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A country study of trade performance and of trade linkages: the case of Benin

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Title

A country study of trade performance and of trade linkages: the case of Benin

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Contents

Acronyms

AFDB	African Development Bank
CEMAC	Communauté économique et monétaire de l'Afrique centrale
GDP	Gross Domestic Product
GL	Grubel-Lloyd
HS	Harmonized Commodity Description and Coding System
IMF	International Monetary Fund
INSAE	Institut National de la Statistique et de l'Analyse Economique
MAEP	Ministère de l'Agriculture de l'élevage et de la pêche
MEF	Ministère de l'Economie et des Finances
NOCIBE	Nouvelle Cimenterie du Bénin
OCDE	Organisation de coopération et de développement économiques
RCA	Revealed comparative advantage
SSA	Sub-Saharan African
WAEMU	West African Economic and Monetary Union
WDI	World Development Indicators

Liste of tables

Liste of figures

Abstract

This study is aimed at analyzing the trade performance of Benin as well as the countries linkages with partners. The methodology consisted in analyzing data over 2001-2016, using tables, graphs and trade indicators. The first step of the analysis encompasses the trade flows structure, the evolution of the trade balance, the revealed comparative advantage that the country has in its main products, concentration and the competitiveness of the country. The second step analyses the trade of Benin with its partners. Results from our analysis indicate that Benin's performance in trade is weak. The country mainly relies on revenues drawn from export of cotton and cashew nut as well as from transit and reexport trade, mainly with Nigeria. The country's dependence on the economy of Nigeria makes it vulnerable. Benin has comparative advantage in producing and exporting Cotton, Cashew, Oil seeds, Gold, Cement clinkers, Palm oil, but had better import frozen cuts and edible offal as it has no comparative advantage in this group of products. With exports of raw commodities, Benin's exports are not at all sophisticated. The business environment still remains to be improved. The analysis of Benin's competitiveness regarding its major exported crops indicated that the country remains competitive in cotton and oils seeds but is losing its competitiveness in the cashew and palm oil industries. The loss of competitiveness in the cashew industry is attributed to the fact that neighboring countries exports their cashews of poor quality through Benin. As a result, there is a mixture of these cashews with very good quality products of Benin, leading to lower growth of prices relative to the world. As for palm oil, key factors affecting its competitiveness include the urbanization that engulfed areas that were once attributed to these palm plants, traditional production technologies, a high production cost compared to the sub-region, and failure to meet quality standards. Based on these conclusions, we provide the following recommendations for the improvement of the country's trade performance: (i) diversify exported goods by investing in non-traditional export goods and process and export to the big markets of Nigeria instead of reexporting, (ii) diversify export partners, (iii) create an environment that encourages formal trade iv) create a business friendly-environment and (v) invest in the service sector of the economy so as to reduce dependence on the other sectors.

1 Introduction

With a population of 10,008,749 inhabitants, the Republic of Benin is a small open economy located in western Africa and bordered by Togo to the west, Nigeria to the east, and Burkina Faso and Niger to the north (INSAE, 2015). The country experienced favorable economic development over the recent years. Real GDP growth accelerated from 2.1 percent in 2015 to 4 percent in 2016 and 5.6 percent in 2017, while the inflation turned negative (-0.8%) in 2016 and projected to 0.6 in 2017 (IMF, 2018). The improvement in growth is attributed to a number of factors, including the improvement in agricultural production, and the recovery of the Nigerian economy. However, with a poverty rate of 40.1% in 2015, persistent unemployment, low total factor productivity and a Human Development Index value of 0.485, inclusive growth remains a major challenge (AFDB, 2018). Benin is underdeveloped and prominently depends on agriculture and trade.

The agricultural sector roughly accounts for 23% of GDP and employs about half of the existing labor force (52.6%) (MAEP, 2017). Thus, agriculture remains one of the main sources of growth and employment in Benin. But the production systems heavily depend on increases in cropped areas and family labor, with low use of improved inputs, limited improved production methods, and rudimentary equipment, limiting the productivity and incomes of agricultural workers. The main agricultural products that generate income for the economy are cotton and cashew. Cotton production has increased in recent years, resulting in an increase in exports from 61,619 tons in 2011 to 172,002 tons in 2015. In the same way, cashew exports increased from 51,348 tons in 2011 to 131,241 tons in 2015 (MAEP, 2017).

The secondary sector, which is closely linked to the agricultural production, and representing 15% of GDP, is embryonic and dominated by small-scale agri-food units (World bank, 2013). It is still far from being one of the levers of the pro-poor growth, as desired.

The tertiary sector as a whole, accounts for 50% of GDP and is poorly structured and dominated by informal activities as re-export to Nigeria, largely informal, accounts for 20 percent of formal GDP and 25 percent of government revenue (World bank, 2013). The informal activities mainly depend on the changing economic environment in Nigeria. Thus, there is a very close relationship between Benin's economy and that of Nigeria. This makes the economy vulnerable to economic shocks that may occur in Nigeria's trade policy. A drop of one percentage point of Nigerian growth is accompanied by a 0.3 percentage point reduction in the growth rate of Benin (IMF, 2016).

The current study which is divided into two parts typically analyses the trade performance of Benin, covering the period 2001-2016. The first part analyses the trade flows structure, the evolution of the trade balance, the comparative advantage that the country has in its main products, concentration and the competitiveness of the country. The second analyses the trade of Benin with its partners.

2 Problem statement

Benin has been experiencing trade deficit for years now and this trend is expected to continue. Export and import profile remain almost the same over the past years. The exports are very concentrated and include agricultural products, mainly cotton and cashew nut. This seems to

show that actual exports values are low, compared to export potential. Reversely, imports are diversified and include rice, meat, oil and electricity and transport equipment. In 2016, the imports values of Benin amounted $2,63 billions, while the total exports were $407 million, generating a trade deficit of $2,22 billions, which is very large. As it can be seen, exports of Benin are very low as compared to imports, indicating low agricultural and industrial development.

The long-run trade deficit that Benin has been experiencing for decades now may stem from the weak diversification of products, causing weak exports, the country's reliance on imports coupled with the phenomenon of reexport and ultimately structural lack of competitiveness.

Considering the above-mentioned facts, this study aims at analyzing the trade performance and of linkage of Benin and provide relevant policy recommendations.

3 Research questions

The study intends to answer the following questions:

- What is the structure of trade of Benin?
- Are the country exports diversified?
- Does Benin have revealed comparative advantage?
- Are the exports of Benin sophisticated?
- Are Benin's exports competitive?
- What are Benin's trade linkages with partners?

4 Literature review

4.1 Trade theories

International trade theories aim at explaining the existence and form of trade between countries. They can be classified into traditional trade theories (classical theories and neoclassical theories) and new trade theories. The classical foundations of trade go back to the studies of Adam Smith and David Ricardo. In 1776, Adam Smith published '' an inquiry into the nature and causes of the wealth of the Nations''. For Smith, trade is an activity that creates the division of labor in the production process, which, in turn favors economic growth. He developed the theory of absolute advantage. Each country has an interest in specializing in productions for which it has an absolute advantage over other nations and buy at a lower cost, products for which it has no advantage over the rest of the world. For him, economy of scale is the main facilitator of trade. He advocated that unrestricted trade and free international competition are more beneficial to a nation than the mercantilist economic policy that existed in many parts of Europe during the 18th century (Schumacher, 2012). Later on, David Ricardo in his book ''On the Principles of Political Economy'' published in 1819 extended theory of absolute advantage to incorporate theory of comparative advantage and showed that it is the basis why nations need to trade and why trade is mutually beneficial to countries. A country has a comparative advantage in producing a good if the opportunity cost of producing that good in terms of other goods is lower in that country than it is in other countries (Krugman, Obstfeld, & Melitz, 2018). For Ricardo, nations without absolute advantage must specialize in productions for which they are less disadvantaged, that is to say

according to their comparative advantages. The wealth produced worldwide will thus be increased.

The neo-classical theory, commonly known as the Heckscher-Ohlin or Lerner-Samuelson (HOS) theory, emphasizes the role of international differences in primary factor endowments in determining trade patterns (Kemp, 2008). The HOS theory of factor endowments indicates that nations specialize in manufactures that incorporate the factors of production that they have in abundance. For example, developing countries will export labor-intensive products, while developed countries will export goods that require significant capital for manufacturing. The theory of factor endowments leads to an international division of labor in terms of complementarity between the countries that trade.

According to traditional trade theories countries start to trade due to existing technology and factor endowment differences. However, empirical data do reveal that there is an important amount of trade among countries that have same or similar technology and similar factor endowments. This suggests that trade will not be much beneficial for these countries. Yet, they seem to have prospered while trading with each other. Thus, new trade theory emerged to begin to look for reasons why trade could occur between similar countries and yield sizable gains from trade. Emphasizing the importance of economies of scale and market failures such as imperfect competition and externalities as driving forces behind trade, the theory provided a rationale for industrial policy (Krugman, 1987; Medin, 2014). The new trade theory encompasses two aspects. The first one emphasizes imperfect competition and strategic interaction, and there are economies of scale at the level of the individual firm. The second places the emphasis on positive externalities, and there are often economies of scale at industry level. Externalities may be pure, stemming, for example, from technological factors such as knowledge spillovers; or they can be pecuniary, stemming from market access effects (Krugman, 1987; Medin, 2014). The models of international trade in imperfect competition explain the empirical phenomena for which traditional models do not provide explanations. This concerns in particular the importance of exchanges of similar appearances, the importance of intra-branch flows, the strategy of multinational firms, the growing role of multinational firms and finally, the questions related to the effects of opening of borders.

4.2 Empirical review on trade performance

There have been a lot of empirical studies on countries trade performance, both at national and international level. This section highlights few of them that are relevant to our study.

Considering the literature related to the country, World bank (2015) conducted a Diagnostic Trade Integration Study of Benin and came up with three main messages. The first is that Benin's economy is largely dependent on rents derived from Nigeria's trade policy and these rents are vulnerable. Second, Benin is not "locked" in an informality trap: with appropriate reforms, the country can develop new ways to leverage its strong locational advantage. Third, urgent reform is needed in Benin's agricultural sector and should include the objective of diversification into new export crops. The study further emphasized two key policy recommendations: diversification and agricultural reforms.

A study by Toé et al. (2018), in line with World bank (2015) also identified that Benin is facing critical challenges regarding export diversification and domestic production, and in

addition to this found that product quality for Benin exports have remained relatively mediocre overtime. Moreover, the paper revealed that the country is facing a challenging business climate, low productivity, and weak human capital.

Using the Vector Error Correction model, Adegbola and Zinsou (2010) analyzed the determinants of Benin's exports of cashew nuts and found that the increase in production and a relatively low price will allow Benin to significantly increase the current level of its cashew nut exports in the short and long term.

A study of key literatures on trade performance beyond the country limits reveals some facts that we also present here. Redding and Venables (2002) investigated the determinants of countries' export performance looking in particular at the role of international product market linkages. They found that poor external geography, poor internal geography, and poor institutional quality contribute in approximately equal measure to explaining Sub-Saharan Africa's poor export performance. Carrère (2013) analyzing the trade performance achieved so far within the West African Economic and Monetary Union (WAEMU) and the Economic and Monetary Community of Central Africa (CEMAC) over the period 1995-2010. He found on the one hand that there is a very clear diversification in the two Unions via the export of new products. On the other hand, he found that exports of the countries of these two unions towards the rest of the world are less diversified.

Using disaggregated data from 1960 to 2005 of 48 Sub-Saharan African (SSA) countries, Cabral and Viega (2010) analyzed the link between export diversification and sophistication, and economic growth. They found that an increase in export diversification leads to a reduction in GDP growth variation and income per capita growth variability. From this, they concluded that there is a positive relationship between export diversification and sophistication and growth in SSA. Conducting a similar study, Kohler and Khumalo (2015) used the model of Cabral and Viega (2010) by taking into account the influence of technology spill-overs. They consider electricity as a proxy for infrastructure. They found that electricity has a significant impact on upgrading of production activities particularly for those that use electrical machinery for manufacturing.

5 Methodology

The study is based on secondary time-series data collected from various sources. These include National data downloaded from the website of the *Institut National de la Statistique et de l'Analyse Economique;* Trade Map/UNComtrade and the database of the World Development Indicators, spanning 2001-2016.

The analysis tools include data from tables, graphs of time series, designed using Excel and STATA as well as the computation of trade indicators, especially the Herfindahl index, the Revealed Comparative Advantage, PRODY, EXPY, and the Intra-Industry Trade index.

6 Empirical analyses

6.1 Trends and structure of exports and imports
6.1.1 Structure of exports and imports

Table 1 : Shares (%) of the exported top 10 commodities from 2001 to 2016

Code	Product label	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
'520100	Cotton, neither carded nor combed	57.86	52.6	67.91	67.97	57.96	40.37	46.36	37.2	30.17	20.83	28.11	32.17	39.08	30.26	41.96	42.82
'080131	Fresh or dried cashew nuts, in shell	5.43	7.13	4.54	5.53	6.87	7.37	6.33	6.47	6.71	4.63	9.62	10.67	10.37	6.78	11.12	9.29
'151229	Cotton-seed oil and its fractions, whether or not refined, but not chemically modified	0.29	0.7	0.73	0.56	2.65	3.92	1.38	0.39	0.03	1.11	2.31	2.22	1.5	0.59	0.72	1.13
'120799	Oil seeds and oleaginous fruits, whether or not broken	0.03	0.02	0.41	0.35	1.05	2.1	1.2	0.18	0.04	-	0.17	0.29	0.67	0.2	0.7	1.13
'710812	Gold, incl. gold plated with platinum, unwrought	4.98	5.49	2	0.24	2.43	3.06	-	-	-	4.28	3.21	4.24	3.54	2.25	2.4	3.11
'271019	Medium oils and preparations, of petroleum or bituminous minerals, not containing biodiesel,	-	-	-	-	-	0.2	3.06	0.27	0.01	6.54	10.92	8.11	5.78	10	3.28	3.21
'020714	Frozen cuts and edible offal of fowls of the species Gallus domesticus	1.56	0.81	-	0.02	-	-	1.54	-	12.85	13.56	-	-	-	0.01	0.01	-
'252310	Cement clinkers	-	-	-	-	-	-	-	-	-	-	-	-	0.36	1.87	2.63	1.18
'151190	Palm oil and its fractions, whether or not refined	0.01	0.03	0.43	0.18	0.15	1.42	1.45	2.19	3.29	0.65	0.38	0.54	0.44	0.01	2.9	2.88
'080212	Fresh or dried almonds, shelled	-	-	1.15	0.13	-	-	-	-	-	-	-	-	0.09	0.29	0.21	1.61

Source: Trade Map/Comtrade

Table 1 shows the evolution of the shares of the exported top 10 commodities from 2001 to 2016. Exports remain dominated by cotton over the period with more than 50% of total export each year from 2001 to 2005. The economy of the country largely relies on cotton, which means that a negative shock (decrease in the price or drop in the production) is likely to affect the whole economy. The trend in cotton export varied over the period with a decrease in its performance. This highlights the crisis this sector has been going through for years now. This crisis includes the debts to be reimbursed to cotton producers, mismanagement of cotton cooperatives... The lowest share (20.83%) was recorded in 2010, year after which the government decided to intervene and took control of the sector. This resulted into the increase observed in its share from 2011. The second most exported commodity is cashew nut, but its annual shares remain below 12%.

Table 2 shows the evolution of the shares of the imported top 10 commodities from 2001 to 2016. The two groups of goods: Oils petroleum, bituminous, distillates, except crude and rice are the most imported over the period. From 2001 to 2007, the group of Oils petroleum, bituminous, distillates, except crude dominated the imports while from 2008 to 2016 the imports were dominated by rice, except 2009, 2011 and 2012. Rice import became more important from 2012 because the government of Nigeria introduced a new tariff for rice, effective July 1, 2012 (Nzeka, 2013) which resulted in an increase in the cross-border trade in rice with Benin, as large part of the quantity imported is reexported to Nigeria. the country dependence on imported fuels, mainly from Nigeria makes the group of petroleum oils become the second largest imported good. As for electrical energy, Benin heavily relies on neighboring countries, mainly Togo. The quantity of electrical energy supplied to Benin is insufficient, resulting in power cut all the time. This fact does not favor the development businesses and so investors are reluctant.

Table 2 : Shares (%) of the imported top 10 commodities from 2001 to 2016

Code	Product label	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
'1006	Rice	2.61	3.18	4.42	6.06	11.21	11.2	12.92	10.78	5.91	14.79	7.62	13.61	20.25	27.39	18.01	29.41
'2710	Petroleum oils and oils obtained from bituminous minerals (excluding crude); preparations containing	12.62	12.12	13.91	15.89	13.67	15.35	16.27	9.93	9.89	13.5	9.9	15.45	8.89	9.33	11.4	13.05
'1511	Palm oil and its fractions, whether or not refined	0.41	0.85	1.74	1.62	1.33	2.92	3.53	4.49	4.34	5.95	4.99	2.68	2.25	1.36	2.08	2.63
'2716	Electrical energy	4.25	4.7	5.43	6.15	6.28	5.64	3.72	4.34	6.25	5.31	6.04	5.27	4.65	3.72	4.75	3.56
'0207	Meat and edible offal of fowls of the species Gallus domesticus, ducks, geese, turkeys	5.1	5.38	5.06	6.29	5.33	4.39	4.71	7.21	9.34	7.57	9.32	9.41	7.8	6.55	8.86	6.36
'3004	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic uses	4.62	3.32	3.56	3.7	3.36	3.44	2.72	2.94	3.69	2.81	3.41	3.14	2.65	2.47	2.9	2.75
'8703	Motor cars and other motor vehicles principally designed for the transport of persons	2.88	3.04	2.98	2.6	2.88	2.76	2.53	3.14	3.25	2.67	3.17	2.81	2.16	1.89	3.07	3.54
'1701	Cane or beet sugar and chemically pure sucrose, in solid form	0.51	0.65	1.16	0.74	0.92	1.19	0.58	1.03	0.93	0.91	0.87	0.94	1.03	0.68	1.42	1.24
'8711	Motorcycles, incl. mopeds, and cycles fitted with an auxiliary motor, with or without side-cars;	0.27	0.39	0.47	0.56	0.54	0.51	0.73	1.64	2	1.67	2.2	1.65	1.72	1.86	2.34	2.03
'0303	Frozen fish	0.75	0.87	1	1.14	1.52	1.79	1.41	1.77	1.73	1.3	1.52	1.47	1.27	1.41	2.25	2.74

Source: Trade Map/Comtrade

6.1.2 Trend in export and import and trade balance, 2001-2016
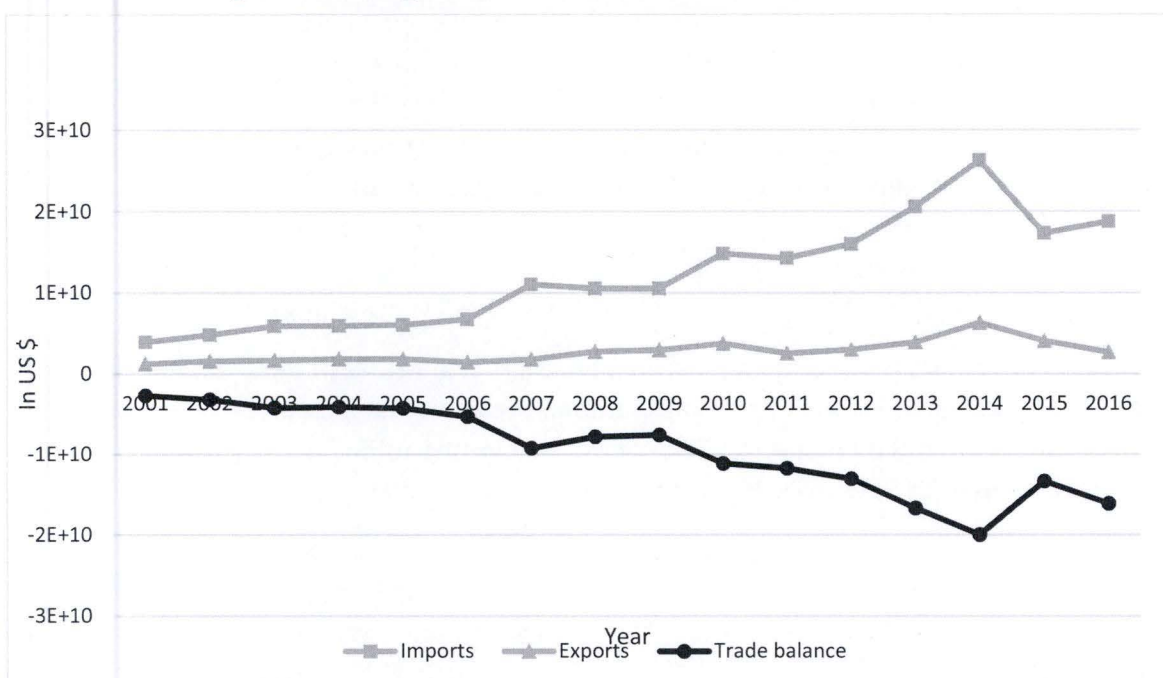
Source: Trade Map/Comtrade and own computation

Figure 1 : Trend in export and import and trade balance, 2001-2016

Figure 1 shows that Benin always imports more than it exports as the trade balance remains negative over the period. The increase in both imports and exports became more important from 2006, the year when a new President BONI Yayi was elected. His rise to power was characterized by the revitalization of economic and diplomatic relations with Nigeria, and the implementation of new reforms at the port of Cotonou.

In 2014, the import values reached their peak, largely due to the imported agri-food products (rice, oil, and edible offal) for re-exports to Nigeria. However, in 2015, the government of Nigeria adopted some measures to ban imports of certain agricultural products. These measures resulted into a decrease in reexport and consequently a decrease in imports as shown by the figure in 2015.

As for the exports, their values fell between 2010 and 2011, due, in particular, to bad weather conditions that affected cotton production. From 2011 to 2014, cotton production increased, resulting in an increase in exports values. This is attributed to the government efforts to revive agricultural production. The collapse of exports in 2015 is due to the measures adopted by Nigeria to ban imports of some agricultural products. An important part of cross-border trade is informal and is therefore not recorded. The fall in exports in 2016 is attributed to the fall in export of cotton and cashew nut which in turn is caused by low rainfall.

6.2 Trends in export concentration

The objective of this section is to analyze the level of concentration of Benin and compare it to its counterparts. The higher the concentration of a country in a specific sector, the more it is vulnerable to shocks as it has no or few alternative choices to face shocks occurring in that sector. To measure the degree of concentration of export commodities, we used the Herfindahl index and data at 6-digit level classification. The formula to compute this index is as follows:

$$\text{Herfindahl index} = \sum_{i=1}^{N} \left(\frac{x_i}{X}\right)^2$$, where x_i is the value of export of commodity i; X, total value of exports; and N, number of commodities. The values of the index range from 0 to 1. The higher the index, the more concentration in export and the closer the index to zero the more diversified the country is. The index is supposed to decline when the number of products increases and the share of each product decreases.
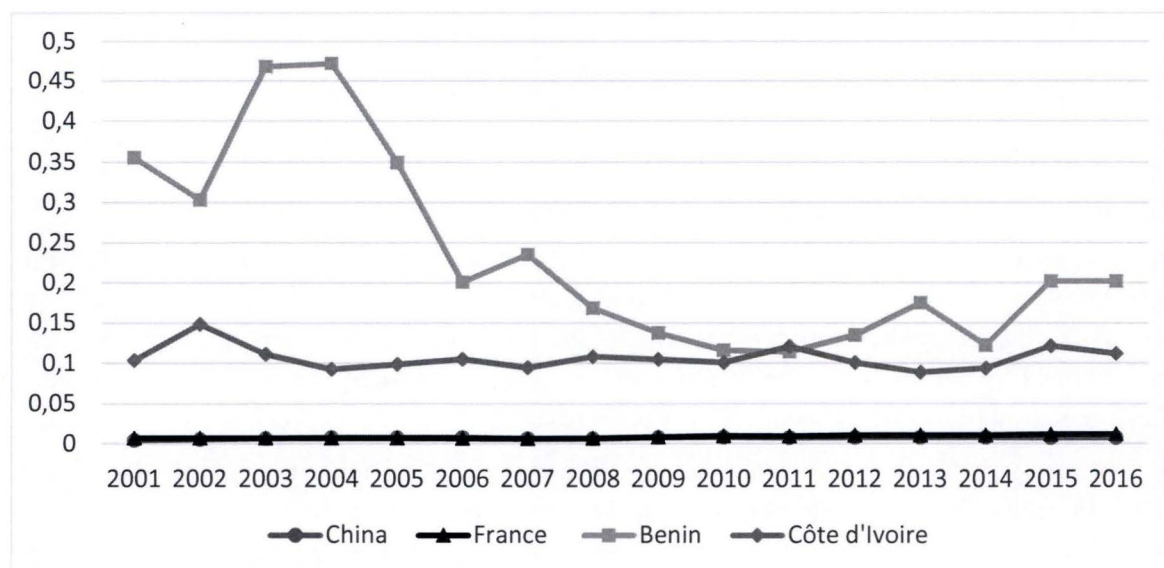
Source: Trade Map/Comtrade and our computation

Figure 2 : Export concentration: Benin compared to other countries

Figure 2 compares the evolution of the concentration of Benin to that of Côte d'Ivoire, China and France. The index of Benin shows a decreasing pattern from 2001 to 2010. One may think that this is the result of the growth in non-traditional exports such us pineapple, fruits, soybean, etc. But, this is rather due to the fall in the share of cotton export. Reversely, from 2010 to 2016, the index started to increase again, except in 2014, where it experienced a drastic fall. This increase is the result of the increase in cotton production and export, as the government took control of the cotton sector from 2011/2012. Compared to the other countries, Benin is more concentrated that Côte d'Ivoire which is in turn more concentrated than China and France. The index is almost not visible for France and China, meaning that these countries are very diversified.

This concentration of Benin has been also mentioned by World bank (2015) and Toé et al. (2018). Diversification is important to achieve high growth and reduce volatility. Benin should move from its status of cotton exporter to a more diversified country that will help reduce the trade deficit.

6.3 Export sophistication

In this section, we analyze the quality of products exported by Benin, using the PRODY and EXPY indices developed by Hausmann, Hwang, and Rodrik (2007). The quality of products that a country exports is important for its growth. These authors find that it is not only how much, but also what you export that matters for growth. Countries that have a more sophisticated export basket enjoy accelerated subsequent growth (Hausmann and Klinger, 2008). The analysis is based on 18 goods that we selected at the HS 6-digit level and a sample of countries including Benin, Senegal, Côte d'Ivoire, India, Cameroon, France, Germany, United States of America (USA), Madagascar and the United Kingdom(UK).

The PRODY index ranks products considering their productivity. It gives the income level associated with each product (k); it is the income/productivity level of that product (k). It is constructed by taking a weighted average of the per-capita GDPs of the countries exporting a product, where the weights reflect the revealed comparative advantage of each country in that product. Its computation is as follows:

$$PRODY_k = \sum_j \frac{(x_{jk}/X_j)}{\sum_j(x_{jk}/X_j)} * Y_j,$$ Where xjk represents the export volume of a

particular product k of country j, Xj total exports of country j above, and Yj, GDP per capita of country j.

The EXPY index is the export-weighted average of PRODY indices; it reflects the income/productivity level of a country's export portfolio. This index is defined as follows:

$$EXPY_j = \sum_k \left(\frac{x_{jk}}{X_j}\right).PRODY_k$$

In other words; EXPY is the export-weighted average of the various PRODY of the exported products of a particular country. Thus, PRODY measures the productivity level of a particular product k, whereas EXPY measures the productivity level of the export basket of a particular county j.

Table 3 shows that goods like cashew nuts, cotton and tropical wood have relatively low level of PRODY. This is because they are primary goods that represent an important share in Benin's exports and the exports of other developing countries in our sample, but also because these countries have low per capita GDP. Inversely, those goods that are technology-intensive represent a high share of exports of developed countries and have high PRODY. This is consistent with the Heckscher-Ohlin framework which stipulates that developed countries export capital-intensive products, while developing countries export labor-abundant goods. An interesting comment to draw from the table is that the level of productivity of a good that Benin exports is undoubtedly an important determinant for future growth.

To examine more in details this aspect of productivity, we computed the EXPY index for the basket of the 18 goods and plotted it against the per capita GDP for 2016 as depicted in figure 3. This figure shows that there is a positive correlation between per capita GDP and the index of sophistication of this basket of goods exported in 2016. Benin has a low level of EXPY as well as its other counterparts of developing countries as compared to developed countries. This is because it exports primary products the most with no added values that tend to have lower EXPY. These countries may probably not achieve rapid growth in the future because their goods are not sophisticated. Rich (poor) countries export products that tend to be exported by other rich (poor) countries. However, the level of EXPY of Benin is higher than those of Côte d'Ivoire, Cameroon and Madagascar because of its relatively high share of cotton, cashew nut and Gold. To catch up with the developed countries, Benin must move from the export primary commodities to the industrial products by providing incentive of industrial development.

Table 3 : Ranking goods according to their PRODY

Rank	HS6	Product	Average PRODY (2001-2016)
1	80131	Fresh or dried cashew nuts, in shell	886.540461
2	520100	Cotton, neither carded nor combed	1233.38187
3	440729	Tropical wood	1259.67262
4	620342	Men's or boys' trousers	4207.51588
5	140490	Vegetable products n.e.s	4282.16639
6	871120	Motorcycles	4422.12206
7	271019	Medium oils and preparations	6011.79384
8	710812	Gold	9312.48376
9	640299	Footwear	12621.1335
10	850211	Piston engine	23431.5747
11	940360	Wooden furniture	24997.0435
12	870322	Motor cars (piston engine of a cylinder capacity > 1.000 cm³ but <= 1.500 cm)	30176.8066
13	999999	Commodities n.e.s	31496.8314
14	300490	Medicaments	34406.1003
15	490199	Printed books, brochures	36454.9276
16	870323	Motor cars (piston engine of a cylinder capacity > 1.500 cm³ but <= 3.000 cm³)	39922.9808
17	120799	Oil seeds	41382.426
18	870324	Motor cars (piston engine of a cylinder capacity > 3.000 cm³)	42058.3403

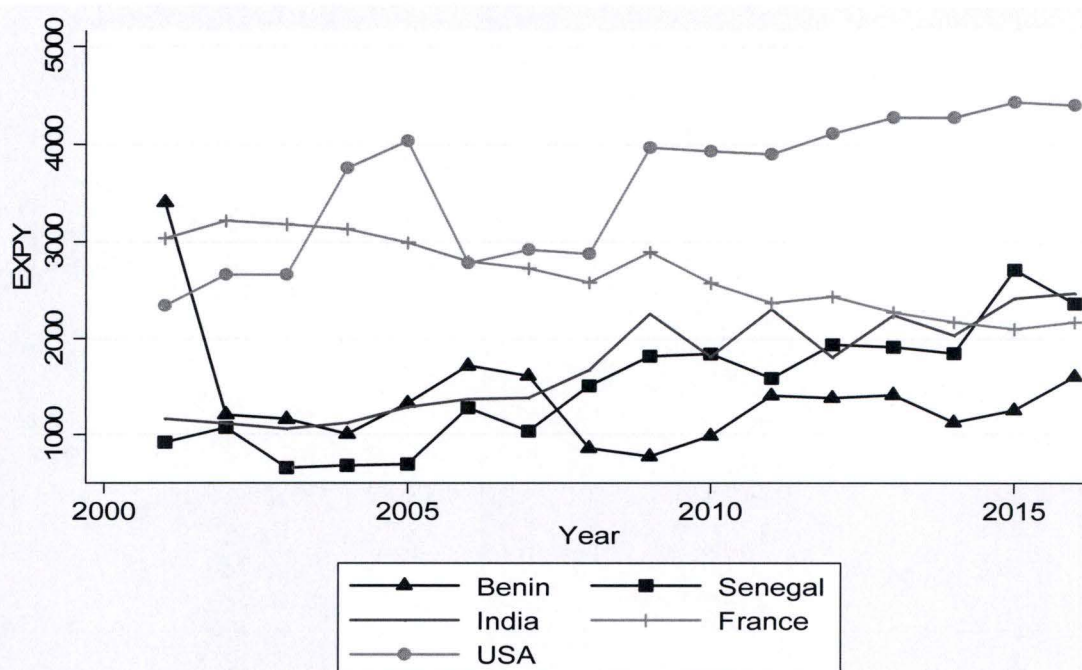**Source:** Trade Map/Comtrade and Own computation
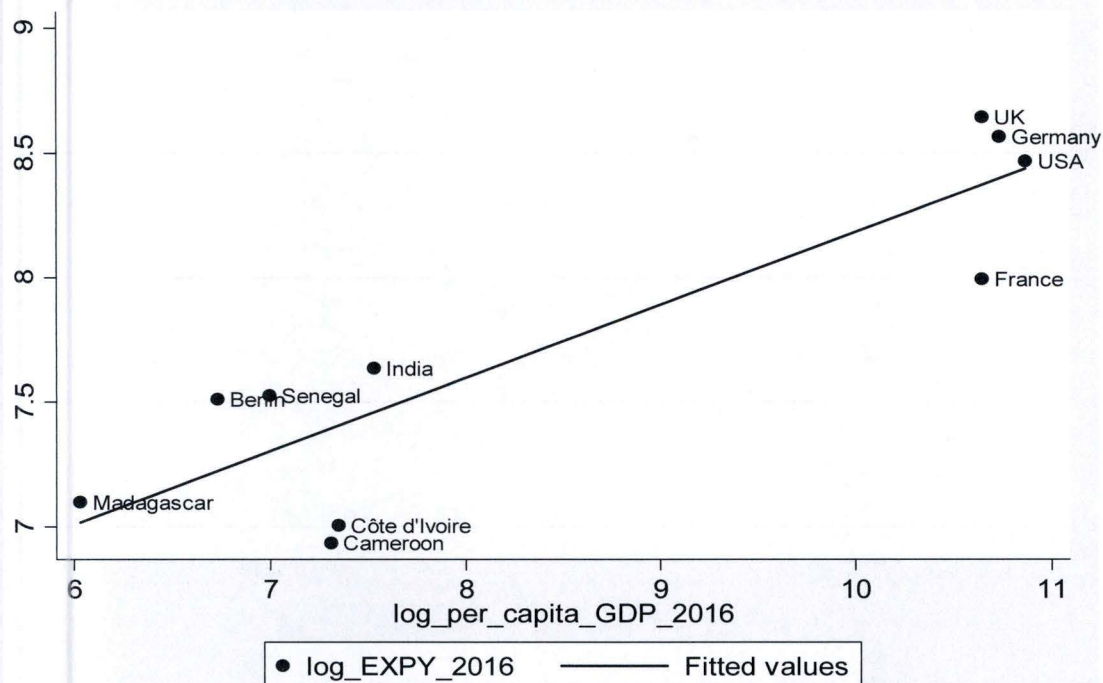
Source: Our calculations based on Trade Map/Comtrade and World Bank WDI

Figure 3 : Correlation between per capita GDP and the index of sophistication in 2016

To compare the sophistication level of the bundle of goods through time, we computed new EXPY indices with fixed PRODY values of 2001. This is to make sure that changes in EXPY are not driven by the changes in the GDP of the other countries, but an increase in sophisticated products. The evolution is depicted in figure 4. The graph shows that Benin shows no real increasing trend in EXPY over the period as compared to India, Senegal and the USA. This shows that the exports of Benin are not sophisticated. France exhibits a decreasing trend, highlighting the loss of performance it is going through these recent years.

These analyses reveal the weak structural performance of Benin's export, which is focused on primary goods. The production of manufactured goods that should add value to the goods is very weak in the country. This does not favor its long-term growth. For example, the local processing link of the cashew nut value chain remains weak as only 5% of total cashew nut production is processed (Tandjiékpon, 2012; Honfoga et al., 2016)

12

Source: Our calculations based on Trade Map/Comtrade and WDI

Figure 4 : Evolution of the sophistication index of Benin compared to other countries

6.4 Intra-industry trade and business environment

Comparative advantage and HOS theory explain trade across different goods/countries and thus have difficulty to explain intra-industry trade which the trade across similar goods is.

Hence, need for new theory to explain the facts: product differentiation, internal economies of scale and monopolistic competition theory.

In this sub-section, we provide an empirical analysis of Benin's intra-industry trade and its partners as benchmark by considering fifteen goods at the Harmonized System 6-digit level. These include : Fresh or dried cashew nut, Cotton, neither carded nor combed, Oil seeds and oleaginous fruits, whether or not broken , Paints and varnishes, Frozen cuts and edible offal, Palm oil and its fractions, whether or not refined, Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes, Tomatoes, prepared or preserved otherwise than by vinegar or acetic acid, Pineapple juice, Wooden furniture, Woven fabrics of cotton, Motor cars and other motor vehicles principally designed for the transport of persons, Motor, vehicles for the transport of goods, Fresh or dried pineapples, Soap and organic surface-active.

To do this, we used the Grubel-Lloyd (GL) index of intra-industry trade. GL index for intra-industry trade at the level of a country (across I industries) is follows:

13

$$I_i = 1 - \frac{\sum_{i=1}^{I} |X_i - M_i|}{\sum_{i=1}^{I} (X_i + M_i)}$$

where X_i and M_i are exports and imports of industry i respectively. When country imports and exports similar goods, the index approaches 1 and when imports or exports dominate trade in the industry (inter-industry trade), I_i approaches zero.

The relative importance of intra-industry trade depend on how similar countries are. – Countries with similar relative amounts of factors of production are predicted to have intra-industry trade. – Countries with different relative amounts of factors of production are predicted to have inter-industry trade.

Table 4 : Grubel-Lloyd index of intra-industry trade in fifteen goods, average 2001-2016 (%)

Country	IIT index (%)
Cameroon	4.25
Côte d'Ivoire	5.04
Benin	7.93
Senegal	13.72
India	20.81
USA	47.23
Germany	54.59
UK	70.96
France	77.97
Belgium	86.13

Source: Trade Map/Comtrade and own computation

Table 4 presents the results of the Grubel-Lloyd index. It shows that Benin as well as other developing countries (Côte d'Ivoire, Senegal, Cameroon and India) have lower GL index compared to developed countries. This indicates that Benin imports and exports different goods. Specifically, the country exports mainly raw commodities and imports more manufactured goods, whereas for developed countries, trade happens between similar goods.

In order to catch up with developed countries, Benin must move from its status of raw commodity exporter to manufactured goods exporter. This requires investments in businesses.

However, the business environment still remains to be improved. The 2018 doing business report World Bank (2018) ranked Benin at the 151st position. Although this position has improved compared to the previous year (155th), the country still has a lot to do.

Figure 5 shows the indicators of the business environment of the country. A country's distance to the frontier is reflected on a scale from 0 to 100, where 0 represents the lowest performance and 100 the frontier. The figure indicates that Benin's performance in getting electricity, getting

credit and enforcing contract is low compared to the other countries. These factors are important determinants in running businesses the Benin should improve.
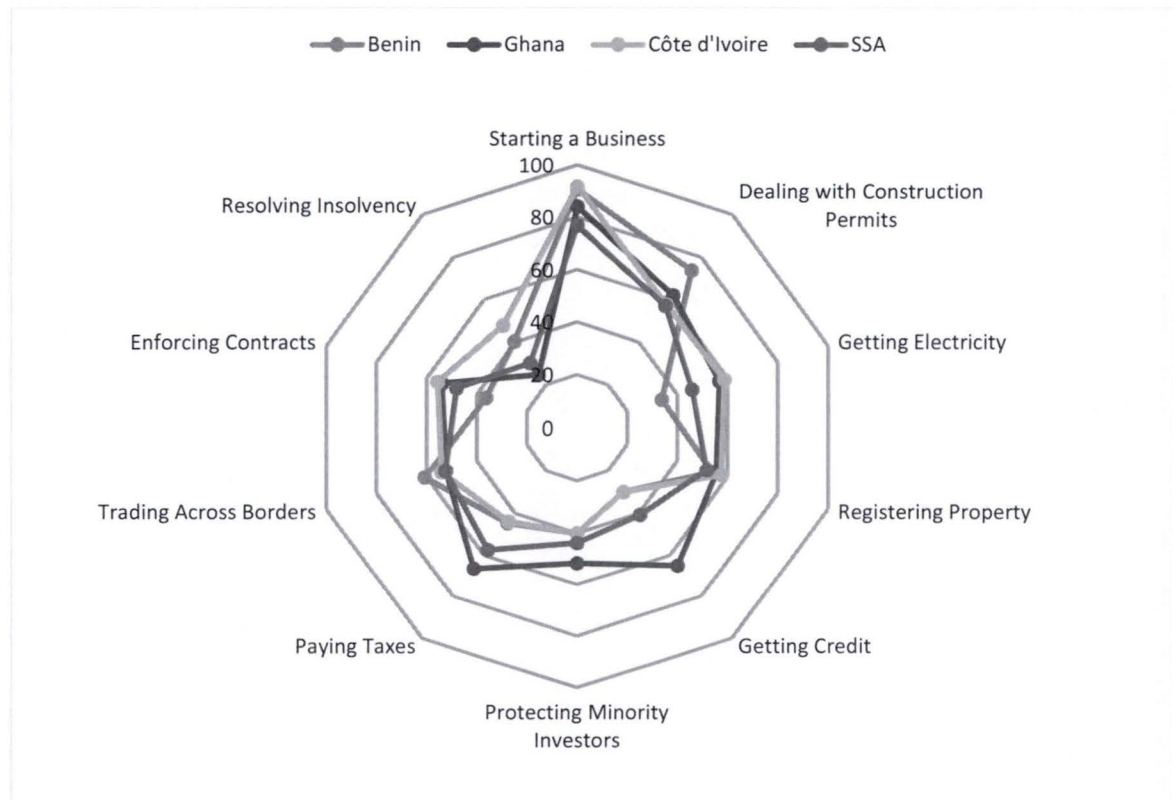
Source: Own computation based on data from World Bank (2018)

Figure 5 : Doing business indicators 2018, Benin vs its comparators

6.5 Revealed comparative advantage

The Revealed comparative advantage (RCA) index is a useful measure to analyze a country's comparative advantage. The traditional measure used is that of Balassa (1965). It is a ratio of product j's share in country i 's exports to its share in world trade. Formally, it can be expressed as follows:

$RCA_{ji} = (X_{ji}/ X_i) / (X_{jw} /X_w)$

where

X_{ji} = exports of product j from country i

X_{jw} = world exports of the product j

X_i = exports of country i

X_w = world exports

The RCA index ranges from 0 to infinity with 1 as the break-even point. When the RCA value is less than 1, this means that the product has no export comparative advantage, while a value above 1 indicates that the product has a "revealed" comparative advantage.

15

Table 5 shows RCA computed for 7 major export commodities. An analysis of the table indicates that Benin's has a revealed comparative advantage in all the product except Frozen cuts and edible offal.

Cashew is the crop in which the country has the highest RCA as the index remains greater or equal to 223.86 over the period. However, when graphed, it shows a decreasing trend. This is due to loss of competitiveness as we will see in the section 6.6.2..

The cotton industry also enjoys some substantial RCA, with the lowest value of 57.59 over the period. The RCA shows increasing trend in recent years, stemming from an improvement in cotton production.

As for cement clinkers, it is a new export commodity for Benin. The RCA that the country has in this crop from 2013 is the result of the start of activities of the new cement factory of Benin (NOCIBE) from that year. However, the value dropped down to 82.66 in 2016. This was due to drop in cement exports in 2016. The reason is that in that year, the cement market experienced a significant inflow of Nigeria's products that were more competitive because of the depreciation of the Nigeria's currency.

Benin also has, in overall, RCA in Oil seeds, palm oil and Gold, although it lost RCA in one, three and four years respectively for these crops. up to three years in these crops along the period. Gold is the commodity that shows very low RCA because of the low level of export.

Benin has RCA in Frozen cuts and edible offal only in five years. In recent years, say from 2011 onward, Benin completely lost RCA in this group of commodities.

To conclude this analysis, Benin had better increase the production of Cotton, Cashew, Oil, seeds, Gold, Cement clinkers, Palm oil and export them in order to reduce its trade deficit, while importing frozen cuts and edible offal.

Table 5 : RCA of Benin in seven major exported commodities

Year	Cotton	Cashew	Oil seeds	Gold	Frozen cuts and edible offal	Cement clinkers	Palm oil
2001	99.32	393.13	10.62	20.75	18.99	0.00	0.15
2002	93.81	458.26	6.67	24.39	11.51	0.00	0.44
2003	119.44	308.65	181.87	7.40	0.00	0.00	4.93
2004	127.82	314.33	144.26	0.89	0.27	0.00	2.21
2005	128.84	381.81	557.51	10.25	0.00	0.00	2.23
2007	129.57	437.39	513.90	0.00	25.64	0.00	15.01
2008	120.07	382.93	65.36	0.00	0.00	0.00	17.43
2009	92.35	344.75	12.09	0.00	169.60	0.00	27.25
2010	57.59	236.52	0.59	5.80	188.77	0.00	5.17
2011	83.31	386.11	60.05	3.36	0.00	0.00	2.64
2012	95.60	452.41	102.07	2.36	0.00	0.00	3.89
2013	108.25	410.64	171.87	1.88	0.00	24.57	3.53
2014	93.39	241.15	48.19	1.72	0.09	116.18	0.06
2015	127.18	318.87	152.00	1.65	0.17	164.82	23.57
2016	137.74	223.86	213.08	1.83	0.00	82.66	22.42

Source: Trade Map/ Comtrade and own computation

6.6 Analysis of Price, quantity, value and competitiveness of major commodities exported by Benin

6.6.1 Analysis of price, quantity and value of major commodities exported by Benin

In this section, we want to see if the change in export values of commodities is driven by the change in prices or quantities, because export values driven by the quantity reveals that the sector is performing well. To achieve this, we created price data as export value divided by export volume. To make data comparable, we set 2001 (T) as base year for cotton, cashew and gold and 2003 for oil seeds and palm oil. We then computed the indices of Value (V), Quantity (Q) and Price (P), using the formula: $IXt = 100*Xt/XT$, where IXt is the index of variable X (V, Q, P) at year t, relative to year T.
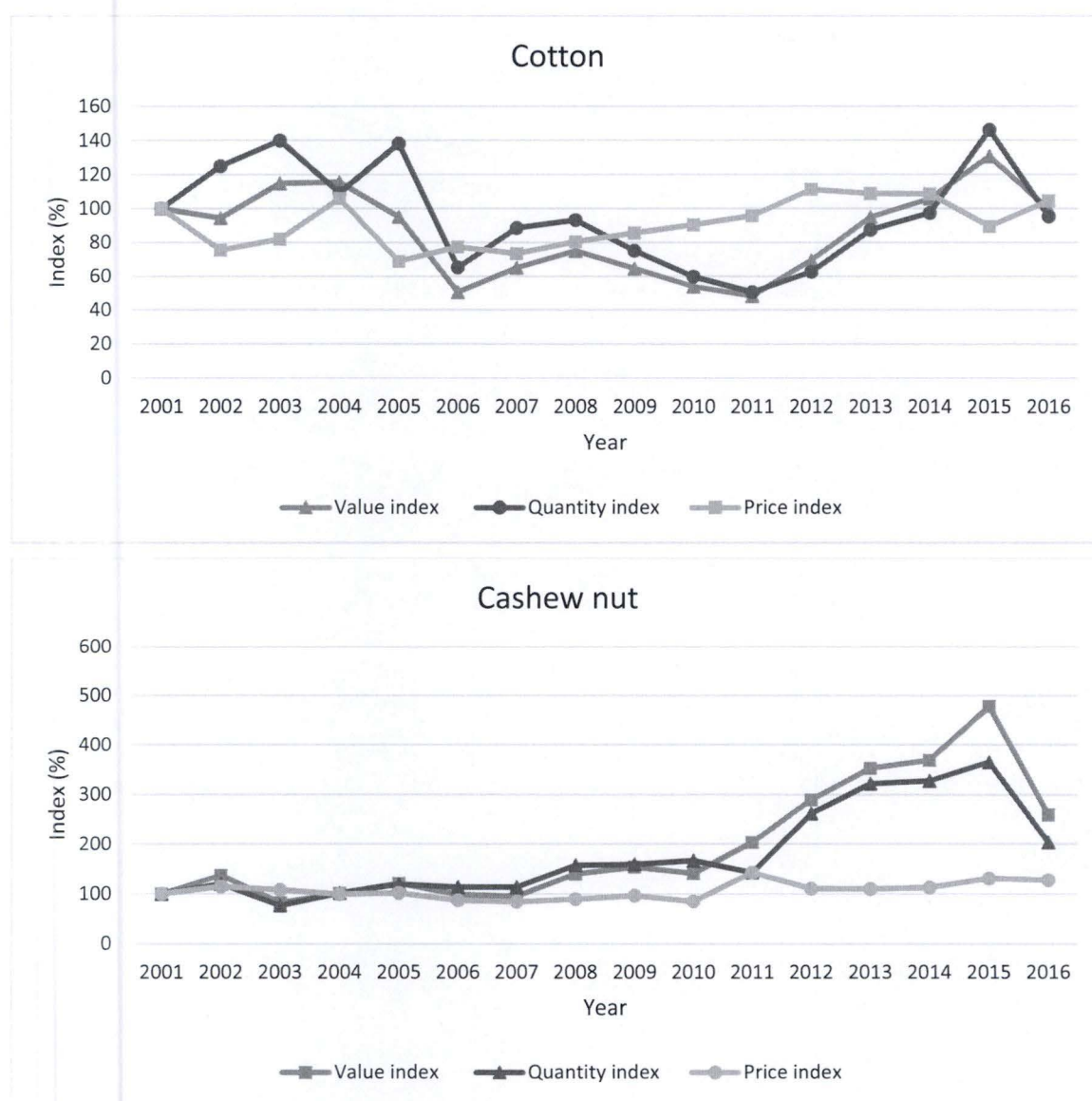
Figure 6 shows the evolution of the price, quantity and the value of major commodities. It indicates that cashew nut, gold and palm oil export values are mainly driven by quantity, as this latter tends to grow faster than the price, whereas cotton and oil seeds are affected by both price and quantity in different ways over the period.

For cotton, from 2001 to 2011, the export values show a decreasing trend, mainly attributed to the decrease in the quantity. This decrease is the consequence of the low performance of the cotton sector, mainly influenced by the mismanagement of cotton cooperatives and late payments to producers, which led to the growing disaffection of farmers for cotton in the period. During this period, the cotton sector was concentrated in the hands of one private sector
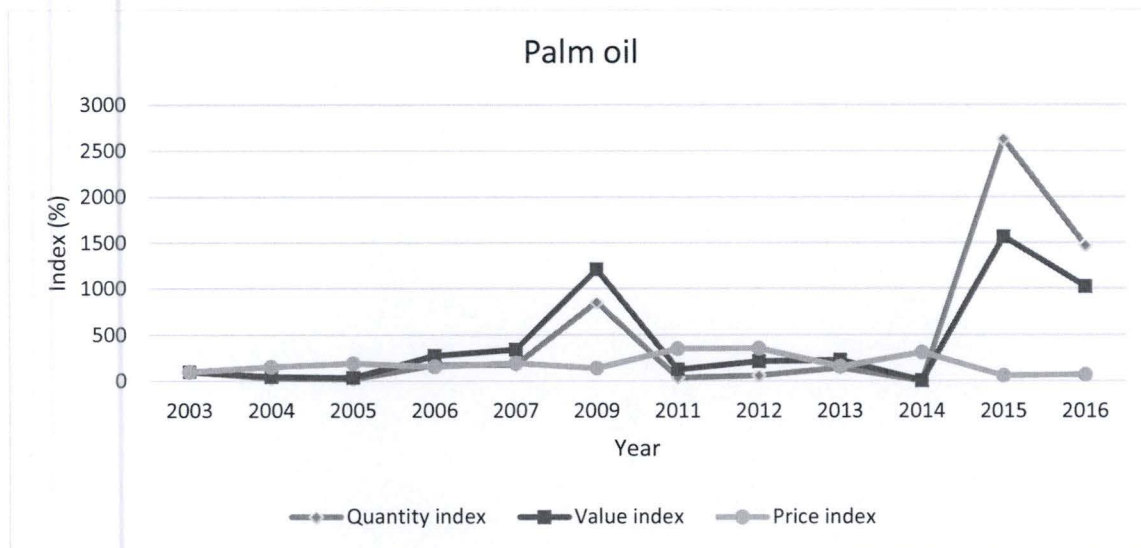
until 2012/13 season when the government decided to intervene and ordered contract ginning (World bank, 2015). The intervention of the government with new measures triggered the increase in quantity produced and exported from 2012. In the meantime, the price is growing faster than the quantity, meaning that the major contributor to the increase in exported values from 2012 is price. However, we observed a decrease in the price in 2015, which was offset by an increase in quantity. The current government is implementing new reforms in the sector and it is expected that these will enable changes, so as to improve the production.

As far as oil seeds are concerned, from 2003 to 2008, the values of exports are driven by the quantity, while from this same year until 2016, we observe that the price index is growing faster than the quantity. So, oil seeds exports are mainly driven by prices in recent years.

Cotton

Cashew nut

Oil seeds

Chart title: **Oil seeds**

Y-axis: Index (%) — 0 to 700

X-axis: Year — 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2011, 2012, 2014, 2015, 2016

Legend: ■ Quantity index ● Value index ▲ Price index

Gold

Chart title: **Gold**

Y-axis: Index (%) — 0 to 1200

X-axis: Year — 2001, 2002, 2003, 2005, 2006, 2010, 2011, 2012, 2013, 2014, 2015, 2016

Legend: ■ Quantity index ▲ Value index ● Price index

19
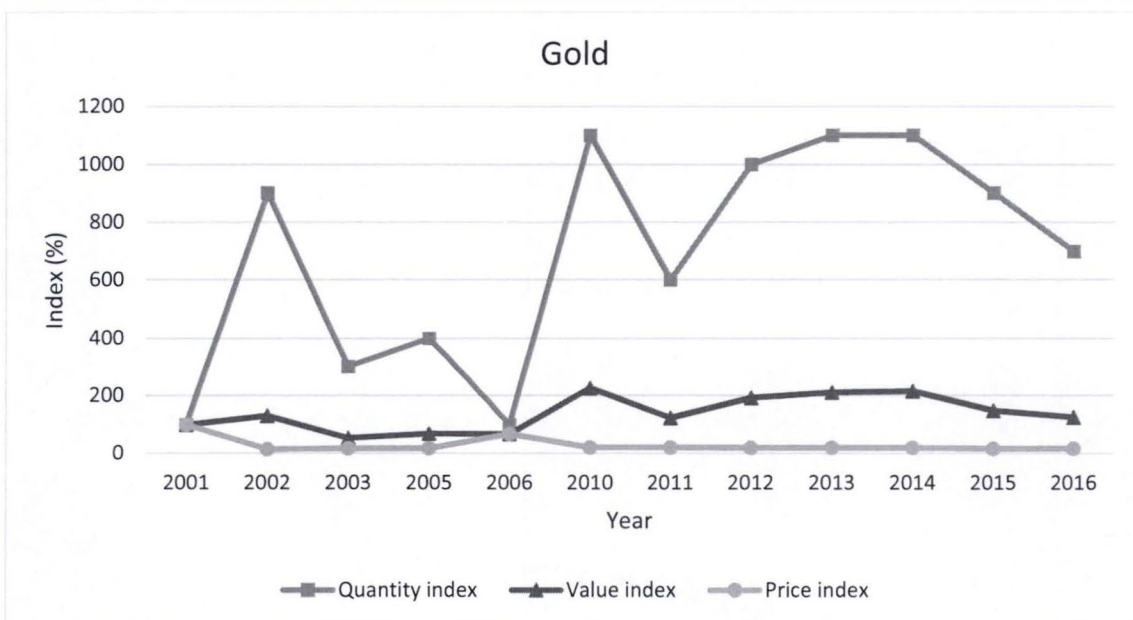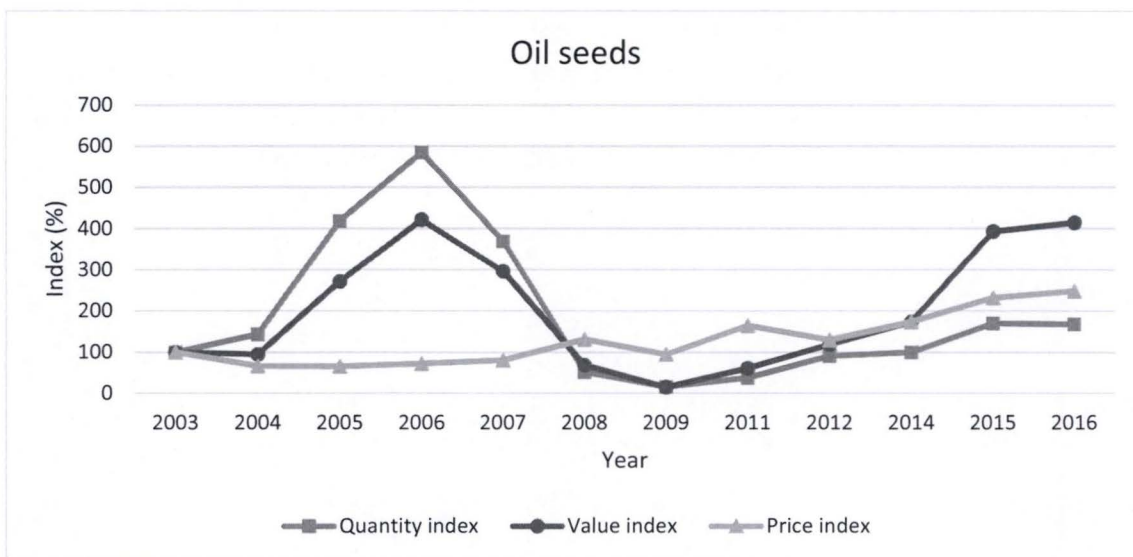
Source: INSAE-BENIN and own computation

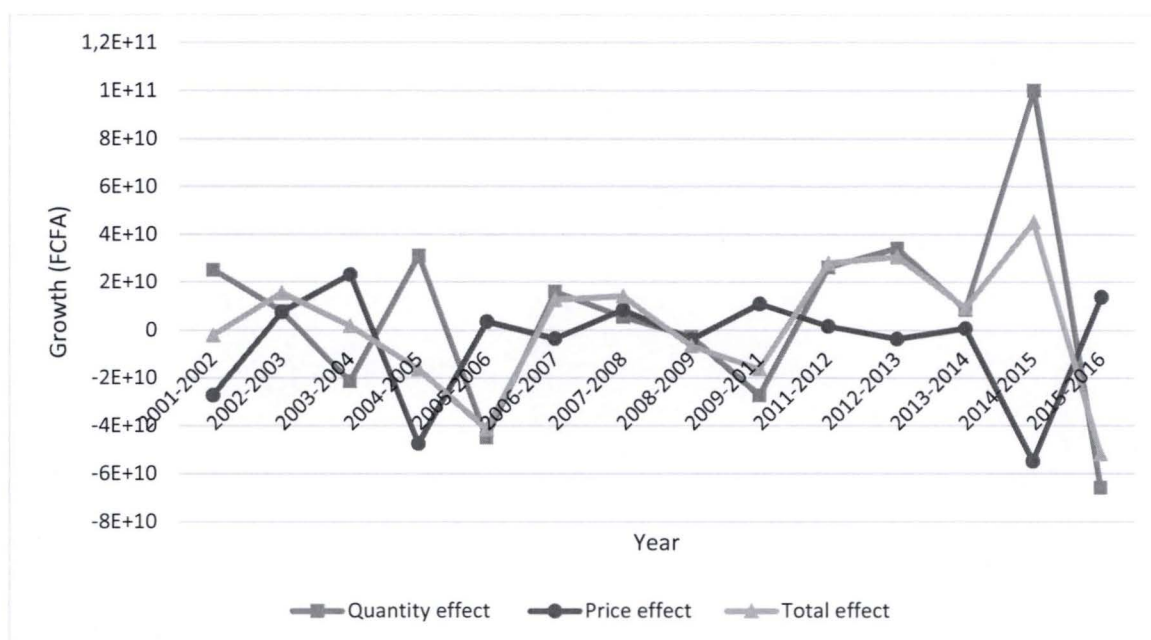**Figure 6 :** Price, quantity and value of major commodities exported

Export growth decomposition (value) for the major commodities exported by Benin

To better understand which factor drives exports, in this section, we conduct a growth decomposition analysis for the four major commodities (Cotton, Cashew, oil seeds and palm oil)[1] exported to disentangle the quantity effect from the price effect. The export growth is decomposed according to the following formula:

$$X^{ij}_{t+n} - X^{ij}_{t} = \sum_{m} P^{ij}_{m,t}(Q^{ij}_{m,t+n} - Q^{ij}_{m,t}) + \sum_{m}(P^{ij}_{m,t+n} - P^{ij}_{m,t})Q^{ij}_{m,t+n}$$

where Q is the exported volume in Kg of the commodity m to the rest of the world, P the price in FCFA of commodity m exported to the rest of the world.

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[1] We did not include gold here because values are missing for some years

Source: INSAE-BENIN and own computation

Figure 7 : Export growth decomposition (value) for the major commodities exported by Benin

When analyzing the graph, there is a positive co-movement between the total effect and the quantity effect. This means that growth in exports tends to be led by quantity, mainly in recent years. This could be the result of the government efforts to improve agricultural production in recent years. However, more effort is needed to increase agricultural productivity. These efforts should consist, among others, of investments in non-traditional export crops such as pineapple, soybean, etc. and the ease of access to financial services to boost agribusiness.
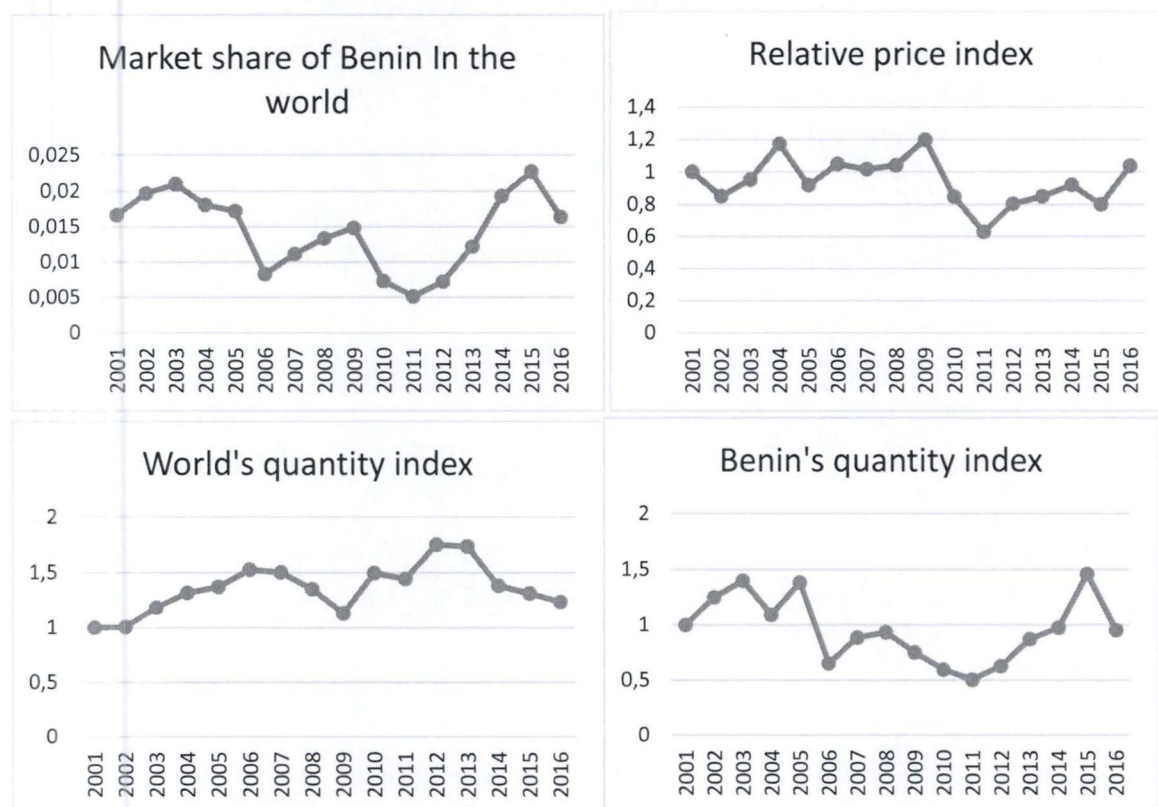
6.6.2 Competitiveness analysis

This section aims at analyzing the competitiveness and the quality of the main products exported by Benin. To do this, we computed and graphed the share of Benin's exports in the world market, the relative volume index of Benin on world volume index and the relative price index of Benin on world price index, over 2001-2016. A faster growth of Benin's price compared to the world's is an indication of increase in quality and an increase in the market share is an indication of competitiveness. Each component was separately graphed to get around the problem of scale. We removed the years during which Benin did not report its trade flows for the commodities concerned.

- **Cotton**

Figure 8 reveals that the cotton market share is following the same trend as the quantity index and the relative price (in recent years) index. This means that the trend in the market share is explained by both the export quantity and the price. The market share has been on the rise in recent years but decreased in 2016. This rise is attributed to the faster growth of the export quantity and the export price relative to the world. The growth of Benin's price in recent years

21

might results from an increase in the quality of the cotton exported. IMF (2013) admitted that much of Benin's exported cotton is of high quality, because it is harvested manually and benefits from a favorable climate, especially in the north. The upward trend in the relative price index indicates that cotton remains a promising sector in which the government should continue to invest, while promoting non-traditional export crops for diversification.

Source: INSAE-BENIN, Trade Map/Comtrade and own computation

Figure 8 : Cotton competitiveness analysis

- **Cashew nut**

Figure 9 shows that, the cashew nut market share exhibits a decreasing trend. This is due to the slow growth of Benin's price as well as its quantity as compared to the world, indicating poor quality of products and loss of competitiveness. For example, when the world's price index was reaching 1.83 in 2014, Benin's price index reached 1.12 and while the world quantity was reaching 5.03 in the same year, Benin's quantity was at 3.27.

In fact, Benin's cashew is recognized as of excellent quality in the sub-region (Tandjiékpon, 2012). So, in order to benefit from this recognition, neighboring countries export their cashew through Benin. It is then observed on the market a mixture of Beninese products with others of inferior quality coming from neighboring countries. This results in low price, below the potential, of exported cashews and may be the main explanation behind this slow growth observed in cashew prices compared to the word's.

On the production side, the slow growth compared to the world may result from:

- low investment in cashew plantations;

- poor maintenance of plantations (high damage due to fire);

- negative effect of climate change on productivity, especially in recent years; and

- the aging of cashew plantations.

The focus of Benin on the export of raw cashew prevents it from getting higher price and the increase in the value added of the sector. The processing link remains very weak, with a level of 5% of all local production (Tandjiékpon, 2012). Hopefully, the new reforms and investments in the sector brought about by the Benin's new Government will trigger positive changes at the processing level and allow to get higher price.
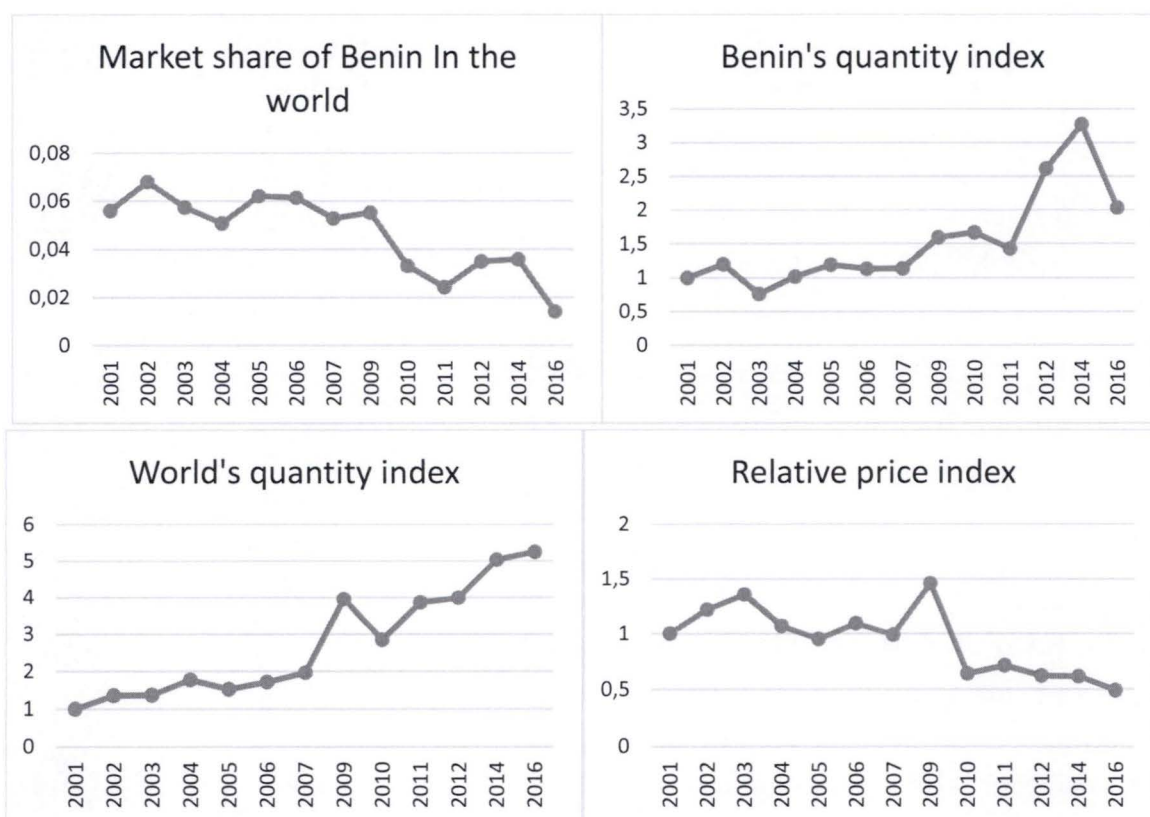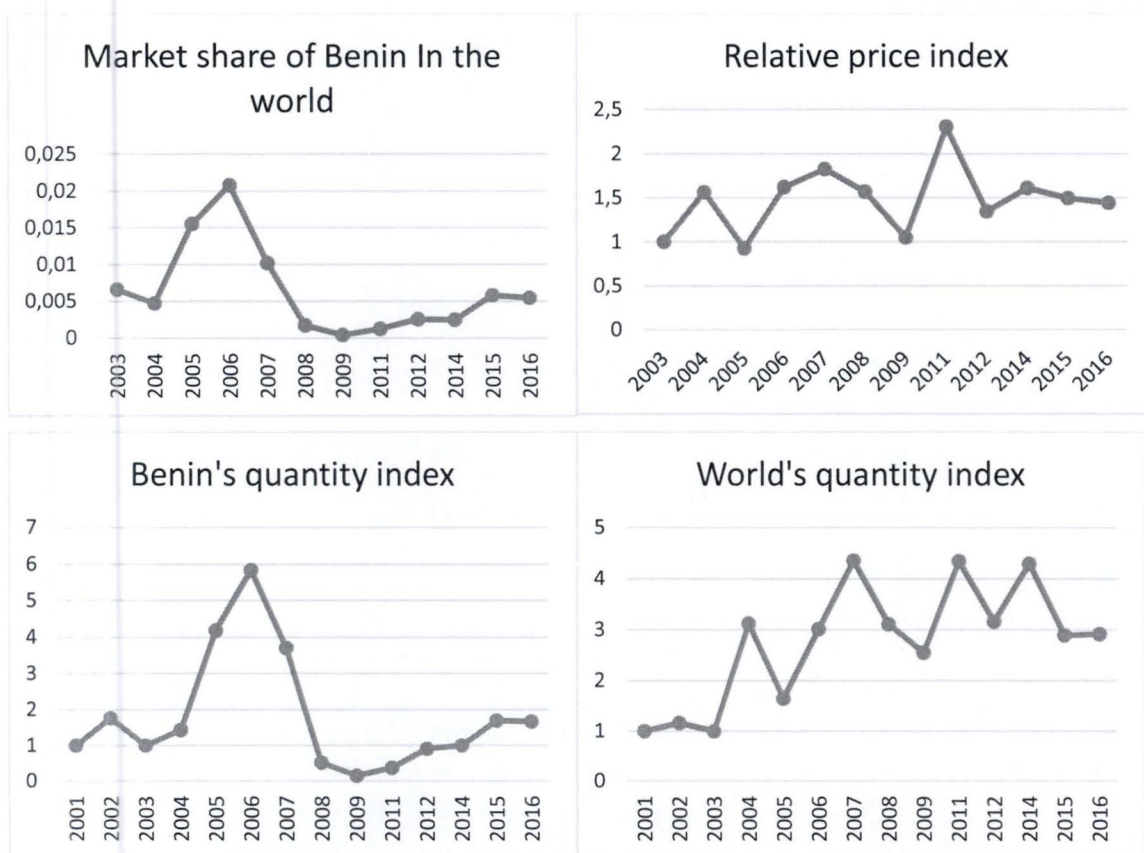

Source: INSAE-BENIN, Trade Map/Comtrade and own computation

Figure 9 : Cashew competitiveness analysis

- **Oil seeds**

In figure 10, the oil seeds market share first shows an increasing pattern, a decreasing trend and an increasing trend in recent years. The recent upward trend of the market share stems from the faster growth in both quantity and price relative to the world, while this latter's quantity remains volatile. Thus, there is an indication of the improvement in the quality of Benin's exports of this product, but also a gain in competitiveness in this sector in recent years.
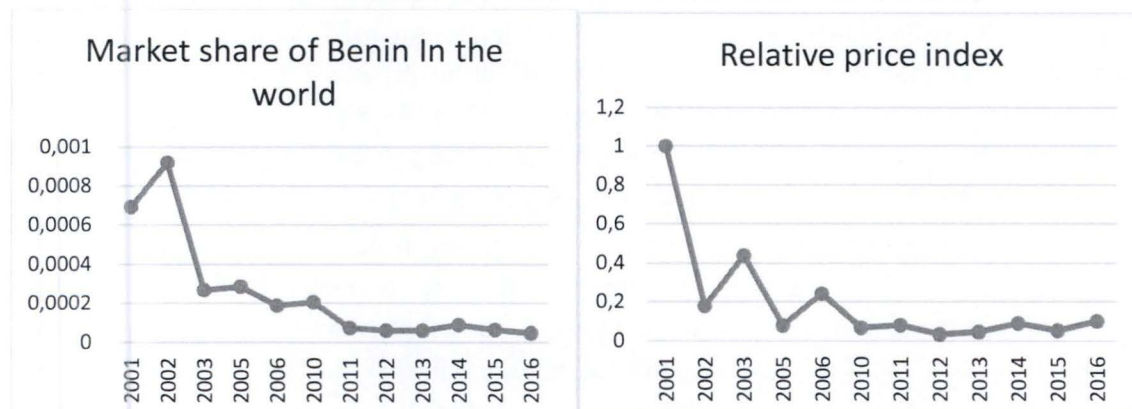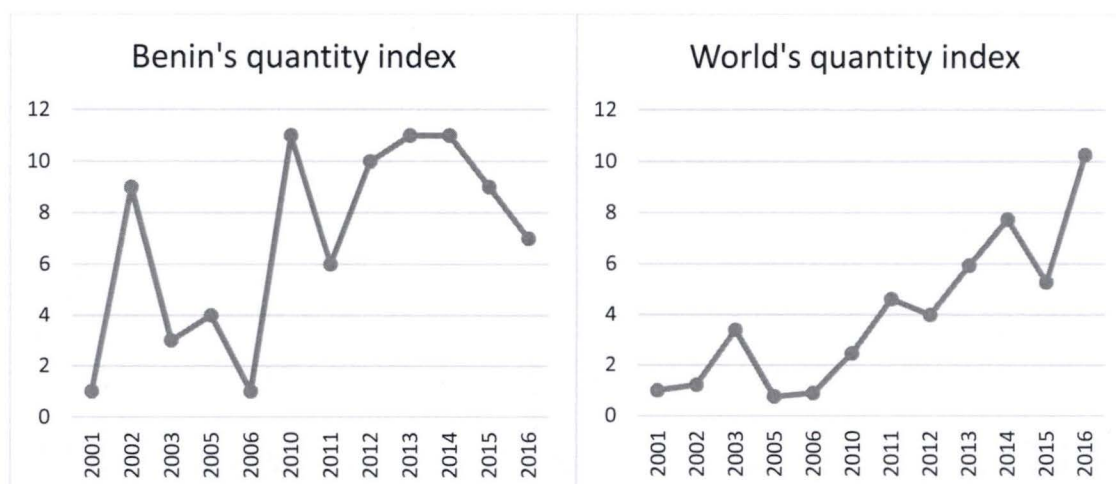
Source: Trade Map/Comtrade and own computation

Figure 10: Oil seeds competitiveness analysis

- **Gold**

Figure 11 shows that the share of Benin's gold in the world export shows over the period, a decreasing trend, mainly due to the fact that its price is lagging behind the world price.

Source:Trade Map/Comtrade and own computation

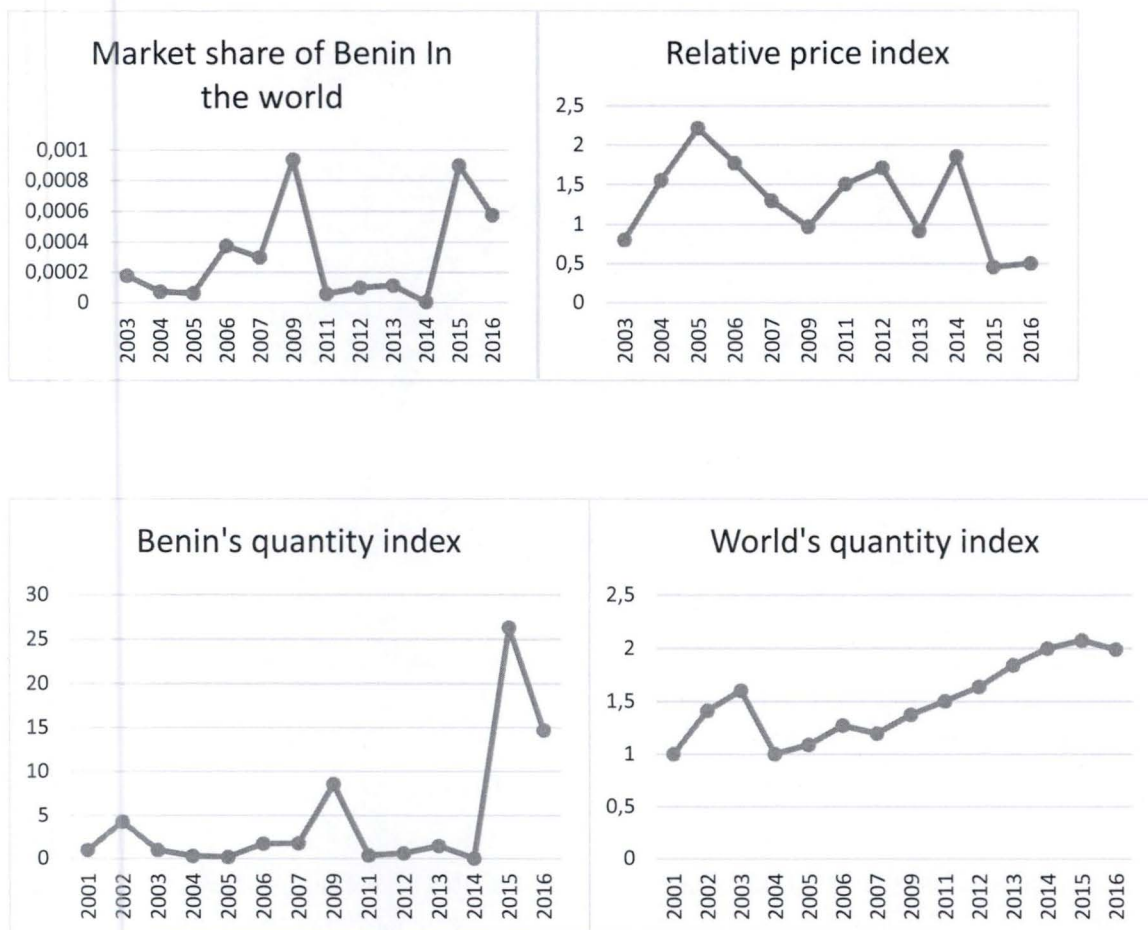**Figure 11** : Gold competitiveness analysis

- **Palm oil**

The analysis of the figure 12 indicated that palm oil share is following the trend of the export quantity. From 2003 to 2009, Benin's quantity grew faster than the world's, which is translated into the value. After 2009, the performance of the sector dropped, indicating a loss of competitiveness. We can also observe that there is a decreasing trend in the relative price, which reveals the law quality of palm oil that is exported.

In fact, the palm oil sector has been an important driver of the national economy since the 1950s. However, the area of natural palm groves is now estimated at less than 300,000 ha compared with 500,000 ha in the 1960s. In the same way, the village palm groves as well as the industrial ones experienced a decrease.

Many factors are behind these decreases. At the production side, the heirs of the landowner proceed to the fragmentation and the sale of the lands covered by palm trees, since they seem no longer attached to this crop. The increasing urbanization also engulfed areas that were once attributed to these palm plants. Zopa (Palm Zone) in Calavi is a good example. Moreover, the non-renewal of old plantations and land insecurity affect the productivity and the investment in this sector. Constraints related to competitiveness of technologies and compliance with standards include: traditional production technologies, a high production cost compared to the sub-region, and failure to meet quality standards (Agro-Business Center, 2016).

These factors limit the production and prevent the country from being competitive on the international market. The vote of the European parliament in favor of excluding biofuels produced from palm oil from being accounted towards the EU Renewable Energy targets is an additional factor which taken together with the others, blackens the future of the palm oil industry in Benin. Unless there are more actions to address the factors raised and diversify export partners, the sector won't reach it performance of the past anymore.

Market share of Benin In the world

Relative price index

Benin's quantity index

World's quantity index

Source: Trade Map/Comtrade and own computation

Figure 12 : palm oil competitiveness analysis

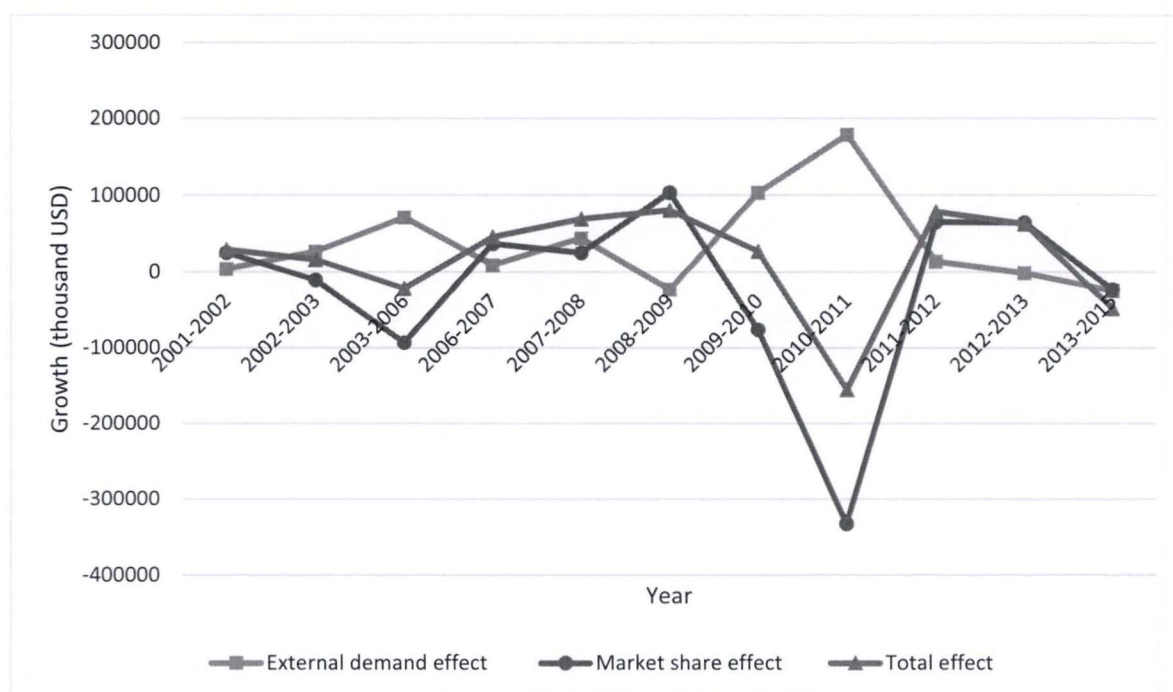### *Export growth decomposition (shares) for Benin*

To better understand how the export portfolio of Benin to its 5 major export partners (Bangladesh, Malaysia, India, China and Nigeria) is competitive over time, we provide in figure 13 a decomposition of the growth of all products exported by Benin into Market share effect $(S_{t+n}-S_t)$ and external demand effect $(M^j_{t+n}-M^j_t)$. An increase in foreign demand and market share indicates an improvement in the country's competitiveness. The formula can be presented as follows:

$$X^{ij}_{t+n} - X^{ij}_{t} = \sum_{m} S^{ij}_{m,t}(M^{j}_{m,t+n} - M^{j}_{m,t}) + \sum_{m} (S^{ij}_{m,t+n} - S^{ij}_{m,t})M^{j}_{m,t+n}$$

Where X^{ij}_{t+n} - X^{ij}_t represents the difference between the total exports of Benin towards the 5 partners at time t+n and the total exports towards the same partners at time t; it is the total effect. S^{ij}_{t+n} - S^{ij}_t is the difference between the market shares of exports of Benin towards the 5 partners for product

m in total imports of the 5 partners of the same product at time t+n and time t.

$$S_{m}^{ij} = X_{m}^{ij} / M_{m}^{j}$$

Source: Trade Map/Comtrade and own computation

Figure 13 : Export growth decomposition (shares) for Benin

Figure 13 shows that the market share effect dominates the external demand effect in explaining the export growth as there is a positive co-movement between the total effect and the market share effect. The market share effect is the major contributor to the decrease in export growth over the period, while the external demand effect tends to offset the negative effect of the market share. In recent years, from 2012-2013, both effects are declining.

The general positive effect of the external demand observed over 2001-2011, signifies that imports of the partners from the rest of the world are growing. However, after this period, partners' demand starts to decrease. These trends provide us with a lesson that a strong geographical concentration of Benin's exports can be a source of vulnerability due to the fluctuations in demand in the partners countries, hence the need to diversify export partners.

The decrease in the market share effect is an indication that Benin is losing shares in the overall imports of its main exports partners. Imports of the partners from the rest of the world is growing faster than imports of the partners from Benin. This fact comes from both the decrease in the productivity and the low growth of the Benin price relative to the world price, leading to loss of competitiveness. In this regard, Benin should improve not only its production by pursuing the reforms in the agricultural sector but also the quality of what it exports. Quality products will come from good techniques of post-harvest of agricultural products, but also the application of required standards in the manufacturing sector, by resorting to experts on phytosanitary norms.

6.7 Analysis of trade with Benin's Partners

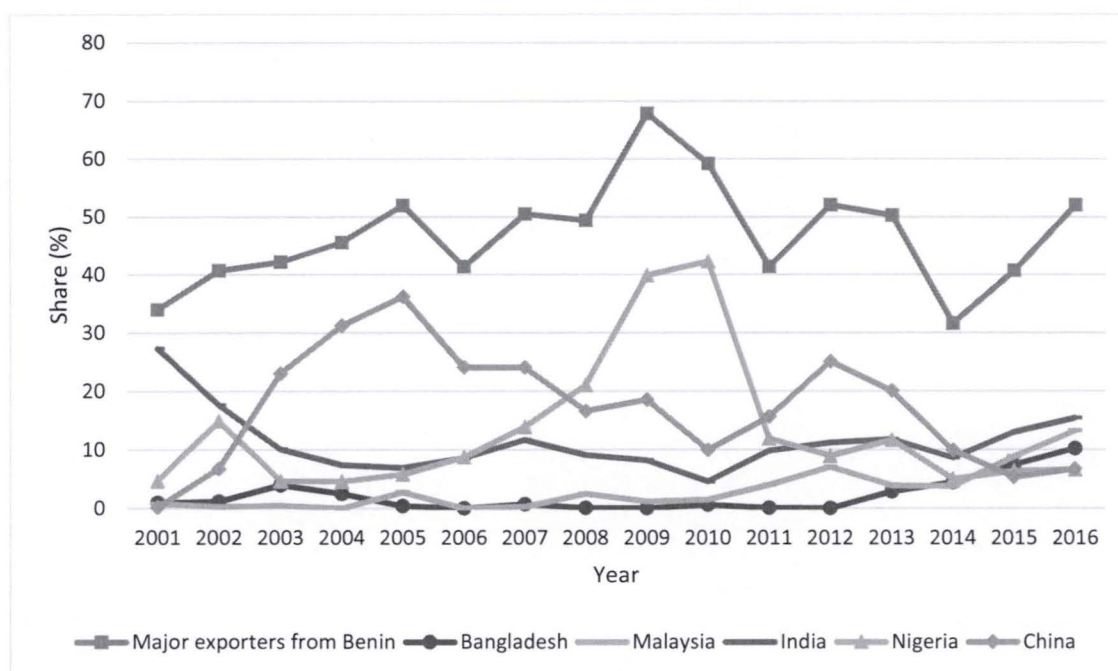### 6.7.1 Main origins of imported goods
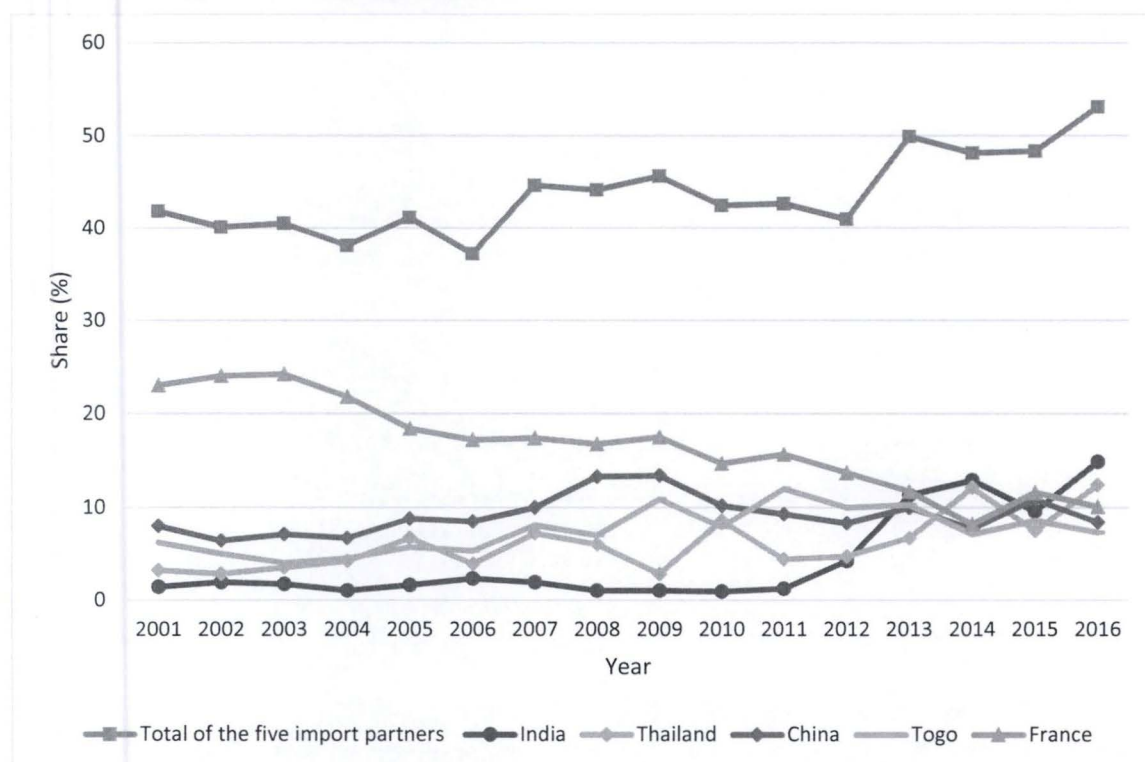
Source: Trade Map/ Comtrade and own computation

Figure 14: Shares (%) of Benin's imports from the five major import partners, 2001-2016

Figure 14 shows the evolution of the shares of the imports values of Benin from its major import partners from 2001 to 2016. The main import partner of Benin is France (pharmaceutical products, meat and edible meat offal, machinery, mechanical appliance, etc.) with declining shares over the period, while there is an emergence of other partners like China (electrical machinery, iron and steel, Ceramic products, vehicles, etc.), India (rice), Thaïlande (rice) and Togo (Electrical energy) in recent years. The decline in the exports of France is due to the loss of its competitiveness and the increasing trade openness of emerging economies, in particular China's rise to global markets (OCDE, 2014). Since 2016, India and Thailand became the most important suppliers of Benin, mainly through rice supply. This is due to the fact that Nigeria economy starts to recover from the recession it went through by June 2016, encouraging reexport activity, with rice a major product of reexport.
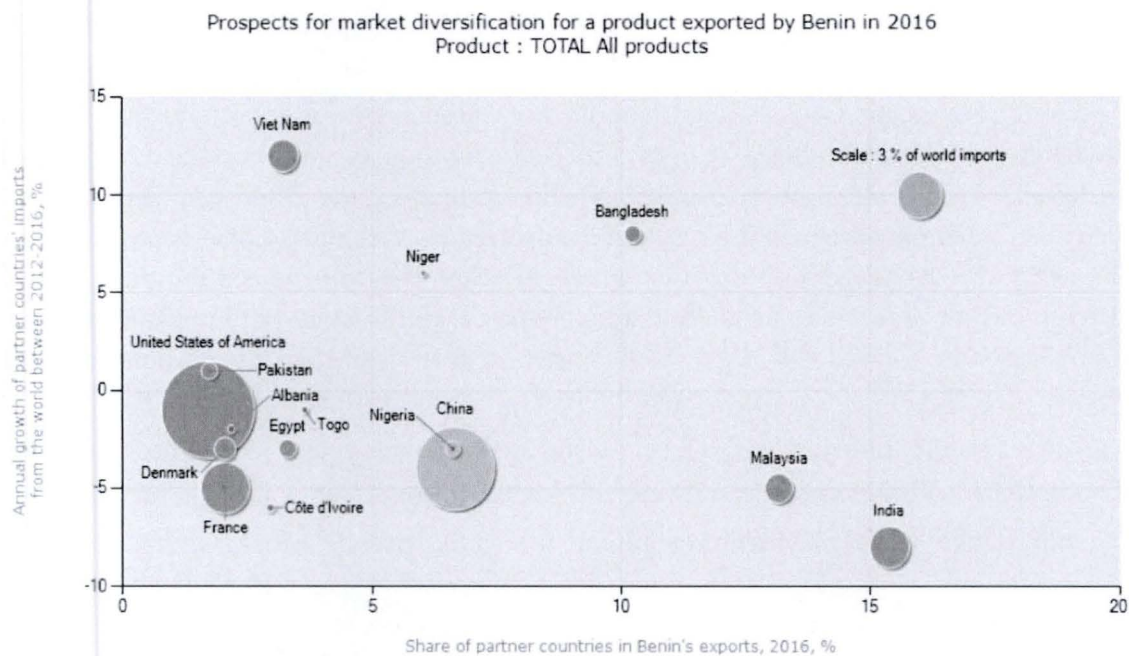
6.7.2 Main destinations of exported goods

Source: Trade Map/ Comtrade and own computation

Figure 15 : Shares (%) of Benin's exports to the five major export partners, 2001-2016

Figure 15 shows that China (cotton) and Nigeria (rice, frozen cuts, palm oil, cotton-seed oil, etc.) are the main destinations of Benin's goods over the period and that in recent years, they have been losing the share of their imports from Benin in favor of Bangladesh (cotton), Malaysia (cotton) and India (cashew, cotton, woods). For China, the reason for this loss is that there has been an increase in export of cotton to Bangladesh and Malaysia as these partners have increased their industrial capacities. For Nigeria, the decline is due to the import ban of some agricultural products and the high level of tariff applied. However, people use the informal route to export to Nigeria to get around this import ban, as we will see in section 6.7.4 and 6.7.5. We can also note that the share of the total import from Benin of these five partners in the total export of Benin is increasing in recent years, with a maximum value of 67.9% reached in 2009.

Prospects for market diversification for a product exported by Benin in 2016
Product : TOTAL All products

Source: Trade Map/Comtrade

Figure 16 : Prospects for market diversification for a product exported by Benin in 2016

Figure 16 shows the potential export partners that Benin can consider for export partners diversification. The exports of Benin are concentrated in the five partners presented in the previous figure (figure 15) as this share amounted 52,09% in 2016. In the meantime, Niger and Vietnam experienced high annual import growth from the world in the period of 2012-2016 compared to other countries, with values of 6% and 12% respectively. These countries are potential partners that could absorb Benin's exports.

6.7.3 Effect of bilateral trade between Benin and its main import partners
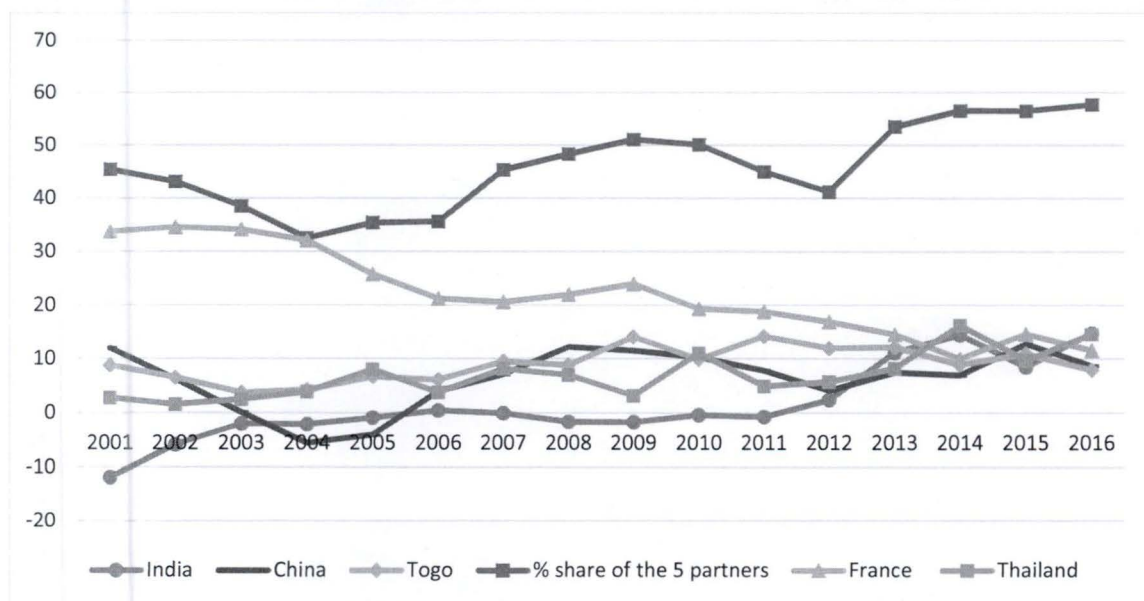
Source: Trade Map/ Comtrade and own computation

Figure 17: Percentage share of the five import partners in the trade deficit

Figure 17 shows that France contributed the most to worsen the trade deficit of Benin over the period. That means Benin's imports more from France than it exports to that country, with the main imported products being pharmaceutical products, motor cars and other motor vehicles and frozen cuts. However, we observe that from 2014, the influence of France in the trade balance decreased, which is a result of the decrease in the international competitiveness of France's exports as mentioned above. In recent years, the influence on the trade balance shifted from France to Thailand and India that export mainly rice to Benin. For example, in 2014, when we observed the largest deficit, rice imports from these two countries alone accounted for 23.83% of total imports in the year.

China effect on the trade deficit have been widening in recent years. This is because export of cotton to China has decreased in recent years while imports from China increased

Concerning Togo, it also plays a non-negligible role in the trade deficit of Benin. The country mainly relies on Togo for its supply in electrical energy, as local sources are not able to meet national demand in this good. This level of supply which is affecting the trade balance, combined with the current level of local supply are both still far from meeting the national demand in electrical energy, causing some regular power outages and hampering businesses. Limited access to electricity has a negative impact on the country's economic growth. The use of emergency production from diesel generators is a short-term solution that has the disadvantage of increasing the cost of the production. A solution to this problem must therefore be found through good planning and the use other means of production such as hydroelectricity, gas production, and renewable energies. Reforms also need to be undertaken to encourage the participation of the private sector in supplying power.

These five partners combined represent the ones that influence the most the trade deficit of Benin as shown by the graph and actions need to be taken in this direction.

6.7.4 Why are China, India and France and Thailand exporting too much to Benin and affecting the trade deficit?

Table 6 : Percentage share of China's export to Benin market on average

Year	2001-2004	2005-2008	2009-2012	2013-2017
Paving blocks, slabs, bricks, squares, tiles and other articles of pressed or moulded glass, whether or not wired, for building or construction purposes	43.8	45.0	54.5	43.0
Roller chain of iron or steel	51.0	37.5	15.3	79.2
Grill, netting and fencing, of iron or steel wire, welded at the intersection, plated or coated with zinc	21.7	5.9	96.4	75.0
Glazed ceramic tiles, mosaic cubes and similar articles, whether or not square or rectangular, the largest surface area of which is capable of being enclosed in a square of side of < 7 cm, whether or not on a backing	72.3	46.2	77.3	80.4
Table, floor, wall, window, ceiling or roof fans, with a self-contained electric motor of an output <= 125 W	59.0	48.1	54.8	49.7
Glazed ceramic flags and paving, hearth or wall tiles; glazed ceramic mosaic cubes and the like, whether or not on a backing	19.3	24.9	37.0	66.5
Bars, rods and solid profiles, of aluminium alloys, n.e.s.	62.7	76.6	69.7	79.2
Sewing machines of the household type	89.7	95.6	97.2	94.8
Structures and parts of structures, of aluminium, n.e.s., and plates, rods, profiles, tubes and the like, prepared for use in structures, of aluminium, n.e.s.	7.9	13.8	25.5	32.6
Parts of machinery for the industrial preparation or manufacture of food or drink, n.e.s.	89.5	77.9	38.3	73.6
Agricultural, horticultural or forestry machinery for soil preparation or cultivation; lawn or sports-ground rollers	83.7	52.5	95.6	11.1
Motorcycles, incl. mopeds, with reciprocating internal combustion piston engine of a cylinder capacity > 50 cm³ but <= 250 cm³	47.1	74.5	83.9	73.0

Source: Trade Map/ Comtrade and own computation

Table 6 shows that China's export to Benin represents big shares in Benin's overall imports mainly for equipment destined for house or road buildings. This is due to the fact that China provides with Benin soft loans to implement development projects such as roads construction and infrastructures for industries. But China does this for two main undeclared purposes: provision in raw material and market outlets, in order to sustain its industries. The strategy

is not to lend directly to the government, but to mandate Chinese companies that carry out the projects with the approval of the authorities, in exchange of exploiting raw materials. To qualify for a soft loan, a project must mobilize at least 50% of goods manufactured in China (chaponnière, Perreau and Plane, 2013). These results in the increase of goods imported from China.

Some key achievements by Chinese enterprises during the regime of the President Mathieu Kérékou and that of his successor Yayi Boni in Benin include: the convention center (*palais des congrès*), the digitization of the Beninese telephone network, the new Ministry of Foreign Affairs building and the first highway ever built in Benin.

France and India also fund development projects in Benin. Their high export to Benin might also be linked to their aid to Benin, but we don't have enough evidence to elaborate on them.

Some additional reasons why, mainly, India and Thailand export too much to Benin are that Nigeria their main market in the west African region applies high tariff on goods and banned (though the restriction has been eased in recent years though) the import of some goods to enable local businesses to grow and promote local consumption. Mitaritonna, Bensassi & Jarreau (2017) showed that Increasing tariffs on a given product by 10% makes it about 12% more likely that this product is imported informally rather than formally. They also found that non-tariff measures also increase informality. So, these goods with high protection are exported to Benin and then smuggled into Nigeria as shown by figure 18.
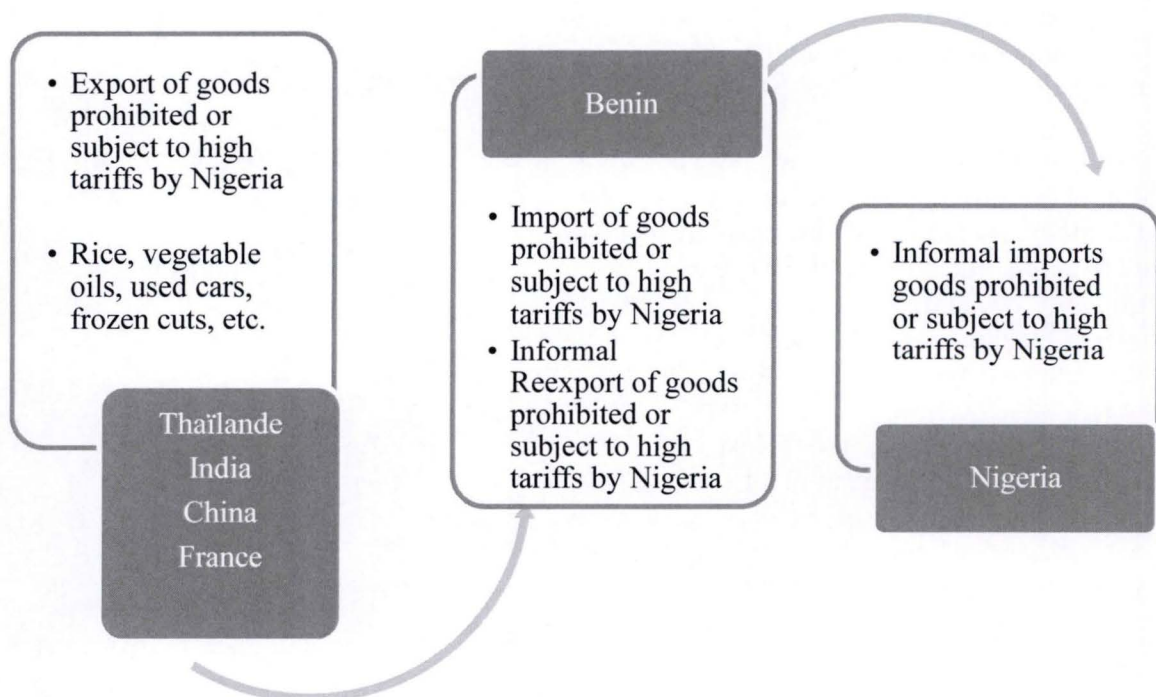
Source: Own design

Figure 18 : The smuggling network

6.7.5 The smuggling business in Benin

Goods mainly imported from India and Thailand are in large part destined for Nigeria, especially through smuggling. In order to get insight into the smuggling trade, we estimated the informal exports as follows:

$$X_I = M_F - X_F - \Delta External\ debt$$

Where X_I = informal exports, M_F = formal imports , X_F = formal exports, and ΔExternal debt =

Total change in external debt stocks, with all variables expressed in USD

Figure 19 shows the result of our estimation. The informal imports are greater than the formal exports and the gap is widening through time. These informal exports even come close to the total formal imports. For instance, in 2016, the informal exports were 5.09 times greater than the formal exports and represented 79% of the formal imports. One would be interested to know the final destination of these informal exports. It is estimated that over 80% of all goods entering the port of Cotonou are destined for final delivery outside Benin, mainly for transit and re-export to Nigeria and to landlocked Niger and Burkina Faso (World Bank, 2015), an estimation which is very close to our value of 79%. To put it differently, official exports to Benin are dominated by goods that are informally reexported to Nigeria. Trade with Nigeria alone, informal or otherwise, is thought to represent 20% of Benin's GDP (MacWilliam, 2013).

Benin is not the only one country with large amount of informal exports. Using the method of borders monitoring based on direct observation of flows, Nkendah (2013) estimated the informal exports of agricultural and horticultural goods of Cameroon to its CEMAC's neighbors and compared it with the official figures. He found that an estimated value of almost FCFA 38 billion of agricultural and horticultural goods alone, representing 0.4% of GDP in Cameroon in 2008 where smuggled into CEMAC's neighbors, while official statistics of total exports from Cameroon to CEMAC were 39.5 billion in the same year. This means that if the study had taken into account the other categories of goods, the figure could have increased and take over the official exports as in the case of Benin.

In the short run, the reexport business is on the one hand beneficial for Benin as it generates substantial customs duties and employment. However, this is not sustainable. It has some drawbacks on the economy as they widen the trade deficit and negatively affects the economy when Nigeria's economy is not doing well. For example, over the period of 2014-2016, Nigeria went through a recession due to the collapse of oil price coupled with the depreciation of Naira. So, import into the country became more expensive for importers who reexport goods from Benin to the country. As a consequence, Benin's imports declined. This resulted in a 20.3% drop in revenue over the period from 2014 to 2016. Government spending also decreased from 25.0% of GDP in 2015 to 24.5% of GDP in 2016 as a result of measures taken by the new authorities to contain both current and investment expenses (MEF, 2018).
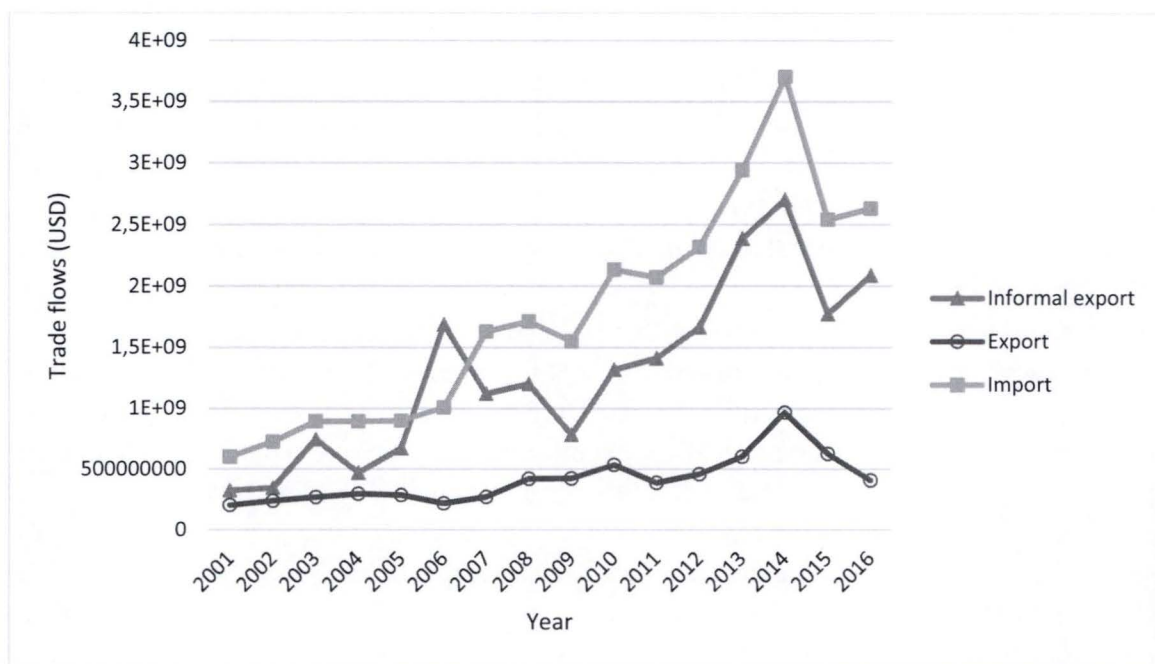
Source: Trade Map/ Comtrade, WDI and own computation

Figure 19 : Formal trade flows and informal exports in Benin,2001-2016

7 Conclusion and recommendations

The aim of this study is to analyze the trade performance of Benin as well as the country's linkages with partners. The methodology consisted in analyzing data through time and using trade indicators. Our analysis indicates that Benin's performance in trade is weak. The country mainly relies on revenues drawn from export of cotton and cashew nut as well as from transit and reexport business, mainly with Nigeria. Any shock in the cotton and cashew sectors and trade policies change in Nigeria is likely to affect the economy as a whole. Its imports are more diversified than exports.

Benin has comparative advantage in producing and exporting Cotton, Cashew, Oil seeds, Gold, Cement clinkers, Palm oil, but had better import frozen cuts and edible offal as it has no comparative advantage in this group of products. Benin's exports are not at all sophisticated. This is because the country mainly exports raw commodities, with low productivity. The business environment that should allow people to engage in profitable businesses still remains to be improved, especially when it comes to getting electricity, getting credit and enforcing contract.

The analysis of Benin's competitiveness regarding its major exported crops indicated that the country remains competitive in cotton and oils seeds but is losing its competitiveness in the cashew and palm oil industries. The loss of competitiveness in the cashew industry is attributed to the fact that neighboring countries exports their cashews of poor quality through Benin. As a result, there is a mixture of these cashews with very good quality products of Benin, leading to lower growth of prices relative to the world. As for palm oil, key factors affecting its competitiveness include the urbanization that engulfed areas that were once attributed to these palm plants, traditional production technologies, a high production cost compared to the sub-region, and failure to meet quality standards. Gold is volatile and not competitive either.

Benin's exports are concentrated in few partners, while the analysis revealed that the country is losing shares in the overall imports of its main exports partners. Decrease in demand of main export partners is likely to affect the economy.

Based on these conclusions, we provide the following recommendations for the improvement of the country's trade performance:

- Diversify exports crops by investing in non-traditional export crops and process and export to the big markets of Nigeria instead of reexporting
- Diversify export Partners
- Policy-makers should create an environment that encourages formal trade
    - By setting up a customs system that prevent customs officers from levying fake duties on goods
    - By applying affordable measures that could help formal trade flow and the transition from informal to formal
- Promote the development of the manufacturing sector by setting up a business-friendly environment:

- This includes the improvement of business indicators such as getting electricity, getting credit and enforcing contract;
- Investment in quality through a relevant national program of capacity building in quality; and

- Resort to experts on phytosanitary norms so as to export good quality of manufactured goods

- Invest in the service sector of the economy so as to reduce dependence on the other sectors

Doing so, Benin will fulfil its real potential as the trading engine of the sub-region.

8 References

Adegbola, P., Y. and Zinsou, J. (2010). Analyse des determinants des exportations beninoises de noix d'anacarde. Contributed Paper presented at the Joint 3rd African Association of Agricultural Economists (AAAE) and 48th Agricultural Economists Association of South Africa (AEASA) Conference, Cape Town, South Africa, September 19-23, 2010.

AFDB (2018). African Economic Outlook 2018. 200p. Available at https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/African_Econo mic_Outlook_2018_-_EN.pdf

Agro-Business Center (2016). Etude sur la commercialisation de fruit de palme et ses dérivés (huile de palme, huile palmiste, amandes de palmiste, fibres de palmiste) au Bénin. Rapport provisoire, 73p.

Balassa, B. (1965), "Trade liberalisation and 'revealed' comparative advantage", The Manchester School 33: 99–123.

Cabral, M. H., & Viega, P. (2010). Determinants of Export Diversification and Sophistication in Sub-Saharan Africa. *National Bureau of Economic Research (NBER)*.

Céline Carrère, « UEMOA, CEMAC : quelle performance en matière de commerce ? », Revue d'économie du développement 2013/1 (Vol. 21), p. 33-60. DOI 10.3917/edd.271.0033

Chaponnière, J. R., Perreau, D., & Plane, P. (2013). L'Afrique et les grands émergents. Collection : A SAVOIR

Hausmann, R., J. Hwang, and D. Rodrik. 2007. "What You Export Matters." Journal of Economic Growth 12 (1):1–25. doi:10.1007/s10887-006-9009-4.

Hausmann, R, & Klinger, B. (2008). "South Africa's export predicament ," The Economics of Transition, The European Bank for Reconstruction and Development, vol. 16(4), pages 609-637.

Helliwell, J. F. and Schembri, L. L. (2005), 'Frontières, monnaies communes, commerce et bien-etre: que pouvons-nous déduire de l'observation des faits?', revue de la banque du canada.

Honfoga BG, Dossou J, Agboton SM, Sommer H (2016). Determinants of cashew growers' participation in a joint contract farming and processing investment project in Benin. Journal of Experimental Agriculture International (précédemment: American Journal of Experimental Agriculture), Vol. 14(3), pp. 1-15. DOI: 10.9734/JEAI/2016/28918, ISSN: 2231-0606. Available at http://www.sciencedomain.org/abstract/16598

IMF (2013). Benin: 2012 Article IV Consultation and Fourth Review Under the Extended Credit Facility Arrangement— IMF Country Report No. 13/9.

IMF (2016). Benin: 2015 Article iv consultation—press release; staff report. IMF Country Report No. 16/6

IMF (2018). Benin: 2017 Article IV consultation and first review under the extended credit facility arrangement and request for modifications of performance criteria, IMF Country Report No. 18/1.

INSAE (2015). RGPH4 : Que retenir des effectifs de population en 2013? p.33.

Jakab Z.- M., Kovacs M.- A., Oszlay A., (2001), "How Far Has Trade Integration Advanced? An Analysis of Actual and Potential Trade of Three Central and Eastern European Countries", Journal of comparative Economics 29, pp.276-292.

Kemp, M.C. (2008). International trade theory: a critical review. USA and Canada: Routledge.

Kohler, M., & Khumalo, T. (2015). Upgrading export structure in sub-Saharan Africa. International Business & economics research journal, Volume 14, Number 2.

Krugman, P. (1987). Strategic sectors and international competition, in: R.M. Stern (ed.), U.S. Trade Policies in a Changing World Economy, 207–232, Cambridge MA: MIT Press.

Krugman, P. R., Obstfeld, M. & Melitz, M. (2018). *International Economics: Theory and Policy*. 11th ed. UK: Pearson Education.

MAEP (2017). Rapport de performance du secteur agricole, gestion 2016. 72p.

Medin, H. (2014). New trade theory: implications for industrial policy.

MEF (2018). Projet de loi des finances 2018: document de programmation budgétaire et économique pluriannuelle 2018-2020.

Mitaritonna, Bensassi & Jarreau (2017) showed that Increasing tariffs on a given product by 10% makes it about 12% more likely that this product is imported informally rather than formally. Non-tariff measures also increase informality.

Nkendah, R., (2013). "Estimating the informal cross-border trade of agricultural and horticultural commodities between cameroon and its CEMAC neighbours," Food Policy, Elsevier, vol. 41(C), pages 133-144.

Nzeka, U. (2013). Grain and Feed Annual. 14p

OCDE (2014). France : Redresser la compétitivité. Série "Politiques meilleures"

Poyhonen, P. (1963), 'A Tentative Model for the Volume of Trade Between Countries', Weltwirtschaftliches Archiv, no. 90, pp. 93–100.

Redding, Stephen and Venables, Tony (2002) *Explaining cross-country export performance: international linkages and internal geography.* CEP discussion paper; CEPDP0549, Centre for Economic Performance, London School of Economics and Political Science, London, UK. ISBN 0-75-301586-2

Schumacher, R. (2012). Adam Smith's theory of absolute advantage and the use of doxography in the history of economics. Erasmus Journal for Philosophy and Economics, Volume 5, Issue 2, pp. 54-80. Available at http://ejpe.org/pdf/5-2-art-3.pdf

Tandjiékpon, A. M. (2012). Etude d'un système de vente groupée et son financement au Bénin, ProCAD/PADA, Rapport final, 85p.

Toé, N., Diallo, A., Barhoumi, K., Towfighian, S., N., and Maino, R. (2018). Benin: growth, structural transformation, export diversification, financial inclusion and development. IMF Country Report No. 18/2.

World Bank (2015). The Republic of Benin Diagnostic Trade Integration Study (DTIS) Update: From rents to competitiveness. Report No. 97242-BJ. 156p.