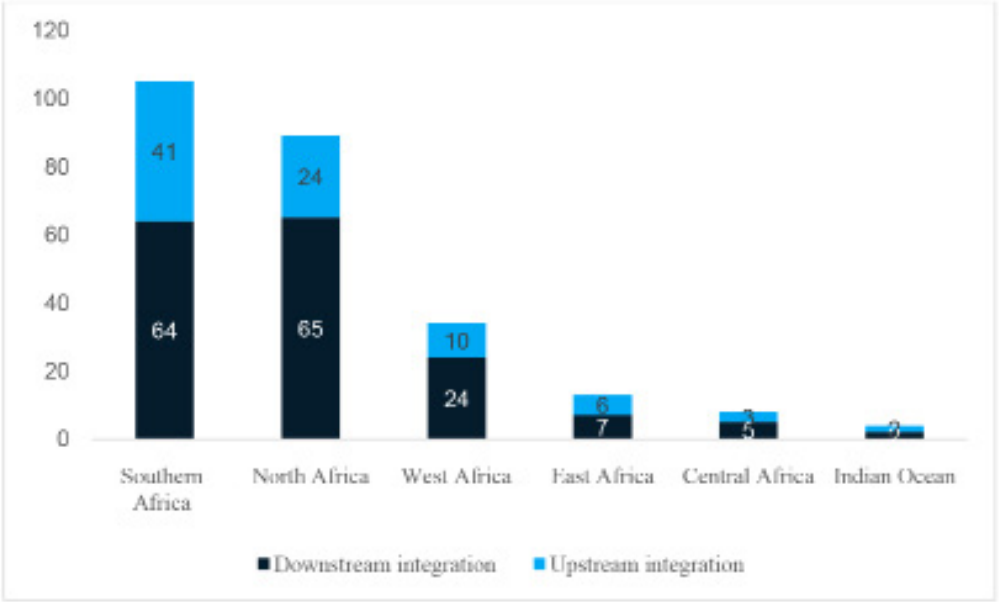
for the diversification and structural transformation of their economies (Jouini et al., 2016).

However, analysis of Africa's participation in the GVCs, especially West Africa (AfDB et al. 2014), shows a high level of integration in low value-added segments characterised by low opportunities for innovation and technology transfer (Foster-McGregor, 2016). This raises the question of whether such level of integration allows these countries to make gains in terms of the competitiveness and/or sophistication of their exports.

Economic literature on GVCs is abundant. However, few studies have been carried out on export performance (see Gereffi and Kaplinsky, 2001; Humphrey et al, 2004; Hausmann, Hwang and Rodrik, 2007; Bernhardt and Milberg, 2011; Foster-McGregor et al, 2016), and even fewer for African countries. Shedding light on this facet justifies the interest of this study, which proposes to address this issue in countries of Economic Community of West African States (ECOWAS). The main contribution of this study is to analyse for the first time, to the best of our knowledge, the export performance of ECOWAS countries through value-added trade.

The choice of this region is justified by the fact that it is one of the most open to international trade in Africa (CACID, 2012). However, its share in international trade remains below its potential and represents in value, 0.7% of world exports against 0.5% of imports. Moreover, in terms of the level of integration into GVCs, West Africa is the third best integrated region in Africa (Figure 1). However, their exports are reputed to be highly concentrated on a limited number of primary products with low technological content. This suggests that trade openness in the region has contributed little to improved trade performance. Hence the question arises as to whether the positioning of its ECOWAS countries in trade allows them to benefit from their integration into the world economy.

Figure 1 : Integration of ECOWAS countries in the GVC, 2011



Source : UNCTAD-EORA-GVC database (AfDB et al, 2014)

This research sought to answer the question of whether ECOWAS countries are improving their export performance in GVCs. This study, therefore:

- Allows investigation of the GVC theme in West African countries, where it is hardly addressed.
- Complements existing studies on Africa's positioning in global value chains.
- Provides a complementary analysis of the investigations made in the literature on export performance. However, unlike previous studies which are based on gross trade flows, it is based on the concept of measuring trade in value added.
- Focuses on sectoral rather than overall exports.

The research analysed the export performance of African countries, particularly ECOWAS countries, in GVCs. More specifically, it sought to establish:
(i) The competitiveness of exports in terms of value-added goods.
(ii) The sophistication of value-added exports.

As hypotheses, value-added trade in ECOWAS countries is not competitive and has very low levels of sophistication.

2 Literature review

2.1 Theoretical discussions

The GVC is a culmination of previous contributions on specialisation and the international division of labour (IDL) based on comparative advantages. In this literature, export performance has long been analysed around two arguments. The first argument advocates export specialisation and the second supports export diversification.

In line with the first argument, the Ricardian model predicts that countries gain from trading with each other if they specialise in producing the goods that bear the lowest relative production costs, that is, the goods with the lowest relative price. This specialisation is guided by the difference in technology between countries (Dornbusch et al., 1977). But according to the Heckscher and Ohlin (H-O) model, the differences in relative costs are explained by differences in relative "factor endowments" across countries.

In the second argument, when exports are overly concentrated, even more so in primary and mining products, the economies in question are still vulnerable to the risk of an international downturn (Singer, 1950, Cuddington and Jayasuriya, 2007). Indeed, the specialisation of exports in raw materials mobilises most of the productive resources to the detriment of more diversified industrial activities (Sala-i-Martin, 2004; Sachs and Warner, 2001). These authors therefore advocate export diversification as it would contribute enormously to export performance. However, this is a necessary but not sufficient condition for gains in trade performance (Rodrik, 2007).

2.2 Empirical evidence on export competitiveness and sophistication

GVCs have been well documented, and their effects have been the subject of many recent empirical studies. Nevertheless, few studies have been conducted on trade performance; even fewer in the case of African countries. In this section, we review empirical research that has attempted to analyse export performance through competitiveness and sophistication.

2.2.1 General framework

Using a sample of 178 developed countries and about 100 products covering the period 1962–2010, Henn et al. (2015) analysed export performance through export quality. The results show that exports from these countries are of good quality.

Rodrik (2006) analysed Chinese export performance using a methodology based on the measurement of sophistication and found that participation in the GVCs has strongly contributed to the sophistication of Chinese exports. Jarreau and Poncet (2009), along the same lines, used the measure of export sophistication developed by Hausmann, Hwang and Rodrik (2007) and found results similar to those of Rodrik (2006). Felipe et al. (2010) have also shown that in recent years, China has gained revealed comparative advantage in the export of sophisticated products; using the same approach they showed that India's exports are diversified and sophisticated in GVCs.

Bernhardt and Milberg (2011) analysed the performance of selected sectors (horticulture, clothing, mobile telephony and tourism) in GVCs over the period 1990–2009 and showed the existence of a positive relationship between GVC integration and export performance, except in the clothing sector.

2.2.2 African Context

So far, few studies have been conducted in African countries. Those that have include Abdon and Felipe (2011), Hidalgo (2007, 2011), Hausmann et al. (2014), Hausmann and Jasmina (2015) etc.. Hidalgo (2011) used the concept of product space to analyse the diversification and sophistication of exports in East African countries. He found that, with the exception of Kenya, these countries have low export diversification and low sophistication.

Hausmann et al. (2010) studied North African countries over the period 2005–2008 using the product space method developed by Hidalgo (2007) to analyse export diversification. The results show that export diversification is very low. Abdon and Felipe (2011) conducted the same analysis in Sub-Saharan Africa (SSA) in the context of structural transformation and showed that exports from majority of SSA countries are low in sophistication and highly concentrated in commodities.

Using the measure of export sophistication, Hausmann et al. (2014) showed that Uganda's exports were undiversified and unsophisticated. Similar results were found by Hausmann and Jasmina (2015) in the case of Rwanda. Galibaka (2015), following the same logic, was interested in analysing the sophistication of fruit and vegetable exports in the West African Economic and Monetary Union (WAEMU) zone using the sophistication measurement instrument of Hausmann et al., (2007) and highlighted a weakness in both the sophistication of fruit and vegetables and the export basket.

Foster-McGregor et al. (2016) also looked at the export performance of African countries in the GVCs. To do so, they first adopted the approach of Bernhardt and Milberg (2011) by capturing export performance through the ratios of unit value and

export market share. Second, they used the calculation of the export sophistication and diversification index of Hausmann et al., (2007). The results are unsatisfactory and show little or no performance in these countries.

2.3 Methodological lessons on measuring indicators of competitiveness and sophistication

2.3.1 *Measures of export sophistication*

From this empirical review, it can be seen that over the years several approaches have been used to analyse the sophistication of exports. There are three approaches in the literature:

- In the first approach, the sophistication of exports is directly determined by the characteristics of the exported product (approach proposed by the Organisation for Economic Co-operation and Development [OECD] and the International Monetary Fund [IMF]). OECD (2003) proposes an indicator based on the technological intensity of production, while IMF (2014) proposes a measure of product quality. The scarcity of data limits the use of this approach even more in the case of African countries.
- In the second approach, the sophistication of exports is determined by the characteristics of the exporting country (Leamer, 1984; Lall et al., 2006; Hausmann et al., 2007; Hidalgo et al., 2007). This approach classifies exported products according to their implicit level of productivity/income.
- The last approach straddles the two previous ones and determines the sophistication of exports both by the characteristics of the exported product and by the characteristics of the exporting country (Hausmann et al., 2011; Hidalgo and Hausmann, 2011).

In order to have a chronology of the indicators used in the literature, we can first cite Michaely (1984) who proposed an indicator of export sophistication called "the level of income from trade". This indicator is calculated on the basis of the weighted average per capita income of countries exporting a good. More recently, Lall et al. (2006) proposed another indicator of export sophistication defined by the sum of market shares held by exporting countries classified according to their income. The market shares are weighted by the average income of each group of countries. This second indicator, which analyses the productive structures of countries, makes it possible to identify for each country, the market segments that are conducive to future economic growth. Subsequently, the measurement of export sophistication was improved by Hausmann et al. (2007). Based on the revealed comparative advantage and the income of each exporting country, they define two indicators of export sophistication: one at the level of exported products and the other at the level of exporting countries.

2.3.2 Measures of export competitiveness

The empirical review shows that export competitiveness has been frequently analysed in recent years. Given the complexity of the term, there is no single approach to this analysis. Methodological approaches vary among authors.

Sectoral export competitiveness is often analysed in two ways: either on the basis of relative domestic prices between non-tradables and tradables (real domestic exchange rate); or on the basis of exported products (real effective exchange rate).

Indicators used in the literature to analyse export competitiveness include indicators of revealed comparative advantage, indicators of trade intensity, complementarity indices, concentration/diversification indices and specialization indicators (Sardy and Fetscherin, 2009).

In addition to these traditional indicators, others are increasingly used to analyse export competitiveness. These include indicators of export market share (Hummels, 2005; Bernhardt and Milberg, 2011) and export market penetration (Beleska-Spasova, 2014).

In sum, the literature review shows that few studies have been carried out in African countries to analyse export performance in GVCs, which again justifies the added value of this research. In line with the findings of the methodological review, we will draw on the methodological approach of Hausmann et al. (2007) for the analysis of sophistication and that of Bernhardt and Milberg (2011) for the analysis of export competitiveness in the GVC context.

3 Methodology

Measuring different aspects of export performance is not always easy. In this study, we draw on the work of Foster-McGregor et al. (2016). In line with their methodology, we first adopt the Bernhardt and Milberg (2011) approach, which captures export performance through the simultaneous change in export unit values and export market shares. Next, we adopt the approach of Hausmann et al. (2007), who instead use export sophistication as a measure of performance.

3.1 Data Source

Data covering ECOWAS countries from 2002 to 2011 are mainly from the EORA-GVC (2014) database of UNCTAD, except the data on gross domestic product (GDP) per capita that are from the World Bank's World Development Indicators (WDI) database (Annex B for more details.

The EORA-GVC database provides multi-regional input-output tables to calculate value added trade for 189 countries over the period 1990 to 2012. These tables bring together a variety of primary data sources, including: input-output tables at the national level; data on the main aggregates obtained from national statistics, Institute for Developing Economies (IDE-JETRO) and OECD collections; and trade data (UN Comtrade, UN Service Trade).

Collected by UNCTAD, OECD and EORA, the data cover 42 of the 45 countries in sub-Saharan Africa.

Table 1: Descriptive statistics of the study variables (GDP per capita and exports by sector according to the EORA classification)

Variables	Observations	Average	Standard deviation	Source
Gross domestic product (GDP) per capita	140	619.6246	521.6042	WDI
Agriculture	140	1.82e+07	4.88e+07	UNCTAD-EORA
Livestock	140	18034.51	23763.13	UNCTAD-EORA
Mining and quarrying	140	1.18e+08	4.48e+08	UNCTAD-EORA
Food and drinks	140	1.04e+07	3.29e+07	UNCTAD-EORA
Textiles and clothing	140	100968.2	378809.4	UNCTAD-EORA
Timber and paper	140	2790774	1.59e+07	UNCTAD-EORA
Oil and chemical products	140	1.43e+07	5.11e+07	UNCTAD-EORA

Metal products	140	29114.8	27128.68	UNCTAD-EORA
Electricity, gas and water	140	47821.02	231687	UNCTAD-EORA
Financial intermediation	140	34209.34	94859.73	UNCTAD-EORA

Source: Author's calculation from WDI and UNCTAD-EORA database
PLEASE CLARIFY IF THE COMMAS SIGNIFY DECIMAL POINTS

3.2 Ratio of unit values and export market shares

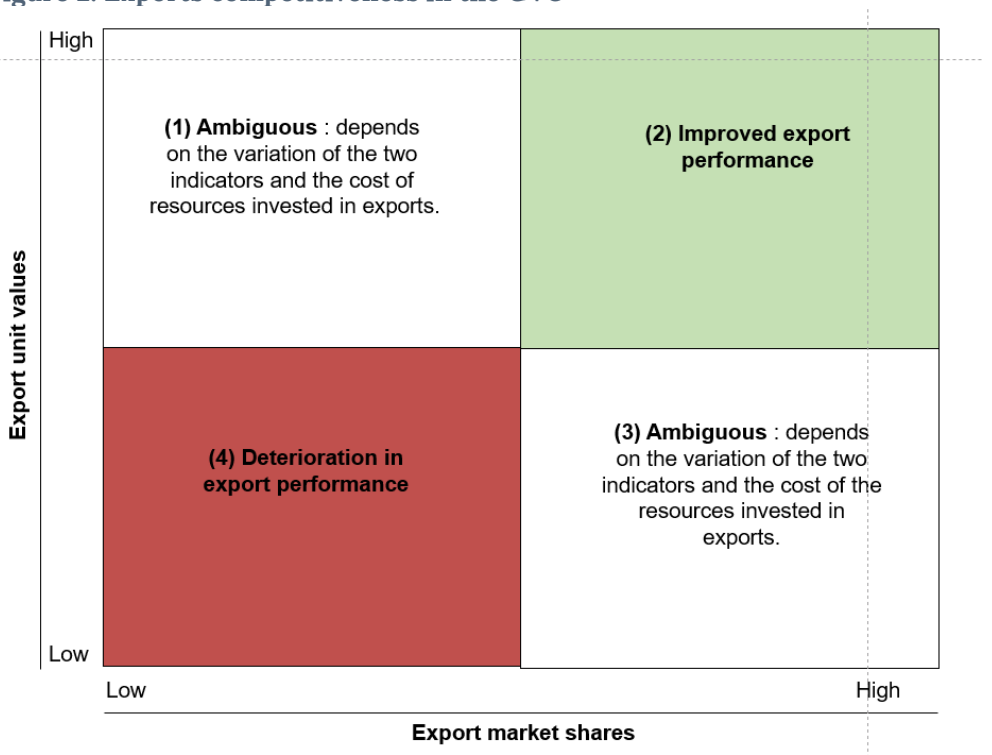
In this first approach, the export performance in the GVC is captured simultaneously by: (i) increasing export unit values; and (ii) increasing export market shares. Export unit values and export market shares are used respectively as indicators of export quality (Li and Song, 2011) and export competitiveness (Bernhardt and Milberg, 2011). Indeed, while good export quality is associated with technological upgrading, export competitiveness is generally linked to low production costs and hence low unit values (Bernhardt and Milberg, 2011).

According to Bernhardt and Milberg (2011), exports perform well when the following indicators are positive:

- Product value dynamics measured by the increase in export unit value.
- The dynamics of international competitiveness measured by the increase in export market share.

Figure 2 allows us to examine export performance in a systematic way. The simultaneous increase in unit values and market shares suggests an upward shift (improvement in export performance) in the GVC (quadrant 2). Conversely, a simultaneous decline in these two indicators reflects deterioration in the GVC (quadrant 4).

Figure 2: Exports competitiveness in the GVC



Source: Kaplinsky and Readman (2005).

To calculate these indicators, we used 5-digit coding according to the Standard International Trade Classification (SITC rev.3). Export performance was analysed by sector according to the United Nations Conference on Trade and Development (UNCTAD)-EORA Database classification (see sectors in Annex A). As the export structure of ECOWAS countries is dominated by agricultural and mining products, our analysis focused only on sectors related to this export structure. Thus, nine sectors (Table 1) of this classification were selected for this analysis. To these sectors, we added the financial intermediation sector given its primary role in trade financing (Mora and Powers, 2009).

Table 2: Categorization of sectors according to the EORA nomenclature

Number	Sectors	Number	Sectors
1	Agriculture	6	Timber and paper
2	Livestock	7	Oil and chemical products
3	Mining and quarrying	8	Metal products
4	Food and drinks	9	Electricity, gas and water
5	Textiles and clothing	10	Financial intermediation

Source: UNCTAD-EORA-GVC database (AfDB et al, 2014)

The analysis covered the last decade for which data on trade in value added are available (2002 to 2011). To avoid annual fluctuations in trade data, percentage changes in unit values and export market shares are for the periods 2002–2004 and 2009–2011. These three-year averages thus allow us to smooth out possible reporting (see Cottet, 2012) irregularities.

3.3 The export sophistication indicator

To analyse the sophistication of the exports of ECOWAS countries in the global value chain, we replicate the approach of Hausmann et al. (2007) based on the EORA database. As previously indicated, the advantage of this methodology is that it allows for calculating a simple measure of sophistication for each product/country and for each product sub-category.

According to Hausmann et al. (2007), the measurement of export sophistication is a two-step process: (i) the sophistication of a product (PRODY) based on its revealed comparative advantage (RCA); and (ii) the sophistication of the export basket (EXPY) based on the PRODY.

Product sophistication (PRODY)

Formally, the sophistication index of a product is measured by the average per capita income of countries that have exported that product, weighted by each country's revealed comparative advantage in that product. A country's RCA on a product or sector is defined as the ratio between the market share of that product/sector in that country and the global market share of that product/sector. It is defined as follows:

$$RCA_{i,n} = \frac{x_{i,n} / x_n}{x_{i,w} / x_w} \quad (1)$$

Where $x_{i,n}$; x_n ; $x_{i,w}$ and x_w indicate respectively product exports *i* in the country *n*, total exports of country *n*, product exports *i* in the world and total global exports.

From Equation 1, sophistication index is defined by:

$$PRODY_i = \sum_n (RCA_{i,n} PIBh_n) \Big/ \sum_n (RCA_{i,n}) \quad (2)$$

With $PIBh_n$, the average per capita income of the country *n* adjusted by purchasing power parity (this is the level of income associated with the productivity of the product).

Sophistication of the export basket (EXPY)

In addition to the product sophistication index, Hausmann et al. (2007) introduced another index to estimate the sophistication of a country's export basket. This index, called EXPY, measures the average PRODY of the products that a country exports and is defined as follows:

$$EXPY_n = \sum_i \left(\frac{x_{i,n}}{x_n} PRODY_i \right) \quad (3)$$

To calculate the EXPY in Equation 3 we used the average PRODY of the last three years for which data are available for each country.

.

4 Results

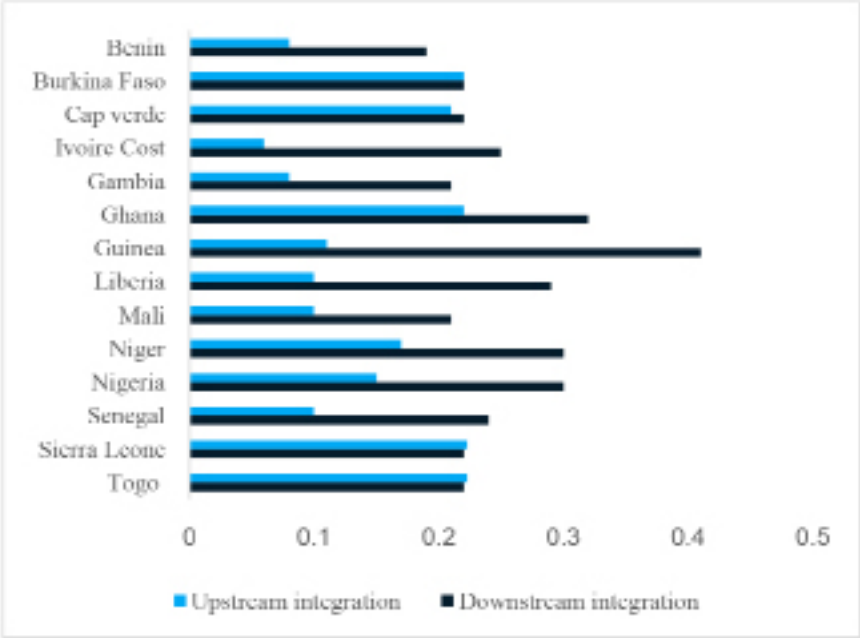
This section is divided into three sub-sections. First, is a descriptive statistical analysis on the participation of ECOWAS countries in the GVC. The second sub-section discusses the results of the ratios of unit value and export market share; and the third presents the results of export sophistication.

4.1 Level of participation of ECOWAS countries in the GVC

The two main modes of a country's integration into the GVC are upstream and downstream integration. The combination of the two indicators gives an indication of a country's total participation in the GVC (Koopman, 2011). The average West African participation in the GVC (Figure 1) hides disparities among member countries.

Individually, the participation of ECOWAS countries in the GVC is very low and driven by a high level of downstream integration (See Figure 3). Among these countries, only Togo has a higher level of upstream integration than downstream integration. This performance of Togo can be explained by its cement exports, which are not considered as primary products with low technological content. Guinea, Ghana and, to a lesser extent, Nigeria, are the most integrated countries downstream of the GVC, with respective levels of integration of 41%, 32% and 30%. Indeed, exports from these countries are dominated by products considered as primary. These include gold and metal ores in the case of Guinea; gold, oil, coffee and cocoa in the case of Ghana; and oil in the case of Nigeria. In terms of upstream integration, in addition to Togo, Sierra Leone, Ghana and Burkina Faso are the most integrated countries. Benin and The Gambia are the least integrated countries in the community, with total integration levels of 27% and 29% respectively.

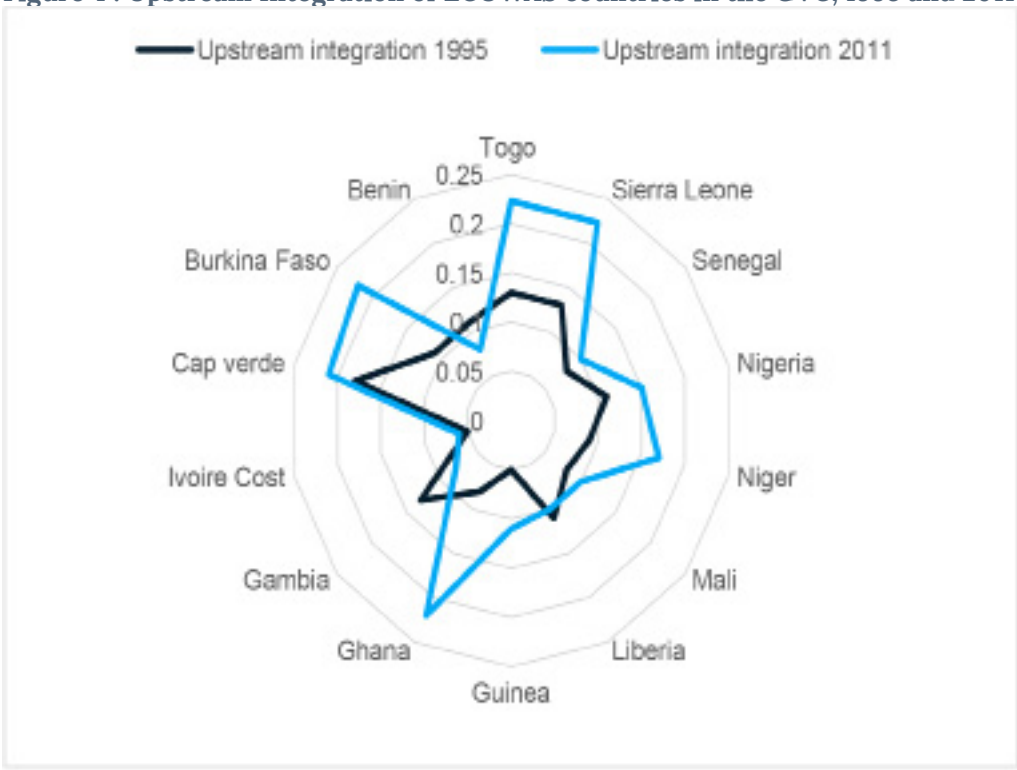
Figure 3: Integration of ECOWAS countries in the GVC, 2011



Source: Author's calculation from UNCTAD-EORA-GVC database (AfDB et al, 2014)

However, the situation of ECOWAS countries seems to have changed over time as the level of upstream integration of most countries has progressed faster than downstream integration. Indeed, between 1995 and 2011, the level of upstream integration progressed in all countries except Benin and The Gambia, whose exports contained less foreign value added in 2011 than in 1995. This underperformance of Benin and The Gambia is not surprising, since during the 5-year period (2010–2015); their exports were dominated by cotton and artificial filament fabrics, respectively.

Figure 4 : Upstream Integration of ECOWAS countries in the GVC, 1995 and 2011



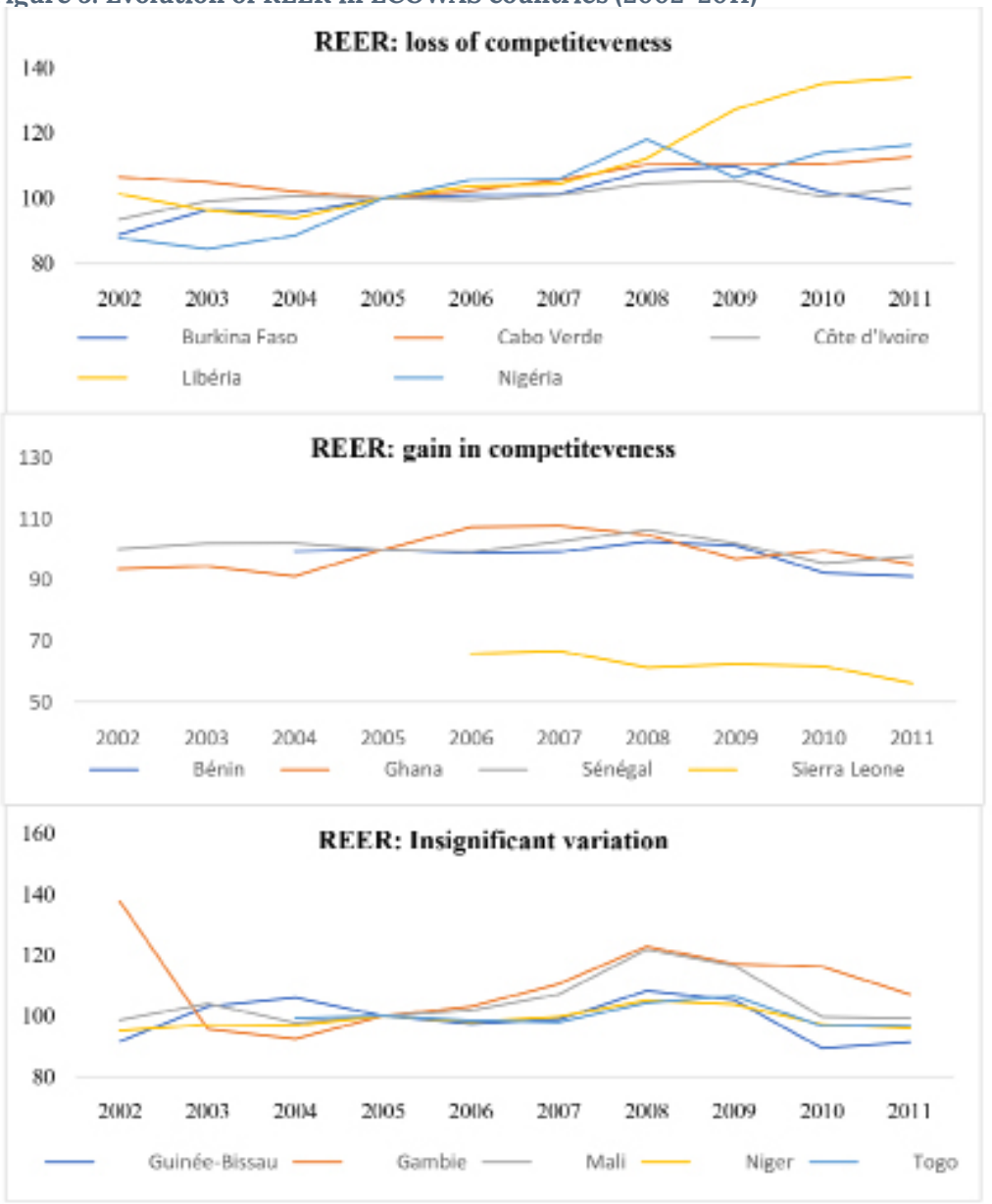
Source: Author's calculation from UNCTAD-EORA-GVC database (AfDB et al, 2014)

4.2 Unit values and export market shares

Before moving on to the analysis of export competitiveness in GVCs through the 10 selected sectors and according to the proposed methodology, this research first analysed the overall competitiveness of ECOWAS countries vis-à-vis all trading partners through the Real Effective Exchange Rate indicator (REER). This rate compares the relative domestic price of each country to the average price of trading partners. An appreciation of this exchange rate is associated with a loss of competitiveness and depreciation reflects a gain in competitiveness.

During the period under review, there was a loss of competitiveness for some countries (Burkina Faso, Cape Verde, Côte d'Ivoire, Liberia and Nigeria), a very small gain for others (Benin, Ghana, Senegal, Sierra Leone) and an insignificant variation for Guinea-Bissau, The Gambia, Mali, Niger and Togo (Figure 5).

Figure 5: Evolution of REER in ECOWAS countries (2002–2011)



Source: Author's calculation from UNCTAD database (2017)

The results of the REER analysis show that overall, the gains in competitiveness in ECOWAS countries over the period under review are very low or even negative in some countries.

The analysis of the situation of exports in the 10 sectors covered in this research shows that the structure of exports in ECOWAS is generally characterised by a high degree of concentration compared to developed countries. Indeed, the growth of commodity exports has been positive in this community, with declines in market share

in some countries. Value added trade appears to be dependent on commodities with a high concentration around the oil, mining and agricultural sectors (see Annex C).

This dependence on primary products is reflected in the neo-technological approach to international trade, according to which technologically backward countries have a comparative disadvantage in the production of technological goods and consequently a comparative advantage in the production of commodities. This structure highlights the progress that remains to be made in export diversification, as these economies are still vulnerable to the risk of an international economic downturn.

Figure 5 illustrates the export competitiveness of ECOWAS countries during the decade 2002–2011, through the 10 sectors selected from the EORA classification. In general, ECOWAS countries have not made a considerable effort in terms of improving the competitiveness of their exports because competitiveness gains in the GVC have been very low. There is also little evidence of deterioration in the GVC. Nevertheless, some cases of deterioration are noted, such as those of Benin in the textile and clothing sector, Niger in the mining and quarrying sector, Ghana in the electricity, gas, and water sectors, and Côte d'Ivoire in the financial intermediation sector. In ambiguous cases (upper left-hand quadrant and lower right-hand quadrant) the results show that the countries are concentrated in the upper left-hand quadrant, which indicates an increase in the value of exports and a decrease in export market share. This is the case, for example, of the mining and quarrying sector and the metal products sector.

However, the under-performance of Benin, Niger, Ghana and Côte d'Ivoire is not surprising. Benin is a major producer of cotton fibre (textile and clothing sector) in the ECOWAS region, but it transforms very little of this production (less than 5%) into unbleached or printed fabrics, and even less into clothing, although the potential exists. In addition, in recent decades, the fabric industries in the country have been going through a crisis characterised by a drop in production, with the corollary of a drop in exports. For Niger, mining products accounted for a large share of exports but contributed very little to the formation of GDP. For example, in 2010, uranium accounted for 70.8% of exports. However, its contribution to GDP in the same year was only 5.8%. Also, as far as gold is concerned, the country's production was in decline before 2010. Furthermore, the 2008 crisis, marked by a clear break in the continued appreciation of mining prices, did not spare Niger, which is heavily dependent on this industry. All these elements combined explain Niger's deterioration in the mining sector.

Ghana's poor performance in the electricity sector is also understandable because for more than a decade, the country has been going through a major energy crisis due to the deepening of the structural supply deficit while demand has been growing strongly, preventing the availability of accessible and good quality energy. Finally, in Côte d'Ivoire, the socio-political crisis has had an extremely negative impact on the banking system, which justifies this deterioration in the financial intermediation sector. Indeed, since 2002 when the crisis fully erupted, the growth of customer loans was interrupted due to the decline in overall demand for credit, but, above all, because of the closure of bank branches located in the conflict zones.

Taken individually, there is a disparity between the countries in the region. The following sections present export competitiveness with a focus on country performance. To this end, the countries are distributed according to the four quadrants presented in Figure 6.

Figure 6 : Quality upscaling; an analysis by country

Benin	8		Benin	1	
Burkina-Faso	10		Burkina-Faso	0	
Cap Vert	6		Cap Vert	4	
Côte d'ivoire	7		Côte d'ivoire	2	
Gambie	8		Gambie	2	
Ghana	3		Ghana	6	
Guinée	6		Guinée	4	
Libéria	6		Libéria	4	
Mali	8		Mali	2	
Niger	4		Niger	5	
Nigéria	7		Nigéria	3	
Sénégal	2		Sénégal	8	
Sierra Léone	6		Sierra Léone	4	
Togo	1		Togo	9	
Total	**82**		**Total**	**54**	
Bénin	1	(textile)			
Côte d'ivoire	1	(intermediation)			
Ghana	1	(Electricité et gaz)			
Niger	1	(Mines)			
Total	**4**				

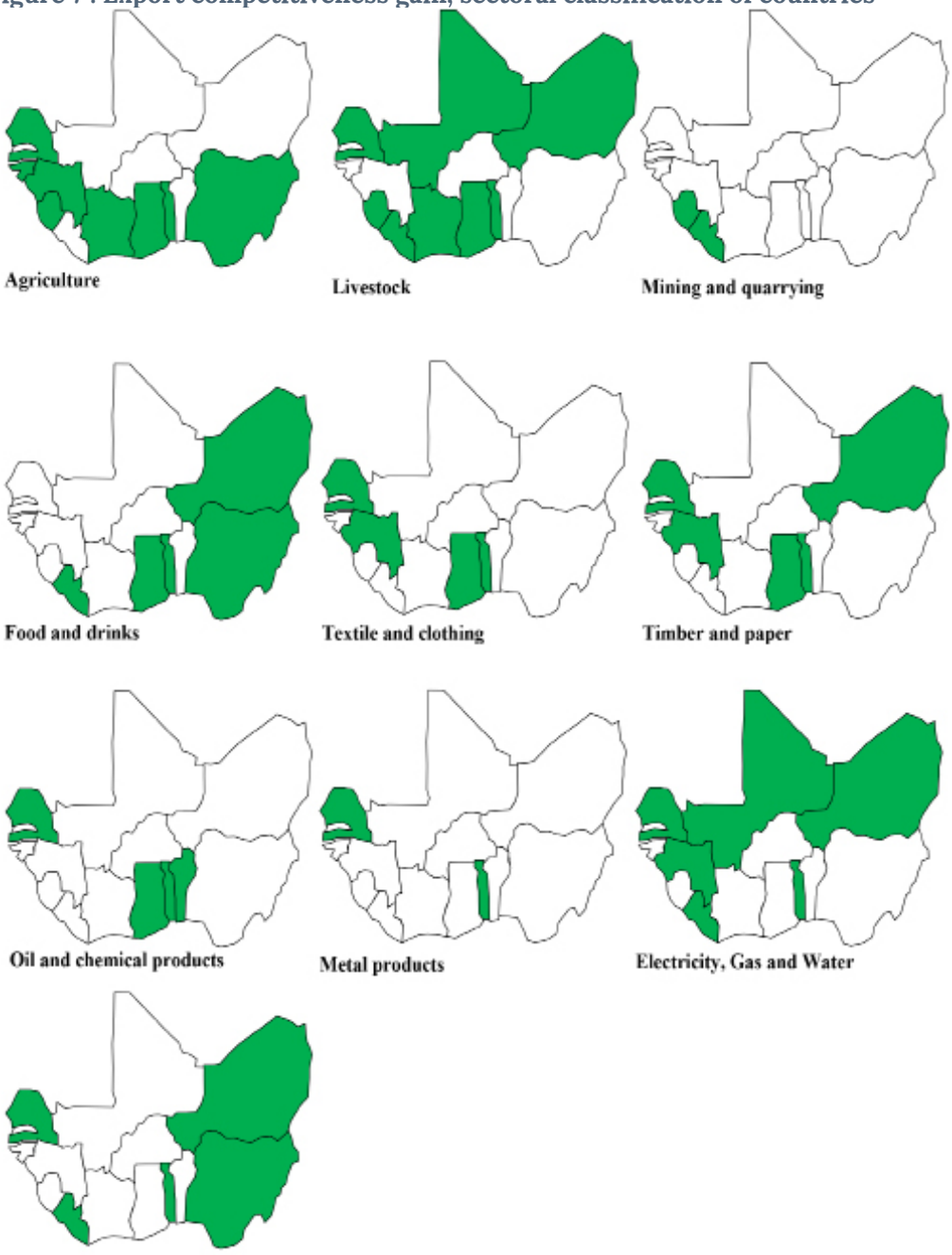
Source: Author

Quadrant 1 (consisting of countries experiencing an increase in the unit value of exports and a decline in export market share): This quadrant, representing an ambiguous case of quality upgrading, comprises all the countries subjected to analysis with heterogeneity among them. The countries with the fewest sectors in this quadrant are Togo, Senegal, Ghana and, to a lesser extent, Niger. Burkina Faso is first in this quadrant with 10 sectors followed by Benin, The Gambia and Mali with 8 sectors each.

Quadrant 2 (consisting of countries experiencing both an increase in the unit value of exports and an increase in export market share). With the exception of Burkina Faso, all countries also fell in this group and only three (Ghana, Senegal and Togo) achieved this performance in more than five sectors. Indeed, Ghana is endowed with enormous natural resources, cocoa, wood, fishing products, fruits and bauxite, whose exploitation has enabled the country to better position its exports. Senegal participates actively in the GVCs through its exports of processed and/or unprocessed groundnuts. The country also has extractive industries (phosphate, limestone, cement and oil) and opportunities in the export of leather and horticultural products, which has enabled it to perform well in exports. Finally, Togo has reserves of phosphate, marble, iron, manganese and oil. The extractive industries and their processing plants have thus enabled this country to position its exports well (see the sectoral performance

of the countries, in Figure 7).

Figure 7 : Export competitiveness gain, sectoral classification of countries



Source: Author, based on UNCTAD-EORA-GVC database (AfDB et al, 2014) and WDI database 2014.
Note: competitiveness gain (increase in unit value and market share)

Quadrant 3 (consisting of countries experiencing a decline in unit value of exports and an increase in export market share). None of the countries in our sample fell within this quadrant.

Quadrant 4 (consisting of countries experiencing both a decline in unit value of exports and a decline in export market share). This quadrant comprises only four countries: Benin, Côte d'Ivoire, Ghana and Niger. None of these countries recorded poor performance in more than one sector.

Table 3 continues the analysis, but this time with a focus on sector performance. The table shows that the most populated quadrant includes those sectors in which countries experienced an increase in export value but a decline in export market share (quadrant 1). Conversely, the least populated is quadrant 3, which has not recorded any sectors.

Out of the 10 sectors in our analysis, none of them recorded simultaneous improvement in the quality and competitiveness of exports in all ECOWAS countries. The results in Table 3 also show that only two countries have been able to move up-market in the metal products sector. Indeed, these countries have a revealed comparative advantage that remained static throughout the decade. The structure of their relative endowment in natural resources, which is based either on agriculture or mineral resources, and which specialises them in the export of primary products, did not allow them to achieve vertical integration in the manufactured products sector. This finding corroborates that of De Vries et al. (2013). Our results show that the agriculture and livestock sectors recorded the highest number of countries that have improved both the value and share of their exports, confirming the neo-technological approach to international trade whereby African countries have a comparative advantage in commodity production.

Table 3: Quality up-scaling; performance by sector (number of countries by sector)

	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4	Total
Agriculture	5	**9**	0	0	14
Livestock	5	**9**	0	0	14
Mining and quarrying	11	**2**	0	1	14
Food and drinks	8	**6**	0	0	14
Textiles and clothing	7	**6**	0	1	14
Timber and paper	9	**5**	0	0	14
Oil and chemical products	10	**4**	0	0	14
Metal products	12	**2**	0	0	14
Electricity, Gas and Water	7	**6**	0	1	14
Financial Intermediation	8	**5**	0	1	14
Total	82	**54**	0	4	140

Source: Author's calculation from UNCTAD-EORA-GVC database (AfDB et al, 2014)database

Export sophistication

Before presenting the results on the sophistication of the exports of the countries in ECOWAS, we first present a summary analysis of their revealed comparative advantages.

The trend analysis since 2002 of the revealed comparative advantages by sector (see Annex D) of ECOWAS countries makes it possible to observe the evolution of the allocation of productive resources intended for export and consequently the export specialisation of each country. The comparative evolution of RCAs of ECOWAS countries over the period 2002–2011 (Annex D) reflects similar specialisation choices: all ECOWAS countries have more pronounced RCAs in the agriculture and livestock sectors and to a lesser extent in the electricity, gas and water sectors as shown in Table 4. Out of the 10 sectors of our analysis, Ghana had the highest RCAs over the period under review, i.e., in six sectors (Table 4). The major sectors contributing most favourably to Ghana's trade balance are agriculture and the timber and paper sector. The country also has RCAs in the livestock, mining and quarrying, food and beverages, and electricity, gas and water sectors. Next come countries such as Benin, Niger, Senegal and Togo with RCAs revealed in five sectors each for similar specialisation choices in the agriculture and livestock sectors. In the textiles and clothing sector , only Burkina Faso has an RCA, as does the petroleum and chemical products sector, where Niger is the only country with an RCA. Furthermore, it should be noted that no ECOWAS country has on average, RCAs in the metal products and financial intermediation sectors over the period 2002 to 2011.

Table 4: Revealed comparative advantages of ECOWAS countries (average 2002–2011)

Country / Sectors	1	2	3	4	5	6	7	8	9	10	Total RCA
Benin	4.68*	7.15*	0.29	1.14*	0.92	1.10*	0.32	0.28	5.96*	0.24	**5**
Burkina Faso	7.95*	8.65*	0.36	0.93	1.12*	0.78	0.27	0.49	7.57*	0.28	**4**
Cape Verde	1.08*	12.01*	0.47	0.65	0.84	0.80	0.17	0.37	9.49*	0.37	**3**
Côte d'Ivoire	12.85*	1.36*	0.16	4.16*	0.25	4.74*	0.29	0.14	0.84	0.07	**4**
The Gambia	3.04*	11.42*	0.56	1.40*	0.57	0.77	0.19	0.37	9.29*	0.37	**4**
Ghana	10.97*	2.26*	1.01*	3.20*	0.17	5.99*	0.17	0.36	3.51*	0.17	**6**
Guinea	1.94*	5.39*	8.30*	0.62	0.15	0.48	0.12	0.30	3.44*	0.14	**4**
Liberia	6.36*	4.10*	0.33	0.21	0.15	0.39	0.18	0.18	3.53*	0.15	**3**
Mali	6.68*	7.04*	0.34	0.56	0.53	0.62	0.22	0.33	6.17*	0.25	**3**

Niger	1.78*	6.76*	1.31*	0.45	0.32	0.54	1.50*	0.27	5.60*	0.24	**5**
Nigeria	1.75*	0.45	13.33*	0.27	0.20	0.16	0.52	0.07	1.02*	0.22	**3**
Senegal	3.35*	18.23*	1.04*	7.53*	0.35	0.56	0.24	0.20	3.18*	0.15	**5**
Sierra Leone	1.98*	8.50*	0.75	1.03*	0.67	0.95	0.25	0.44	7.11*	0.28	**4**
Togo	6.13*	5.92*	1.63*	1.34*	0.48	0.80	0.24	0.40	4.91*	0.20	**5**
Total RCA	**14**	**13**	**6**	**7**	**1**	**3**	**1**	**0**	**13**	**0**	58

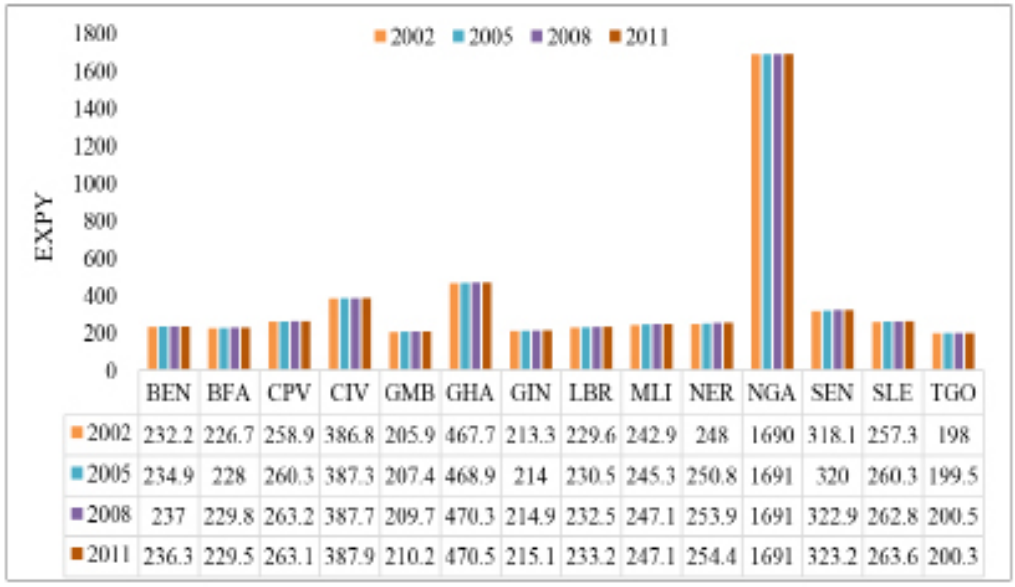
Key: 1 (Agriculture); 2 (Livestock); 3 (Mining and Quarrying); 4 (Food and Beverages); 5 (Textiles and Clothing); 6 (Timber and Paper); 7 (Oil and Chemicals); 8 (Metal Products); 9 (Electricity, Gas and Water); 10 (Financial Intermediation).
* Countries/sectors with RCAs.

Source: Authors' calculations based on UNCTAD-EORA-GVC database (AfDB and al, 2014).

In sum, ECOWAS countries have more pronounced RCAs in the primary sector, particularly the agriculture and livestock sectors. In addition, the electricity, gas and water sector registers 13 countries with RCAs. Very few countries, if any, have RCAs in sectors such as textiles and clothing, metal products and financial intermediation.

The EXPY is simply the average of the PRODYs of the goods that a country exports, weighted by the share of the good in the country's export basket. It ultimately represents the income level associated with a country's export basket. Figure 8 illustrates the evolution of the sophistication of the export basket (calculated over the decade 2002-2011) for ECOWAS countries. Figure 8 shows, firstly, that the EXPY in these countries seems not to have changed over time, which reflects a weak or even non-existent dynamic of sophistication of their export basket. This result confirms the weak structural transformation in this region and raises doubts about the future growth potential of these countries. Secondly, the figure also shows a weakness in the sophistication of the export basket, which corroborates the results of Galibaka (2015) in his analysis of the sophistication of fruit, vegetable and derivatives exports in the WAEMU region. These results are also similar to those found in East Africa by Hidalgo (2011) and in sub-Saharan Africa by Abdon and Felipe (2011). Although taken individually, there is, nevertheless, heterogeneity between countries. The sophistication index of Nigeria's export basket is relatively the highest (over US$1,600), due to oil exports, which constitute the bulk of the country's foreign exchange earnings since the early 2000s. Another factor explaining Nigeria's good performance is the high price of oil over this period due to strong world demand. Ghana, Côte d'Ivoire and to a lesser extent Senegal, had the second highest EXPY levels at US$471, US$388 and US$323 respectively. Guinea, The Gambia, Togo, Burkina Faso and to a lesser extent, Benin had the lowest EXPY levels.

Figure 8: Evolution of the export basket sophistication index (2002–2011)



	BEN	BFA	CPV	CIV	GMB	GHA	GIN	LBR	MLI	NER	NGA	SEN	SLE	TGO
2002	232.2	226.7	258.9	386.8	205.9	467.7	213.3	229.6	242.9	248	1690	318.1	257.3	198
2005	234.9	228	260.3	387.3	207.4	468.9	214	230.5	245.3	250.8	1691	320	260.3	199.5
2008	237	229.8	263.2	387.7	209.7	470.3	214.9	232.5	247.1	253.9	1691	322.9	262.8	200.5
2011	236.3	229.5	263.1	387.9	210.2	470.5	215.1	233.2	247.1	254.4	1691	323.2	263.6	200.3

Source: Authors' calculation from UNCTAD-EORA-GVC database (AfDB and al, 2014) and WDI database.

For some countries, there has been a steady increase in EXPY during the period under review. This is the case for countries such as Ghana, Liberia and Sierra Leone. For example, Ghana's export basket only grew from 2002 to 2011, from US$468 in 2002 to US$469 in 2005, US$470 in 2008 and US$471 in 2011. For other countries (Burkina-Faso, Cape Verde, The Gambia, Guinea, Mali, Niger, Nigeria and Senegal), EXPY stabilised from 2008 after increasing between 2000 and 2005. The stagnant trend of Senegal's EXPY, for example, underscores the predominance of exports of classic products such as fishery products. Benin and Togo had a steady increase in the sophistication of the export basket between 2002 and 2008, followed by deterioration between 2008 and 2011. For example, Benin's export basket rose from US$235 in 2002 to US$237 in 2008, falling back to US$236 in 2011. Within the ECOWAS region, Nigeria is, therefore, the leading country in terms of export basket sophistication.

In sum, we note from this analysis and in line with our assumptions that exports from ECOWAS countries in the GVC are uncompetitive and unsophisticated. Moreover, while some countries have been able to increase their export market share, the sophistication of these exports has remained unchanged over time. This last result shows that exports to these countries are increasing in quantity but not in quality.

Conclusion

In recent decades, globalisation has been undergoing unprecedented changes linked to the emergence of the GVCs. The GVCs offer new opportunities to African countries that are no longer required to set up entire production units, but can now be integrated as links in the GVCs. The objective of this paper was to analyse the export performance of ECOWAS countries in the GVCs.

At the end of our analyses, it appears that trade between ECOWAS countries is increasing strongly but remains below its potential in terms of positioning in the GVCs. The participation of these countries in the GVCs is strongly driven by the export of agricultural and mining products, which has limited to some extent, the gains in terms of export performance. Rather than relying on primary commodity exports, in terms of recommendation, these countries should add value to their commodities in order to promote structural transformation and sustained growth. To do so, we recommend that these countries should be more integrated upstream into the GVCs. To this end, credits and customs exemptions should be offered to support the purchase of materials and the import of intermediate products.

In terms of the first analysis of export performance, export competitiveness appears to be weak in ECOWAS countries. Analysis through unit value and export market share in 10 sectors shows that there is little evidence of deterioration in the GVCs. Nevertheless, some cases of improvement are noted. In addition, in some sectors, the results suggest that ECOWAS countries were able to export their products at high prices but with a decline in export market share, pointing to the need to increase the unit value of exports, but above all, to increase the export market share in these countries. To do this, an integration of national production would be a godsend. This regional integration strategy should be reoriented towards the creation and coordination of regional value chains in high value-added activities.

Second, the analysis of export performance through the sophistication of the export basket highlights two types of observations. First, the level of export sophistication is low in ECOWAS countries. Second, the evolution of this indicator reveals mixed results across countries. While some countries are experiencing a dynamic in the sophistication of their export basket (Ghana, Liberia and Sierra Leone), others are experiencing a deterioration (Togo and Benin). The other countries experienced stabilisation in the last years of the decade under review. This result also highlights the need for effective public intervention to improve the sophistication of existing products and promote new ones. This will be done through investments in infrastructure and support to exporting companies. Infrastructure development plays a central role in promoting exports by reducing the cost and delivery time of goods. The authorities of

the countries and ECOWAS also face a major challenge to accelerate industrialisation in the region by reorienting industrial policy towards investment in more sophisticated and high value-added activities. The authorities must also facilitate access to financing services for producers and exporters, including cheap credit at preferential rates.

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Annexes

Annex A: Categorisation of sectors according to the EORA nomenclature

Number	Sectors	Number	Sectors
1	Agriculture	14	Construction
2	Livestock	15	Maintenance and repairs
3	Mining and quarrying	16	Wholesale trade
4	Food and drinks	17	Retail trade
5	Textiles and clothing	18	Hotel and restaurants
6	Timber and paper	19	Transport
7	Oil and chemical products	20	Posts and telecommunication
8	Metal products	21	Financial intermediation
9	Electricity and machines	22	Public administration
10	Transport equipment	23	Education , health and other services
11	Other manufactured products	24	Private households
12	Recycling	25	Others
13	Electricity, gas and water	26	Re-export and re-import

Source: UNCTAD-EORA-GVC database (AfDB and al, 2014)

Annex B: Descriptive statistics

Variable		Mean	Std. Dev.	Min	Max	Observations
agricu~e	overall	1.82e+07	4.88e+07	6379.958	2.16e+08	N = 140
	between		3.96e+07	10596.03	1.35e+08	n = 14
	within		3.03e+07	-1.16e+08	1.25e+08	T = 10
elevage	overall	18034.51	23763.13	4503.775	139215.3	N = 140
	between		22892.36	5385.353	96452.38	n = 14
	within		8634.707	-29853.12	60797.43	T = 10
minese~s	overall	1.18e+08	4.48e+08	4324.863	2.41e+09	N = 140
	between		4.39e+08	6028.654	1.65e+09	n = 14
	within		1.43e+08	-7.27e+08	8.83e+08	T = 10
alimen~s	overall	1.04e+07	3.29e+07	5748.853	1.43e+08	N = 140
	between		2.45e+07	11945.98	8.32e+07	n = 14
	within		2.29e+07	-7.22e+07	9.47e+07	T = 10
textil~t	overall	100968.2	378809.4	4631.847	3240000	N = 140
	between		172802.3	7791.683	638006.7	n = 14
	within		339954.9	-511428.7	2702961	T = 10

Variable		Mean	Std. Dev.	Min	Max	Observations
boiset~r	overall	2790774	1.59e+07	3998.485	1.16e+08	N = 140
	between		6683461	5343.494	2.13e+07	n = 14
	within		1.45e+07	-1.81e+07	1.04e+08	T = 10
ptrole~s	overall	1.43e+07	5.11e+07	4466.929	2.77e+08	N = 140
	between		5.03e+07	6682.425	1.89e+08	n = 14
	within		1.55e+07	-6.57e+07	1.02e+08	T = 10
produi~s	overall	29114.8	27128.68	4070.08	157977.7	N = 140
	between		25000.54	5318.513	82949.71	n = 14
	within		12304.78	-25124.41	104142.8	T = 10
electr~s	overall	41627.02	38524.79	5395.607	240674.7	N = 140
	between		35355.64	8516.041	139151	n = 14
	within		17750.34	-37338.94	143150.7	T = 10
equipe~t	overall	469996.1	3656642	4335.221	3.87e+07	N = 140
	between		1641795	5611.134	6172739	n = 14
	within		3293945	-5457344	3.30e+07	T = 10

Source: Author

Annex C: Export Growth and Market Share of ECOWAS countries

Table C1 shows that export growth in the agriculture sector was positive in all ECOWAS countries during the 2002–2011 decade. The whole region experienced 133% growth in exports over this period. These exports comprised tropical beverages (coffee, cocoa and tea) and food products. The export growth rate was very high in countries such as Togo, Ghana, Sierra Leone, Nigeria and Guinea and to a lesser extent in Côte d'Ivoire and The Gambia. In Togo, agricultural exports had increased from about US$50 million in 2002–2004 to about US$185 million in 2009–2011, a growth rate of 270% with a market share of 82%. This result is not surprising because since 2007 the agriculture sector has made significant progress in the country's development programme, particularly with the implementation of the National Agricultural Investment and Food Security Programme (PNIASA), around which efforts are made through complementary projects such as PADAT (Agricultural Development Support Project in Togo), PASA (Agricultural Sector Support Project) and PPAAO (West Africa Agricultural Productivity Programme - Togo project). Nevertheless, a decline in market share was recorded in some countries. These included Benin, Burkina Faso, Cape Verde, Niger, Mali and Liberia, with declines of 45%, 12%, 12%, 13%, 8% and 3% respectively.

Table C1: Export value and market share in the agriculture sector (thousands of dollars)

Country	Exports (2002–2004)	Exports (2009–2011)	Growth in exports (%)	Increase in market share (%)
Benin	62287	69359	11	-45
Burkina Faso	57206	101620	78	-12
Cape Verde	7470	13247	77	-12
Côte d'Ivoire	919748	1980986	115	6
The Gambia	9588	20610	115	6
Ghana	417241	1241496	198	47
Guinea	34439	75864	120	9
Liberia	104464	205198	96	-3
Mali	82859	155306	87	-8
Niger	22368	39407	76	-13
Nigeria	513760	1242426	142	19
Senegal	117976	247545	110	4
Sierra Leone	14043	34387	145	21
Togo	49996	184817	270	82

Source: Author's calculations from the UNCTAD-EORA-GVC database (AfDB et al, 2014)

Livestock plays a central role in the economy of ECOWAS countries, with a strong contribution to agricultural GDP. In this sector (Table B2), positive export growth was also recorded in all countries during the decade under review. However, this potential,

which the region holds, is still poorly exploited. The extent of this performance varies from one country to another. Thus, Ghana (123%), Niger (117%) and Senegal (110%)

recorded the strongest growth during the period under review, with a livestock base comprising sheep, goats, cattle and poultry. Growth was lower in Guinea (24%), The Gambia (32%) and Nigeria (35%). Export market shares also declined in some countries such as Benin, Burkina Faso, The Gambia, Guinea and Nigeria. In the case of Guinea, for example, there has been a 24% drop in market share for an equivalent drop in the value of its exports.

Table C2: Value and export market share in the livestock sector (thousand dollars)

Country	Exports (2002–2004)	Exports (2009–2011)	Growth in exports (%)	Increase in market share (%)
Benin	7161	11007	54	-5
Burkina Faso	6585	9603	46	-10
Cape Verde	7448	13617	83	13
Côte d'Ivoire	10070	18164	80	11
The Gambia	4704	6188	32	-19
Ghana	9644	21510	123	38
Guinea	12930	15994	24	-24
Liberia	6566	12134	85	14
Mali	8212	15084	84	13
Niger	6945	15046	117	34
Nigeria	16982	22967	35	-17
Senegal	58319	122253	110	29
Sierra Leone	7179	12772	78	10
Togo	6947	13094	88	16

Source: Author's calculations from the UNCTAD-EORA-GVC database (AfDB et al, 2014).

Exports and market shares in the mining sector are recorded in Table B3. Over the period 2002–2011, most ECOWAS countries recorded strong growth in their mining sector exports with Sierra Leone leading the way with an export growth of 131% (from US$12 million in 2002–2004 to about US$29 million in 2009–2011). However, Niger recorded a 61% drop in exports from about US$63 million to about US$24 million. Furthermore, in this sector, all the countries, with the exception of Liberia and Sierra Leone, experienced a decline in their export market share, with a drop of about 82% in Niger. Niger's underperformance is explained by the decline in gold production in the country in 2010. Of note is that Niger has considerable mineral potential (uranium, oil, limestone, coal, gold, gypsum, marble, phosphate, iron, cassiterite and copper) and major river systems that remain under-exploited.

Table C3: Value and export market share in the mining sector (thousands of dollars)

Country	Exports (2002–2004)	Exports (2009–2011)	Growth in exports (%)	Increase in market share (%)
Benin	6855	10774	57	-28
Burkina Faso	6660	9755	46	-33
Cape Verde	6800	12576	85	-16
Côte d'Ivoire	30787	49040	59	-27
The Gambia	4822	7725	60	-27
Ghana	130677	205485	57	-28
Guinea	340426	698417	105	-7
Liberia	10825	24326	125	2
Mali	10248	15877	55	-29
Niger	62831	24318	-61	-82
Nigeria	9624007	20599420	114	-2
Senegal	95315	148293	56	-29
Sierra Leone	12383	28607	131	5
Togo	45551	83495	83	-17

Source: Author's calculations from the UNCTAD-EORA-GVC database (AfDB et al, 2014) .

The agro-food sector is booming in West Africa, but the lack of equipment and quality control still hamper the development of this sector. Table B4 gives a picture of the situation of food exports in ECOWAS countries. Food exports evolved strongly during the decade 2002–2011. The total exports of this region increased by 84% between 2002 and 2011, which corresponds to an annual growth rate of about 10%. Ghana, Cape Verde and Niger recorded the strongest export growth with rates of 167%, 134% and 129% respectively. For Ghana, this result can be explained by the expansion of the agri-food industry in the country in the year 2010. Indeed, thanks to the abundance of its raw materials, good governance and the reform of its industrial policy, Ghana stands out as one of the destinations of choice for investment in ECOWAS countries, with agribusiness being one of the promoting sectors. For Cape Verde, the result is also not surprising since the main branches of the national manufacturing sector are beverages and fish and food processing. However, there was a decline in export market share in most countries.

Table C4: Value and exports market share in the food and drinks sector (thousands of dollars)

Country	Exports (2002–2004)	Export (2009–2011)	Growth in exports (%)	Increase in market share (%)
Benin	32723	37211	14	-43
Burkina Faso	16284	24638	51	-24
Cape Verde	7964	18674	134	18
Côte d'Ivoire	713503	1334230	87	-6
The Gambia	11236	18238	62	-18
Ghana	290117	774353	167	35
Guinea	30438	47157	55	-22
Liberia	7518	15090	101	1
Mali	17872	24511	37	-31
Niger	10476	23961	129	16
Nigeria	198088	402803	103	3
Senegal	724152	1069290	48	-25
Sierra Leone	19805	35972	82	-8
Togo	34149	72642	113	7

Source: Author's calculations from the UNCTAD-EORA-GVC database (AfDB et al, 2014)

Based largely on cotton, the situation of the textile and clothing sector has changed since the 1990s (see Table B5). As in the sectors analysed above, ECOWAS countries generally experienced growth in their exports over the analysis period. This increase is mainly the result of the growth in production following the restructuring measures undertaken in most of the cotton-producing countries of the community, combined with the rise in its price at international level. Only Benin recorded a decline in its exports, from about US$47 million in 2002–2004 to US$21 million in 2009–2011, a decrease of about 55%. This country also experienced a decline in its export market share (76%). Benin's poor performance can be attributed to an ongoing crisis characterised by a drop in production. However, the government continues to make efforts to resolve this crisis. These include the creation of the Cotton Development Corporation (SODECO). The rate of growth of exports in this sector was high in Togo (198%) with a growth in market share in the order of 58%. This performance of Togo is not surprising because the textile market in West Africa is a loincloth industry whose cradle is in Togo and held for several decades by the English and Dutch companies and more recently by the Chinese firms. Countries such as Ghana, Cape Verde and Guinea also experienced export growth.

Table C5: Value and export market share in the textile and clothing sector (thousands of dollars)

Country	Exports (2002-2004)	Exports (2009-2011)	Exports growth (%)	Market share increase (%)
Benin	47585	21231	-55	-76
Burkina Faso	28492	36290	27	-32
Cape Verde	14337	30316	111	12
Côte d'Ivoire	73538	85478	16	-38
The Gambia	5419	10429	92	2
Ghana	23031	52493	128	21
Guinea	7684	15751	105	9
Liberia	7743	12928	67	-11
Mali	22543	31576	40	-26
Niger	11183	20937	87	-1
Nigeria	224367	337292	50	-20
Senegal	37304	70918	90	1
Sierra Leone	19126	28614	50	-21
Togo	12915	38511	198	58

Source: Author's calculation from the UNCTAD-EORA-GVC database (AfDB et al, 2014).

With regard to the timber and paper sector (Table B6), the three main exporting countries in ECOWAS in order of importance were Côte d›Ivoire, Ghana and Nigeria, accounting for about US$523 million, US$368 million and US$99 million respectively in 2002–2004. The growth in Ivorian exports is not surprising as the country engaged in the implementation of the European Union's FLEGT action plan to improve trade in logging. This sector comprises sawmilling, veneer, pulpwood, firewood and secondary processing activities such as joinery, wood products, furniture and paper. In 2009–2011, the exports in these three countries grew by 85%, 142% and 3% respectively. However, Togo recorded the strongest increase in its exports over the period under review, rising from about US$11 million in 2002–2004 to about US$31 million in 2009–2011, an increase of 185%. The results also show that only five countries increased their export market share, namely Ghana (21%), Guinea (10%), Niger (14%), Senegal (19%) and Togo (43%).

Table C6: Value and export market share in the timber and paper sector (thousands of dollars)

Country	Exports (2002–2004)	Exports (2009–2011)	Exports growth (%)	Market share increase (%)
Benin	14395	27891	94	-3
Burkina Faso	10503	12218	16	-42
Cape Verde	8034	13145	64	-18
Côte d'Ivoire	522972	968817	85	-7
The Gambia	4490	6110	36	-32

Ghana	367954	889337	142	21
Guinea	12104	26411	118	10
Liberia	10173	17108	68	-15
Mali	11649	18621	60	-20
Niger	8172	18510	126	14
Nigeria	99869	102866	3	-48
Senegal	25977	61367	136	19
Sierra Leone	14920	18666	25	-37
Togo	10801	30743	185	43

Source: Author's calculations from the UNCTAD-EORA-GVC database (AfDB et al, 2014)

Exports in the petroleum and chemicals sector mainly comprised petroleum products, pharmaceuticals, cosmetics, phosphoric acid and fertilizers. Exports in this sector increased in all ECOWAS countries, with low levels in value terms. Togo (191%) and Benin (133%) recorded the highest growth during the period under review. Nigeria is the leading exporting country in this sector as it has the largest natural gas reserves on the continent. Indeed, crude oil exports account for a very large share of the country's total exports. Nigeria's exports in this sector increased by 97% to reach US$2,346 million in 2009–2011 against US$1,192 million in 2002–2004. However, the increase in exports did not allow Nigeria to grow its export market share, as this declined by five percentage points.

Table C7: Value and export market share in the oil and chemical products sector (thousands of dollars)

Country	Exports (2002–2004)	Exports (2009–2011)	Exports growth	Market share increase
Benin	18097	42083	133	12
Burkina Faso	14607	23311	60	-23
Cape Verde	7751	13450	74	-16
Côte d'Ivoire	145501	295035	103	-2
The Gambia	5212	7744	49	-28
Ghana	60062	124739	108	0
Guinea	18570	21256	14	-45
Liberia	25792	35213	37	-34
Mali	19234	32103	67	-20
Niger	114041	235259	106	-1
Nigeria	1191544	2346193	97	-5
Senegal	55801	124957	124	8
Sierra Leone	14324	26814	87	-10
Togo	15707	45690	191	40

Source: Author's calculations from the UNCTAD-EORA-GVC database (AfDB et al, 2014) .

The metal sector experienced export growth in all the ECOWAS countries. However, with the exception of Senegal and Togo, all other countries recorded a decline in their export market share during the 2002–2011 decade. The market share in Togo increased by 22% compared to 4% in Senegal. Togolese exports in this sector grew by 192% in 2009–2011, reaching about US$34 million. In recent years, Togo's foreign trade structure has undergone a transformation with the appearance of iron in the country's exports. However, given the modest level of production at the Indian iron mine (MM Mining) and the reduction in exports by the sole iron equipment producer (SOTOTOLES), it is highly likely that the bulk of Togo's exports in this sector would be re-exports.

Senegalese exports in this sector grew by 149% in 2009–2011, reaching about US$48 million. Indeed, the metal sector is dynamic and well-structured in Senegal with a deposit comprising aluminium, cast iron, iron, copper, brass and bronze. The growth in exports and market share in this country is explained not only by this diversity of metals but also by the know-how of Senegalese craftsmen, which manifests itself through the production of objects of all kinds that can be found on the local and regional market. Senegal's performance can also be explained by the expansion of recycling activities. (Table C8)

Table C8: Value and export market share in the metal products sector (thousands of dollars)

Country	Exports (2002–2004)	Exports (2009–2011)	Exports growth (%)	Market share increase (%)
Benin	8260	14990	81	-24
Burkina Faso	12586	17565	40	-42
Cape Verde	7196	13380	86	-22
Côte d'Ivoire	34757	62812	81	-24
The Gambia	4652	6325	36	-43
Ghana	66965	91630	37	-43
Guinea	16796	35724	113	-11
Liberia	8078	18425	128	-5
Mali	12334	22370	81	-24
Niger	9310	19054	105	-14
Nigeria	76768	95904	25	-48
Senegal	19468	48502	149	4
Sierra Leone	10336	23070	123	-7
Togo	11514	33584	192	22

Source: Author's calculation from the UNCTAD-EORA-GVC database (AfDB et al, 2014) .

Exports in the electricity, gas and water sector (Table C9) increased in all ECOWAS countries except Ghana. Indeed, for this country, there was a 23% decline in exports over the period 2002–2011, from about US$ 28 million in 2002–2004 to US$ 22 million in 2009–2011. This country also recorded the largest decline in export market share, that is, about 58%. Ghana's poor performance could be explained by the crisis that the country experienced in this sector for several years. Indeed, Ghana's energy demand has been steadily increasing for several years and the sector has been affected because of insufficient supply, which prevents the availability of accessible and affordable energy in terms of cost (Enu and Havi, 2014).

Table C9: Value and exports market share in the electricity, gas and water sector (thousands of dollars)

Country	Exports (2002–2004)	Exports (2009–2011)	Exports growth (%)	Market share increase (%)
Benin	6864	10712	56	-16
Burkina Faso	6507	10376	59	-14
Cape Verde	6824	12648	85	0
Côte d'Ivoire	7622	12740	67	-10
The Gambia	4303	5819	35	-27
Ghana	28005	21667	-23	-58
Guinea	7238	14175	96	6
Liberia	6590	12146	84	0
Mali	8022	15569	94	5
Niger	6527	14793	127	23
Nigeria	37402	56570	51	-18
Senegal	10880	26082	140	30
Sierra Leone	6968	12542	80	-3
Togo	6290	13045	107	12

Source: Author's calculation from the UNCTAD-EORA-GVC database (AfDB et al, 2014)

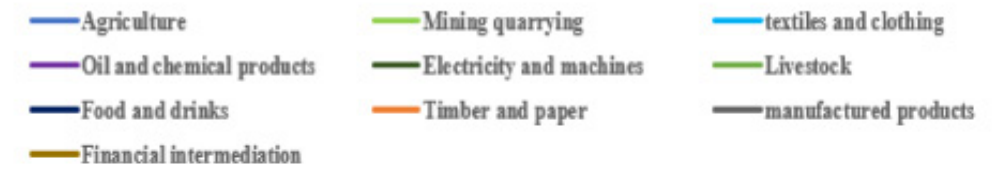
The financial intermediation sector in ECOWAS countries comprises the banking sector and financial markets (more than 100 banks). Despite the restructuring that has taken place in many countries of the region since the 1990s, the sector is still compartmentalised. According to Table B10, most countries have experienced growth in their exports in this sector. This growth in exported services is reportedly due to a considerable increase in the number of credit institutions and increased diversification towards institutions specialising in microfinance. Nigeria performed the best in the sector with export growth and market shares of 312% and 127% respectively. However, Côte d'Ivoire recorded a poor performance in this sector, with a 58% decline in market share and 24% decline in exports during the period under review. This poor performance resulted from the socio-political crisis experienced by the country.

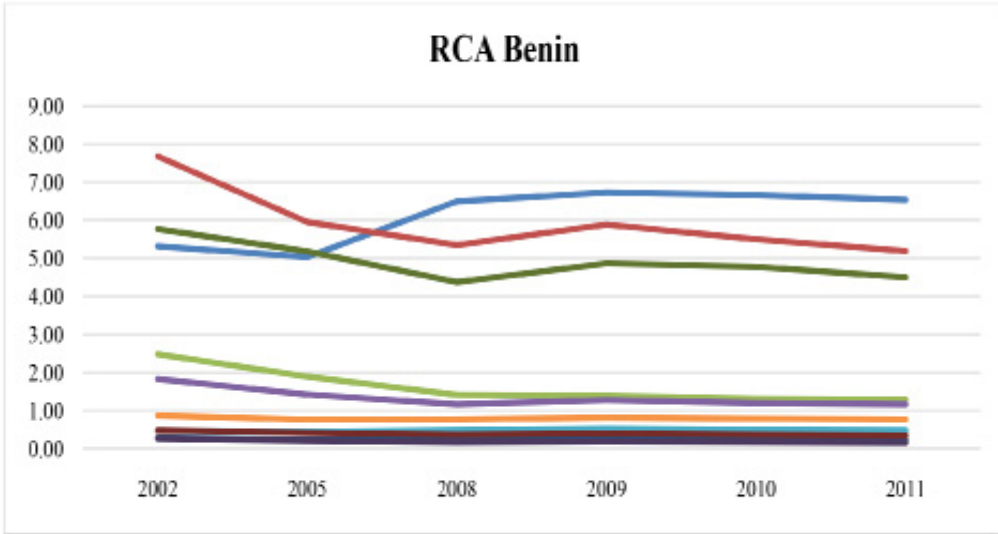
Table C10: Value and export market share in the financial intermediation sector (thousands of dollars)

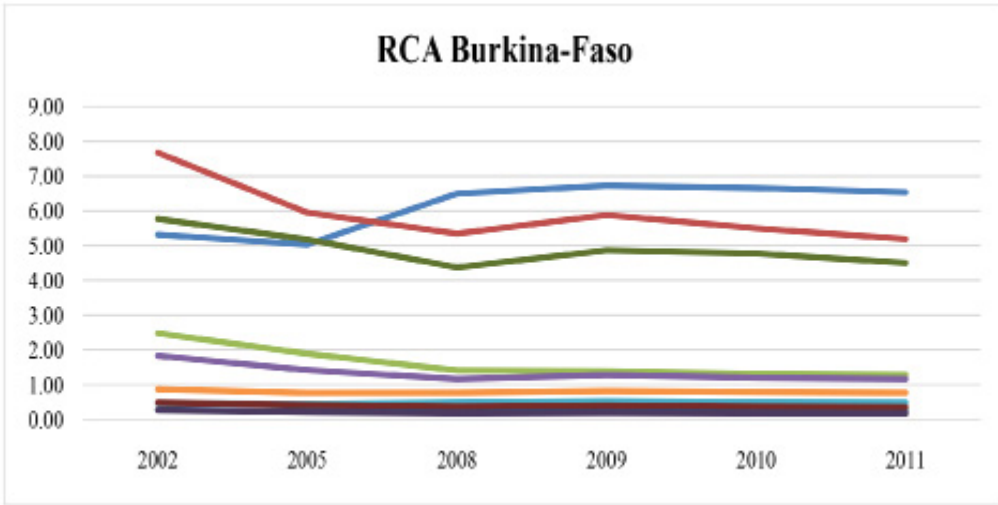
Country	Exports (2002–2004)	Exports (2009–2011)	Exports growth	Market share increase
Benin	7183	10905	52	-16
Burkina Faso	6898	9145	33	-27
Cape Verde	6845	12586	84	1
Côte d'Ivoire	19877	15158	-24	-58
The Gambia	4348	5999	38	-24
Ghana	30081	37313	24	-32
Guinea	8854	13466	52	-16
Liberia	7429	12465	68	-8
Mali	9252	14885	61	-11
Niger	7843	15276	95	7
Nigeria	117576	484493	312	127
Senegal	13909	32745	135	30
Sierra Leone	6889	12592	83	1
Togo	6512,416	13210,1467	103%	12%

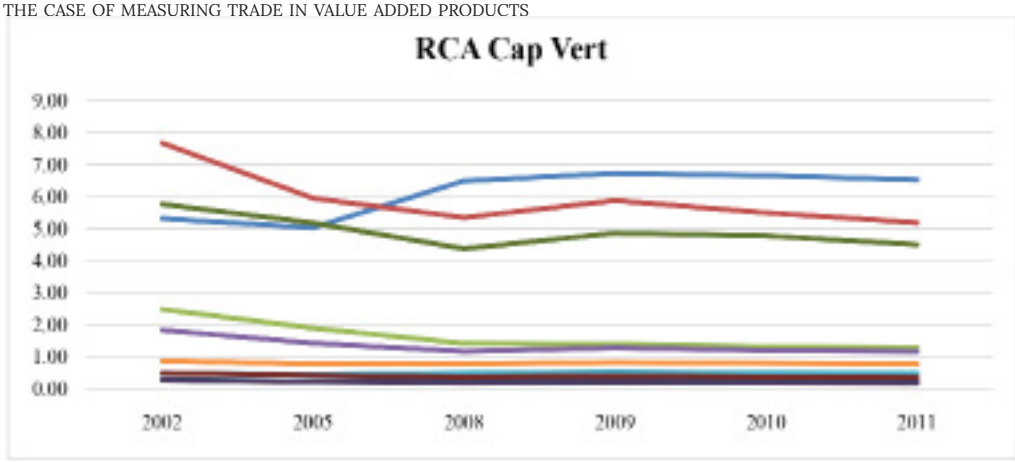
Source: Author's calculation from the UNCTAD-EORA-GVC database (AfDB et al, 2014).

Annex D: Evolution of RCA by sector in ECOWAS countries (2002 to 2011)





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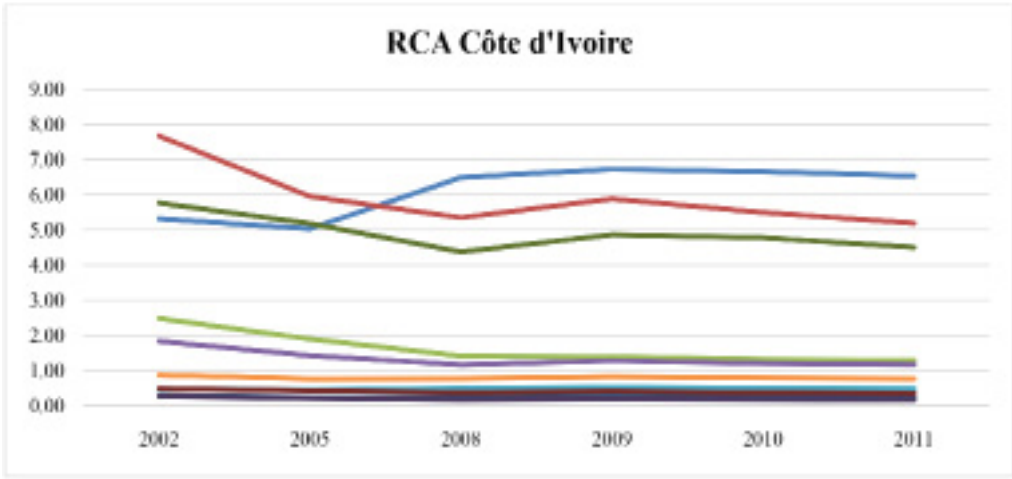
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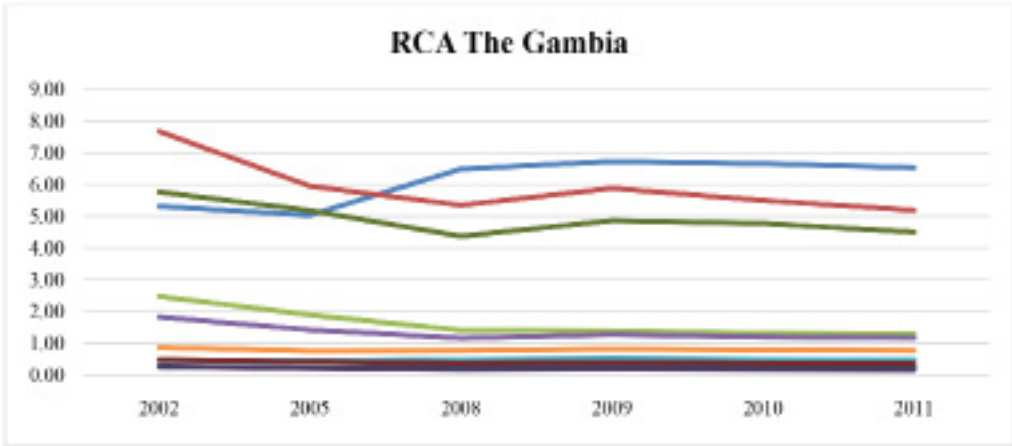
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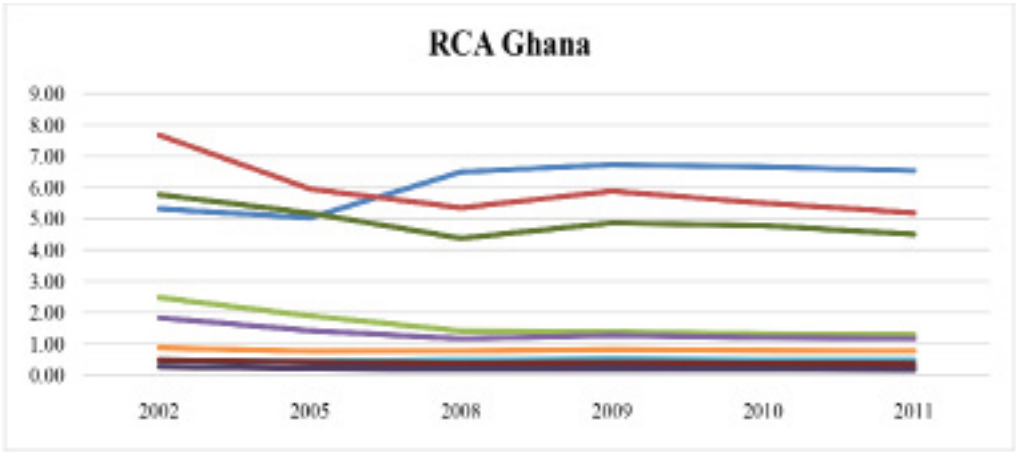
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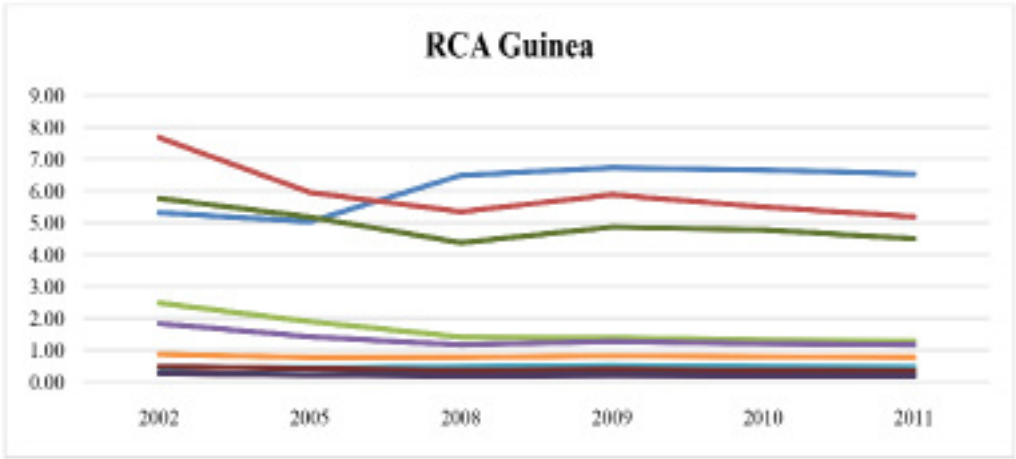
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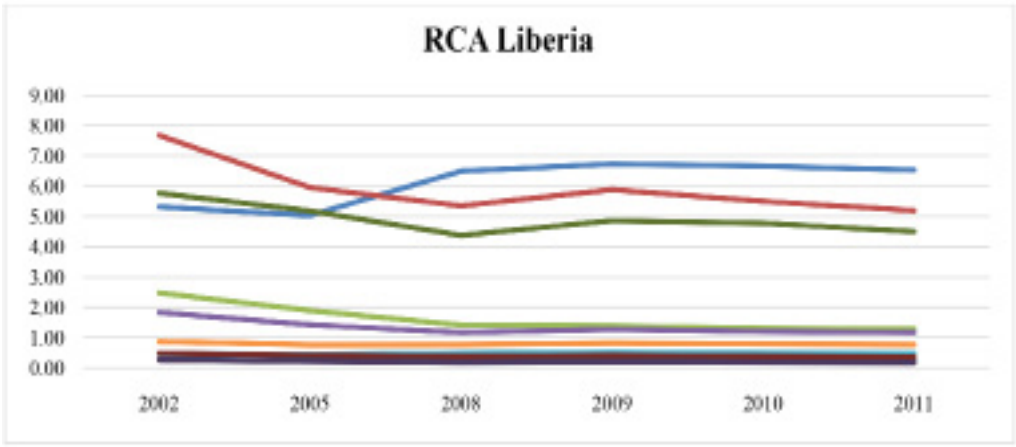
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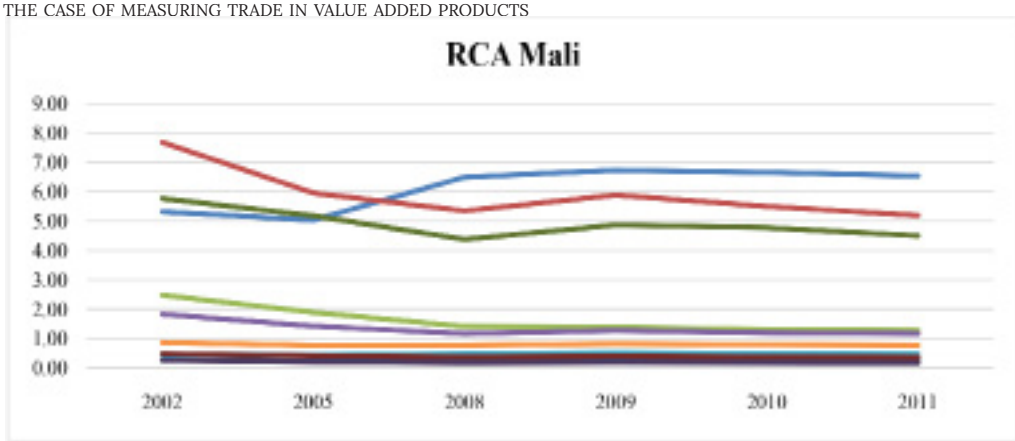
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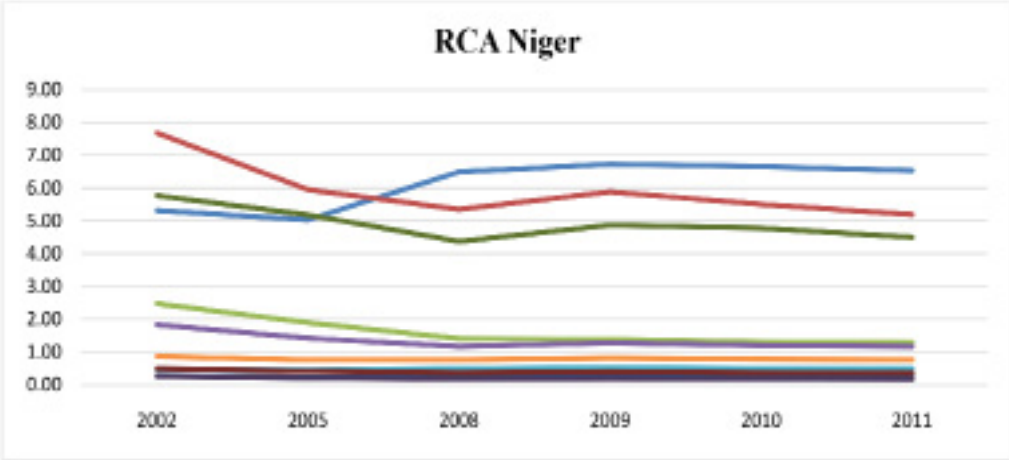
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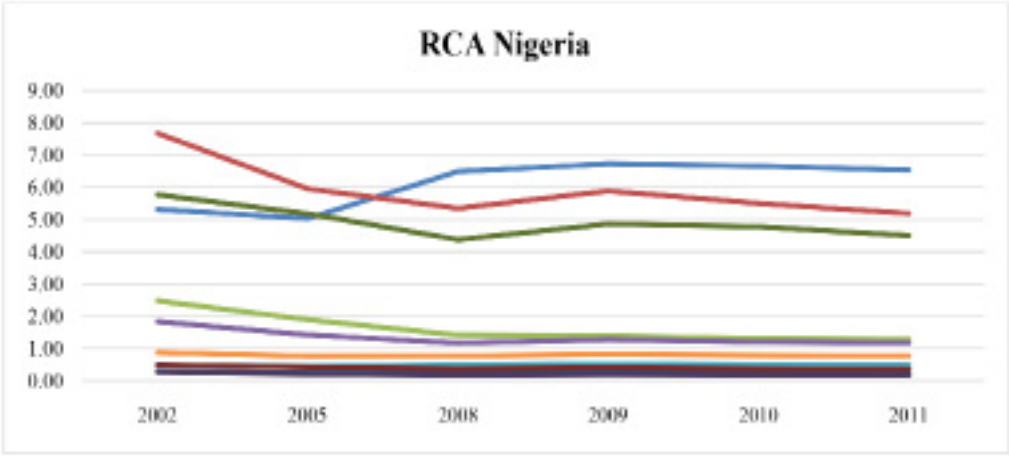
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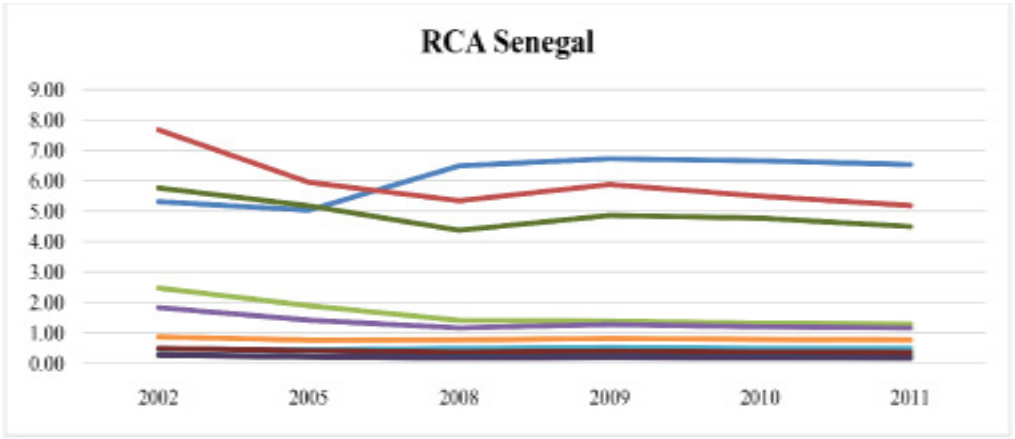

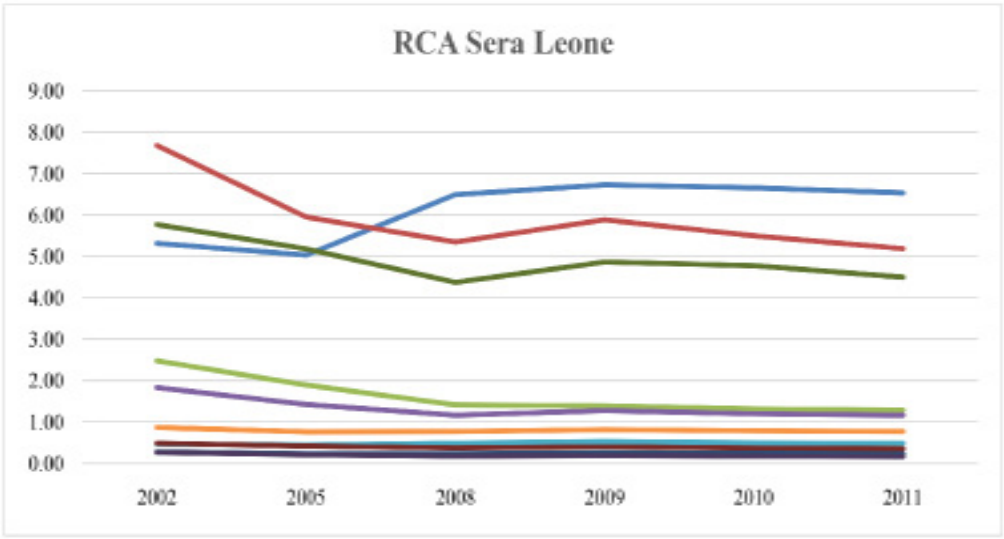

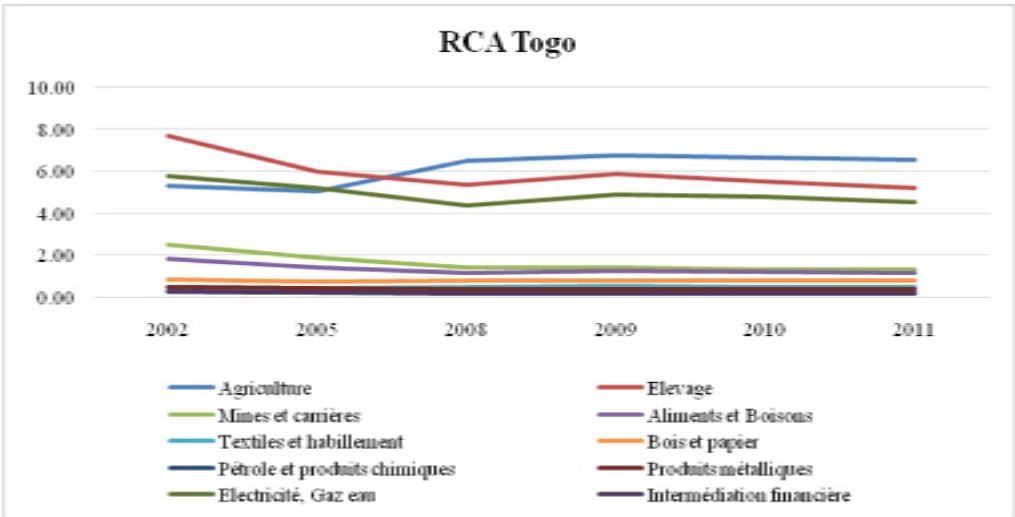

Source: Author from UNCTAD-EORA-GVC database (AfDB and al, 2014) .

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