

International Trade and
Quantitative Analysis



Analyse des Accords de Partenariats Économiques
entre l'Union Européenne et Afrique de l'Ouest



Service Order N°2:

Market Access with EPADP. HS6 Classification of products.

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1 Analysis of the Market Access scenario

This first section is devoted to analysis of the tariff scenario. We will only consider market access in goods and will not analyze any offers for services. We will first discuss the methodology, followed by the baseline assumptions and finishing with the market access scenario itself.

1.1 Methodology

Contrary to the previous studies done by ITAQA Sarl for the WA-EU task force, this new report uses the HS6 explicit modeling approach within the model. In simpler terms, the model simulates the effects on all trade flows at the product – HS6 – level and therefore, the implementation of the scenario is quite different. The aggregation issue is solved since there is no need to aggregate the HS6 tariff information to the sectoral model nomenclature. Nevertheless, some elements need to be adapted, in particular the translation of the 10 digit market access offer to the HS6 digit level. Initial tariff information and the efficiency in duty collection are defined at the HS6 level using the revision 1 of the HS system in the initial dataset.¹ The initial data is calibrated according to the tariff situation among ECOWAS countries in 2004. We do not simulate the implementation of Common External Tariff (CET) in the reference situation or in the scenarios. This means that the West African states are starting with heterogeneous trade policies. Consequently, the highest Nigerian tariffs are capped to 50 percent.

The EU market access proposal is modeled in a simple way with a near complete elimination of tariffs in 2011 (scenario assumption) with two exceptions: no liberalization on arms and weapons, and progressive phasing out of tariffs and price regime on protocol products. West African market access offers are provided in February 2012 by the joint steering committee using an Excel workbook (The Excel workbook is dated November 2011) at the 10- digit level. It includes the mapping between products and categories of liberalization as well as the time schedule of the tariff dismantlement. The most challenging task is to map the classification of products at the 10-digit level into the HS6 product for the 4 following categories, keeping in mind that some 10 digit lines within one HS6 product could belong to several categories,

¹ In the model, effective tariffs are defined by tm where tm is the official applied tariff on product *HS6* by importer z originated from country r in period t and the efficiency ratio, between 0 and 1.

1. Category A, which includes goods that are to be liberalized between January 1, 2012 and December 31, 2016, a period of five years;
2. Category B, which includes goods that are to be liberalized between January 1, 2017 and December 31, 2026, a period of ten years;
3. Category C, which includes goods that are to be liberalized between January 1, 2027 and December 31, 2036, a period of ten years;
4. Products in category D are not liberalized.

A two steps procedure has been developed for getting the HS6 classification into the A to D categories. First, we need to map the 10- digit code to a HS6 code in revision 3, and then to map the Rev 3 HS6 code to one, or several, Rev 1 HS6 product codes. The mapping is a n-to-n type. Second, we allocate a category from A to D to each HS6 product code in Rev. 1 based on the share of trade belonging to each category within the HS6 product in Rev.1, keeping in mind that most 10 digit provided trade flows are artificial figures built on a frequency allocation of 8 digit trade figures. We can practically have different categories to one HS6 product revision 1 due to the fact that 1 HS6 product in Rev 3 can have different categories for different tariff lines at the 10 digit, or/and that the 1 HS6 product in Rev 3 is mapped to different HS6 products in Rev 1 belonging to different categories.

An electronic appendix *ODS2_tariffmapping.xlsx* displays the final mapping (available on request). It is important to emphasize that the 5,113 products of the Rev 1 have to be mapped even if in the inputs provided by all Rev 3 products are not included, due to non-imported tariff lines.

Table 1 and Table 2 show the results of this treatment. At the regional level, shares of categories C and D are properly maintained at 24% and 30 %, respectively. The split between categories A and B is strongly modified with 16% in category A after treatment instead of 22%, and 30% in category B instead of 24%. This change is explained by the allocation algorithm that tends to allocate the product to a higher category, i.e. more protected, in the case where the share criterion is not sufficient. Therefore, when a product belongs to category A and one or several other categories, it will, in most of cases, switch to category B. Consequently, the model can slightly underestimate the effects of the trade liberalization in the first years. After 2026, the problems linked to the allocation procedure will fade away.

Table 1: Import shares by product category, Computation from 10 digit figures.

Category	Share in ECOWAS imports
A	22
B	24
C	24

D	30
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Source: Authors computation from the provided negotiation workbook.

Table 2: Import shares by product category and country, Computation from 6 digit figures.

Country	Product category			
	A	B	C	D
BEN	14	11	17	59
BUR	22	21	18	39
GUI	19	19	22	40
GHA	14	20	27	39
MAL	14	18	24	44
NGA	11	39	25	24
NG	22	19	15	44
SEN	19	18	20	42
TOG	16	26	22	36
COT	30	15	23	32
AAFO	59	8	7	26
ECOWAS	16	30	24	30

Source: Authors computation after treatment of the market access scenario, Model database.

Table 2 also shows that different countries within the ECOWAS group are quite heterogeneous in terms of structure of their imports from the EU and product categorization, and therefore, their exposure to the liberalization scheme. Benin has nearly 60% of its imports under category D, when most of the countries are around 40%. Nigeria is slightly below 24%, leading to an average of 30% for the region. The final section of this chapter discusses the consequences of this heterogeneity in overall tariff level.

1.2 Baseline definitions

Two baselines considered in this study are Cotonou and GSP. The Cotonou scenario considers that the EU trade policy concerning West Africa countries is maintained to the pre-2008 situation, i.e. the unilateral Cotonou preferential regime is maintained. If this trade regime is interesting from an intellectual perspective and the comparison between the two baselines can help to determine the cost of the end of Cotonou for the region, it is less relevant than the GSP case since it has no more policy and legal relevance. Therefore, we will keep all the results related to the “Cotonou” baseline in the appendix.

The GSP baseline assumes that all ECOWAS countries revert to the GSP unilateral preferential schemes of the EU starting in 2008. At the same time, they do not provide any market access concession to the EU. LDC members of ECOWAS will benefit from the EBA initiative and have duty-free, quota-free market access (except for weapons) and with a specific treatment for protocol products (rice, bananas and sugar). Non LDC members, i.e. Nigeria, Ghana and Cote d'Ivoire, benefit from the GSP+ treatment. This means an increase in European protection against the three developing countries in the region: Côte d'Ivoire, Ghana and Nigeria, specifically for the protocol products.

The customs tariffs resulting from this change (the end of the Cotonou regime) will incur a relatively large increase in the protection encountered by the region from 0.22% to 1.81%. However, the final level of protection is still moderate. It should be pointed out that this approach conceals sizeable changes for Côte d'Ivoire (+6.07%) and Ghana (+2.68%). The most affected sectors in these countries would be agribusiness products (+10%), fisheries products (+10%) and textiles (+5%). The industrial sector would also be affected by an average tariff of 1.91%, two times the total European average, due to sectoral specialization in aluminum and wood products. Côte d'Ivoire, in turn, sees its plantation activities negatively affected, with average tariffs increasing from 1.38% to 7.08%. This would particularly affect products like bananas and cut flowers. Nigeria, whose petroleum exports would not be taxed, would not experience much of an increase in the tariff barrier faced in the European market. The effects that have just been described take place in the reference scenario, which amount to fewer exports for non-EBA countries in the region, largely substituted by an increase in LDC exports. The return the preferential agreement between developing countries and the EU (the regional EPA) is therefore associated with shifts in the opposite direction as the reference scenario.

Interim agreements from Ghana and Cote d'Ivoire *are not included* in the baseline, otherwise this would imply that these two countries will not liberalize in the scenario and this would create a major issue in terms of scenario design and analysis.

It is important to note a few key elements that are common to both baselines and that have significant consequences for the results:

1. Tariffs for the ECOWAS countries *do not* include the Common External Tariff of the region. Baseline tariffs are not harmonized, and trade liberalization can be overestimated or underestimated in our analysis compared to a CET reference.
2. Unilateral reforms in Europe are not included after 2011, related to commodity markets (changes in banana tariffs, sugar reform), evolutions of unilateral preferences (new GSP) or regional trade agreements (e.g. Latin America). All of these policy changes may reduce the value of preferences (reduction in MFN) or

increase the cost of a non-agreement (facing higher GSP tariffs or having other producers already benefiting from better market access conditions)

- Multilateral trade policy changes are not considered (e.g. Doha Round). The important corollary of this fact is to consider that the level of protection and the referential MFN rate for both parties will not change between 2004 and 2040. This means that the tariff losses in 2040 are computed on a 2004 tariff that may be much higher than what tariffs would be under alternative assumptions for the on-going changes of trade policies in the next 30 years.

1.3 Market access scenario

In this section we present the change in nominal protection (rather than the rate as corrected for the efficiency in tariff collection) in an effort to simplify the analysis. We directly present the shift towards liberalization via calculation of average tariffs. However, all the customs tariffs used in the model (in the reference situation and the scenarios) are corrected to account for the level of efficiency in tariff collection, which is presumed to be constant across the scenarios that are studied, also used at the HS6 level, avoiding the aggregation issue .

The product classification of the market access scenario has been discussed in the previous methodology sub-section. Each HS6 product of the model has been classified into a group from A to D, associated with the liberalization schedule defined in Table 3. The tariff scenario implemented at the HS6 level follows precisely this pattern of liberalization with a reduction rate depending on the year, the product category and the initial rate.

Table 3: Percentage of tariff reduction by period and product category and initial tariffs.

Product category	A				B			C		
	0%	5%	10%	20% or +	5%	10%	20% or +	5%	10%	20% or +
2012-2016	0	0	0	0	0	0	0	0	0	0
2017-2021	0	-100	-100	-100	0	0	-50	0	0	0
2022-2026	0	-100	-100	-100	-100	-50	-50	0	0	0
2027-2031	0	-100	-100	-100	-100	-100	-100	-100	-50	-50
2032-2036	0	-100	-100	-100	-100	-100	-100	-100	-100	-50
1/1/2037	0	-100	-100	-100	-100	-100	-100	-100	-100	-100

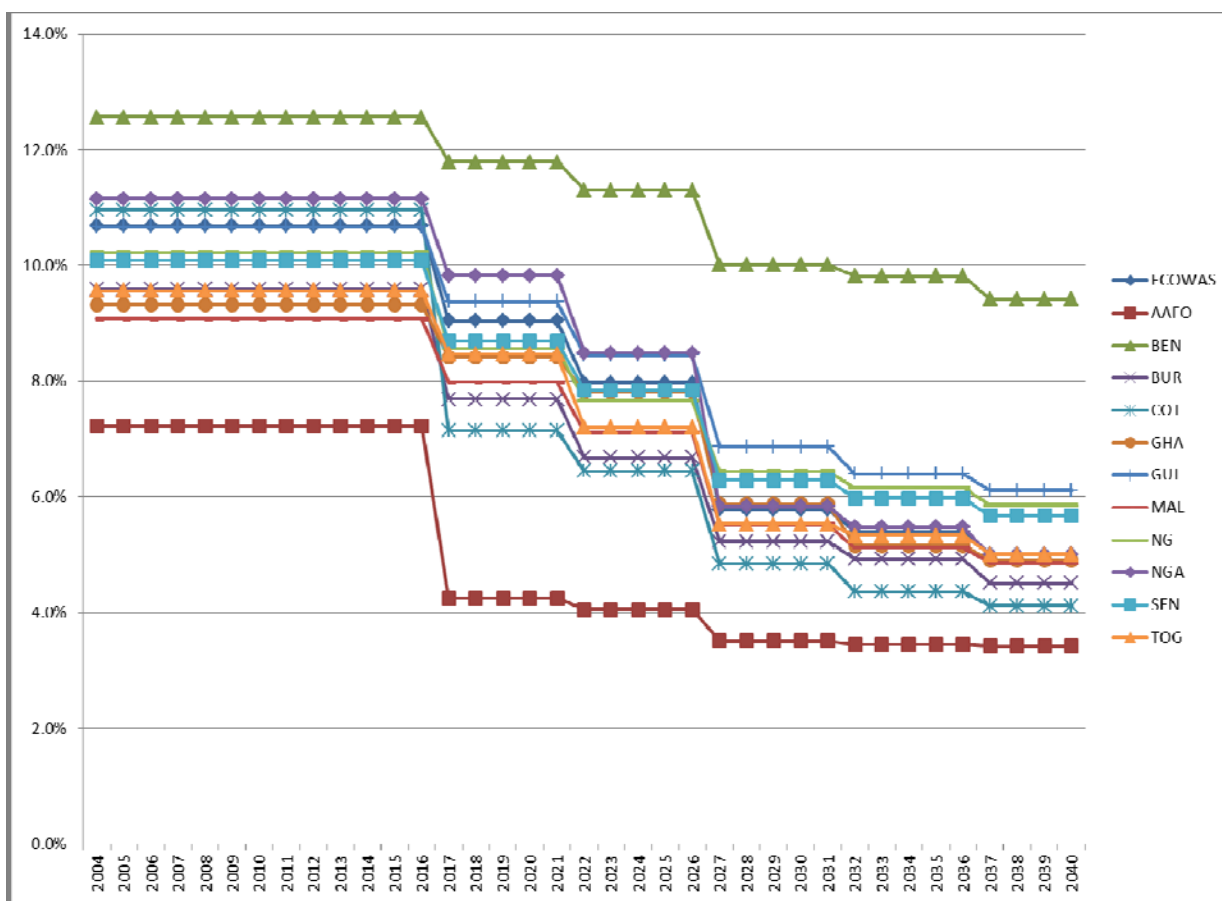
Note: Category D is not liberalized.

1.3.1 Country effects

As shown in Graph 1, average ECOWAS tariffs applied on products originating from the EU will drop from an average of 10.7% to 5%, a decline by half in 30 years. From 2016 to 2017, the liberalization of category A initially leads to a reduction of 1.6 points, a 15% reduction in the average rate. The first stage of the liberalization of category B products has slightly lower effects (minus 1 point) when the corner stone of the liberalization occurs in 2026 with the end of the elimination of tariffs on category B, and the beginning of liberalization of category C. By 2027, most of the tariff elimination has been performed with an average rate reaching 5.8%. From 2027, the elimination of remaining tariffs will just add an additional tariff reduction of 0.8 points, or a 7% cut from the initial level. The two main conclusions to be drawn from this first look at the market access scenario is that 30% of exclusion (category D) still maintain half of the initial average tariff, implying that the share of tariff revenue protected by category D is much larger than the trade share, and that the bulk of the liberalization will take place between 2016 and 2027.

At the country level, Benin the most protected country initially at 12.6%, while maintaining a high final rate of 9.4%, faces a decrease limited to 25%. The more open economies of the Rest of the West Africa group (AAFO), due to the high share of initial capital goods in the region, i.e. ships in Liberia, experience a sharper decline from 7.2% to 3.4%. In both relative and absolute terms, the most significant decrease are shown by Cote d'Ivoire (64% or 6.8 points) and Nigeria (55% or 6.2 points) while, except for AAFO and Burkina, the other countries manage to maintain an average decline of 43% and 47%. Cote d'Ivoire and AAFO are also the countries that experience the strongest earlier liberalization with a decline of 35% and 40%, respectively, recorded by 2017. The other countries are much closer to the average discussed in the previous paragraph.

Graph 1: Average protection applied by ECOWAS member states on EU imports, all sectors



Source: Authors' calculations

Note: Trade structure in the base year – trade weighted average.

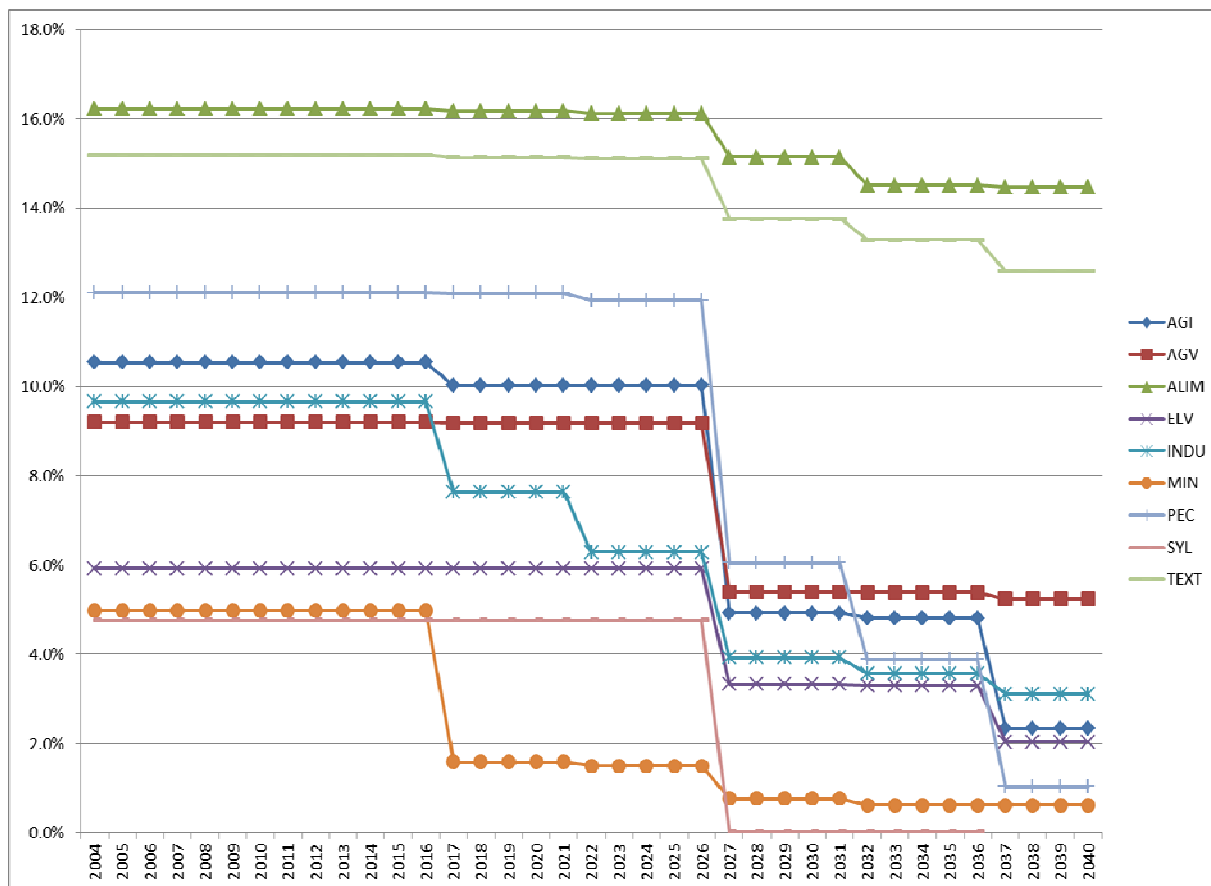
1.3.2 Sectoral effects

Graph 2 displays the effect on average protection for all ECOWAS countries by sector, following the model nomenclature. Initial protection is quite high in food products (ALIM) with an average rate of 16%, and in the textile and wearing apparel sector (TEXT) with a rate of 15%. On the other way, livestock sectors (ELV), mining and extraction (MIN) and forestry (SYL) products have average protection rates below 6%. By the end of the liberalization schedule, tariffs on forestry products will have disappeared and will become insignificant on mining (0.6%). Tariffs will be strongly reduced in large scale agriculture (from 10.5% to 2.3%, a decline of 78%), industrial goods (from 9.7% to 3.1%, a decline of 68%), but not for textile and wearing apparel. The two most protected sectors, processed foods and textile and wearing apparel, will remain well protected (14.5% or a 10% decrease, and 12.6% a 18% decrease, respectively). Therefore, the strongest three sectors

that will experience the highest absolute decline are: fisheries, manufacturing goods and large-scale farming. The last sector of interest, the production of raw agricultural commodities by small scale farmers, will see its average protection rate decline by 43%, or 4 points.

In terms of speed of liberalization, it is noteworthy to see that only industrial tariffs as well as those on raw products from the mining sector will be affected before 2027. The most interesting case, manufacturing goods, is liberalized by 21% in 2017, an additional 40% in 2027 and a remaining 8% thereafter. For the other sectors, the corner year is 2027. Fisheries, large-scale farming and livestock production are the most affected by the last stage of liberalization (from 2027 to 2037).

Graph 2: Average protection applied by ECOWAS by sector on EU imports



Source: Authors' calculations

Note: Trade structure in the base year – trade weighted average.

2 Discussion of the EPADP scenario

Another important element of the policy scenarios studied in this report is the EPADP. The methodology used is decreased in length in the “Incorporation of the EPA Program for Development in the CGE Model” report delivered as an output of the Terms of services 3 of the Phase II of this project. Nevertheless, contrarily to the initial work and the first implementation in the “Study of the market access offer scenarios and EPAPD” (Terms of services 4), we benefit from more information about the country allocation of expenditures. In addition, the scale of the project is also higher (larger amount of investments). Our key input has been provided by the Steering Committee and is an Excel workbook containing the “Matrice du Programme APE pour le Développement & Instruments de Financement - Programmation glissante - Période 2011-2015 //

EPA Development Programme Matrix & Financial Instruments - Revolving programming - Period 2011-2015”.

In the two following sub-sections, we discuss the input information followed by the key assumptions for the scenarios.

2.1 Input data and methodological classifications

Here we provide a summary of the inputs for the EPADP scenario. Table 4 shows the country and component allocation of the total budget of 14 billion USD for a 5 years program. The non allocated amount is allocated in the model by using the relevant shares (e.g. share in regional value added for sectoral measures) across countries for each component.

Table 4: EPAD allocation of resources by country and component. Total of 14.094 million USD for 5 years.

Comp.	Countries/Regions											
	Non Allocated	BEN	BUR	COT	GHA	GUI	MAL	NG	NGA	SEN	TOG	AAFO
R1C1	591	2		79	201	74	6	49	32	74	7	7
R1C2	451	232	122	78	29		293	26	28	130	156	363
R1C3	41		9	4	10		5	2	5	11	21	8
R1C4	60		3	45	5			1	1	34	10	68
R1C5	95	16	33	56	107		4	2	7		2	52
R1C6	64			6	3			0	8		0	15
R1C7	16		10	21	5			2	1		2	4
R1C8	24		2	8					5	92		10
R2C1	70		51	11	10		13	11	7	49	3	176
R2C2	115		1	7	19	2	7	2	18	7	1	20
R2C3		15	1	50	5	9	4	16	11	12	1	24
R2C4	23		1	9	1	0		1	6			5
R2C5		2	14	47		115	26	8	22		1	248
R3C1	852		56	50	400	97		54	2500		117	512
R3C2	403	90	110	34		142	218	11	202	201	141	556
R3C3	17	68		2				220	44		2	-
R3C4	178	43	103	0		25		13	74		22	22
R4C1	80	2		1					1			0
R4C2	15			6		0		2	0			2
R4C3	400	26	2	28	20		5	16	5	15	2	47
R4C4	50		0	9	2		4	0	2			5
R4C5	45			3	12				19			15
R4C6	35		1						1	0	7	3
R4C7	20		1	0		1		6	1		1	2
R4C8	15				3				2			4
R5C1	15	2	8	5				5	10	4	2	3
R5C2	75	2	8	22			4	0	5		1	13
R5C3	55			1		1			6			2
TOTAL	3805	500	536	582	832	466	589	447	3023	629	499	2186

Source: Authors' calculations based on the "Matrice du Programme APE pour le Développement & Instruments de Financement - Programmation glissante - Période 2011-2015 // EPA Development Program Matrix & Financial Instruments - Revolving programming - Period 2011-2015".

Each dollar spent by the EPADP may have a "demand"; short term and Keynesian type effects by consuming services or goods to generate the investments, and long term "supply": effects that will promote productivity, reduce trade costs or promote investments. Table 5 shows how money spent for the different components is distributed across goods and services.

Table 5 Share of expenditures by component and sectors

Components	INDU	ENE	CON	SERV	SNM
R1C1	0	0	0	100	0
R1C2	0	25	25	50	0
R1C3	0	0	0	50	50
R1C4	0	0	0	1	0
R1C5	0	0	24	76	0
R1C6	0	0	0	100	0
R1C7	0	0	0	0	100
R1C8	0	0	0	100	0
R2C1	0	0	0	50	50
R2C2	0	0	0	50	50
R2C3	0	0	0	50	50
R2C4	0	0	0	0	100
R2C5	0	0	0	100	0
R3C1	46	4	30	19	1
R3C3	20	0	72	8	0
R3C4	0	0	0	100	0

Source: Authors' assumptions

Concerning the impact of the different components and their translation on supply effects, we have:

- R2C3 will have the same effect as an export subsidy covering sectors AGV, AGI, ELV, SYL, PEC, ALIM, TEXT, INDU, CON, SERV, and SNM
- R1C5 will have the same effect as a credit subsidy
- Targeted investment and capital accumulation will occur in sectors AGV, AGI, ELV, SYL for component R1C2 and in Energy for R3C1
- Productivity boosts generated by component R1C1, R1C3, R1C4, R1C6, R1C7 and R1C8 will affect sectors ALIM, TEXT, INDU, and SERV
- Other components will also reduce trade costs.

2.2 Scenario assumptions

The EPADP scenario is based on the following assumptions:

1. All EPADP expenditures are generated through *new* flows of foreign resources;
2. EPADP resources are *independent and additional* to the fiscal neutralization transfers²;
3. *Two* identical and successive EPADP are implemented:
 - a. From 2011 to 2015 as described in the EPADP matrix;

² See section 4

- b. From 2016 to 2020 repeating the same program, maintaining expenditures in value.

3 Results and analysis of market access scenarios

All the results presented here are obtained using the assumptions underlying the simulation as presented in section 1.2.1 and do not presently account for the tax compensation mechanism.

3.1 Impacts on regional and international trade

3.1.1 Impacts on imports from the EU

As indicated in our previous reports, the size of the shocks that the economies in the region experience following tariff reductions will obviously depend on a number of factors which differ from one country to another. It is important to recall that the results presented express the percentage change with respect to a business as usual (BAU) market scenario and it is with respect to this baseline scenario that the results must be interpreted and understood. In an effort to lighten the presentation, we will present and discuss the results as they relate to the baseline scenario SGP-TSA. The results obtained related to the baseline scenario Cotonou are presented in the annex

Briefly, here are the different factors affecting domestic impacts:

- The degree of import penetration, i.e., the share of imports as a portion of total demand in the country: the more open the country, the more it will suffer from the reduction in customs tariffs
- The export performance of European exports, i.e., the share of European imports to total imports for the country: the more the country depends on the EU for its supplies, the more it will face increased competition from European producers
- The initial level of customs tariffs: the more the country was protectionist, the greater the effects of liberalization
- The extent to which total demand responds to lower prices following the elimination of customs tariffs, i.e., the price elasticity of internal demand

- The degree of homogeneity of the imported product with respect to its local competitor: the same range of products here (belonging to the same rubric) can vary from one country to another, and the degree of product homogeneity is not constant from one country to another
- The degree of production differentiation with respect to the country of origin, i.e., the values of the elasticity of supply for substitutes. The effects in terms of trade diversion will be larger for highly differentiated products than those which have little differentiation from one supplier to another.

Given that each country has specific characteristics for each of these elements, it is normal for the effects to vary according to the country being analyzed.

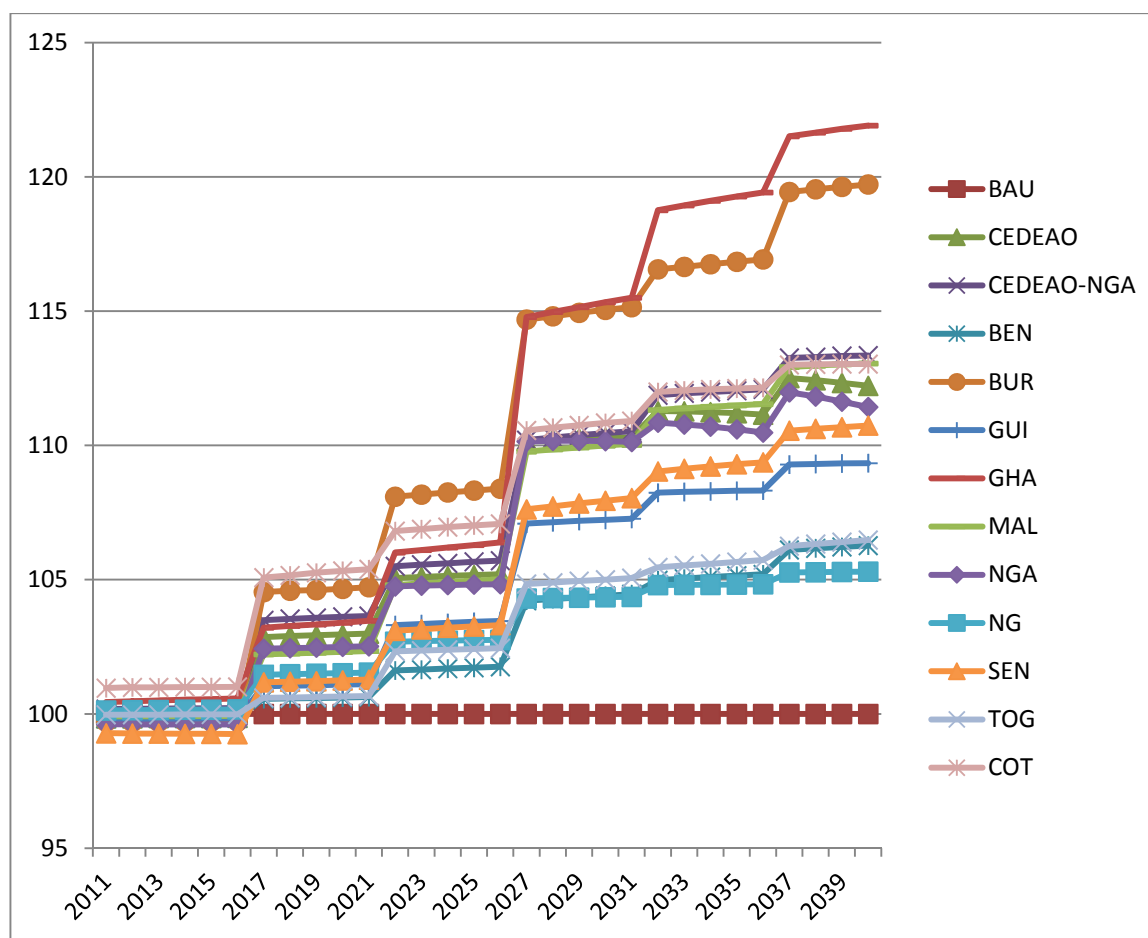
What are the consequences of the 70% tariff reduction scenarios at the end of the adaptation period?

Looking at the data in table 6, which are also displayed in Graph 3, we can see little variation in imports during the period of 2011-2016. This result was expected since the first period of the elimination of West African customs tariffs only starts in 2017. From 2017, the imports of the whole zone make up almost 3% (2.86%) and if we exclude Nigeria, the increase is even more significant (3.49%). We can also see that, by order of importance, the countries which increase their dependence on European Markets are Côte d'Ivoire (+5.08 %) and Ghana (+ 3.21%), as we would have expected. For these two countries, the elimination of the SGP regime by the EU generally favors their economic development, driven also by an increase in demand for imported products from the EU. Burkina Faso also shows a significant increase in importations. In fact, after Côte d'Ivoire, Burkina Faso suffers the most from the tariff reductions in 2017.

In general, the second phase of tariff reductions that starts in 2022 indicates, for certain countries, a substantial growth of their EU imports. In relation to the BAU, the imports of Burkina increase 8% (compared to an increase of 4.5% in 2017), those of Ghana go from 3.2% in 2017 to +6% in 2022 et those of Nigeria from 2.4% to 4.7%. We notice one again in the particular position of Benin that, despite having the highest level of protection in the region, they are only marginally affected by the introduction of the new market access offers. Starting from an average tariff rate above 12%, the tariff reductions of Benin is relatively weak in 2017, (slightly above 12%), and even less in 2021. In consequence, these EU imports remain somewhat stable en 2017 (+0.5%) and only increase by 1.6% in 2022.

The phases following the tariff reductions in 2027, 2022 and 2037 will in effect emphasize the dependence of the ECOWAS countries on European markets. By the end of the liberation process in 2040, the imports of the entire EU zone increased by more than 12% with significant rises for Ghana (+21.9%) and Burkina Faso (+19.7%) Apart from the particular case of Benin, in 2011 Ghana and Burkina Faso had the highest average tariff rate in the region and with the reduction of tariffs; they find themselves with nearly the lowest average tariff rate (the lowest of the entire region for Burkina Faso).

Graph 3: Evolution of imports from the EU: EPA



Source: Authors' calculations (as a % of BAU=SGP-TSA)

Table 6: Impact on the imports from the EU: EPA

Years	ECOWAS		ECOWAS-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	19468	-0,16	7840	0,18	438	-0,17	364	-0,29	325	0,22	1480	0,44	576	-0,1	11628	-0,39	278	0,13	1392	-0,72	251	-0,03	2241	0,96
2016	21172	-0,14	8636	0,22	499	-0,16	419	-0,28	367	0,17	1610	0,58	656	-0,07	12537	-0,39	341	0,17	1483	-0,75	289	-0,02	2423	1,01
2017	21537	2,86	8807	3,49	512	0,56	432	4,54	376	1,03	1638	3,21	674	2,22	12731	2,43	356	1,46	1500	1,18	297	0,6	2463	5,08
2021	23148	2,99	9562	3,65	561	0,63	484	4,72	417	1,11	1758	3,47	755	2,34	13586	2,52	420	1,54	1586	1,28	332	0,67	2636	5,39
2022	23569	5,06	9759	5,5	574	1,62	498	8,09	427	3,31	1790	6,01	777	4,8	13810	4,75	439	2,69	1604	3,1	341	2,33	2681	6,81
2027	25881	10,17	10823	10,2	639	4,22	579	14,69	488	7,09	1960	14,78	889	9,77	15059	10,15	546	4,3	1710	7,62	391	4,84	2924	10,56
2032	28639	11,28	12023	11,87	707	4,98	668	16,56	561	8,24	2151	18,76	1019	11,32	16616	10,85	680	4,8	1815	9,03	448	5,46	3203	11,99
2037	32069	12,51	13370	13,26	775	6,11	765	19,44	642	9,29	2332	21,51	1173	12,92	18699	11,98	838	5,27	1945	10,55	502	6,25	3533	13

Source: Authors' calculations (as a % of BAU=SGP-TSA)

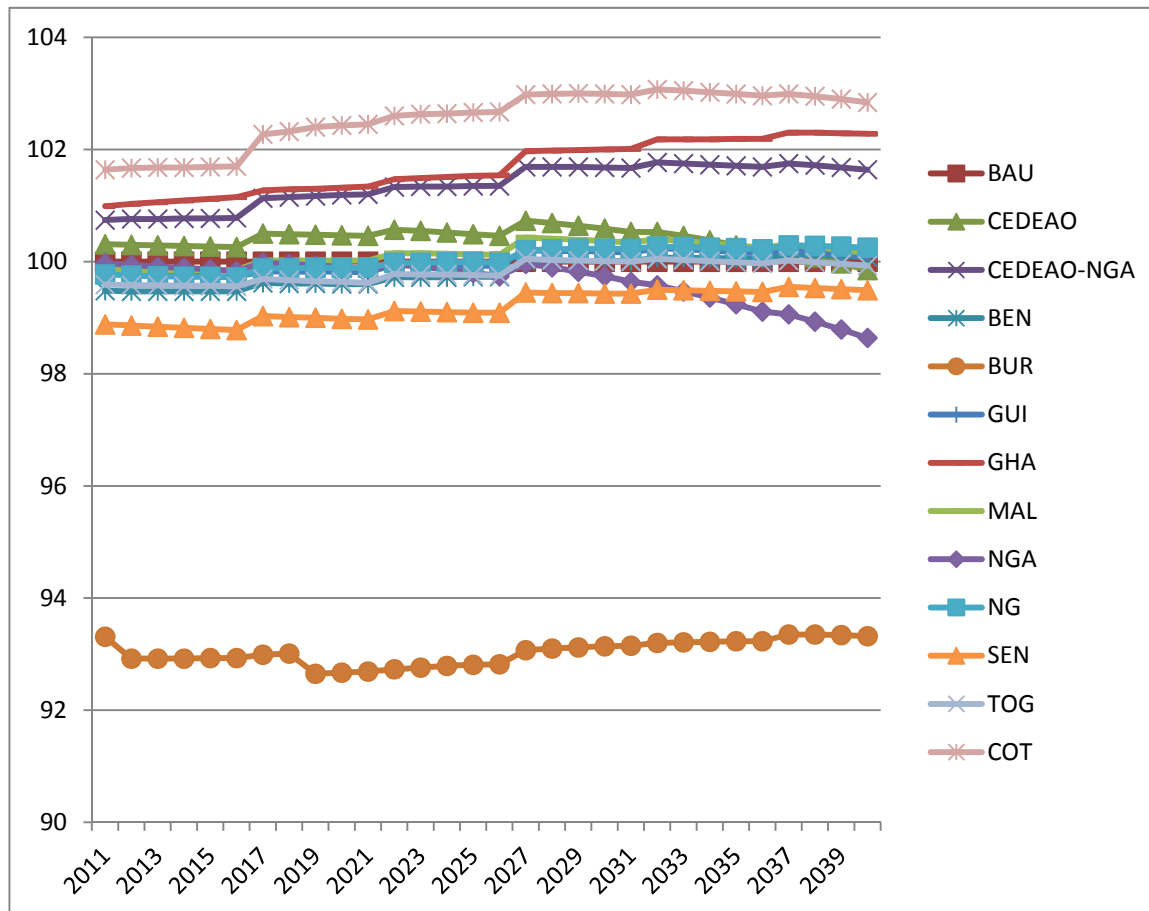
3.1.2 Impacts on exports to the EU

One of the expected effects of trade liberalization is lower costs for inputs and raw materials. As such, it is hoped that the ECOWAS' external trade liberalization with the EU will have indirect effects on production conditions in countries in the region. The beneficial effects of this opening could be felt in several ways.³

1. A reduction in the direct cost of primary materials. The reduction in customs tariffs automatically reduces the price of imported products, and the size of the gain that producers can get from this decline in tariffs will be proportional to the initial level of protection and to the share of raw materials imported from the EU in total production costs.
2. Downward pressure on prices of locally competing products in response to lower prices of imported products. In other words, even if local exporters are supplied from the domestic market, the greater competition will push local producers to reduce their prices and supply their clients on more favorable terms
3. A reduction in monopolistic power by certain businesses, whether it be in the supply of raw materials or in the supply of imported goods. The reduction of monopoly funds, regardless of how they are shared between capital and labor, will lead to a reduction in production costs and contribute to improving competition among exporting firms.
4. We can assume that more open trade will also contribute to a more rapid diffusion of technological process and therefore, bring exporting businesses to modify their production techniques and eventually choose more efficient approaches

³ Trade liberalization also has an impact on remuneration for production factors and also indirectly affects production conditions and the competitiveness of African products on the European market.

Graph 4: Evolution of exports to the EU: EPA



Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

As we can see simply by examining Graph 4, trade liberalization barely contributes to an improvement in performance of exports from the countries in this zone. For all of the ECOWAS, there is no significant improvement of exports. The only countries benefitting from a partner agreement are Côte d'Ivoire and Ghana because the suppression of the SGP and the elimination of tariffs for goods entering the European territory will reestablish their competitive situation in the European markets. Therefore, their export performance is better when compared to the SGP. For the other countries in the zone, the changes are marginal and insignificant. Nigeria's situation seems to be deteriorating in the long term, while Burkina Faso, suffering a shock in the beginning of the period, is not able to improve their exporting performance.

Table 7: Impact of Exports to the EU: EPA

Years	ECOWAS		ECOWAS-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	17431	0,31	7748	0,74	102	-0,52	55	-6,69	382	-0,21	2132	0,99	206	-0,15	9683	-0,03	92	-0,23	886	-1,12	103	-0,41	3245	1,64
2016	19074	0,26	8524	0,78	114	-0,53	63	-7,07	420	-0,27	2342	1,15	235	-0,15	10550	-0,17	108	-0,28	975	-1,22	117	-0,44	3535	1,7
2017	19427	0,5	8689	1,13	117	-0,38	65	-7,01	428	-0,17	2385	1,27	241	0,02	10738	-0,02	112	-0,12	993	-0,97	119	-0,31	3597	2,27
2021	20969	0,46	9391	1,2	127	-0,4	72	-7,31	463	-0,19	2567	1,34	269	0,02	11577	-0,14	127	-0,11	1072	-1,03	131	-0,38	3868	2,45
2022	21381	0,57	9575	1,33	130	-0,28	74	-7,27	471	-0,06	2614	1,47	277	0,15	11806	-0,05	131	-0,02	1091	-0,88	135	-0,22	3941	2,6
2027	23740	0,73	10556	1,69	144	0,02	84	-6,93	520	0,2	2860	1,97	316	0,43	13184	-0,04	156	0,2	1196	-0,55	151	0,05	4333	2,98
2032	26835	0,53	11670	1,77	160	0,07	95	-6,8	576	0,24	3126	2,18	360	0,4	15165	-0,42	186	0,27	1306	-0,5	171	0,05	4802	3,07
2037	31076	0,18	12929	1,75	177	0,13	107	-6,65	634	0,21	3381	2,3	412	0,31	18147	-0,94	221	0,29	1433	-0,45	191	0,02	5377	2,99
2040	34372	-0,15	13795	1,64	189	0,08	115	-6,68	675	0,1	3549	2,28	447	0,15	20577	-1,36	247	0,25	1516	-0,51	204	-0,07	5788	2,84

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

3.1.3 Impacts on regional trade integration

One of the objectives of the economic partnership agreement planned with the EU is to reinforce regional integration on the basis of removing constraints to trade and the development of a large internal market that should expand following the creation of a substantial regional zone. As we have done in our previous reports, it is useful to try to measure the consequences that the market access offers will have on intra regional trade when they are applied to all countries. Table 8 presents an index of total volume of imports of each country that participates in the provenance of all their regional partners.

The meaning of the index should be considered in light of the way in which the data was collected. In order to ensure coherence between imports by origin and exports by destination, for each country in the region and for each product, construction of the database requires that these identities be verified at every point in time. This data verification process is particularly delicate when working at a very subtle level of HS6 disintegration. It is therefore essential since the fluctuations of trade between the countries in the region very significantly for particular products although they appear to be negligible when combined with other products of the same category. This index is to the importance of interregional trade since by measuring the impact of the liberalization scenarios on imports, by countries in the region from other countries in the region (which is equivalent to exports from countries in the region to other countries in the region), we are able to measure the impacts of the proposed policies on regional trade integration by looking at the growth or reduction in intra regional trade.

As can be seen in the results presented in graph 5 and table 8, there is a decline in intra regional exchanges. This reduction in demand for regional imports reflects trade diversion in favor of the EU and to the detriment of regional partners. For products equal in quality and characteristics, the decline in the prices of European imports due to the tariff reductions pushed African importers away from regional producers because they became less competitive than before the tariff cuts. This trade diversion mostly depends on the initial level of tariffs (the higher the initial level, the greater the chance that their suppression causes favorable trade diversion for the country that benefits from the tariff repeal); the initial gap of competitiveness between suppliers (the higher production costs are for the local producer than the those of the EU, the more likely the

repeal of tariffs will decrease competition and favor trade diversion for the EU); and the price elasticity of demand for imports.

In 2011, Nigeria, Ghana and Côte d'Ivoire together contribute to more than 50% of intra regional trade and this percentage goes up to almost 60% in 2040 in the BAU scenario. However, with the implementation of accords, the trade diversions of the Côte d'Ivoire, and in a lesser way, Ghana, lead to a significant reduction in intra regional trade.

We can without a doubt affirm that opening the markets of West Africa to European products diminishes the intra regional trade relations and increases the economic dependence on European countries.

Graph 5: Evolution of intra regional imports: EPA

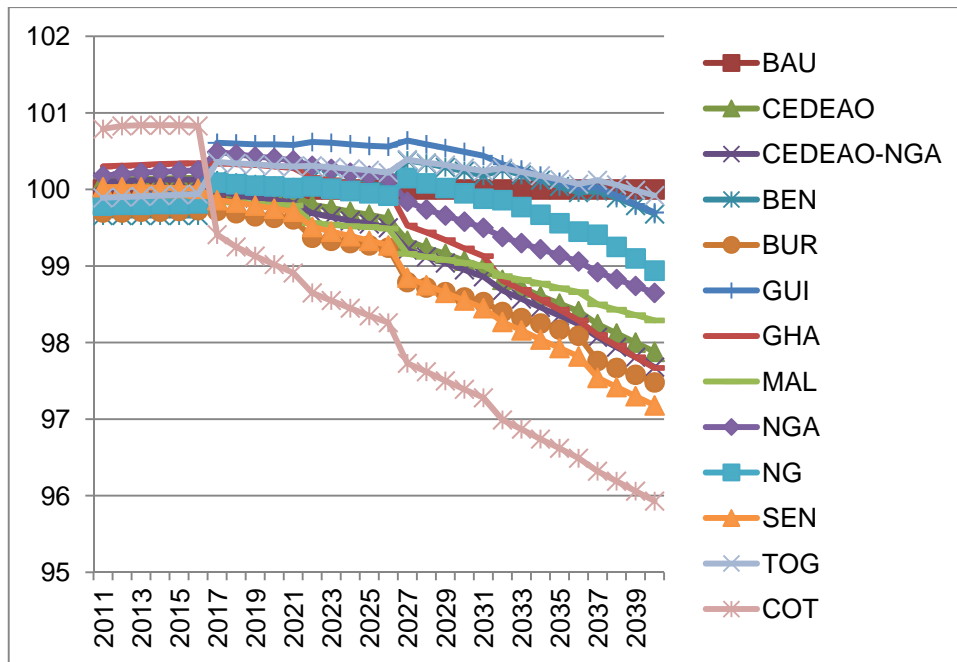


Table 8: Impacts on intra regional imports: EPA

Years	ECOWAS		ECOWAS- NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BA U	var %	BA U	var %	BA U	var %	BA U	var %	BA U	var %	BA U	var %	BA U	var %	BA U	var %	BA U	var %	BA U	var %	BA U	var %	BA U	var %
2011	5410	0,12	4523	0,1	296	-0,34	471	-0,3	106	-0,13	1242	0,3	427	-0,15	888	0,18	217	-0,21	601	0,03	281	-0,11	700	0,79
2016	5982	0,15	4952	0,13	323	-0,34	525	-0,27	112	-0,01	1363	0,34	468	-0,12	1031	0,25	239	-0,18	646	0,01	307	-0,06	775	0,83
2017	6105	0,06	5043	-0,02	329	0,12	536	-0,28	114	0,61	1389	0,34	477	-0,16	1062	0,49	243	0,09	655	-0,14	312	0,36	791	-0,59
2021	6629	-0,08	5431	-0,18	350	0,03	583	-0,39	119	0,58	1499	0,28	516	-0,21	1198	0,38	262	0,02	696	-0,29	334	0,3	864	-1,09
2022	6769	-0,2	5534	-0,31	356	0,15	595	-0,63	120	0,62	1528	0,15	526	-0,44	1235	0,31	267	0,04	705	-0,49	340	0,31	885	-1,35
2027	7553	-0,67	6112	-0,79	385	0,38	663	-1,21	128	0,64	1693	-0,47	578	-0,84	1441	-0,16	294	0,15	763	-1,15	371	0,39	1010	-2,27
2032	8540	-1,18	6842	-1,32	419	0,26	739	-1,6	137	0,33	1901	-1,19	638	-1,13	1698	-0,62	329	-0,14	835	-1,73	406	0,28	1198	-3,01
2037	9813	-1,76	7791	-1,93	459	-0,02	823	-2,24	149	0,03	2161	-1,9	710	-1,5	2022	-1,08	371	-0,59	935	-2,46	439	0,12	1482	-3,68

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

3.2 Fiscal Impacts

3.2.1 Tariff Revenues

Before analyzing the results, it is useful to recall the various channels through which the tariff cuts affect the overall state of public accounts. Briefly, they are:

- a. To start with, the state will face direct customs tax losses, varying to the extent that some tariffs are eliminated or reduced on imports from partners with whom an agreement is signed. The significance of this phenomenon is of course related to the elasticity of demand for imported products; the reduction of customs taxes causing a decrease in prices of imports eventually leads to an increase in imports and ultimately a larger taxable range. The loss of this tariff revenue is not proportional to the percentage of the reduction of customs tariffs because the increase in imports will expand the taxable base. If the tariffs are eliminated completely, the positive impact becomes obsolete.
- b. The state can also expect a direct loss of tax revenue due to a reduction in the value of the base that internal taxes are applied on. If internal taxes are applied on the value of imports including tariffs, lower tariffs will reduce indirect tax revenues because there is a smaller tax base. As in the previous case, this reduction could be decelerated if done with a substantial increase in imports and if this increase in demand for imported goods doesn't undermine internal production. In effect, if the opening of markets leads to a reduction in market supply of local products, indirect tax revenue gains obtained through taxation of a larger volume of imports will only compensate the loss of revenue on local products
- c. Furthermore, the state can also suffer losses due to trade diversion. If importers decide to buy from the EU rather than from other trade partners who still pay the regular customs rate, the state loses additional tax revenue.

As in our previous reports, we present the impact of market access offers on tax revenue (Graph 6 and Table 9), total indirect fiscal revenue (table 10), and as a measure of the indirect tax ratio (table 11). Not surprisingly, since the beginning of tariff cuts in 2017, the major reductions in customs revenue are for the Ivory Coast (-

16.3%), Burkina Faso (-7.45%), Mali (-6%), and Senegal (-6,2%). These declines apply to the countries that suffer the most from customs tax relief at the time of first wave of liberalization. In 2007, Nigeria suffers relatively little because it is not very concerned by tariff reductions (average tariff rate of 11% in 2011 and a relatively modest decline of 9.8% in 2017). The average of all the countries in the zone is about 5.3%. This loss of tariff revenue is noticeably emphasized from 2022 and 2027 and the average loss for the zone goes to (-9%) and (-17.7%), respectively in 2022 and 2027. The countries suffering the greatest impact are once again the Côte d’Ivoire, Mali, Senegal and Burkina Faso. At the end of the period these same countries will have lost between 25 and 30% of their tax revenues.

Graph 6: Impacts on tariff revenues: EPA

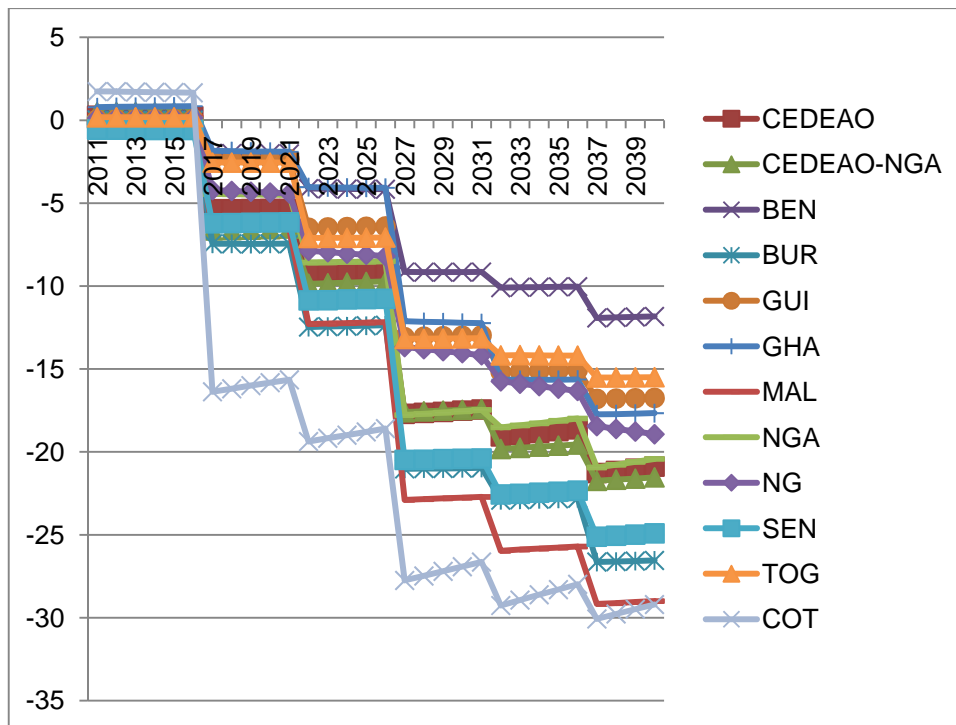


Table 9: Impact on tariff revenues: EPA

Years	ECOWAS		ECOWAS--NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	2960	0,27	1223	0,49	60	0,05	78	0,01	63	0,05	394	0,79	73	0,16	1737	0,11	35	0,14	178	-0,56	35	0,18	202	1,73
2016	3399	0,24	1406	0,5	71	0,07	94	0	74	0,07	446	0,85	86	0,16	1992	0,06	43	0,14	198	-0,58	42	0,19	232	1,66
2017	3493	-5,36	1446	-6,64	74	-1,99	98	-7,45	77	-2,35	457	-1,84	89	-6,58	2047	-4,45	44	-4,21	201	-6,21	43	-2,55	239	-16,37
2021	3903	-5,34	1620	-6,53	83	-2,02	113	-7,44	88	-2,35	504	-1,9	103	-6,55	2284	-4,49	51	-4,41	220	-6,15	49	-2,55	268	-15,65
2022	4011	-9,11	1666	-9,86	85	-4,12	117	-12,47	91	-6,48	517	-4,03	106	-12,28	2345	-8,58	53	-7,87	224	-10,86	51	-7,1	276	-19,37
2027	4599	-17,7	1916	-17,6	98	-9,15	142	-21,02	107	-13,08	583	-12,12	126	-22,89	2683	-17,77	65	-13,67	248	-20,48	59	-13,18	318	-27,75
2032	5269	-19,06	2197	-19,82	113	-10,09	170	-22,91	127	-15,18	657	-15,64	148	-25,96	3071	-18,52	79	-15,74	273	-22,56	69	-14,18	367	-29,26
2037	6042	-21,27	2502	-21,74	127	-11,92	199	-26,64	148	-16,8	729	-17,73	174	-29,17	3540	-20,94	94	-18,44	301	-25,11	78	-15,51	423	-30,07
2040	6560	-20,88	2698	-21,53	136	-11,83	218	-26,54	162	-16,74	773	-17,66	192	-28,99	3862	-20,42	104	-18,93	320	-24,91	84	-15,49	459	-29,2

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

3.2.2 Total indirect revenue

When we account for all indirect tax revenue, the impacts in percentages are clearly smaller because the states in the region have other sources of revenue. The weight of customs tariffs differing substantially from one country to another in the zone, the percentages of change in total indirect revenues also vary from one country to another.

For the group ECOWAS, the loss of total fiscal revenue is to the account of 8% at the end of the tariff reduction process. We remark once again the significance of Nigeria's role in this decline. The decrease in total fiscal revenue for Nigeria is -14.8% when that of all of the countries in the zone collectively is much less, -5.15%. It is therefore understandable that Nigeria's impact on the region will strongly influence the results for all of ECOWAS. The necessary changes having been made, the observed phenomenon of the changes in tariff revenue is reflected entirely on the total indirect tax revenues.

In Table 6, we present an index of the total indirect tax to GDP ratio. As explained in our previous reports, this index is calculated in the same way as the ratio between the total indirect tax revenues and the GDP. It takes into account the four categories of indirect taxes incorporated in the model: taxes on imports, indirect internal taxes (VAT), taxes on exports, and taxes on production. It is therefore not an indicator of total tax ratio, which takes into account taxes on particular incomes, tax ratios on businesses, transfer programs, and the social security system (pension, healthcare, family, etc). Taking into account the large variety of tax systems and transfer programs, along with the difficulty of applying comparable data, we have limited the index to total indirect tax to GDP ratio.

Let us simply note that the indirect tax-to-GDP ratio does not vary much over the course of the simulation period and that the periods of decline are primarily the periods of tariff cuts. These changes are thus completely consistent with our expectations.

Table 10: Impact on total indirect tax revenues: EPA

Years	ECOWAS		ECOWAS-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	8386	0,29	5988	0,33	405	0,11	448	-0,06	300	0,06	1105	0,55	589	0,12	2398	0,19	163	0,11	815	-0,2	168	0,11	1797	0,76
2016	9678	0,29	6916	0,35	478	0,11	533	-0,08	347	0,09	1255	0,61	692	0,14	2762	0,14	198	0,13	913	-0,22	194	0,11	2074	0,79
2017	9958	-1,92	7117	-1,4	494	-0,33	552	-1,77	358	-0,63	1287	-0,5	715	-0,93	2840	-3,22	206	-1	932	-1,58	200	-0,6	2134	-1,77
2021	11165	-1,94	7983	-1,4	556	-0,35	632	-1,84	403	-0,66	1421	-0,54	819	-0,97	3183	-3,28	242	-1,05	1022	-1,59	223	-0,62	2393	-1,71
2022	11485	-3,37	8213	-2,21	574	-0,76	653	-2,99	415	-1,71	1456	-1,39	848	-1,88	3272	-6,3	252	-1,87	1043	-2,67	229	-1,75	2463	-2,27
2027	13233	-6,67	9458	-4,13	661	-1,77	777	-5,14	482	-3,63	1646	-4,57	995	-3,68	3775	-13,05	309	-3,36	1160	-4,94	262	-3,41	2841	-3,59
2032	15253	-7,29	10870	-4,74	756	-1,98	912	-5,79	564	-4,45	1858	-5,98	1166	-4,36	4383	-13,63	382	-3,88	1276	-5,47	299	-3,77	3286	-3,91
2037	17599	-8,21	12428	-5,27	852	-2,33	1056	-6,85	655	-5,16	2064	-6,84	1367	-5,08	5172	-15,27	466	-4,57	1411	-6,09	328	-4,23	3794	-4,09
2040	19193	-8,12	13447	-5,25	912	-2,3	1147	-6,92	718	-5,29	2193	-6,84	1507	-5,16	5746	-14,84	526	-4,69	1496	-6,04	345	-4,26	4129	-3,97

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

Table 11: Impact on the tax to GDP ratio: EPA

Years	ECOWAS		ECOWAS-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	6,18	6,18	9,47	9,47	8,58	8,58	7,44	7,43	7,34	7,35	12,14	12,11	10,95	10,95	3,31	3,31	5,89	5,89	9,38	9,38	7,68	7,68	11,17	11,16
2016	6,19	6,19	9,46	9,46	8,56	8,56	7,5	7,48	7,37	7,37	12,14	12,12	10,98	10,98	3,31	3,32	5,91	5,91	9,35	9,35	7,68	7,68	11,16	11,14
2017	6,19	6,07	9,46	9,32	8,56	8,53	7,51	7,39	7,37	7,33	12,14	12	10,99	10,88	3,31	3,21	5,91	5,85	9,35	9,24	7,68	7,64	11,15	10,9
2021	6,18	6,07	9,45	9,31	8,55	8,52	7,55	7,43	7,39	7,35	12,14	12	11	10,89	3,31	3,21	5,92	5,86	9,33	9,22	7,68	7,63	11,15	10,91
2022	6,18	5,99	9,45	9,24	8,55	8,49	7,56	7,37	7,4	7,28	12,13	11,9	11	10,8	3,31	3,11	5,92	5,82	9,32	9,12	7,67	7,56	11,15	10,86
2027	6,15	5,78	9,43	9,08	8,54	8,42	7,62	7,3	7,42	7,19	12,1	11,52	11,01	10,65	3,29	2,88	5,93	5,75	9,27	8,9	7,66	7,44	11,16	10,77
2032	6,08	5,69	9,42	9,03	8,53	8,4	7,69	7,33	7,46	7,18	12,03	11,3	11,02	10,61	3,24	2,83	5,93	5,74	9,21	8,8	7,65	7,41	11,17	10,76
2037	5,95	5,54	9,4	8,97	8,52	8,37	7,77	7,34	7,5	7,19	11,93	11,12	11,03	10,56	3,16	2,73	5,94	5,71	9,14	8,69	7,62	7,35	11,17	10,76
2040	5,85	5,46	9,38	8,96	8,51	8,36	7,81	7,39	7,54	7,23	11,86	11,07	11,03	10,56	3,11	2,7	5,94	5,71	9,09	8,65	7,59	7,32	11,18	10,78

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

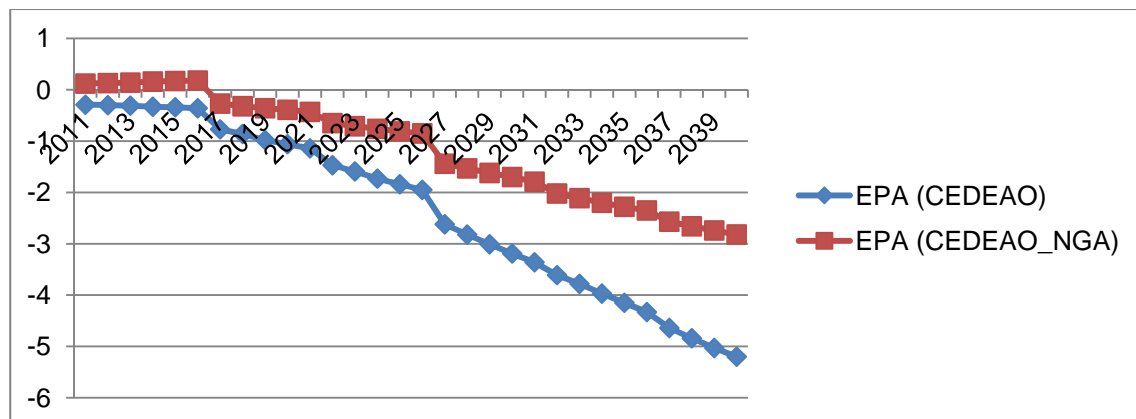
3.3 Impacts on investment, growth and consumption

What then, are the macroeconomic consequences of the anticipated market access offers? To show these impacts, we examine, in turn, the data on investment (graph 7 and table 12), economic growth (graph 8 and table 13) and household consumption (graph 9 and table 14).

Recall that without tax compensation, the reduction in state revenues, with a constant level of expenditures (as a percentage of GDP), creates a budget deficit that cannot be financed other than by draining the savings of other economic agents. The tax losses incurred by governments oblige them to find new resources to maintain their level of public expenditures. Once financing of the public deficit is assured, available savings can finance productive private investment. If there is a decline in investment in production, the costs could be heavy in terms of long-term growth. Conversely, if tax revenues increase, the state's financial needs are lower and resources are freed up to finance investment.

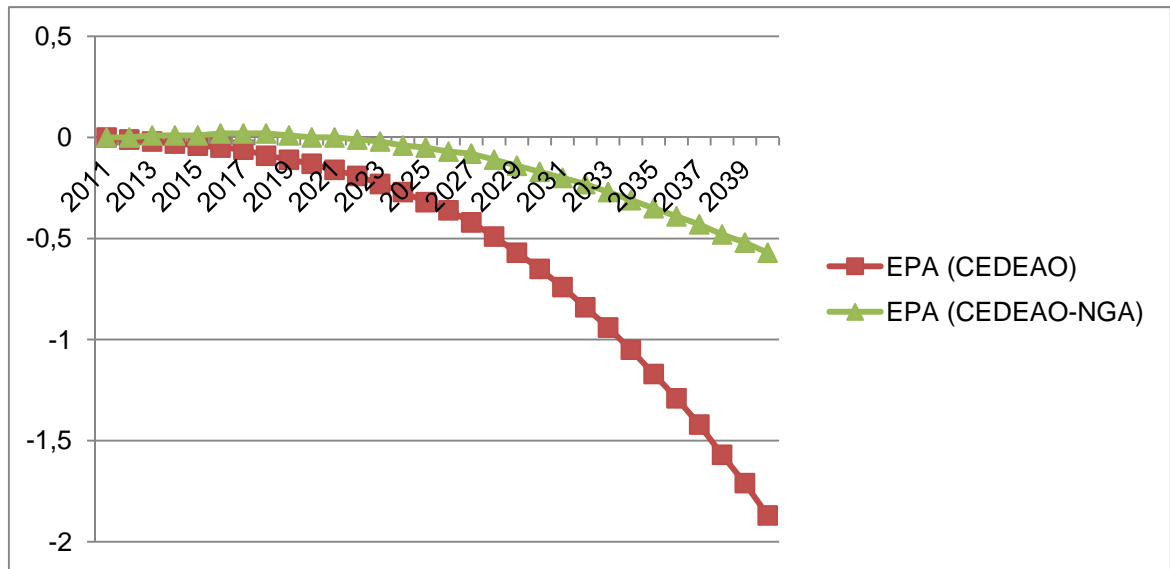
This crowding out effect is particularly well illustrated when looking at the impacts of market access offers on investment and growth for all countries in the zone excluding Ghana and Côte d'Ivoire. In the cases of these two countries the signing of an accord is favorable at least until 2022. For the other countries, our results indicate a significant decline in investment around 5% for the ECOWAS at the end of the liberalization period, but only 2.8% if we exclude Nigeria. This crowding out effect appears from the first implementation phase of liberalization in 2017, and it is once again Senegal and Burkina Faso who are affected the most. However, for Ghana and Côte d'Ivoire, the repercussions of the effect are delayed. In the case of Côte d'Ivoire, we must wait until 2022 to see a decline in investments, and until 2027 in the case of Ghana.

Graph 7: Impacts on investments: EPA



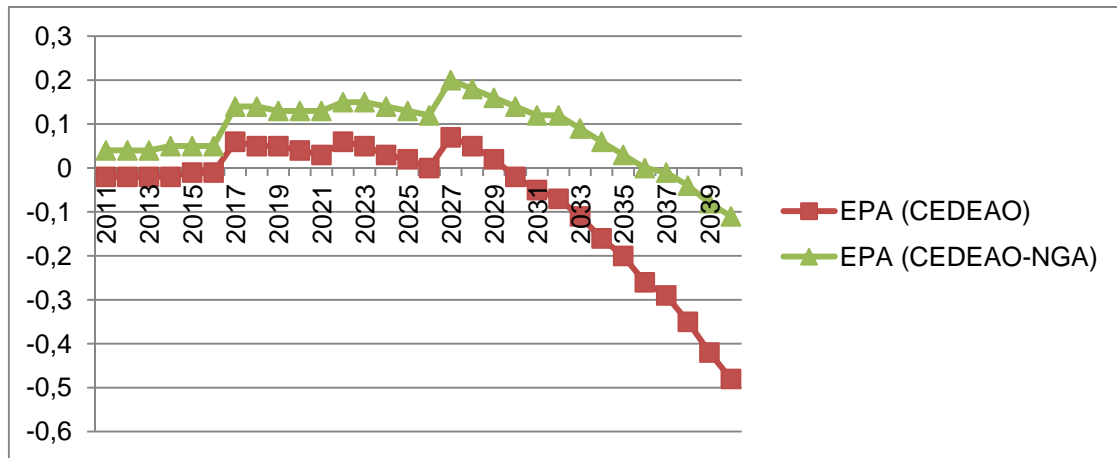
The impact on real GDP (table 8) is a direct reflection of the change in investments. Even though the effects on the GDP are not very significant, we can distinguish the isolation of Côte d’Ivoire and Ghana. Their GDP stays just above the reference point until 2027 and only goes down when tariff reductions become greater. The Côte d’Ivoire will go from an average tax level of 11% in 2011 to less than 5% in 2027. The situation is similar for Ghana as the average level of customs tariffs will go from more than 9% in 2011 to less than 6% in 2027. Nigeria has the most significant decline in GDP at around 2,8% below the BAU level in 2040. For the other countries, however, we observe lower real GDP, with the most drastic declines experienced by Mali, Nigeria, Guinea and Burkina Faso (between 0.5 and 1%). Meanwhile, Benin, Togo and Senegal are barely affected (losses less than 0.5%). On a global level (as illustrated in Graph 9), the GDP excluding Nigeria is slowly decreasing in relation to the BAU level. This decline is even greater when the economic situation of Nigeria is taken into consideration.

Graph 8: Impacts on the real GDP: EPA



The level of consumption changes as a function of the growth of national wealth and of the importance of eventual price decreases due to the elimination of certain tariffs. This results in a positive revenue effect for Ghana and Côte d’Ivoire, but has a negative effect for the other countries, and a positive price effect for all countries (see Table 9). The two effects are combined in the case of the Côte d’Ivoire and Ghana, while the situation varies for the other countries. The prices effect seems to dominate the revenue effect in certain cases at certain moments in the tariff reduction process (see Graph 7).

Graph 9: Impacts on real consumption: EPA



Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

Table 12: Impact on investment: EPA

Years	ECOWAS		ECOWAS-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	12292	-0,29	6873	0,12	572	-0,09	523	-0,36	308	0	637	0,8	578	0,01	5419	-0,8	401	0,01	1365	-0,39	295	-0,06	1766	0,72
2016	14064	-0,36	7819	0,18	655	-0,09	601	-0,42	352	0,05	712	1,24	673	0,05	6245	-1,05	512	0,03	1473	-0,52	349	-0,05	2026	0,9
2017	14551	-0,77	8034	-0,27	673	-0,13	618	-0,83	363	-0,21	731	0,73	695	-0,32	6517	-1,39	537	-0,2	1497	-0,67	361	-0,25	2086	0,17
2021	16446	-1,14	8983	-0,43	753	-0,17	695	-1,14	408	-0,34	816	0,66	784	-0,5	7463	-1,99	664	-0,32	1590	-0,82	416	-0,29	2357	0,04
2022	17131	-1,47	9252	-0,65	774	-0,22	717	-1,44	422	-0,72	840	0,25	809	-0,88	7880	-2,42	702	-0,49	1618	-0,94	431	-0,57	2433	-0,17
2027	21337	-2,62	10799	-1,44	893	-0,43	832	-2,49	503	-1,81	990	-1,57	957	-1,98	10538	-3,83	925	-0,99	1755	-1,4	516	-1,14	2883	-0,83
2032	28248	-3,61	12763	-2,02	1032	-0,57	983	-3,31	611	-2,88	1194	-3,02	1143	-2,77	15484	-4,91	1237	-1,44	1921	-1,74	616	-1,34	3436	-1,21
2037	38442	-4,64	15299	-2,57	1194	-0,73	1179	-4,15	782	-3,78	1506	-4,07	1371	-3,62	23143	-6	1689	-1,86	2103	-2,15	734	-1,47	4124	-1,5
2040	47121	-5,2	17128	-2,82	1302	-0,79	1321	-4,46	923	-4,17	1741	-4,4	1528	-4,01	29993	-6,55	2046	-2,06	2226	-2,38	811	-1,46	4608	-1,6

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

Table 13: Impact on real GDP: EPA

Years	ECOWAS		ECOWAS-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	126730	0	58772	0	4540	0	5762	-0,01	3881	0	8238	0,01	5257	0	67958	0	2704	0	8166	-0,01	2056	0	14021	0,01
2016	140865	-0,05	65924	0,02	5245	-0,01	6614	-0,04	4325	0	9003	0,06	6056	0	74941	-0,11	3268	0	8936	-0,03	2330	0	15459	0,09
2017	143890	-0,06	67448	0,02	5395	-0,01	6802	-0,05	4422	0	9161	0,08	6232	0	76442	-0,14	3398	0	9084	-0,04	2389	-0,01	15766	0,1
2021	157229	-0,16	73973	0	5969	-0,02	7574	-0,1	4841	-0,02	9815	0,1	7027	-0,03	83255	-0,3	3961	-0,03	9771	-0,07	2627	-0,02	17068	0,1
2022	160743	-0,19	75673	-0,01	6128	-0,02	7772	-0,11	4947	-0,02	9985	0,11	7239	-0,04	85071	-0,35	4119	-0,04	9923	-0,08	2692	-0,03	17415	0,1
2027	180966	-0,42	84822	-0,08	6912	-0,04	8924	-0,21	5548	-0,1	10882	0,11	8330	-0,15	96144	-0,71	5061	-0,13	10787	-0,12	3024	-0,07	19255	0,06
2032	207368	-0,84	95160	-0,23	7755	-0,07	10124	-0,38	6264	-0,31	11882	-0,04	9592	-0,39	112208	-1,35	6274	-0,31	11638	-0,19	3402	-0,16	21447	-0,07
2037	244384	-1,42	106746	-0,43	8623	-0,11	11367	-0,6	6997	-0,62	12851	-0,3	11096	-0,69	137639	-2,2	7762	-0,55	12657	-0,27	3732	-0,26	24014	-0,22
2040	273743	-1,87	114639	-0,57	9169	-0,14	12159	-0,75	7510	-0,86	13508	-0,5	12160	-0,91	159104	-2,81	8884	-0,73	13314	-0,33	3938	-0,33	25770	-0,32

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

Table 14: Impact on real household consumption: EPA

Année	ECOWAS		ECOWAS-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAL var %	BAU var %	BAU var %	BAU var %	BAU var %	BAU var %	BAU var %	BAU var %	BAU var %	BAU var %	BAU var %	BAU var %	BAU var %	BAU var %	BAU var %	BAU var %	BAU var %	BAU var %	BAU var %	BAU var %	BAU var %	BAU var %	BAU var %	
2008	74656	0	43180	0	3608	0	4401	-0,05	2861	0	7084	0	3771	0	31476	0	1715	0	5149	0	1630	0	9588	0,02
2011	79605	-0,02	46323	0,04	3919	-0,04	4843	-0,07	3084	-0,02	7449	0,17	4131	-0,03	33282	-0,09	1898	-0,02	5553	-0,14	1755	-0,01	10122	0,23
2016	88042	-0,01	51730	0,05	4508	-0,04	5548	-0,08	3442	-0,01	8085	0,2	4739	-0,02	36311	-0,11	2276	-0,01	6031	-0,15	1980	-0,01	11154	0,31
2017	89789	0,06	52881	0,14	4632	-0,02	5704	-0,05	3519	0,01	8216	0,26	4873	0,06	36908	-0,06	2363	0,02	6120	-0,09	2028	-0,02	11375	0,5
2021	97581	0,03	57816	0,13	5102	-0,02	6343	-0,09	3857	0	8760	0,27	5480	0,04	39766	-0,11	2738	0	6555	-0,1	2218	-0,02	12312	0,52
2022	99522	0,06	59097	0,15	5233	-0,01	6507	-0,08	3943	0,03	8900	0,32	5642	0,08	40425	-0,08	2843	0,01	6648	-0,06	2270	-0,04	12561	0,55
2027	110179	0,07	65952	0,2	5866	0,01	7465	-0,11	4424	0,02	9638	0,48	6470	0,12	44227	-0,11	3460	-0,06	7188	0,05	2529	-0,09	13875	0,62
2032	122349	-0,07	73618	0,12	6538	0	8455	-0,23	4994	-0,12	10449	0,5	7422	-0,06	48731	-0,35	4245	-0,18	7714	0,04	2818	-0,12	15433	0,55
2037	137439	-0,29	82035	-0,01	7211	-0,03	9464	-0,37	5563	-0,34	11163	0,45	8551	-0,28	55404	-0,72	5185	-0,38	8371	0,02	3039	-0,16	17249	0,42
2040	148201	-0,48	87665	-0,11	7624	-0,05	10095	-0,48	5944	-0,51	11614	0,37	9350	-0,46	60535	-1,03	5872	-0,52	8801	-0,02	3166	-0,18	18478	0,33

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

4 Results and analysis of the scenario EPA and fiscal neutralization transfer

Having examined the consequences of the market access offers without compensation and without tax reform measures, we are now in a position to consider the effects of total tax compensation in the form of a transfer of resources from abroad.

4.1 Fiscal neutralization from abroad

Before discussing the results obtained from the evaluation of the size of the transfers required to completely counterbalance the states' revenue losses due to implementation of the tariff reductions proposed in the market access offers, it is necessary to recall how we measured the "net tax impact" of tariff cuts. The concept of the "net tax impact" should be understood in a narrow sense here because it only concerns the direct and indirect consequences that the market access offers have on public finances and does not include other accompanying measures or reforms relating to domestic tax policy.

We should recall that in order to capture the overall impacts that implementing a policy can have on government revenues, taking into consideration all economic interactions (interdependence and feedback effects), we must measure governments' revenue gaps with respect to an absence of policy. In a dynamic context, and when the tariff cut measures are implemented at different rates for different products, we must calculate the loss of tax revenue for each year of the time horizon, and what the loss would have been for each country if no cuts had been made. To do this, we start by calculating each state's revenue in the baseline scenario. Then, as in the simulation of tariff cuts, we have assumed that the governments' revenues should be at least equal to the baseline, leaving countries to profit from foreign transfers, which allow them to adjust in order to maintain constant revenues. These transfers act as direct budgetary support to the governments and counter the loss in overall tax revenues without being neutral in terms of the budget deficit.

In total, the annual transfers for the entire region should be in the order of \$181 million US dollars at the beginning of the period of tariff cuts (2017) and increase to \$395 million by 2022. At the end of the liberalization process, the overall financial needs for ECOWAS will increase to more

than \$1.491 million in 2040 with Nigeria absorbing more than 56% of the budget support. If we exclude Nigeria, Senegal (\$138M), Côte d'Ivoire (\$134 M) and Ghana (\$114 M) absorb almost 60% of the resources.

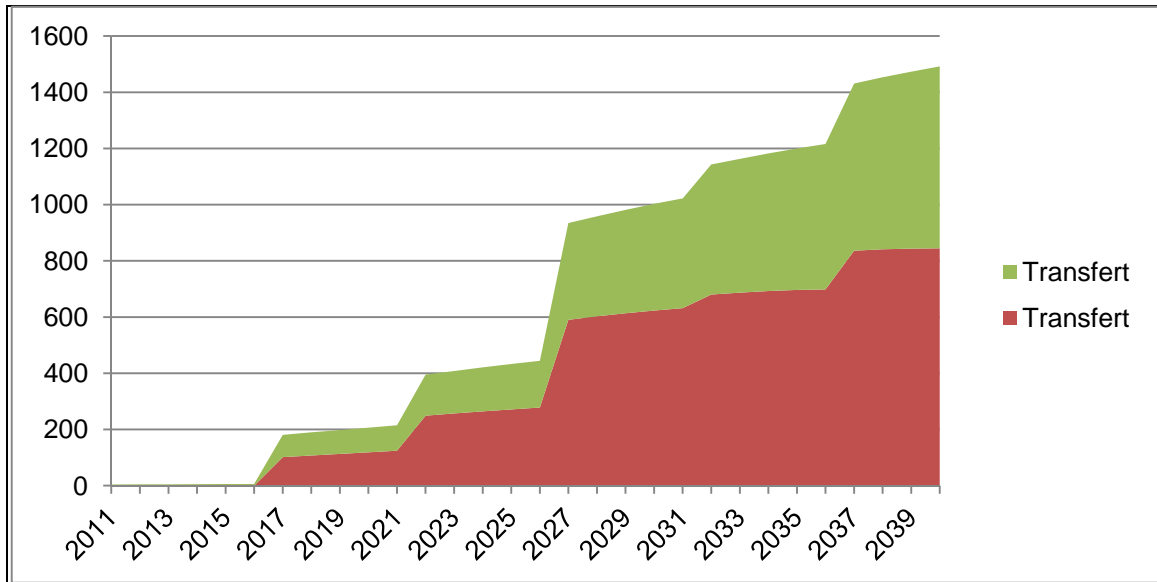
Table 15: Transfers from the rest of the world: EPA with fiscal neutralization transfer

Years	ECOWAS	ECOWAS- NGA	BEN	BUR	GUI	GHA	MAL	NGA	NG	SEN	TOG	COT
2011	4.51	4.51	0.00	-0.03	0.00	0.00	0.00	0.00	0.00	4.54	0.00	0.00
2016	6.29	6.29	0.00	0.05	0.00	0.00	0.00	0.00	0.00	6.24	0.00	0.00
2017	181.15	79.27	0.71	7.96	1.64	0.00	4.27	101.88	1.17	23.64	0.91	23.94
2021	215.20	90.68	1.14	9.39	1.94	0.00	5.33	124.52	1.57	27.50	1.09	25.37
2022	395.52	146.12	3.57	15.91	5.63	2.23	11.27	249.40	3.07	40.95	4.06	39.67
2027	934.72	344.63	11.23	32.36	14.44	48.37	27.42	590.09	7.54	79.79	10.09	82.61
2032	1142.97	462.49	15.42	42.19	20.61	79.97	37.97	680.48	11.36	100.97	13.00	104.42
2037	1431.45	595.36	21.54	57.65	27.44	106.53	51.63	836.10	17.11	127.35	16.48	126.24
2040	1491.95	647.30	23.88	63.11	30.55	114.49	57.55	844.66	20.34	138.38	17.94	134.04

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

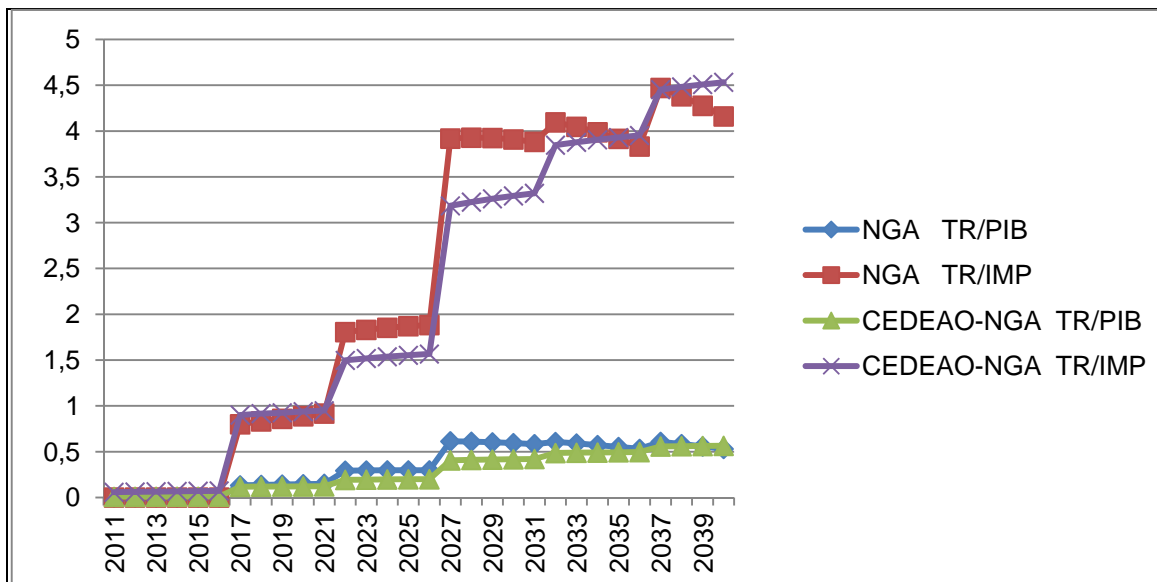
The development of financial needs and how they are allocated are illustrated in Graphs 10, 11 and 12. Graph 10 compares the changes in transfers necessary for Nigeria with those of the rest of ECOWAS. In Graph 11, we have measured the importance of these transfers as a percentage of GDP (TR/GDP) and the imports from the EU (TR/IMP). Looking at Graph 12, we can conclude that Nigeria will need more financial support than the other countries in the zone. The highest points are in 2021 and 2027, during phases 2 and 3 of tariff cuts from the EU. However, we notice that the importance of this financial aid is relatively modest when measured as a percentage of these countries' GDP. The sum of the transfers represents less than 0.5% of the GDP. When measured in relation to the volume of imports from the EU, the percentage is certainly higher, but still doesn't represent more than 5% of the value of imports. In this respect, we observe that the financial needs of Nigeria and those of other ECOWAS countries together are very similar.

Graph 10: Changes in tax compensations: Comparison of NGA and the rest of ECOWAS.

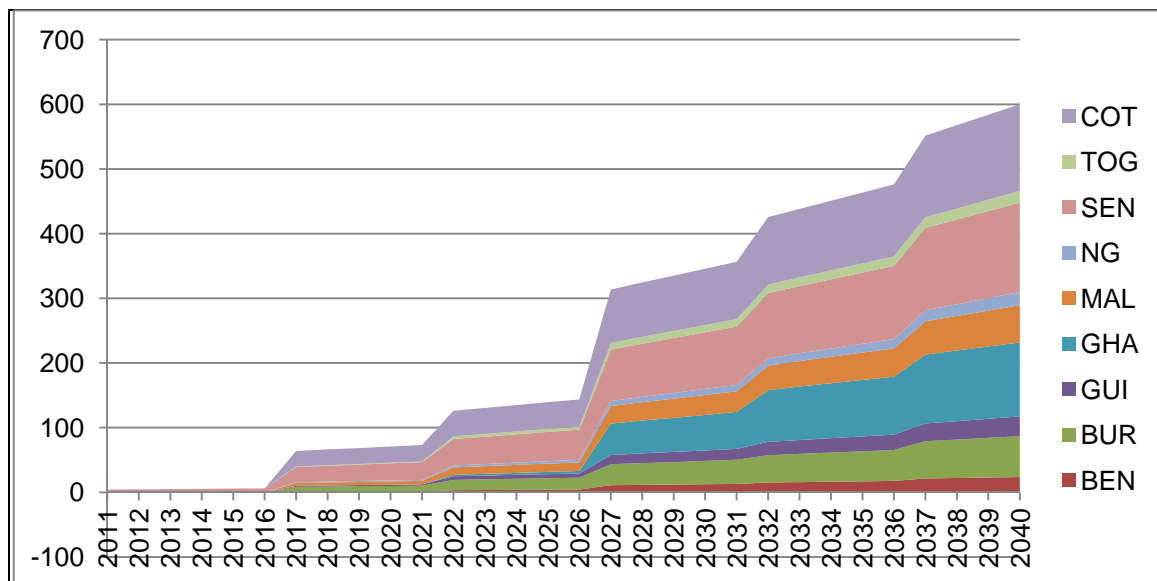


In Red Transferts to ECOWAS-NGA in Green NGA

Graph 11: Weight of transfers: Comparison NGA and the rest of ECOWAS



Graph 12: Changes in tax compensations: Non- ECOWAS countries

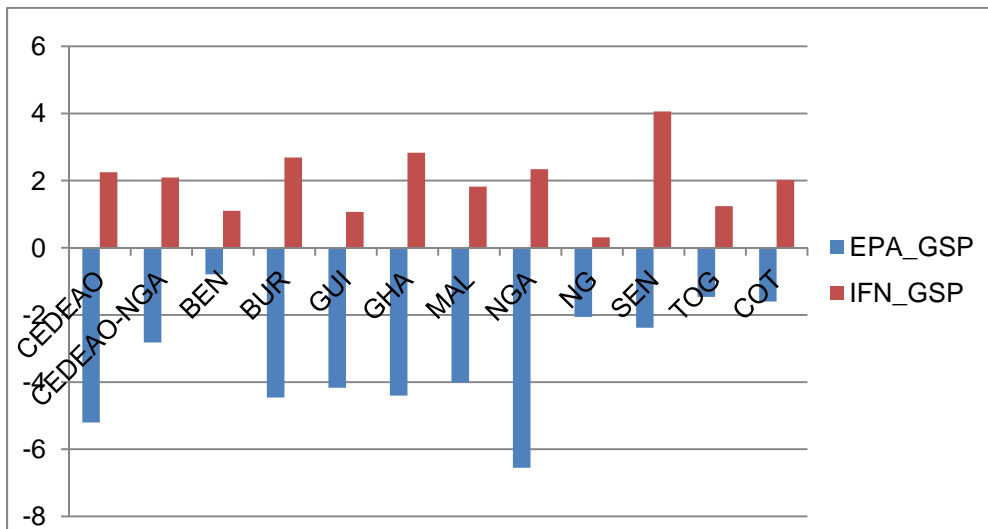


4.2 Impacts on investment, growth and consumption

The comparison of the impact of implementing the APE with or without tax compensation is particularly illustrative of the economic mechanisms at play. As previously indicated, the suppression (however progressive) of customs tariffs for the entrance of products from the EU, creates a growth in public deficit and causes a drain on financial resources available for investment.

Graph 13 and the results presented in Table 16 clearly illustrate how the implementation of tariff cuts, by the end of the process in 2040, creates a significant reduction in investments. The decline was the most drastic for Nigeria at 6% while the average decrease was 2.9% for the other countries. By the way of tax compensation, the government’s resources are maintained at the level they would have achieved without the tariff cuts, avoiding such a decline in investments. All the countries experience an investment level higher than that of the BAU, with several countries experiencing important increases. With tax compensation, we witness the reversal of the situation: +9 percentage points for Nigeria, 7.2 and 6.5 percentage points, respectively for Ghana and Senegal. Côte d’Ivoire also notably improves its investment performance goes from a low of 1.6% to a high of 2.02%.

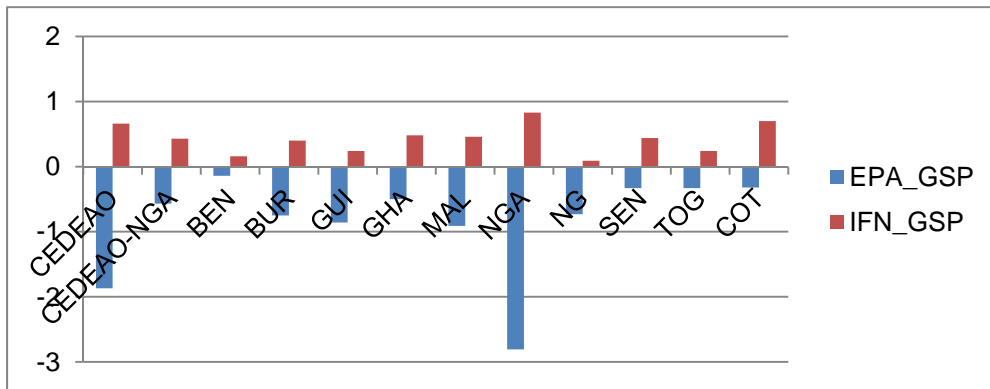
Graph 13: Comparison of investments: EPA (EPA_GSP) and EPA with fiscal neutralization transfer(IFN_GSP)



Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

Impact on the real GDP (Graph 14 and Table 17) is a direct reflection of the changes in investments. Once again we notice that in Western Africa the investment component in the total final demand remains relatively low, even when a significant rise in investment doesn't necessarily indicate a strong impact on the GDP. Even in the case where a large portion of production is not capital intensive, an increase in the accumulation of capital will not necessarily have noticeable effects on economic growth. Whatever the case, we can say that the existence of tax compensation permits a turnaround scenario. Mali, Nigeria, Guinea and Burkina Faso, which faced a diminishing GDP in relation to the BAU in the previous scenario, now show an undeniable improvement. Côte d'Ivoire and Ghana also benefit from a new influx of financial resources.

Graph 14: Comparison of real GDP: EPA (EPA_GSP) and EPA + fiscal neutralization transfer (IFN_GSP)

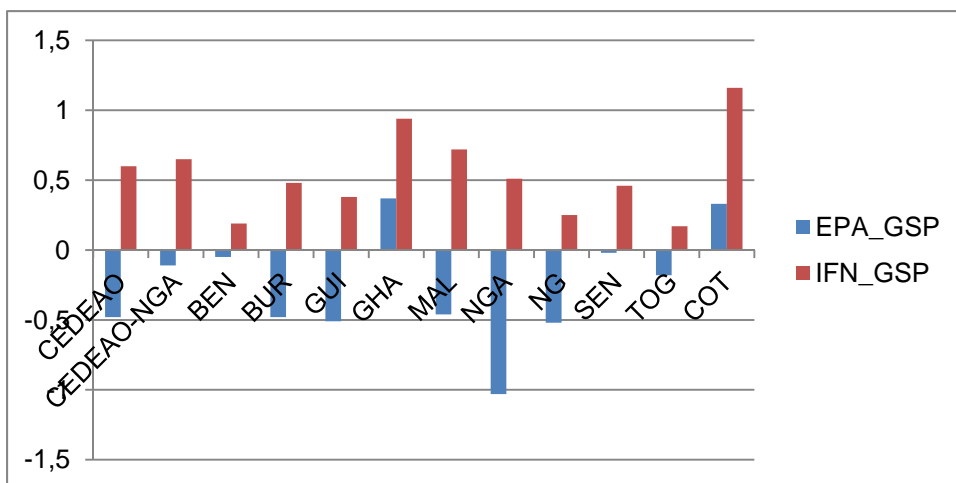


Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

As previously noted, the real change in consumption as a function of growth of national wealth has a positive effect and a permanent drop in prices allows the real consumption to increase in every country in the zone. Although the households suffered significant losses in the scenario without compensation, they were nevertheless in a better situation. (Graph 15 and Table 18)

As shown above, Côte d'Ivoire and Ghana who have already improved the level of household consumption are now the most favored countries in the zone with increases in consumption of about 1%.

Graph 15: Comparison of real consumption: EPA (EPA_GSP) and EPA + fiscal neutralization transfer (IFN_GSP)



Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

Table 16 Impact on investment: EPA + fiscal neutralization transfer

Years	ECOWAS		ECOWAS- NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	12292	-0,26	6873	0,16	572	-0,09	523	-0,32	308	0	637	0,8	578	0,01	5419	-0,8	401	0,01	1365	-0,18	295	-0,06	1766	0,72
2016	14064	-0,33	7819	0,25	655	-0,09	601	-0,37	352	0,05	712	1,24	673	0,05	6245	-1,05	512	0,03	1473	-0,2	349	-0,04	2026	0,9
2017	14551	0,04	8034	0,43	673	-0,05	618	0,25	363	0,06	731	0,72	695	0,24	6517	-0,44	537	-0,01	1497	0,34	361	0,01	2086	0,94
2021	16446	0,05	8983	0,47	753	-0,05	695	0,28	408	0,09	816	0,64	784	0,25	7463	-0,45	664	-0,01	1590	0,49	416	0,02	2357	0,97
2022	17131	0,43	9252	0,67	774	0,13	717	0,72	422	0,22	840	0,37	809	0,55	7880	0,15	702	0,01	1618	0,87	431	0,35	2433	1,16
2027	21337	1,29	10799	1,23	893	0,55	832	1,56	503	0,48	990	1,17	957	1,09	10538	1,35	925	0,08	1755	1,93	516	0,83	2883	1,57
2032	28248	1,71	12763	1,61	1032	0,76	983	2,02	611	0,76	1194	2,01	1143	1,4	15484	1,8	1237	0,16	1921	2,7	616	1,04	3436	1,8
2037	38442	2,12	15299	1,95	1194	1,01	1179	2,53	782	0,97	1506	2,61	1371	1,7	23143	2,23	1689	0,25	2103	3,59	734	1,19	4124	1,97
2040	47121	2,25	17128	2,09	1302	1,1	1321	2,69	923	1,07	1741	2,83	1528	1,82	29993	2,34	2046	0,31	2226	4,06	811	1,24	4608	2,02

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

Table 17: Impact on the real GDP: EPA + fiscal neutralization transfer

Years	ECOWAS		ECOWAS-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	126730	0	58772	0	4540	0	5762	0	3881	0	8238	0,01	5257	0	67958	0	2704	0	8166	-0,01	2056	0	14021	0,01
2016	140865	-0,05	65924	0,02	5245	-0,01	6614	-0,03	4325	0	9003	0,06	6056	0	74941	-0,12	3268	0	8936	-0,02	2330	0	15459	0,09
2017	143890	-0,06	67448	0,03	5395	-0,01	6802	-0,03	4422	0	9161	0,08	6232	0,01	76442	-0,14	3398	0,01	9084	-0,02	2389	0	15766	0,11
2021	157229	-0,06	73973	0,05	5969	-0,01	7574	-0,01	4841	0,01	9815	0,1	7027	0,03	83255	-0,17	3961	0	9771	0	2627	0	17068	0,17
2022	160743	-0,06	75673	0,06	6128	-0,01	7772	-0,01	4947	0,01	9985	0,11	7239	0,04	85071	-0,18	4119	0	9923	0,01	2692	0	17415	0,19
2027	180966	0	84822	0,12	6912	0	8924	0,05	5548	0,04	10882	0,13	8330	0,1	96144	-0,11	5061	0,01	10787	0,08	3024	0,03	19255	0,3
2032	207368	0,2	95160	0,22	7755	0,05	10124	0,16	6264	0,09	11882	0,21	9592	0,23	112208	0,19	6274	0,03	11638	0,19	3402	0,1	21447	0,44
2037	244384	0,47	106746	0,34	8623	0,12	11367	0,3	6997	0,18	12851	0,36	11096	0,37	137639	0,57	7762	0,06	12657	0,34	3732	0,19	24014	0,6
2040	273743	0,66	114639	0,43	9169	0,16	12159	0,4	7510	0,24	13508	0,48	12160	0,46	159104	0,83	8884	0,09	13314	0,44	3938	0,24	25770	0,7

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

Table 18: Impact on real consumption: EPA + fiscal neutralization transfer

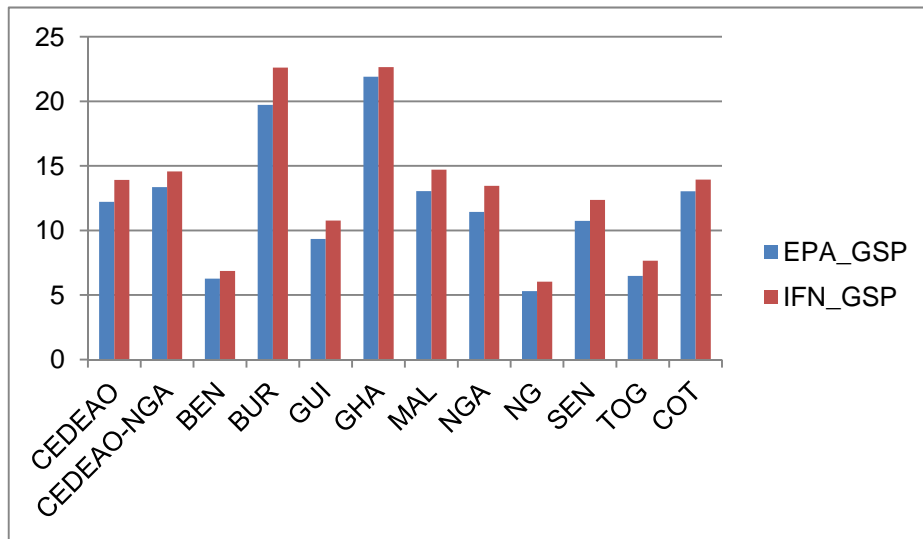
Years	ECOWAS		ECOWAS-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	79605	-0,02	46323	0,04	3919	-0,04	4843	-0,06	3084	-0,02	7449	0,17	4131	-0,03	33282	-0,09	1898	-0,02	5553	-0,13	1755	-0,01	10122	0,23
2016	88042	-0,01	51730	0,06	4508	-0,04	5548	-0,07	3442	-0,01	8085	0,2	4739	-0,02	36311	-0,11	2276	-0,01	6031	-0,13	1980	-0,01	11154	0,31
2017	89789	0,07	52881	0,16	4632	-0,02	5704	-0,02	3519	0,02	8216	0,25	4873	0,06	36908	-0,06	2363	0,05	6120	-0,05	2028	-0,01	11375	0,52
2021	97581	0,08	57816	0,18	5102	-0,02	6343	-0,01	3857	0,03	8760	0,26	5480	0,09	39766	-0,06	2738	0,05	6555	-0,04	2218	0	12312	0,59
2022	99522	0,12	59097	0,23	5233	-0,01	6507	0,04	3943	0,08	8900	0,31	5642	0,15	40425	-0,02	2843	0,09	6648	0,03	2270	0	12561	0,65
2027	110179	0,28	65952	0,39	5866	0,05	7465	0,17	4424	0,2	9638	0,6	6470	0,35	44227	0,1	3460	0,16	7188	0,22	2529	0,02	13875	0,86
2032	122349	0,39	73618	0,49	6538	0,1	8455	0,27	4994	0,26	10449	0,75	7422	0,49	48731	0,22	4245	0,2	7714	0,3	2818	0,07	15433	0,99
2037	137439	0,52	82035	0,6	7211	0,16	9464	0,4	5563	0,34	11163	0,89	8551	0,64	55404	0,4	5185	0,24	8371	0,41	3039	0,14	17249	1,1
2040	148201	0,6	87665	0,65	7624	0,19	10095	0,48	5944	0,38	11614	0,94	9350	0,72	60535	0,51	5872	0,25	8801	0,46	3166	0,17	18478	1,16

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

4.3 Impacts on imports from the EU: Comparison of EPA and EPA + fiscal neutralization transfer

Tax compensation from abroad, which leads to increases in investment, production and household consumption, will automatically increase demand for EU imports. As shown in Graph 16 and Table 19, all the countries in the zone increase their imports from the EU.

Graph 16: Imports from the EU: Comparing EPA (EPA_GSP) and EPA + fiscal neutralization transfer (IFN_GSP)



Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

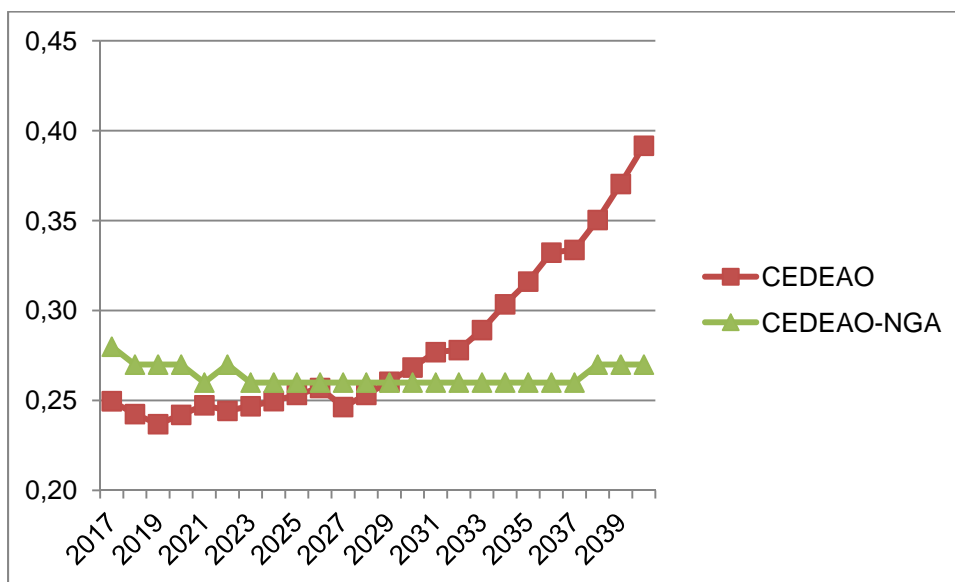
Table 19: Impact on imports from the EU: EPA + fiscal neutralization transfer

Année	ECOWAS		ECOWAS-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAL	var %	BAU	var %	BAL	var %	BAU	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAU	var %
2011	19468	3.03	7840	5.41	438	6.7	364	9.92	325	6.09	1480	3.56	576	4.84	11628	1.42	278	10.02	1392	1.97	251	9.89	2241	3.87
2016	21172	6.15	8636	7.59	499	7.45	419	9.03	367	7.79	1610	5.64	656	6.28	12537	5.16	341	6.87	1483	4.8	289	10.06	2423	8.23
2017	21537	9.81	8807	11.4	512	8.27	432	13.9	376	9.28	1638	8.53	674	8.77	12731	8.72	356	7.7	1500	7.22	297	11.1	2463	13.2
2021	23148	9.23	9562	8.35	561	3.41	484	5.58	417	5.3	1758	6.69	755	5.45	13586	9.85	420	-0.4	1586	6.52	332	5.04	2636	13.48
2022	23569	11.21	9759	9.96	574	4.19	498	8.77	427	7.23	1790	8.88	777	7.64	13810	12.1	439	1.03	1604	8.06	341	6.74	2681	14.59
2027	25881	16.08	10823	13.61	639	6.15	579	14.78	488	10.01	1960	16.16	889	11.67	15059	17.85	546	2.98	1710	11.5	391	9.01	2924	16.99
2032	28639	17.45	12023	14.52	707	6.63	668	16.18	561	10.33	2151	19.01	1019	12.58	16616	19.56	680	3.32	1815	12.2	448	9.13	3203	17.39
2037	32069	19.53	13370	15.31	775	7.59	765	18.25	642	10.54	2332	20.56	1173	13.5	18699	22.55	838	3.46	1945	13.34	502	9.16	3533	17.83
2040	34581	20.08	14278	15.17	817	7.73	826	17.9	698	10.03	2445	20.22	1280	13.23	20302	23.54	951	3.18	2031	13.56	535	8.79	3762	17.86

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

We have also calculated the rise in imports from the EU, which warrants the transfer from abroad. To establish the effect of accelerated transfers, we have calculated the difference between the values of imports from the EU in the scenario with tax compensation. (Scenario IFN_GSP, i.e. EPA + Compensation) with the values of those without compensation (EPA_GSP), the difference being divided by the value of annual tax compensations received from the rest of the world. The results are presented in Graph 17 for the ECOWAS as a whole, and for the ECOWAS without Nigeria.

Graph 17: Accelerated effect of tax compensations on imports from the EU.



Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

We notice that from the beginning of tariff cuts in 2017, for all of the ECOWAS, the increase of imports results in the tax compensation scenario to be 25% of the value of transfers. This acceleration of imports is slightly more significant for the ECOWAS excluding Nigeria. However, starting from 2029, this multiplier will increase until it reaches around 40% of the value of transfers in 2040.

5 Results and analysis of market access offers with EPADP.

5.1 Overview of the methodological approach

We can refer to the terms of service 3 for a systematic presentation of the methodological approach for the EPAPD/EPADP. Simply recall that we proposed to classify the different initiatives in the EPAPD/PEPAD according to their effects on production and trade conditions in the region according to six transmission channels:

1. Measures contributing to increased production capacity;
2. Measures improving total factor productivity;
3. Measures reducing non tariff trade barriers;
4. Measures facilitating trade due to lower transportation costs;
5. Measures providing export incentives;
6. Measures reducing the cost of capital.

In addition to the channels through which the EPAPD/EPADP program will change production and trade conditions, its implementation will also increase demand for goods and services, directly impacting the level of economic activity in the region.

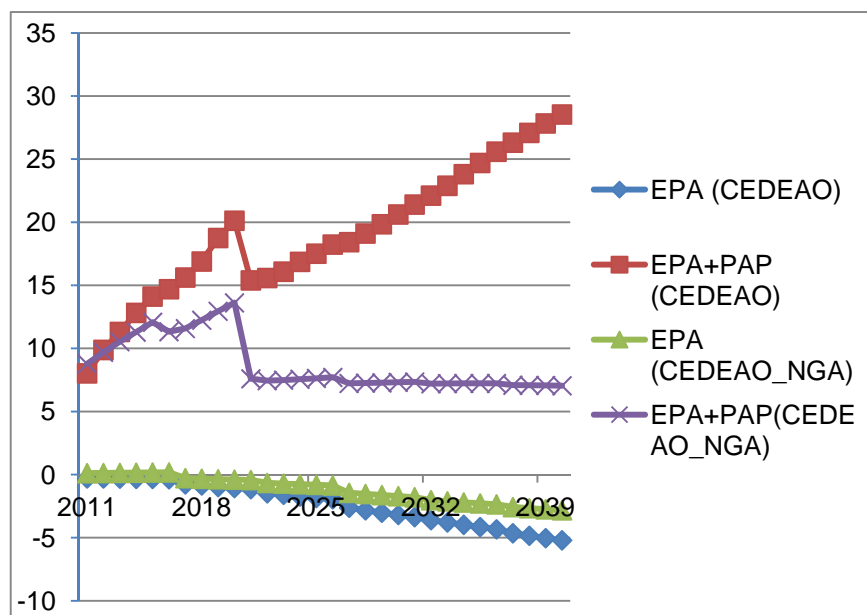
As explained in the first section, the EPADP will unfold in two successive phases of equal scale for the periods 2011-2015 and 2016-2010. The nature of activities, the scale of their investment, and their temporal and sectoral distribution are taken into consideration. Following the directions of the pilot committee, we realize that the EPADP is only achieved when a Economic Partnership Agreement (EPA scenario) is implemented. In examining the results of our analysis, we need to keep in mind that in this scenario, tariff cuts don't start until 2017, and the first EPADP (2011-2016) is already achieved when the first phase of trade liberalization begins. Therefore, there is a time lap in the implementation of the measures that could be part of a future accord between the EU and the ECOWAS.

5.2 Impacts on investment, GDP, and consumption

Because the EPADP is essentially an investment program financed by external resources, its implementation leads to an increase in investments. Since the fluctuations of investments within the ECOWAS were relatively stable until 2016 in the EPA scenarios, it begins to decrease, relative to the BAU, starting from the year 2017.

Conversely, with EPADP, these investments continue to grow during the two implementation phases and we see a significant decline at the end (2021). Then, for the ECOWAS countries excluding Nigeria, the fluctuations in investments remain superior to their BAU level, although they are relatively constant in time. We also note that the first trajectory of investment growth is modified in 2017 with the first wave of liberalization and then suddenly stops at the end of the two phases of EPADP. However, the existence of two EPADP is largely beneficial for Nigeria who leads the region in investment increase. The following graph presents the impact on investment, according solely to the APE scenario, without compensation (EPA), and the scenario APE accompanied by EPADP (EPA+PAP). Keeping in mind the considerable weight of Nigeria in the region, we distinguish the case ECOWAS from the case ECOWAS without Nigeria (ECOWAS_NGA).

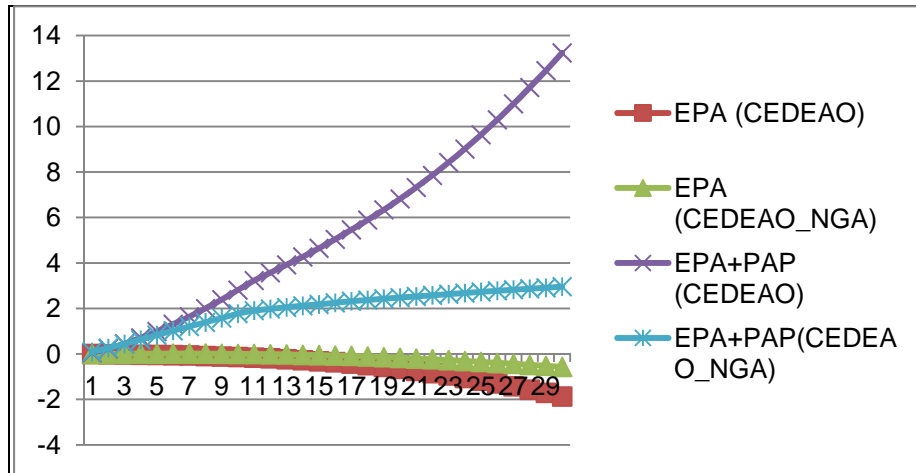
Graph 18: Investment comparison: EPA scenario ad EPA+ EPADP



Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

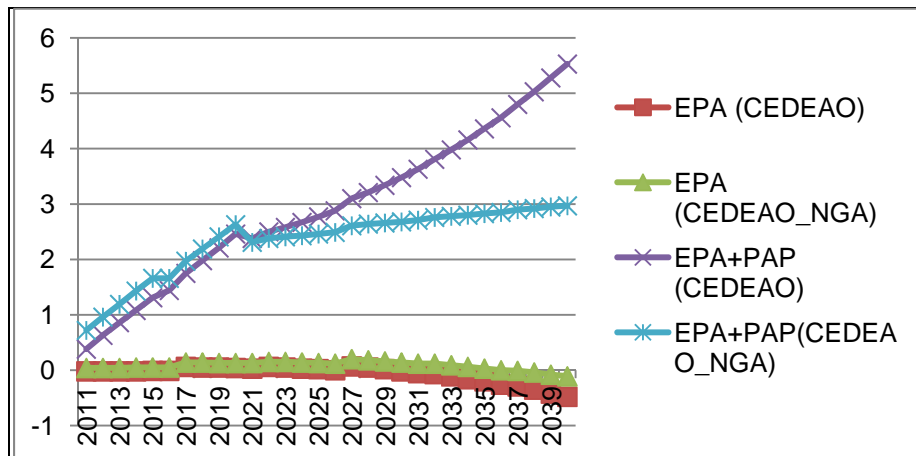
Using the same format, we present the impact on the real GDP in graphs 19 and 20, and on the real consumption according to the APE scenario without compensation (EPA) and the APE scenario with EPADP (EPA+PAP)

Graph 19: Comparison of the real GDP: Comparison of EPA and EPA + EPADP



Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

Graph 20: Comparison of real consumption: Comparison of EPA and EPA + EPADP



Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

As the consumption graph clearly shows, particularly for the ECOWAS countries excluding Nigeria, the rhythm of consumption growth stops suddenly at the end of EPADP and then slowly levels off at the first two phases of trade liberalization in 2017 and 2021. For ECOWAS, keeping in mind the accelerated growth of Nigeria, the consumption growth trend is significant and higher than 5% in reference to BAU in 2040.

Tables 20, 21, and 22 provide the information on growth of investment, the real GDP, and consumption of each country in the zone.

Table 20: Impacts on investment: EPA + EPADP

Years	ECOWAS		ECOWAS-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAL	var %	BAL	var %	BAL	var %	BAU	var %	BAL	var %	BAL	var %	BAU	var %	BAL	var %	BAL	var %	BAU	var %	BAU	var %	BAU	var %
2011	12292	8.03	6873	8.78	572	9.13	523	9.46	308	7.51	637	13.33	578	11.4	5419	7.07	401	3.33	1365	2.51	295	19.7	1766	3.87
2016	14064	14.7	7819	11.33	655	10.57	601	11.92	352	10.38	712	19.09	673	11.6	6245	18.91	512	6.95	1473	4.53	349	21.26	2026	5.01
2017	14551	15.63	8034	11.58	673	11.65	618	12.13	363	10.6	731	20.1	695	11.44	6517	20.62	537	7.15	1497	5.22	361	22.13	2086	4.39
2021	16446	15.4	8983	7.6	753	9.01	695	6.81	408	6.61	816	16.52	784	3.81	7463	24.79	664	6.13	1590	6.33	416	12.12	2357	2.54
2022	17131	15.59	9252	7.45	774	9.16	717	6.55	422	6	840	16.4	809	3.53	7880	25.16	702	5.65	1618	6.39	431	11.9	2433	2.25
2027	21337	18.43	10799	7.23	893	9.67	832	6.06	503	4.36	990	16.48	957	2.83	10538	29.92	925	4.73	1755	7.09	516	11.27	2883	1.42
2032	28248	22.12	12763	7.21	1032	10.01	983	5.69	611	3.07	1194	16.72	1143	2.14	15484	34.41	1237	4.41	1921	7.95	616	10.65	3436	0.99
2037	38442	26.32	15299	7.09	1194	10.12	1179	5.02	782	1.68	1506	16.11	1371	1.17	23143	39.03	1689	3.99	2103	9.05	734	9.49	4124	0.68
2040	47121	28.55	17128	7.05	1302	10.13	1321	4.68	923	0.8	1741	15.72	1528	0.59	29993	40.82	2046	3.71	2226	9.86	811	8.81	4608	0.58

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

Table 21: Impacts on the real GDP: EPA + EPADP

Years	ECOWAS		ECOWAS-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAL	var %	BAU	var %	BAL	var %	BAU	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAU	var %
2011	126730	0.05	58772	0.09	4540	0.04	5762	0.08	3881	0.04	8238	0.09	5257	0.04	67958	0.01	2704	0.16	8166	0.09	2056	0.08	14021	0.07
2016	140865	1.31	65924	1.02	5245	0.95	6614	0.82	4325	0.81	9003	1.06	6056	1.39	74941	1.56	3268	0.91	8936	0.34	2330	1.69	15459	0.49
2017	143890	1.64	67448	1.21	5395	1.1	6802	0.96	4422	0.98	9161	1.27	6232	1.63	76442	2.03	3398	1.1	9084	0.4	2389	1.97	15766	0.58
2021	157229	3.23	73973	1.91	5969	1.81	7574	1.48	4841	1.65	9815	2.16	7027	2.44	83255	4.4	3961	1.79	9771	0.64	2627	3.12	17068	0.85
2022	160743	3.57	75673	1.98	6128	1.9	7772	1.53	4947	1.73	9985	2.31	7239	2.43	85071	4.98	4119	1.93	9923	0.7	2692	3.2	17415	0.88
2027	180966	5.46	84822	2.32	6912	2.33	8924	1.7	5548	1.98	10882	3.08	8330	2.37	96144	8.24	5061	2.37	10787	0.99	3024	3.6	19255	0.97
2032	207368	7.85	95160	2.58	7755	2.75	10124	1.82	6264	2.03	11882	3.8	9592	2.22	112208	12.33	6274	2.62	11638	1.28	3402	3.9	21447	0.96
2037	244384	11	106746	2.83	8623	3.16	11367	1.92	6997	1.97	12851	4.57	11096	2	137639	17.33	7762	2.81	12657	1.59	3732	4.24	24014	0.9
2040	273743	13.24	114639	2.96	9169	3.4	12159	1.96	7510	1.85	13508	5.02	12160	1.82	159104	20.65	8884	2.87	13314	1.78	3938	4.39	25770	0.85

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

Table 22: Impacts on real consumption: EPA + EPADP

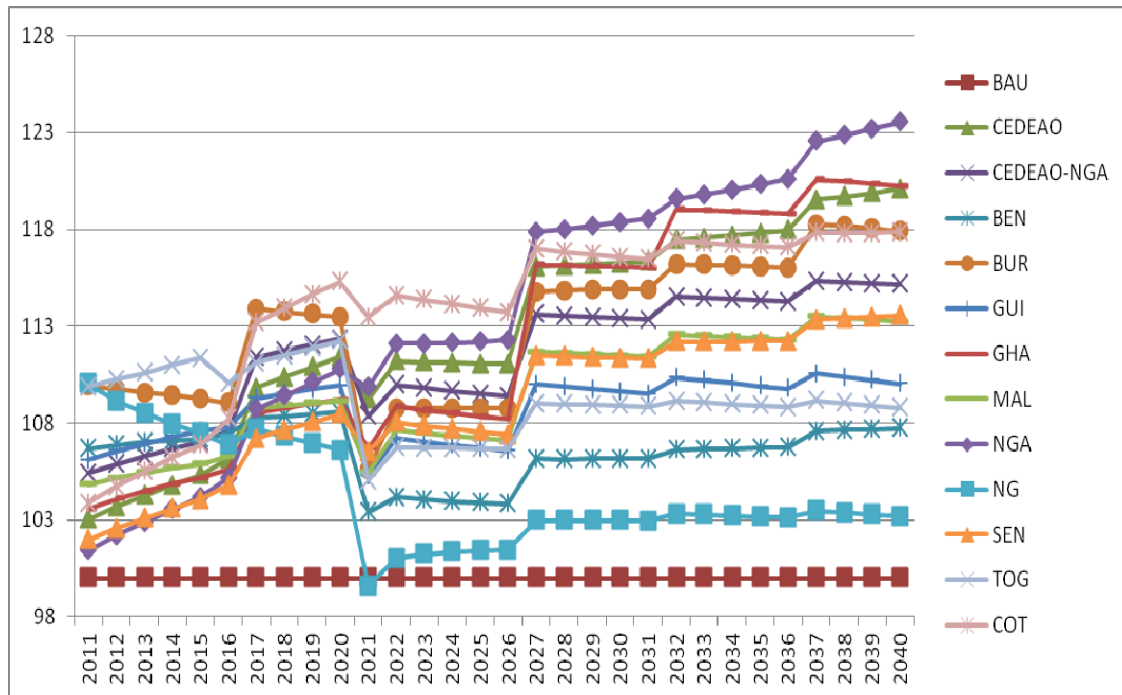
Years	ECOWAS		ECOWAS-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAL	var %	BAU	var %	BAL	var %	BAU	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAU	var %
2011	79605	0.38	46323	0.72	3919	0.48	4843	0.52	3084	0.32	7449	0.94	4131	0.07	33282	-0.09	1898	1.88	5553	0.21	1755	0.55	10122	0.52
2016	88042	1.44	51730	1.66	4508	1.53	5548	1.01	3442	1.2	8085	1.88	4739	1.8	36311	1.13	2276	1.79	6031	0.93	1980	1.63	11154	1.31
2017	89789	1.75	52881	1.97	4632	1.9	5704	1.16	3519	1.39	8216	2.15	4873	2.14	36908	1.43	2363	1.89	6120	1.28	2028	1.95	11375	1.59
2021	97581	2.38	57816	2.31	5102	2.9	6343	1.18	3857	1.77	8760	2.33	5480	2.96	39766	2.48	2738	1.02	6555	2.1	2218	2.85	12312	1.68
2022	99522	2.5	59097	2.38	5233	2.94	6507	1.25	3943	1.83	8900	2.42	5642	2.93	40425	2.68	2843	1.3	6648	2.13	2270	2.87	12561	1.71
2027	110179	3.1	65952	2.61	5866	3.13	7465	1.48	4424	1.95	9638	2.88	6470	2.71	44227	3.82	3460	2.01	7188	2.27	2529	3.01	13875	1.79
2032	122349	3.81	73618	2.76	6538	3.33	8455	1.59	4994	1.87	10449	3.27	7422	2.46	48731	5.41	4245	2.31	7714	2.4	2818	3.11	15433	1.77
2037	137439	4.8	82035	2.9	7211	3.56	9464	1.65	5563	1.69	11163	3.64	8551	2.22	55404	7.62	5185	2.46	8371	2.62	3039	3.19	17249	1.75
2040	148201	5.53	87665	2.97	7624	3.69	10095	1.65	5944	1.51	11614	3.84	9350	2.03	60535	9.24	5872	2.49	8801	2.77	3166	3.2	18478	1.75

Source: Authors' calculations (in %, relating to BAU=SGP=TSA)

5.3 Impacts on trade with the EU: EPA + EPADP

As illustrated in graph 21 and as the data in Table 23 shows, the EPADP directly contributes to the growth in imports from the EU. The increase is significant- around 5% from the launch of EPADP in 2022 for ECOWAS excluding Nigeria. These imports climb to 11% in 2017 under the effect of the first wave of tariff cuts and later in 2021, they drop drastically with the termination of the second phase of EPADP.

Graph 21: Impacts on importations from the EU: EPA+EPADP



Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

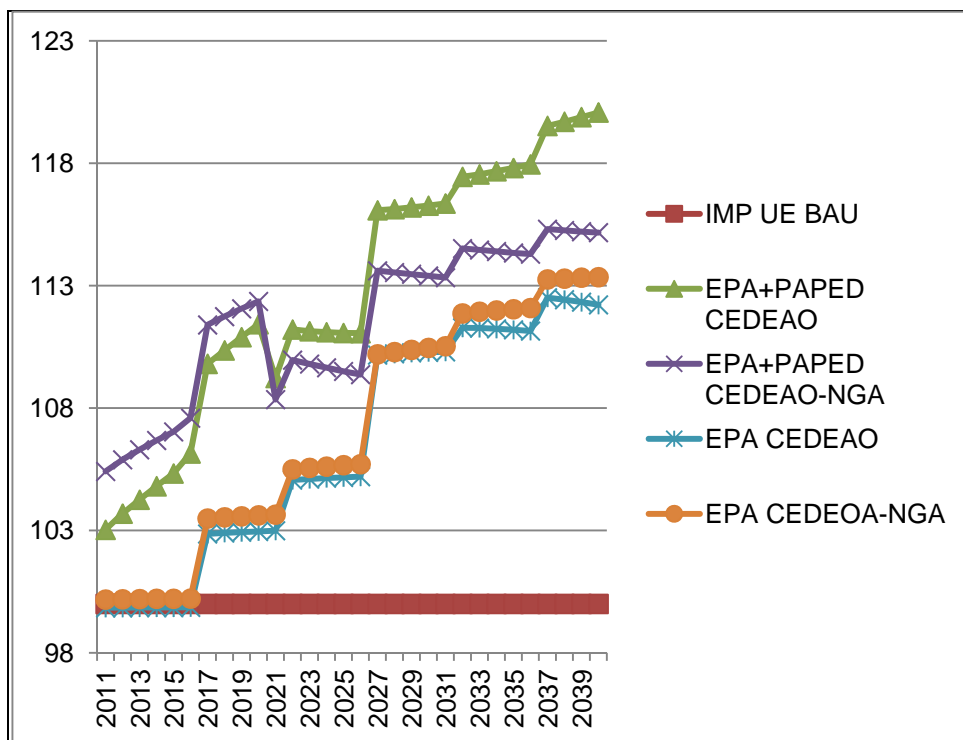
Table 23: Impacts on the imports from the EU: EPA + EPADP

Years	ECOWAS		ECOWAS-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %
2011	19468	3.03	7840	5.41	438	6.7	364	9.92	325	6.09	1480	3.56	576	4.84	11628	1.42	278	10.02	1392	1.97	251	9.89	2241	3.87
2016	21172	6.15	8636	7.59	499	7.45	419	9.03	367	7.79	1610	5.64	656	6.28	12537	5.16	341	6.87	1483	4.8	289	10.06	2423	8.23
2017	21537	9.81	8807	11.4	512	8.27	432	13.9	376	9.28	1638	8.53	674	8.77	12731	8.72	356	7.7	1500	7.22	297	11.1	2463	13.2
2021	23148	9.23	9562	8.35	561	3.41	484	5.58	417	5.3	1758	6.69	755	5.45	13586	9.85	420	-0.4	1586	6.52	332	5.04	2636	13.48
2022	23569	11.21	9759	9.96	574	4.19	498	8.77	427	7.23	1790	8.88	777	7.64	13810	12.1	439	1.03	1604	8.06	341	6.74	2681	14.59
2027	25881	16.08	10823	13.61	639	6.15	579	14.78	488	10.01	1960	16.16	889	11.67	15059	17.85	546	2.98	1710	11.5	391	9.01	2924	16.99
2032	28639	17.45	12023	14.52	707	6.63	668	16.18	561	10.33	2151	19.01	1019	12.58	16616	19.56	680	3.32	1815	12.2	448	9.13	3203	17.39
2037	32069	19.53	13370	15.31	775	7.59	765	18.25	642	10.54	2332	20.56	1173	13.5	18699	22.55	838	3.46	1945	13.34	502	9.16	3533	17.83
2040	34581	20.08	14278	15.17	817	7.73	826	17.9	698	10.03	2445	20.22	1280	13.23	20302	23.54	951	3.18	2031	13.56	535	8.79	3762	17.86

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

Graph 22 comparatively illustrates the importance of the dependence ECOWAS countries have on EU products. In this graph we have compared the change in imports in the two scenarios EPA and EPA+EPADP for all of the ECOWAS and for the ECOWAS excluding Nigeria. We can clearly see that the increase in imports in the scenario EPA very closely follows the phases of the tariff cuts in 2017, 2022, and 2027, and is about 13% above the BAU level in 2040. Once again, the implementation of EPADP leads the ECOWAS countries to immediately increase their demand of products imported from Europe. We can equally say that if Nigeria has less of a need than the other ECOWAS countries to import from Europe during the two EPADP implementation periods, the resulting economic growth leads to a substantial increase in demand of imported products, weighing also on the importation figures for the entire zone.

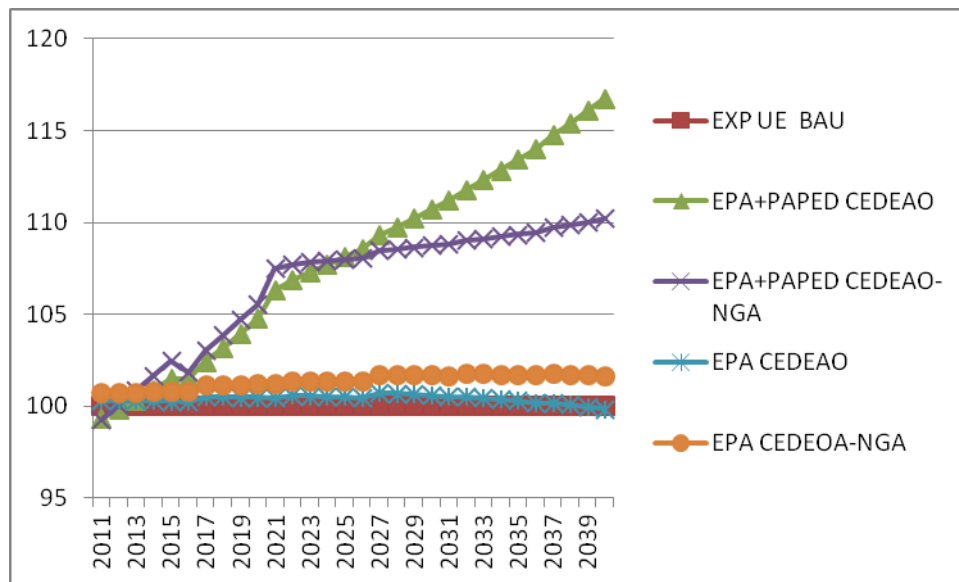
Graph 22: Impacts on imports from the EU: Comparison of EPA and EPA+EPADP



Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

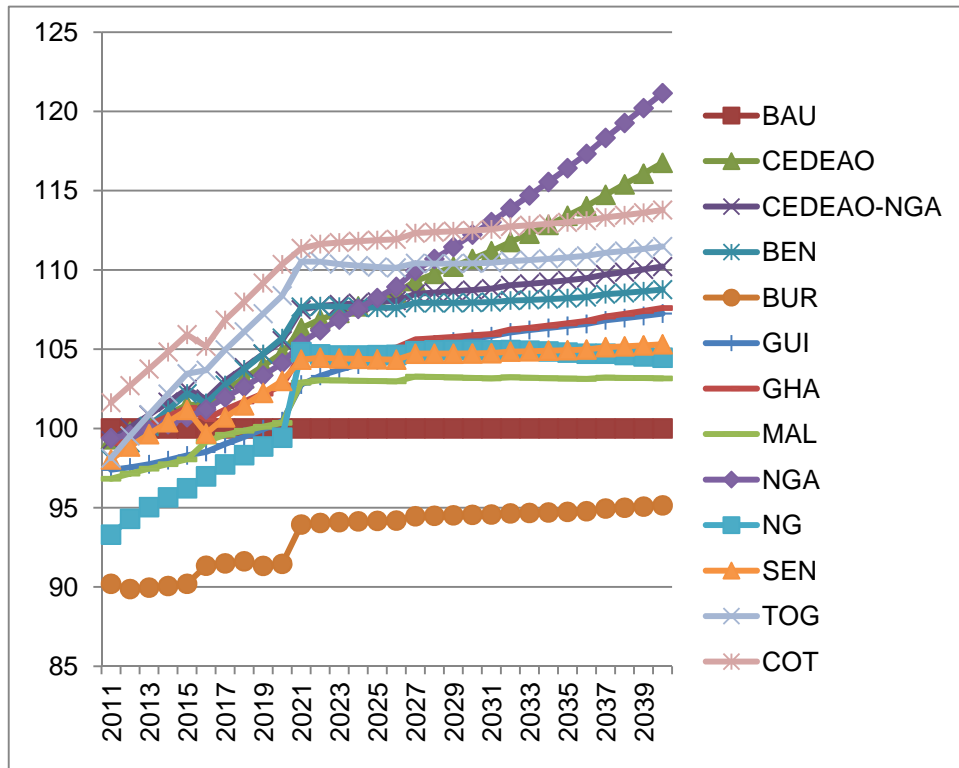
In terms of exports, the implementation of the two EPADP noticeably improves the export capacity of the region. Once again the growth reinforced by Nigeria raises the guidelines, since in 2040, the export performance will be 15% higher than the BAU. For the region excluding Nigeria, the benefits of the EPADP are certainly less obvious, although sustainable, since exports continue to grow even after the completion of the 2021 phase.

Graph 23: Impacts on exports destined for the EU: Comparison EPA and EPT+EPADP



Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

Graph 24: Impact on exports destined for the EU: EPA+EPADP



Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

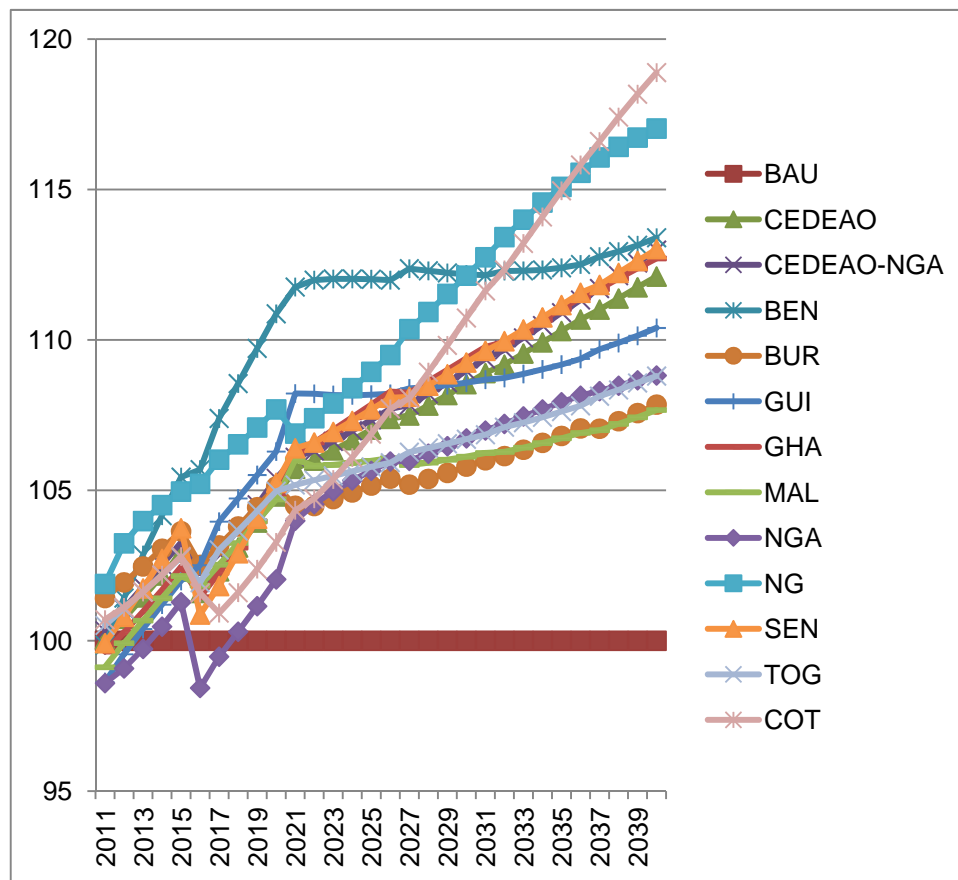
Table 24: Impacts on exports destined for the EU: EPA+EPADP

Years	ECOWAS		ECOWAS-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAL	var %	BAU	var %
2011	17431	-0.68	7748	-0.77	102	-1.95	55	-9.8	382	-2.61	2132	-0.92	206	-3.17	9683	-0.61	92	-6.7	886	-1.95	103	-1.87	3245	1.63
2016	19074	1.49	8524	1.86	114	1.61	63	-8.66	420	-1.48	2342	0.59	235	-0.83	10550	1.2	108	-3.02	975	-0.32	117	3.67	3535	5.18
2017	19427	2.43	8689	3.01	117	2.74	65	-8.51	428	-0.98	2385	1.19	241	-0.4	10738	1.96	112	-2.27	993	0.7	119	4.96	3597	6.84
2021	20969	6.33	9391	7.49	127	7.66	72	-6.06	463	2.77	2567	4.69	269	2.89	11577	5.38	127	4.82	1072	4.34	131	10.53	3868	11.36
2022	21381	6.88	9575	7.73	130	7.72	74	-5.96	471	3.32	2614	4.85	277	3.04	11806	6.19	131	4.67	1091	4.46	135	10.52	3941	11.63
2027	23740	9.3	10556	8.49	144	7.92	84	-5.54	520	5.08	2860	5.61	316	3.27	13184	9.95	156	4.88	1196	4.72	151	10.42	4333	12.32
2032	26835	11.76	11670	9.03	160	8.07	95	-5.36	576	6.06	3126	6.24	360	3.23	15165	13.87	186	4.95	1306	4.85	171	10.56	4802	12.74
2037	31076	14.74	12929	9.71	177	8.47	107	-5.05	634	6.82	3381	7.06	412	3.21	18147	18.33	221	4.72	1433	5.13	191	11.08	5377	13.31
2040	34372	16.76	13795	10.21	189	8.76	115	-4.85	675	7.25	3549	7.6	447	3.16	20577	21.15	247	4.46	1516	5.31	204	11.48	5788	13.78

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

For the regional integration plan our calculations show that the implementation of EPADP favors the exchanges among the partnering countries of the ECOWAS. As expected, the first wave of trade liberalization favors the imports to the EU, which has a tendency to reduce the trade with other partners. At the end of the two EPADP programs in 2021, the expansion of intra regional commerce will significantly decrease, although the trend will remain favorable. The EPADP therefore seems to generate permanent benefits on this plan. We find in Table 25 the details of the developments per country. We can see that Côte d’Ivoire contributes the most to the expansion of intra regional trade transactions.

Graph 25: Impacts on regional imports: EPA+EPADP



Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

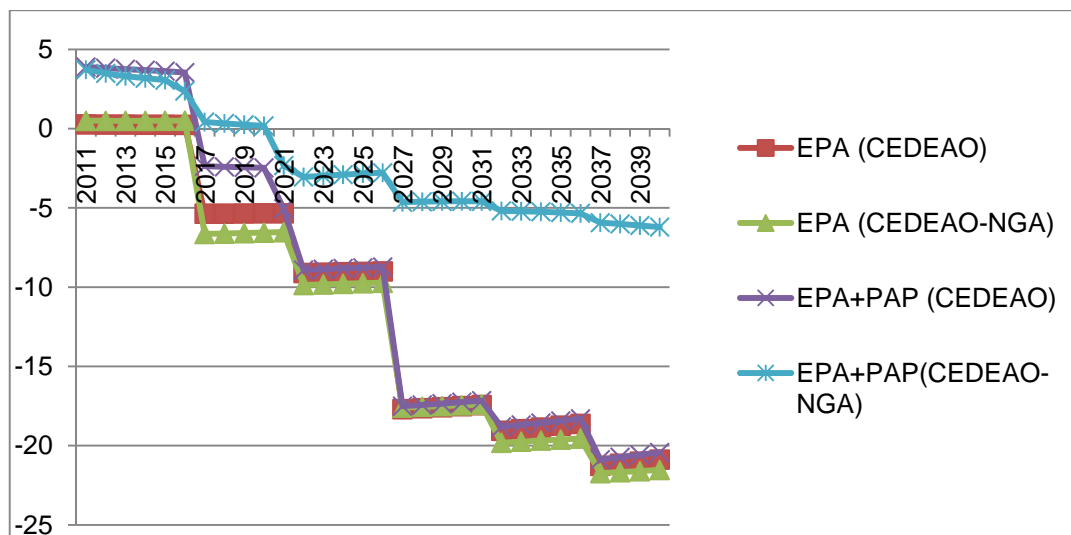
Table 25: Impacts on regional imports: EPA+EPADP

Years	ECOWAS		ECOWAS-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	5410	0.04	4523	0.33	296	-0.15	471	1.42	106	-1.37	1242	-0.36	427	-0.88	888	-1.41	217	1.89	601	-0.08	281	0.51	700	0.7
2016	5982	1.59	4952	2.25	323	5.69	525	2.52	112	2.51	1363	1.45	468	1.83	1031	-1.57	239	5.22	646	0.87	307	1.93	775	1.59
2017	6105	2.31	5043	2.9	329	7.39	536	3.17	114	3.96	1389	2.26	477	2.53	1062	-0.53	243	6.02	655	1.82	312	3.02	791	0.92
2021	6629	5.72	5431	6.1	350	11.76	583	4.49	119	8.22	1499	6.29	516	6.02	1198	3.99	262	6.89	696	6.4	334	5.18	864	4.34
2022	6769	5.99	5534	6.31	356	11.99	595	4.48	120	8.21	1528	6.59	526	5.81	1235	4.54	267	7.4	705	6.59	340	5.34	885	4.72
2027	7553	7.49	6112	7.84	385	12.37	663	5.19	128	8.39	1693	8.25	578	5.84	1441	5.98	294	10.36	763	8.11	371	6.27	1010	8.06
2032	8540	9.18	6842	9.67	419	12.29	739	6.14	137	8.74	1901	9.94	638	6.28	1698	7.21	329	13.42	835	9.96	406	7.1	1198	12.33
2037	9813	11.01	7791	11.71	459	12.77	823	7.05	149	9.69	2161	11.69	710	7	2022	8.3	371	16.07	935	11.83	439	8.13	1482	16.6
2040	10768	12.11	8509	12.99	488	13.4	880	7.85	157	10.4	2353	12.71	762	7.67	2259	8.82	404	17.03	1009	13.02	462	8.8	1713	18.89

5.4 Impacts of EPADP on tax revenues

In so far as the EPADP accelerates the economic development by increases in investment, real GDP and household consumption, we must wait for this expansion to improve government revenues. Moreover, at least during the first phase of EPADP, we can expect a significant increase in tax revenues because the imposition range grows due to the increase in imports. As shown in Graph 26, this is the case at least until 2017. However, even if the second EPADP continues to show an effect on expansion of imports, the reductions of tariff rates creates a reduction in tariff revenues for all of the ECOWAS. If we exclude Nigeria in our calculations, during the period 2017-2021, the two effects seem to compensate one another. The increase in imports is approximately sufficient to counteract the decline in customs duties so that the revenues generated from customs are approximately equivalent to the BAU.

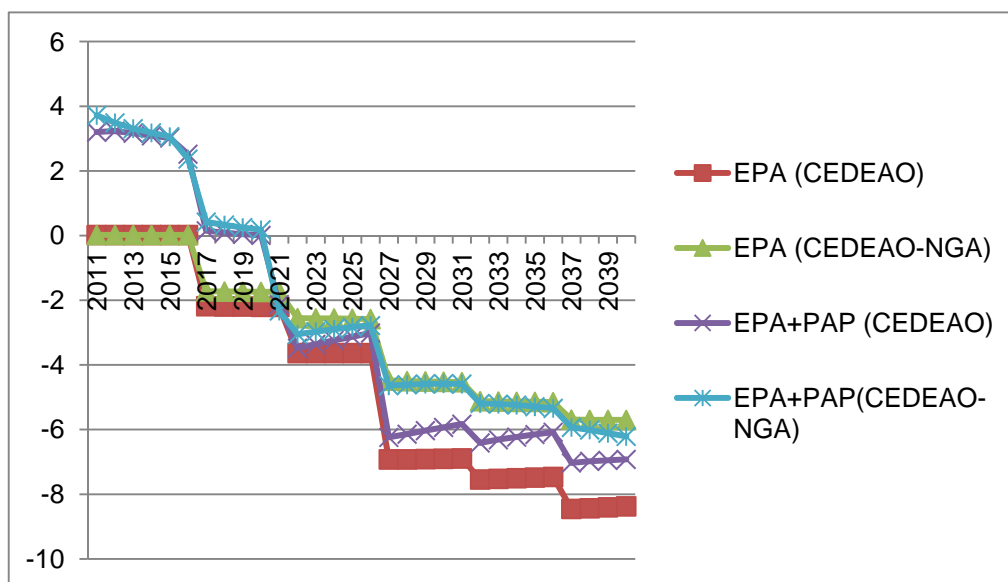
Graph 26: Impacts on tariff revenues: Comparing EPA and EPA+ EPADP



Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

Concerning total indirect taxes, even though tariff revenues make up an important part we observe the same tendencies,. Before the implementation of EPA, the existence of EPADP causes a bandwagon effect on government revenues for ECOWAS, with or without Nigeria. However, from the beginning of the implementation of tariff cuts, the situation deteriorates and indirect tax revenues decline. Because the end of the second EPADP corresponds to the beginning of the second tariff reduction phase, the indirect tax revenues decrease substantially in relation to the BAU.

Graph 27: Impacts on total indirect tax revenues: Comparing EPA and EPA + EPADP



Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

6 Results and analysis of the scenario EPA+ EPADP + fiscal neutralization transfer

6.1 Fiscal neutralization by foreign transfers

As we expected from the results discussed in the previous section, the implementation of the two EPADP generates sufficient growth to either improve the situation of public revenues or to cancel out the consequences of the first phase of tariff cuts. Either way, the situation deteriorates substantially from 2021.

The total annual transfers for the entire region should only be about \$36 million USD from the beginning of the tariff cuts (2017) and should rise to \$296 million USD in 2022. At the end of the liberation process, the global financial needs for the ECOWAS only rise to \$761 million compared to \$1,491 million without the implementation of EPADP. Since Nigeria doesn't demand any supplementary resources, the total transfers will be shared entirely by the other countries. We also remark that besides Nigeria, Benin will not be awarded tax compensation until the end of the liberation process while Togo will have received them since 2037.

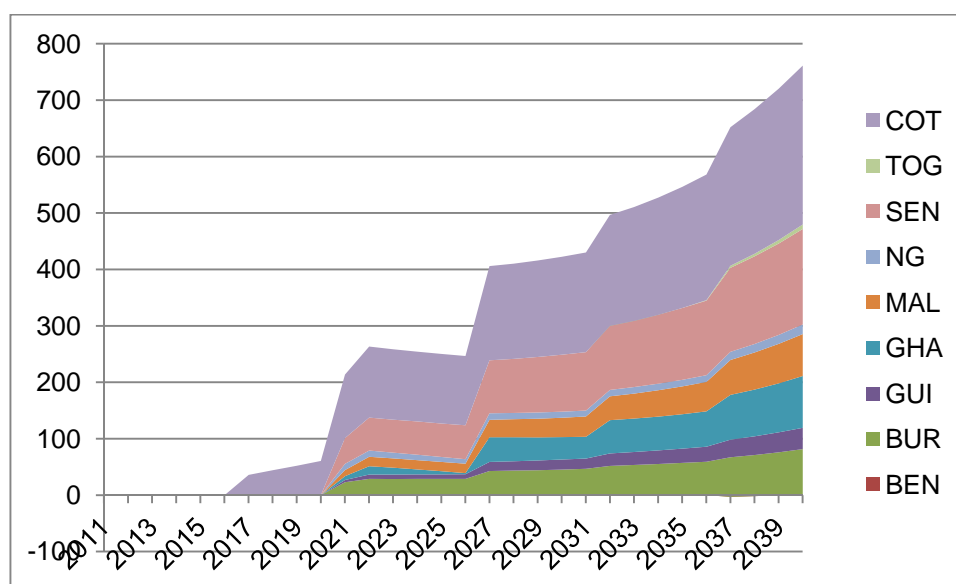
Table 26: Transfers from the Rest of the World: EPA + EPADP + fiscal neutralization transfer

Years	ECOWAS	ECOWAS- BEN NGA	BUR	GUI	GHA	MAL	NGA	NG	SEN	TOG	COT	
2011	0	0	0	0	0	0	0	0	0	0	0	
2016	0	0	0	0	0	0	0	0	0	0	0	
2017	36.04	36.04	0	0	0	0	0	0	0	0	36.04	
2021	250.94	250.94	0	23.2	3.94	6.62	10.95	0	10.9	45.74	0	112.57
2022	296.42	296.42	0	29.03	7.71	14.74	16.58	0	11.26	58.26	0	125.95
2027	419.1	419.1	0	42.86	16.11	43.85	30.94	0	11.42	93.94	0	166.99
2032	496.8	496.8	0	51.92	22.14	58.91	42.27	0	11.54	114.88	-1.54	196.67
2037	652.29	652.29	-2.84	70.03	31.21	79.53	61.66	0	14.53	149.01	3.56	245.6
2040	761.5	761.5	1.99	79.67	37.84	91.76	74.51	0	16.93	169.32	7.86	281.62

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

The development and allocation of financial needs are illustrated in Graph 28 for the group during the period 2011 – 2039.

Graph 28: Change in tax compensations: EPA + EPADP + fiscal neutralization transfer



Source: Authors' calculations (In millions of USD, BAU=SGP-TSA)

A more detailed analysis of the role of EPADP is illustrated in Table 27. We can see that financial support is inexistent during the execution of the two EPADP. The expansion of investments effect generates sufficient revenues. Only Côte d'Ivoire does not seem to be capable of budgeting its finances following tariff cuts, and therefore should resort to financial compensation. However, from 2021 (with the exception of Nigeria, Benin, and Togo) all the states in the zones require financial support to stabilize their budget revenues.

Table 27: Transfers from RDM: Role of EPADP

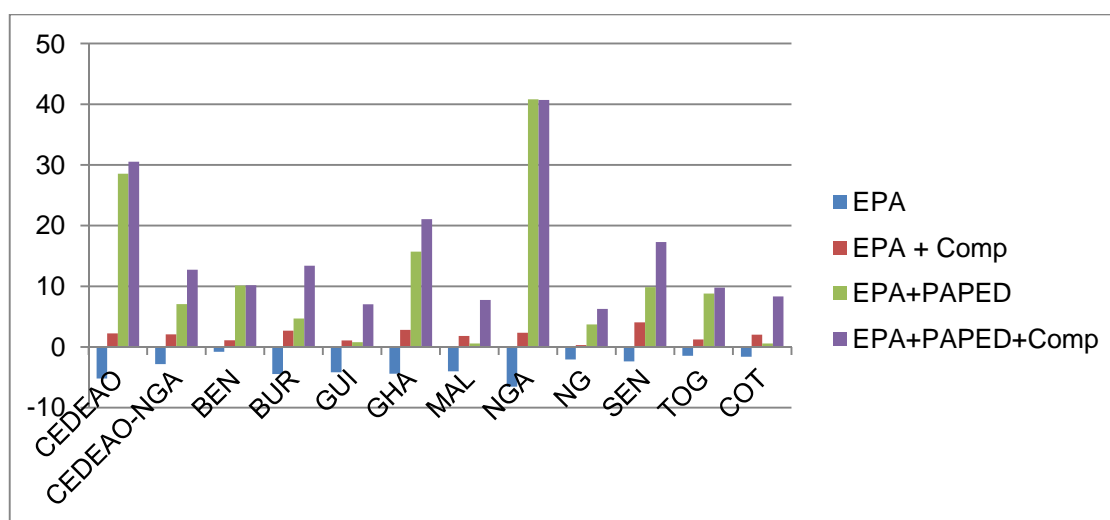
Année	ECOWA S	ECOWA S- NGA	BEN	BUF	GUI	GHA	MAI	NGA	NG	SEN	TOG	COT
2011	0	0	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0	0	0	0	0
2017	36.04	36.04	0	0	0	0	0	0	0	0	0	36.04
2018	44.46	44.46	0	0	0	0	0	0	0	0	0	44.46
2019	52.35	52.35	0	0	0	0	0	0	0	0	0	52.35
2020	60.74	60.74	0	0	0	0	0	0	0	0	0	60.74
2021	250.94	250.94	0	23.2	3.94	6.62	10.95	0	10.9	45.74	0	112.57

Source: Authors' calculations (In millions of USD, BAU=SGP-TSA)

6.2 Impacts on investment, growth and consumption

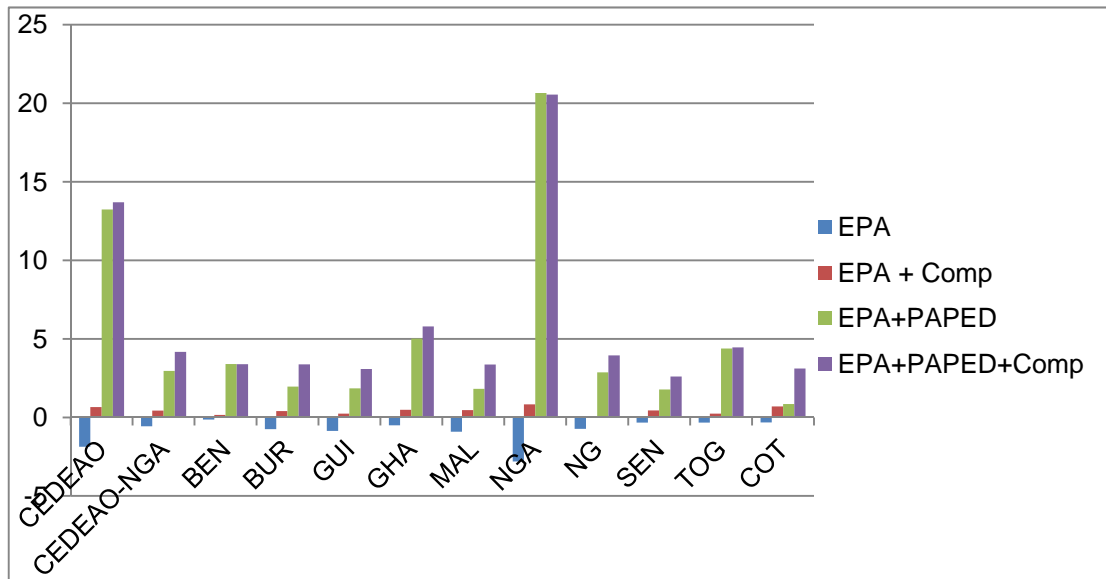
Tables 28 – 32 supply details of the impacts on investment, GDP and real household consumption. A comparative analysis allows for a clearer view of the consequences of each scenario up until now. Graphs 29 – 31 compare the level of investments, the real GDP, and real household consumption at the end of the market liberalization process in 2040. Since the tax compensations for Benin, Togo, and Nigeria are either zero or very small in the scenario EPA + EPADP + compensation, we should not expect great differences on the volume of investments. Government revenues remain very close to their BAU level in the scenario EPA + EPADP; there is no sharp decline in the public deficit, and available savings can help to finance investment. However, for the other countries, such as Burkina, Ghana, Senegal, and Côte d'Ivoire, financial resources that account for tax compensation allow for a significant increase in investments when compared to the scenario EPA + EPADP.

Graph 29: Comparison of 2040 investments based on the different scenarios: EPA, EPA + fiscal neutralization transfer, EPA + EPADP, and EPA + EPADP + fiscal neutralization transfer.



The impact on real GDP (Graph 30 and Table 29) is a direct reflection of the shift in investments. We see that the existence of tax compensations transforms the situation for several countries such as Burkina Faso, Ghana, Senegal, and Côte d'Ivoire for the better, while for Nigeria, Togo, and Benin, the scenario has almost no effect.

Graph 30: Comparison of real GDP in 204 based on the scenarios: EPA, EPA + fiscal neutralization transfer, EPA+EPADP, EPA + EPADP + fiscal neutralization transfer



As previously mentioned, real consumption evolves as a function of growth of national wealth.

Graph 31: Comparisons of real consumption based on the scenarios: EPA, EPA + fiscal neutralization transfer, EPA + EPADP, EPA + EPADP + fiscal neutralization transfer

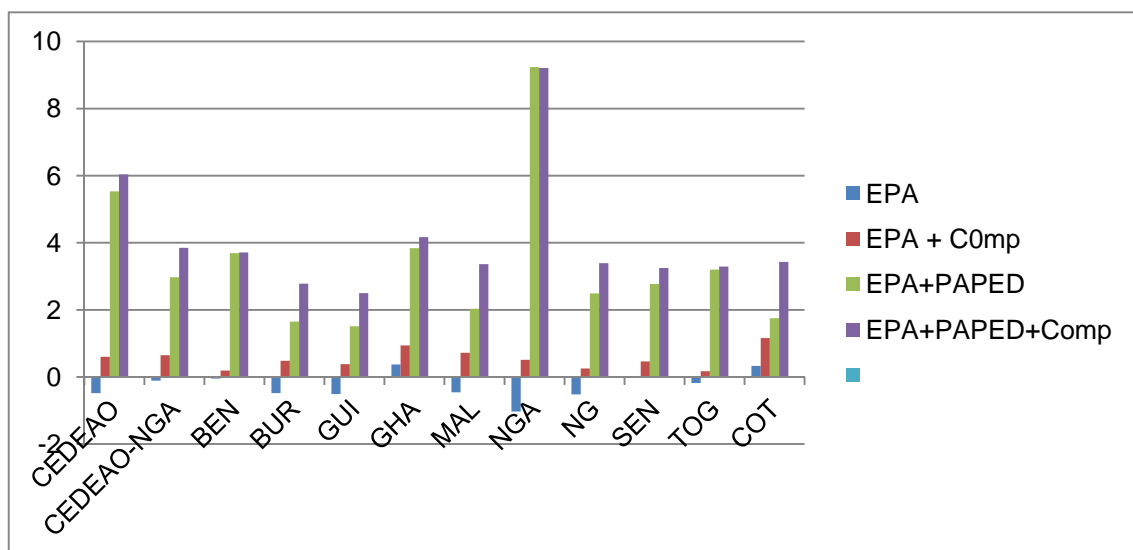


Table 28: Impact on investment: EPA + EPADP + fiscal neutralization transfer

Years	ECOWAS		ECOWAS-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	12292	8,03	6873	8,79	572	9,13	523	9,5	308	7,51	637	13,33	578	11,4	5419	7,07	401	3,33	1365	2,51	295	19,7	1766	3,87
2016	14064	14,7	7819	11,33	655	10,57	601	11,96	352	10,38	712	19,09	673	11,6	6245	18,91	512	6,95	1473	4,53	349	21,26	2026	5,01
2017	14551	15,77	8034	11,88	673	11,64	618	12,17	363	10,61	731	20,1	695	11,44	6517	20,56	537	7,15	1497	5,21	361	22,13	2086	5,54
2021	16446	16,42	8983	9,66	753	9,02	695	9,55	408	7,19	816	16,97	784	5,09	7463	24,55	664	7,5	1590	7,98	416	12,18	2357	6,14
2022	17131	16,8	9252	9,9	774	9,16	717	10,03	422	7,14	840	17,45	809	5,47	7880	24,89	702	7,18	1618	8,56	431	11,98	2433	6,33
2027	21337	20,05	10799	10,68	893	9,67	832	11,36	503	6,94	990	19,21	957	6,29	10538	29,65	925	6,61	1755	10,81	516	11,39	2883	6,8
2032	28248	23,91	12763	11,4	1032	10	983	12,23	611	7,08	1194	20,61	1143	6,77	15484	34,22	1237	6,56	1921	12,85	616	10,59	3436	7,27
2037	38442	28,27	15299	12,22	1194	9,93	1179	13,07	782	7,08	1506	20,99	1371	7,35	23143	38,87	1689	6,4	2103	15,52	734	10,03	4124	7,89
2040	47121	30,53	17128	12,73	1302	10,18	1321	13,4	923	7,03	1741	21,07	1528	7,75	29993	40,69	2046	6,28	2226	17,28	811	9,79	4608	8,33

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

Table 29: Impact on real GDP: EPA + EPADP+ fiscal neutralization transfer

Years	ECOWAS		ECOWAS-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	126730	0,05	58772	0,09	4540	0,04	5762	0,09	3881	0,04	8238	0,09	5257	0,04	67958	0,01	2704	0,16	8166	0,09	2056	0,08	14021	0,07
2016	140865	1,31	65924	1,02	5245	0,95	6614	0,83	4325	0,81	9003	1,06	6056	1,39	74941	1,56	3268	0,91	8936	0,34	2330	1,69	15459	0,49
2017	143890	1,64	67448	1,21	5395	1,1	6802	0,97	4422	0,98	9161	1,27	6232	1,63	76442	2,03	3398	1,1	9084	0,4	2389	1,97	15766	0,59
2021	157229	3,24	73973	1,95	5969	1,81	7574	1,5	4841	1,65	9815	2,16	7027	2,45	83255	4,39	3961	1,8	9771	0,65	2627	3,12	17068	1
2022	160743	3,6	75673	2,06	6128	1,9	7772	1,59	4947	1,74	9985	2,32	7239	2,47	85071	4,97	4119	1,99	9923	0,73	2692	3,2	17415	1,11
2027	180966	5,58	84822	2,61	6912	2,33	8924	2,01	5548	2,12	10882	3,14	8330	2,64	96144	8,19	5061	2,68	10787	1,15	3024	3,6	19255	1,64
2032	207368	8,09	95160	3,18	7755	2,75	10124	2,5	6264	2,47	11882	4,04	9592	2,9	112208	12,25	6274	3,21	11638	1,66	3402	3,92	21447	2,19
2037	244384	11,36	106746	3,78	8623	3,16	11367	3,03	6997	2,85	12851	5,1	11096	3,18	137639	17,24	7762	3,7	12657	2,22	3732	4,26	24014	2,75
2040	273743	13,69	114639	4,17	9169	3,39	12159	3,38	7510	3,08	13508	5,79	12160	3,37	159104	20,55	8884	3,95	13314	2,6	3938	4,46	25770	3,11

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

Table 30: Impact on real consumption: EPA + EPADP + fiscal neutralization transfer

Years	ECOWAS		ECOWAS-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	79605	0,38	46323	0,72	3919	0,48	4843	0,53	3084	0,32	7449	0,94	4131	0,07	33282	-0,09	1898	1,88	5553	0,22	1755	0,55	10122	0,52
2016	88042	1,44	51730	1,66	4508	1,53	5548	1,02	3442	1,2	8085	1,88	4739	1,8	36311	1,13	2276	1,79	6031	0,93	1980	1,63	11154	1,31
2017	89789	1,75	52881	1,98	4632	1,89	5704	1,16	3519	1,39	8216	2,15	4873	2,13	36908	1,43	2363	1,89	6120	1,28	2028	1,95	11375	1,63
2021	97581	2,42	57816	2,39	5102	2,9	6343	1,26	3857	1,8	8760	2,33	5480	2,96	39766	2,45	2738	1,21	6555	2,17	2218	2,86	12312	1,87
2022	99522	2,55	59097	2,49	5233	2,93	6507	1,38	3943	1,89	8900	2,44	5642	2,96	40425	2,64	2843	1,51	6648	2,23	2270	2,88	12561	1,96
2027	110179	3,24	65952	2,88	5866	3,13	7465	1,81	4424	2,14	9638	2,97	6470	2,96	44227	3,78	3460	2,35	7188	2,45	2529	3,03	13875	2,37
2032	122349	4,08	73618	3,21	6538	3,34	8455	2,18	4994	2,28	10449	3,43	7422	3,05	48731	5,38	4245	2,85	7714	2,66	2818	3,14	15433	2,73
2037	137439	5,21	82035	3,6	7211	3,57	9464	2,57	5563	2,43	11163	3,9	8551	3,23	55404	7,59	5185	3,22	8371	3	3039	3,24	17249	3,15
2040	148201	6,04	87665	3,85	7624	3,71	10095	2,78	5944	2,5	11614	4,17	9350	3,36	60535	9,21	5872	3,39	8801	3,25	3166	3,29	18478	3,43

Source: Authors' calculations (as a %, related to BAU=SGP-TSA)

7 Conclusions

This report discloses the results of the market access offer simulation proposed by the ECOWAS and communicated to the ITAQA in February of 2012. The results are supported by the new detailed data (HS6) of trade between countries and allowed for a more precise consideration of the trade liberalization process. Our findings take into consideration the new EPADP program as it was communicated by the ECOWAS, and do not only consider activities previewed for the program, but also the implementation timeline of the geographic divisions.

We must emphasize that our results concerning the implementation of EPADP with or without tax compensations, cannot, in any way, be compared to our previous evaluations. The same goes for the analyses of scenarios EPA and EPA + tax compensations because as directed by the pilot committee, our calculations refer to scenarios with different references than our previous analyses. At the time of phase II, the new market access propositions of the ECOWAS should be compared to the regime SGP for Nigeria, to the respective interim agreements with Ghana and Côte d'Ivoire, and to the regime "Everything except weapons" for the other countries in the region. The present report proposes a detailed discussion of the results of the four scenarios compared to the results with a BAU = SGP-TSA.

The four scenarios are:

1. EPA: Market access offer proposed by ECOWAS (February 2012)
2. EPA + Tax compensations
3. EPA + EPADP Two successive EPADP of the same structure and scale were used.
4. EPA + EPADP + Tax compensations

All the results of the four scenarios compared to the reference scenario Cotonou before 2008 can be found in the annex.

The conclusions of our analyses can be presented as follows:

Scenario EPA

EPA 1 Increase in the penetration of European products: On average for ECOWAS, +2.8% and 12.2%, in 2017 and 2040, respectively. For ECOWAS excluding Nigeria increases of 3.4% and 13.3% in 2017 and 2040, respectively. The minimums in 2040 were Nigeria (+5.3%) and Benin (+6.7%) and the maximums at 19.7% for Burkina and 21.2% for Ghana.

EPA 2 No improvement in export performance. In 2040, 0% for ECOWAS and 1.6% for ECOWAS excluding Nigeria. Best performance Côte d'Ivoire +2.8% and Ghana +2.2%

EPA 3 Negative effects on regional economic integration. Decrease in intra regional trade: ECOWAS -2% in 2040 and ECOWAS excluding Nigeria -2.3%. The sharpest declines recorded for Côte d'Ivoire (-4.07%) and Senegal (-2.8%).

EPA 4 Decrease in customs tax. In 2017, ECOWAS -5.3% and ECOWAS excluding Nigeria -6.6%. Decreases between a minimum of -1.84% for Ghana and -1.9% for Benin and a maximum of -7.45% for Burkina Faso and -16.37% for Côte d'Ivoire. In 2040 the declines are -20.8% for ECOWAS and -21.5% for ECOWAS excluding Nigeria. The minimums are -11.8% for Benin and -16.7% for Guinea and the maximums are 28.9% for Mali and 29.2% for Côte d'Ivoire.

EPA 5 The decline in tariff revenues is reflected on the total indirect revenues but not in the same proportions, depending on the country. In 2017, ECOWAS -1.9% and ECOWAS excluding Nigeria -1.4%. Minimums at -0.33% for Benin. The maximums at -1.7% for Burkina and -3.2% for Nigeria. In 2040, ECOWAS -8.12% and ECOWAS excluding Nigeria -5.2% with minimums of -2.3% for Benin and -4.6% for Nigeria and maximums at 14.84 for Nigeria and -6.9% for Burkina.

EPA 6 The build up of public debt caused by the decrease in budgetary revenue creates a crowding-out effect that disfavors investment. In 2040, investment decreases to -5.2% for ECOWAS and to -2.8% for ECOWAS excluding Nigeria. The decline is the most drastic for Nigeria at -6.5% and for Burkina at -4.4% and the least drastic for Benin at -0.8% and -1.6% for Côte d'Ivoire.

EPA 7 The decrease of investments is reflected on the GDP with a drop in 2040 of -1.9% for ECOWAS and -0.6% for ECOWAS excluding Nigeria. The maximums are at -2.8% for Nigeria and -0.9% for Mali, while the minimums are recorded at -0.3% for Senegal and Côte d'Ivoire and -0.1% for Benin.

EPA 8 The opposing effects on revenue and prices influence real household consumption. In 2040, the ECOWAS obtains, on average, drops of -0.48% while ECOWAS excluding Nigeria experiences a drop of only -0.1%. We observe a wide distribution of effects with decreases of -1.8% for Nigeria, -0.5% for Guinea, and also highs of +0.33% for Côte d'Ivoire and +0.37% for Ghana.

Scenario EPA + Tax compensations

EPA + Tax compensations 1 The Financial resources necessary to maintain the same level of government revenues in the absence of EPA (BAU) are around \$181M US from 2017 for ECOWAS, and from \$1491M in 2040. These budgetary supports go up to \$79M and \$649M in 2017 and 2014, respectively, for ECOWAS excluding Nigeria.

EPA + Tax compensations 2 The budgetary support necessary to maintain the level of government revenue represents on average just 5% of the total value of imported products from the EU or just 0.5% on average of the countries' GDP. Measured by these two criteria (proportion of GDP and importations) the financial needs of Nigeria and other countries are proportionally equivalent.

EPA + Tax compensations 3 The existence of budgetary support for these countries cancels out the crowding out effect on investment. In 2040, all investments for the ECOWAS are at a high of +2.25% (compared to a low of -5.02% in the EPA scenario) and for ECOWAS without Nigeria, investments increase to +2.09% (as opposed to a drop of 2.82%)

EPA + Tax compensations 4 The High level of investments has a positive impact on growth of capital stock and on the GDP as a whole. In 2040, it is at a high of 0.66% for all of ECOWAS and at +0.43% for ECOWAS without Nigeria. Overall, in relation to EPA without compensation, the ECOWAS gains 2.5 percentage points and climbed from a low of -1.9% to a high of +0.6%

EPA + Tax compensations 5 The expansion of production allows for an improvement in the populations' well-being,, at least when we measure the level of household consumption. This level is approximately 0.6% higher than the BAU for the ECOWAS with or without Nigeria even though it was at a low of -0.4% and -0.1% in the EPA scenario.

EPA + Tax compensations 6 The existence of tax compensations allows the countries to increase their imports from the EU. We observe an acceleration phenomenon on imports since we have calculated that each \$100 of budgetary support is created from an increase in

European exports to the region in the order of \$25. This method is valid for the ECOWAS without Nigeria for the duration of the period and increases significantly due to the impact of Nigeria's growth. In 2040, each \$100 of budgetary support recovers approximately \$40 in exports from the EU.

Scenario EPA + EPADP

EPA + EPADP 1 The implementation of two EPADP favors investment because they are financed by resources from abroad. In 2021 the level of investments is +15.4% higher than its BAU level for the entire ECOWAS, and +11% for ECOWAS without Nigeria.

EPA + EPADP 2 The ending of the two successive EPADP causes investments to drastically decrease which are at a relatively stable level of 7% higher than their BAU level for ECOWAS without Nigeria. However, Nigeria continues its expansion beyond the two EPADP and seems to benefit only from a multiplier effect of investment.

EPA + EPADP 3 Investments from EPADP favor an accelerated growth which then gets passed on to the level of consumption.

EPA+ EPADP 4 The large increase in investments under EPADP 1 and 2 also creates a significant increase in imports. These expansions are important and underline the extent to which these countries depend on Europe. Imports grow to +6.15% in 2016, at the end of EPADP 1, and are at +9.23% in 2021 at the end of EPADP 2. For ECOWAS excluding Nigeria, the increases are +7.5% and +8.3% in 2016 and 2021, respectively. The first phase of tariff cuts (EPA) had caused an increase in imports in 2021 of only +2.9% for ECOWAS and +3.6% for ECOWAS without Nigeria.

EPA + EPADP 5 The implementation of the two EPADP improves export performance at least until 2021. This growth of exports continues to increase slowly for ECOWAS without Nigeria at +7.4% in 2021 and +10.2% in 2040, but increases much faster for Nigeria at +5.38% in 2021 and +21.5% in 2040.

EPA + EPADP 6 EPADP favors regional integration at least until we apply it to an expansion of intra regional trade. For all countries in the region, the imports from other ECOWAS countries increase by +5.7% in 2022 and continue to do so until 2040 +12.11%

EPA + EPADP 7 The EPADP largely contributes to the improvement of states' public finances. Tariff revenues benefit from a larger plate and this effect is only neutralized after 2022. Afterwards, the different phases of tariff reductions lead to a deterioration of public finances for certain countries only.

Scenario EPA + EPADP + Tax compensation

EPA + EPADP + Tax compensation 1 The improvement in public finances generated by the implementation of the two EPADP causes a delay in the need for tax compensations. The mechanism only launches in 2017, at the time of implementation of the first wave of tariff cuts, and Côte d'Ivoire is the only country to claim compensation.

EPA + EPADP + Tax compensation 2 Beginning in 2021, in conjunction with of the finishing of EPADP 2 and the second wave of tariff reductions, almost all the countries in the zone need foreign transfers to stabilize their budget revenues. In 2021 and 2022 the values required are around \$250M and \$296M USD.

EPA+ EPADP + Tax compensation 3 Thanks to the implementation of the two EPADP and the expansion of economic activity that followed , three countries claimed almost no tax compensation. Togo has no need for it until 2035 and Benin until 2038. For Nigeria, growth was sufficient enough to not need any budgetary support.

EPA + EPADP+ Tax compensation 4 Impacts on investment, GDP and consumption reinforce the benefits of the two EPADP for the countries that need budgetary support. For the other countries, the results are similar and only differ slightly at the end of the period, finding themselves reinforced by the countries that do receive aide.

8 ANNEXES

Table 31: Impact on imports from the EU: EPA (BAU=Cotonou)

Years	CEDEAO		CEDEAO- NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	19439	-0.01	7854	0.01	437	-0.01	364	-0.03	325	0.01	1487	0.02	575	0	11585	-0.02	278	0.01	1382	-0.02	251	-0.01	2262	0.04
2016	21145	-0.01	8655	0.01	498	-0.01	418	-0.04	366	0.01	1620	0.02	656	0	12490	-0.02	342	0.01	1472	-0.02	289	-0.01	2447	0.06
2017	21510	3	8827	3.28	511	0.71	431	4.78	375	1.18	1648	2.62	674	2.28	12683	2.81	357	1.29	1489	1.92	297	0.6	2487	4.09
2021	23122	3.11	9587	3.4	560	0.77	483	4.93	416	1.24	1770	2.79	755	2.38	13535	2.9	421	1.35	1574	2.03	332	0.66	2663	4.36
2022	23543	5.18	9785	5.24	574	1.76	497	8.31	427	3.42	1802	5.29	777	4.84	13758	5.14	439	2.49	1592	3.86	341	2.32	2709	5.75
2027	25857	10.28	10857	9.87	638	4.36	578	14.89	487	7.16	1976	13.88	890	9.77	15000	10.57	547	4.08	1698	8.42	391	4.8	2957	9.41
2032	28612	11.38	12068	11.49	707	5.1	668	16.72	561	8.27	2172	17.71	1020	11.28	16545	11.3	682	4.56	1802	9.84	449	5.39	3241	10.75
2037	32029	12.64	13426	12.82	774	6.22	764	19.56	642	9.28	2357	20.29	1174	12.83	18603	12.5	841	5.01	1931	11.38	503	6.14	3577	11.7
2040	34523	12.38	14342	12.89	816	6.36	826	19.8	698	9.29	2474	20.59	1282	12.94	20181	12.01	953	5.02	2016	11.59	535	6.34	3809	11.7

Table 32: Impact on exports to the EU: EPA (BAU=Cotonou)

Years	CEDEAO		CEDEAO- NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	17476	0.01	7805	0.03	101	-0.05	52	-0.81	381	-	2154	0.03	205	-0.01	9672	0	92	-0.03	876	-0.01	103	-	3295	0.06
2016	19113	0.01	8590	0.04	114	-0.05	59	-1.23	419	-	2369	0.04	235	-0.01	10523	0	108	-0.04	963	-0.02	116	-	3592	0.09
2017	19464	0.26	8756	0.37	116	0.09	61	-1.17	427	0.09	2414	0.13	241	0.17	10708	0.17	111	0.12	980	0.25	119	0.05	3656	0.65
2021	20998	0.27	9467	0.41	127	0.08	68	-1.5	461	0.09	2601	0.1	269	0.17	11531	0.15	127	0.13	1058	0.26	131	0	3933	0.77
2022	21408	0.39	9653	0.53	129	0.2	69	-1.45	470	0.23	2649	0.2	276	0.3	11755	0.28	131	0.23	1077	0.43	134	0.16	4008	0.91
2027	23748	0.62	10647	0.84	144	0.48	79	-1.11	518	0.5	2901	0.56	315	0.56	13101	0.45	156	0.43	1179	0.84	151	0.44	4410	1.22
2032	26811	0.52	11776	0.88	159	0.54	89	-0.97	574	0.54	3175	0.64	359	0.52	15035	0.24	186	0.48	1287	0.97	170	0.45	4890	1.25
2037	30995	0.31	13050	0.83	177	0.6	101	-0.81	632	0.54	3440	0.62	411	0.42	17944	-0.07	221	0.48	1411	1.1	190	0.45	5476	1.15
2040	34238	0.07	13925	0.71	188	0.56	108	-0.82	673	0.44	3614	0.5	447	0.26	20313	-0.37	246	0.43	1492	1.09	203	0.38	5894	1.01

Table 33: Impact on imports from the region: EPA (BAU=Cotonou)

Years	CEDEAO		CEDEAO- NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	5418	0	4528	0	295	-0.02	470	-0.05	106	0.02	1245	0.02	427	-0.02	890	0.01	217	-0.04	601	-0.01	281	0.02	705	0.04
2016	5992	0	4958	0	322	-0.03	524	-0.06	112	0.01	1368	0.02	468	-0.01	1033	0.01	238	-0.04	646	-0.01	307	0.01	781	0.05
2017	6114	-0.09	5049	-0.16	328	0.43	535	-0.08	114	0.58	1394	0.01	476	-0.06	1065	0.24	243	0.24	655	-0.15	312	0.4	797	-1.35
2021	6639	-0.24	5438	-0.32	349	0.32	582	-0.21	119	0.48	1504	-0.08	515	-0.13	1201	0.12	262	0.16	695	-0.25	334	0.32	869	-1.76
2022	6779	-0.36	5541	-0.45	355	0.44	594	-0.45	121	0.5	1534	-0.22	526	-0.37	1238	0.05	266	0.18	705	-0.45	340	0.32	890	-1.99
2027	7562	-0.82	6117	-0.91	385	0.64	662	-1.05	128	0.43	1700	-0.87	577	-0.8	1445	-0.42	294	0.3	762	-1.03	371	0.39	1013	-2.74
2032	8545	-1.3	6844	-1.41	418	0.49	738	-1.44	138	0.05	1909	-1.62	637	-1.1	1702	-0.86	328	0.05	832	-1.51	406	0.27	1198	-3.26
2037	9813	-1.83	7788	-1.97	458	0.21	821	-2.06	149	0.28	2170	-2.36	710	-1.47	2025	-1.28	370	-0.32	931	-2.13	439	0.12	1478	-3.72
2040	10763	-2.16	8501	-2.32	487	-0.08	878	-2.32	158	0.61	2364	-2.81	762	-1.67	2262	-1.53	403	-0.71	1004	-2.42	462	0.07	1706	-4

Table 34: Impact on tariff revenues: EPA (BAU= Cotonou)

Years	CEDEAO		CEDEAO- NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	2967	0.02	1229	0.03	60	0	78	0	63	0.01	397	0.04	73	0.01	1738	0.01	35	0.01	177	-0.01	35	0	205	0.08
2016	3406	0.02	1413	0.03	71	0	94	-0.02	74	0.01	450	0.04	86	0.01	1993	0.01	43	0.01	196	-0.01	42	0	236	0.1
2017	3500	-5.57	1453	-7.08	74	-2.05	98	-7.47	77	-2.41	461	-2.64	89	-6.73	2047	-4.5	44	-4.34	200	-5.67	43	-2.73	243	-17.66
2021	3911	-5.54	1628	-6.99	83	-2.1	113	-7.47	88	-2.43	509	-2.74	103	-6.7	2284	-4.52	51	-4.56	218	-5.59	49	-2.74	272	-16.93
2022	4019	-9.31	1674	-10.3	85	-4.2	117	-12.5	91	-6.55	521	-4.87	106	12.42	2345	-8.6	53	-8.01	223	10.33	51	-7.28	280	-20.6
2027	4608	-	1926	-	98	-9.25	142	21.06	107	13.17	589	12.95	126	23.03	2682	17.76	65	13.83	247	20.01	59	13.36	323	-28.86
2032	5280	19.24	2210	20.26	113	-10.2	170	22.96	127	15.29	664	-16.5	148	26.11	3069	-18.5	79	15.92	271	-22.1	69	14.37	373	-30.38
2037	6054	21.45	2518	22.22	127	12.05	199	26.72	148	16.94	737	18.66	175	29.35	3536	20.89	94	18.64	300	24.67	79	15.73	430	-31.21
2040	6574	21.06	2717	22.05	136	11.99	218	26.66	162	16.91	783	18.66	193	29.19	3857	20.36	105	19.16	318	24.47	84	15.74	467	-30.38

Table 35: Impact on total fiscal revenues (EPA- BAU=Cotonou)

Years	CEDEAO		CEDEAO- NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	8409	0.02	6007	0.02	405	0.01	448	-0.01	300	0.01	1111	0.03	590	0.01	2401	0.01	163	0.01	813	0	168	0	1810	0.04
2016	9704	0.02	6939	0.02	479	0.01	533	-0.03	347	0.01	1262	0.03	693	0.01	2765	0.01	198	0.01	911	0	194	0	2089	0.05
2017	9984	-2.18	7142	-1.72	495	-0.43	552	-1.72	358	0.71	1294	-1.07	716	-1.06	2843	-3.33	207	-1.11	930	-1.35	200	-0.7	2150	-2.5
2021	11195	-2.2	8011	-1.74	557	-0.45	632	-1.79	403	0.75	1430	-1.16	821	-1.11	3184	-3.35	242	-1.17	1020	-1.35	223	0.72	2412	-2.46
2022	11516	-3.63	8243	-2.55	574	-0.86	653	-2.93	415	1.81	1466	-2.01	849	-2.01	3273	-6.36	252	-2	1040	-2.43	230	1.85	2483	-3.03
2027	13268	-6.92	9495	-4.48	662	-1.87	776	-5.08	483	3.74	1658	-5.22	996	-3.83	3773	13.06	310	-3.49	1157	-4.69	262	3.51	2866	-4.38
2032	15293	-7.54	10916	-5.12	757	-2.08	912	-5.73	564	4.57	1872	-6.69	1168	-4.52	4377	13.57	382	-4.03	1273	-5.21	299	3.89	3317	-4.75
2037	17645	-8.45	12486	-5.69	853	-2.43	1056	-6.8	656	5.31	2082	-7.63	1370	-5.26	5158	15.14	467	-4.73	1407	-5.81	329	4.36	3833	-5
2040	19243	-8.37	13516	-5.7	913	-2.41	1147	-6.89	719	5.48	2214	-7.68	1510	-5.37	5727	14.67	527	-4.86	1492	-5.76	346	4.41	4173	-4.93

Table 36: Impact on fiscal index: EPA (BAU=Cotonou)

Years	CEDEAO		CEDEAO- NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	6.18	6.18	9.47	9.47	8.58	8.58	7.43	7.43	7.34	7.34	12.11	12.11	10.95	10.95	3.31	3.31	5.89	5.89	9.38	9.38	7.68	7.68	11.16	11.16
2016	6.19	6.19	9.46	9.46	8.56	8.56	7.49	7.48	7.37	7.37	12.12	12.12	10.98	10.98	3.32	3.32	5.91	5.91	9.35	9.35	7.68	7.68	11.15	11.15
2017	6.19	6.07	9.46	9.32	8.56	8.53	7.5	7.39	7.37	7.33	12.12	12.01	10.99	10.88	3.31	3.21	5.91	5.85	9.35	9.24	7.68	7.64	11.15	10.9
2021	6.19	6.07	9.45	9.31	8.55	8.52	7.54	7.43	7.39	7.35	12.12	12	11	10.89	3.31	3.21	5.92	5.86	9.33	9.22	7.67	7.63	11.14	10.91
2022	6.19	5.99	9.45	9.24	8.55	8.49	7.55	7.37	7.4	7.28	12.11	11.9	11	10.8	3.31	3.11	5.92	5.82	9.32	9.13	7.67	7.56	11.14	10.86
2027	6.16	5.78	9.44	9.08	8.54	8.42	7.61	7.3	7.42	7.19	12.08	11.52	11.01	10.65	3.29	2.88	5.93	5.75	9.27	8.9	7.66	7.44	11.15	10.77
2032	6.1	5.7	9.42	9.03	8.53	8.4	7.68	7.33	7.46	7.18	12.02	11.31	11.02	10.61	3.24	2.83	5.93	5.74	9.21	8.8	7.65	7.41	11.17	10.76
2037	5.97	5.54	9.4	8.97	8.52	8.37	7.76	7.34	7.5	7.19	11.92	11.13	11.03	10.56	3.17	2.73	5.94	5.71	9.14	8.69	7.61	7.35	11.18	10.76
2040	5.87	5.46	9.39	8.96	8.52	8.36	7.8	7.39	7.54	7.23	11.86	11.07	11.03	10.56	3.11	2.71	5.94	5.71	9.1	8.65	7.59	7.32	11.18	10.78

Table 37: Impact on real GDP: EPA (BAU= Cotonou)

Years	CEDEAO		CEDEAO-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	126692	0	58777	0	4540	0	5762	0	3881	0	8241	0	5257	0	67914	0	2704	0	8165	0	2056	0	14028	0
2016	140743	0	65943	0	5244	0	6612	0	4325	0	9012	0.01	6056	0	74800	-0.01	3268	0	8932	0	2330	0	15478	0.01
2017	143746	0	67469	0	5394	0	6799	-0.01	4422	0	9171	0.01	6233	0	76277	-0.01	3398	0	9080	0	2389	0	15788	0.01
2021	156975	-0.05	74010	-0.04	5968	-0.01	7569	-0.04	4842	0.02	9832	-0.02	7028	-0.04	82966	-0.06	3961	-0.04	9763	-0.01	2627	0.02	17104	-0.06
2022	160456	-0.07	75714	-0.05	6127	-0.01	7768	-0.05	4948	0.03	10004	-0.03	7240	-0.06	84742	-0.08	4119	-0.05	9915	-0.01	2691	0.02	17455	-0.08
2027	180445	-0.21	84889	-0.14	6911	-0.02	8917	-0.14	5549	0.12	10913	-0.12	8332	-0.18	95556	-0.27	5063	-0.16	10774	-0.02	3024	0.07	19316	-0.21
2032	206458	-0.52	95262	-0.32	7753	-0.05	10114	-0.28	6267	0.34	11929	-0.37	9596	-0.43	111196	-0.68	6277	-0.35	11620	-0.06	3402	0.16	21535	-0.42
2037	242814	-0.95	106892	-0.55	8621	-0.09	11354	-0.48	7002	0.68	12918	-0.75	11103	-0.75	135922	-1.27	7766	-0.6	12632	-0.1	3732	0.27	24135	-0.66
2040	271571	-1.29	114817	-0.71	9166	-0.12	12143	-0.62	7516	0.94	13590	-1.03	12168	-0.97	156754	-1.71	8889	-0.78	13284	-0.13	3939	0.34	25914	-0.82

Table 38: Impact on households' real consumption: EPA (BAU= Cotonou)

Years	CEDEAO		CEDEAO- NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	79590	0	46342	0	3918	0	4840	-0.01	3083	0	7461	0.01	4130	0	33248	0	1898	0	5545	-0.01	1755	0	10148	0.01
2016	88025	0	51761	0	4506	0	5544	-0.01	3441	0	8101	0.01	4739	0	36265	-0.01	2276	0	6022	-0.01	1980	0	11190	0.02
2017	89772	0.07	52914	0.08	4631	0.01	5700	0.02	3519	0.02	8233	0.07	4873	0.08	36858	0.05	2363	0.02	6111	0.05	2028	0.01	11413	0.2
2021	97558	0.05	57860	0.06	5100	0.01	6338	-0.01	3857	0	8780	0.05	5480	0.04	39698	0.03	2738	-0.01	6545	0.05	2218	0.02	12360	0.16
2022	99496	0.07	59145	0.08	5231	0.02	6502	0.01	3943	0.03	8922	0.09	5642	0.08	40351	0.06	2843	0	6637	0.1	2270	0.03	12612	0.18
2027	110133	0.1	66019	0.11	5864	0.04	7458	-0.01	4425	0.01	9666	0.21	6471	0.11	44115	0.09	3461	-0.08	7175	0.22	2529	0.09	13942	0.18
2032	122262	-0.02	73707	0.01	6537	0.03	8446	-0.12	4996	0.15	10485	0.18	7424	-0.09	48555	-0.07	4247	-0.22	7699	0.23	2818	0.13	15518	0.04
2037	137269	-0.21	82149	-0.14	7209	0	9453	-0.25	5566	0.39	11207	0.07	8556	-0.33	55120	-0.32	5187	-0.43	8352	0.23	3039	0.17	17354	-0.15
2040	147950	-0.37	87795	-0.25	7622	-0.02	10083	-0.35	5948	0.57	11664	-0.03	9356	-0.52	60155	-0.55	5875	-0.57	8779	0.21	3167	0.19	18597	-0.27

Table 39: Impact on total investment: EPA (BAU= Cotonou)

Years	CEDEAO		CEDEAO- NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	12252	-0.02	6883	0.01	571	-0.01	521	-0.03	308	0	643	0.07	578	0	5369	-0.05	402	0	1359	-0.01	295	0.02	1780	0.04
2016	14001	-0.02	7834	0.01	654	-0.01	599	-0.06	353	0.01	722	0.1	674	0	6167	-0.06	512	0	1464	-0.01	349	0.02	2045	0.06
2017	14481	-0.42	8051	-0.45	672	-0.05	615	-0.46	363	0.26	741	-0.48	695	-0.37	6431	-0.37	538	-0.24	1488	-0.14	361	0.23	2106	-0.7
2021	16342	-0.67	9005	-0.65	752	-0.09	692	-0.73	409	0.44	830	-0.83	785	-0.58	7337	-0.7	665	-0.38	1579	-0.18	416	0.28	2382	-0.93
2022	17017	-0.97	9276	-0.88	773	-0.14	714	-1.02	423	0.83	855	-1.29	809	-0.97	7740	-1.08	702	-0.55	1606	-0.27	431	0.56	2460	-1.16
2027	21144	-1.96	10833	-1.72	892	-0.35	828	-2.04	504	1.97	1011	-3.36	958	-2.11	10311	-2.22	926	-1.07	1740	-0.6	516	1.15	2917	-1.9
2032	27915	-2.75	12809	-2.34	1031	-0.51	978	-2.83	612	-3.1	1222	-5.01	1145	-2.93	15105	-3.1	1238	-1.54	1901	-0.81	616	1.37	3480	-2.36
2037	37866	-3.56	15358	-2.92	1193	-0.67	1174	-3.68	785	4.04	1541	-6.1	1374	-3.81	22507	-4	1691	-1.97	2079	-1.07	734	1.53	4178	-2.69
2040	46323	-3.99	17196	-3.17	1302	-0.74	1315	-4	926	4.45	1782	-6.41	1531	-4.24	29128	-4.47	2048	-2.17	2197	-1.21	811	1.52	4670	-2.8

Table 40: Impact on transfers from the rest of the world: EPA with fiscal neutralization transfer (BAU= Cotonou)

Years	CEDEAO	CEDEAO- NGA	BEN	BUR	GUI	GHA	MAL	NGA	NG	SEN	TOG	COT
2011	0.04	0.04	0	0.04	0	0	0	0	0	0	0	0
2016	0.13	0.13	0	0.14	0	0	0	0	0	0	-0.01	0
2017	233.42	115.73	2.13	7.79	2.05	11.27	5.54	117.69	1.68	16.02	1.67	52.07
2021	260.14	133.38	2.69	9.24	2.52	15.15	6.88	126.76	2.27	18.59	1.97	56
2022	444.38	197.74	5.11	15.7	6.25	26.27	12.86	246.64	3.8	31.59	4.95	70.75
2027	961.71	404.56	13.01	32.23	15.37	76.7	29.46	557.15	8.55	68.84	11.24	117.53
2032	1134.66	531.62	17.53	42.17	21.96	112.26	40.61	603.05	12.71	88.49	14.5	143.89
2037	1374.53	675.4	24.11	57.84	29.37	142.74	55.1	699.13	18.89	113.39	18.4	171.34
2040	1400.48	735.27	26.81	63.52	32.93	153.33	61.67	665.21	22.43	123.55	20.16	183.1

Table 41: Impact on total investment: EPA with fiscal neutralization transfer (BAU= Cotonou)

Years	CEDEAO		CEDEAO- NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	12252	-0.02	6883	0.01	571	-0.01	521	-0.02	308	0	643	0.07	578	0	5369	-0.05	402	0	1359	-0.01	295	0.02	1780	0.04
2016	14001	-0.02	7834	0.02	654	-0.01	599	-0.03	353	0.01	722	0.1	674	0	6167	-0.06	512	0	1464	-0.01	349	0.02	2045	0.06
2017	14481	0.6	8051	0.53	672	0.18	615	0.57	363	0.08	741	0.39	695	0.35	6431	0.69	538	0.03	1488	0.48	361	0.22	2106	0.96
2021	16342	0.76	9005	0.64	752	0.21	692	0.64	409	0.12	830	0.59	785	0.39	7337	0.9	665	0.06	1579	0.64	416	0.25	2382	1.08
2022	17017	1.18	9276	0.9	773	0.39	714	1.09	423	0.25	855	0.91	809	0.69	7740	1.52	702	0.09	1606	1.03	431	0.58	2460	1.29
2027	21144	2.2	10833	1.55	892	0.83	828	1.99	504	0.52	1011	2.09	958	1.26	10311	2.88	926	0.19	1740	2.12	516	1.08	2917	1.78
2032	27915	2.71	12809	1.99	1031	1.07	978	2.5	612	0.81	1222	3.2	1145	1.6	15105	3.33	1238	0.31	1901	2.92	616	1.31	3480	2.07
2037	37866	3.19	15358	2.38	1193	1.34	1174	3.04	785	1.03	1541	3.91	1374	1.93	22507	3.74	1691	0.42	2079	3.87	734	1.47	4178	2.28
2040	46323	3.34	17196	2.54	1302	1.45	1315	3.21	926	1.14	1782	4.15	1531	2.08	29128	3.81	2048	0.49	2197	4.39	811	1.52	4670	2.36

Table 42: Impact on real GDP: EPA with fiscal neutralization transfer (BAU= Cotonou)

Years	CEDEAO		CEDEAO-NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	126692	0	58777	0	4540	0	5762	0	3881	0	8241	0	5257	0	67914	0	2704	0	8165	0	2056	0	14028	0
2016	140743	0	65943	0	5244	0	6612	0	4325	0	9012	0.01	6056	0	74800	-0.01	3268	0	8932	0	2330	0	15478	0.01
2017	143746	0	67469	0	5394	0	6799	0	4422	0	9171	0.01	6233	0	76277	-0.01	3398	0	9080	0	2389	0	15788	0.01
2021	156975	0.06	74010	0.04	5968	0.01	7569	0.03	4842	0.01	9832	0.03	7028	0.04	82966	0.08	3961	0.01	9763	0.03	2627	0.01	17104	0.1
2022	160456	0.08	75714	0.06	6127	0.01	7768	0.04	4948	0.01	10004	0.04	7240	0.05	84742	0.1	4119	0.01	9915	0.04	2691	0.02	17455	0.12
2027	180445	0.24	84889	0.14	6911	0.05	8917	0.11	5549	0.04	10913	0.12	8332	0.13	95556	0.34	5063	0.03	10774	0.11	3024	0.06	19316	0.26
2032	206458	0.56	95262	0.27	7753	0.11	10114	0.25	6267	0.1	11929	0.28	9596	0.27	111196	0.81	6277	0.07	11620	0.23	3402	0.15	21535	0.44
2037	242814	0.95	106892	0.42	8621	0.19	11354	0.41	7002	0.19	12918	0.52	11103	0.43	135922	1.36	7766	0.12	12632	0.38	3732	0.25	24135	0.63
2040	271571	1.22	114817	0.53	9166	0.25	12143	0.52	7516	0.25	13590	0.7	12168	0.54	156754	1.72	8889	0.16	13284	0.49	3939	0.32	25914	0.75

Table 43: Impact on households' real consumption: EPA with fiscal neutralization transfer (BAU= Cotonou)

Years	ECOWAS		ECOWAS- BEN NGA				BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	79590	0	46342	0	3918	0	4840	-0.01	3083	0	7461	0.01	4130	0	33248	0	1898	0	5545	-0.01	1755	0	10148	0.01
2016	88025	0	51761	0	4506	0	5544	-0.01	3441	0	8101	0.01	4739	0	36265	-0.01	2276	0	6022	-0.01	1980	0	11190	0.02
2017	89772	0.08	52914	0.11	4631	0.01	5700	0.05	3519	0.04	8233	0.09	4873	0.08	36858	0.05	2363	0.06	6111	0.07	2028	0	11413	0.25
2021	97558	0.11	57860	0.14	5100	0.02	6338	0.07	3857	0.04	8780	0.09	5480	0.11	39698	0.07	2738	0.06	6545	0.08	2218	0.01	12360	0.31
2022	99496	0.16	59145	0.19	5231	0.04	6502	0.12	3943	0.09	8922	0.17	5642	0.18	40351	0.12	2843	0.11	6637	0.16	2270	0.01	12612	0.37
2027	110133	0.34	66019	0.36	5864	0.1	7458	0.25	4425	0.21	9666	0.45	6471	0.38	44115	0.3	3461	0.18	7175	0.35	2529	0.04	13942	0.6
2032	122262	0.48	73707	0.48	6537	0.16	8446	0.37	4996	0.26	10485	0.62	7424	0.53	48555	0.49	4247	0.22	7699	0.45	2818	0.1	15518	0.75
2037	137269	0.66	82149	0.6	7209	0.23	9453	0.52	5566	0.35	11207	0.78	8556	0.7	55120	0.73	5187	0.28	8352	0.57	3039	0.17	17354	0.88
2040	147950	0.76	87795	0.67	7622	0.27	10083	0.6	5948	0.38	11664	0.84	9356	0.78	60155	0.89	5875	0.3	8779	0.62	3167	0.2	18597	0.96

Table 44: Impact on imports from the EU: EPA and EPADP (BAU=Cotonou)

Years	ECOWAS		ECOWAS- BEN NGA		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT			
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %		
2011	19439	3.19	7854	5.23	437	6.87	364	10.21	325	6.31	1487	3.12	575	4.94	11585	1.8	278	9.89	1382	2.68	251	9.91	2262	2.92
2016	21145	6.29	8655	7.36	498	7.61	418	9.28	366	7.97	1620	5.07	656	6.35	12490	5.55	342	6.7	1472	5.56	289	10.07	2447	7.21
2017	21510	9.96	8827	11.16	511	8.43	431	14.16	375	9.45	1648	7.91	674	8.84	12683	9.11	357	7.53	1489	8	297	11.1	2487	12.13
2021	23122	9.36	9587	8.09	560	3.56	483	5.8	416	5.42	1770	6	755	5.49	13535	10.25	421	-0.58	1574	7.31	332	5.04	2663	12.36
2022	23543	11.34	9785	9.69	574	4.33	497	8.99	427	7.35	1802	8.14	777	7.67	13758	12.51	439	0.84	1592	8.85	341	6.73	2709	13.45
2027	25857	16.19	10857	13.28	638	6.29	578	14.98	487	10.09	1976	15.25	890	11.67	15000	18.3	547	2.77	1698	12.32	391	8.97	2957	15.75
2032	28612	17.55	12068	14.13	707	6.74	668	16.34	561	10.36	2172	17.95	1020	12.54	16545	20.04	682	3.08	1802	13.02	449	9.06	3241	16.08
2037	32029	19.65	13426	14.86	774	7.69	764	18.37	642	10.53	2357	19.34	1174	13.42	18603	23.11	841	3.2	1931	14.17	503	9.05	3577	16.44
2040	34523	20.24	14342	14.69	816	7.82	826	17.98	698	9.98	2474	18.9	1282	13.12	20181	24.18	953	2.91	2016	14.42	535	8.65	3809	16.44

Table 45: Impact on exports to the EU: EPA and EPADP. (BAU= Cotonou)

Année	CEDEAO		CEDEAO- NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	17476	-0.98	7805	-1.48	101	-1.49	52	-4.12	381	2.41	2154	-1.86	205	-3.03	9672	-0.58	92	-6.51	876	-0.86	103	-1.55	3295	0.05
2016	19113	1.25	8590	1.1	114	2.09	59	-2.91	419	1.23	2369	-0.5	235	-0.68	10523	1.36	108	-2.79	963	0.89	116	4.03	3592	3.52
2017	19464	2.19	8756	2.24	116	3.23	61	-2.76	427	0.72	2414	0.07	241	-0.25	10708	2.16	111	-2.04	980	1.93	119	5.34	3656	5.14
2021	20998	6.13	9467	6.66	127	8.17	68	-0.17	461	3.06	2601	3.42	269	3.04	11531	5.69	127	5.08	1058	5.7	131	10.94	3933	9.53
2022	21408	6.69	9653	6.88	129	8.23	69	-0.07	470	3.62	2649	3.54	276	3.18	11755	6.54	131	4.93	1077	5.83	134	10.93	4008	9.78
2027	23748	9.19	10647	7.59	144	8.42	79	0.36	518	5.39	2901	4.15	315	3.41	13101	10.49	156	5.13	1179	6.18	151	10.85	4410	10.39
2032	26811	11.76	11776	8.07	159	8.57	89	0.55	574	6.38	3175	4.64	359	3.35	15035	14.65	186	5.17	1287	6.4	170	11.01	4890	10.74
2037	30995	14.9	13050	8.71	177	8.97	101	0.87	632	7.16	3440	5.28	411	3.32	17944	19.4	221	4.92	1411	6.77	190	11.54	5476	11.27
2040	34238	17.04	13925	9.19	188	9.27	108	1.11	673	7.6	3614	5.72	447	3.27	20313	22.42	246	4.64	1492	7	203	11.97	5894	11.74

Table 46: Impact on regional imports: EPA-EPADP (BAU=Cotonou)

Years	ECOWAS		ECOWAS- BEN NGA				BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	5418	-0.07	4528	0.22	295	0.16	470	1.67	106	-1.26	1245	-0.64	427	-0.74	890	-1.58	217	2.06	601	-0.12	281	0.6	705	-0.05
2016	5992	1.44	4958	2.11	322	6.01	524	2.73	112	2.51	1368	1.13	468	1.94	1033	-1.8	238	5.38	646	0.86	307	1.98	781	0.81
2017	6114	2.15	5049	2.77	328	7.72	535	3.38	114	3.93	1394	1.93	476	2.63	1065	-0.76	243	6.17	655	1.82	312	3.06	797	0.15
2021	6639	5.55	5438	5.96	349	12.08	582	4.68	119	8.11	1504	5.91	515	6.1	1201	3.72	262	7.03	695	6.44	334	5.2	869	3.64
2022	6779	5.82	5541	6.17	355	12.31	594	4.67	121	8.08	1534	6.2	526	5.88	1238	4.27	266	7.54	705	6.64	340	5.36	890	4.05
2027	7562	7.34	6117	7.72	385	12.64	662	5.36	128	8.16	1700	7.82	577	5.89	1445	5.71	294	10.52	762	8.26	371	6.26	1013	7.58
2032	8545	9.06	6844	9.59	418	12.53	738	6.31	138	8.43	1909	9.46	637	6.31	1702	6.96	328	13.63	832	10.22	406	7.08	1198	12.09
2037	9813	10.94	7788	11.68	458	13.01	821	7.24	149	9.34	2170	11.18	710	7.03	2025	8.09	370	16.39	931	12.23	439	8.12	1478	16.63
2040	10763	12.09	8501	13.01	487	13.66	878	8.07	158	10.06	2364	12.18	762	7.72	2262	8.64	403	17.47	1004	13.52	462	8.81	1706	19.1

Table 47: Impact on fiscal duties receipts: EPA- EPADP (BAU= Cotonou)

Years	ECOWAS		ECOWAS- NGA		BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	2967	3.63	1229	6.16	60	7.12	78	11.47	63	5.85	397	3.2	73	5.35	1738	1.84	35	10.04	177	3.23	35	9.32	205	3.81
2016	3406	3.3	1413	5.59	71	5.51	94	7.69	74	5.19	450	3.16	86	4.85	1993	1.69	43	8.16	196	3.8	42	7.83	236	5.11
2017	3500	-2.59	1453	-2.14	74	3.11	98	-0.8	77	2.59	461	0.49	89	-2.31	2047	-2.91	44	3.49	200	-2.09	43	4.85	243	-14.06
2021	3911	-5.26	1628	-6.87	83	-3.01	113	10.46	88	-1.96	509	-1.87	103	-6.71	2284	-4.11	51	-4.84	218	-4.61	49	-1.89	272	-16.12
2022	4019	-9.11	1674	10.32	85	-5.19	117	-15.4	91	-6.28	521	-4.1	106	-12.6	2345	-8.25	53	-8.32	223	-9.56	51	-6.64	280	-20.17
2027	4608	-	1926	-18.5	98	10.63	142	23.74	107	13.41	589	12.48	126	-	2682	17.09	65	14.64	247	19.86	59	-13	323	-29.75
2032	5280	-	2210	-21.3	113	-12	170	25.97	127	16.15	664	-16.4	148	-	3069	17.32	79	17.36	271	22.53	69	14.48	373	-32.53
2037	6054	-	2518	-	127	14.45	199	30.33	148	18.58	737	18.92	175	-	3536	19.03	94	20.62	300	-25.6	79	16.62	430	-34.6
2040	6574	-	2717	-	136	14.91	218	30.96	162	19.25	783	19.24	193	-	3857	18.06	105	21.51	318	25.72	84	17.32	467	-34.67

Table 48: Impact on total indirect fiscal receipts. EPA- EPADP (BAU= Cotonou)

Years	ECOWAS		ECOWAS- BEN NGA				BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	8409	2.92	6007	3.4	405	4.18	448	5.82	300	5.36	1111	2.32	590	3.28	2401	1.71	163	6.75	813	2.43	168	4.04	1810	1.62
2016	9704	2.24	6939	2.04	479	2.94	533	3.48	347	4.35	1262	1.45	693	2.76	2765	2.75	198	4.75	911	1.66	194	3.16	2089	-0.05
2017	9984	-0.12	7142	0.09	495	2.56	552	1.41	358	3.5	1294	0.38	716	1.59	2843	-0.64	207	3.38	930	0.35	200	2.52	2150	-2.99
2021	11195	-2.39	8011	-2.66	557	-0.07	632	-3.68	403	0.87	1430	-1.22	821	-1.08	3184	-1.71	242	-2.16	1020	-1.19	223	0.06	2412	-4.83
2022	11516	-3.74	8243	-3.39	574	-0.36	653	-4.67	415	1.94	1466	-2.01	849	-1.97	3273	-4.62	252	-2.87	1040	-2.29	230	1.02	2483	-5.28
2027	13268	-6.49	9495	-4.99	662	-0.92	776	-6.27	483	3.81	1658	-4.86	996	-3.74	3773	10.28	310	-3.98	1157	-4.57	262	2.42	2866	-6.22
2032	15293	-6.66	10916	-5.57	757	-0.93	912	-6.77	564	4.67	1872	-6.09	1168	-4.55	4377	-9.37	382	-4.32	1273	-5.19	299	2.79	3317	-6.63
2037	17645	-7.27	12486	-6.35	853	-1.36	1056	-8.06	656	5.66	2082	-7	1370	-5.62	5158	-9.51	467	-4.92	1407	-5.99	329	3.54	3833	-7.31
2040	19243	-7.16	13516	-6.66	913	-1.55	1147	-8.52	719	6.19	2214	-7.21	1510	-6.08	5727	-8.36	527	-5.07	1492	-6.13	346	3.93	4173	-7.72

Table 49: Impact on fiscal index: EPA-EPADP (BAU= Cotonou)

Years	ECOWAS		ECOWAS- BEN NGA				BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	6.18	6.24	9.47	9.48	8.58	8.72	7.43	7.59	7.34	7.43	12.11	12.03	10.95	11	3.31	3.34	5.89	5.91	9.38	9.41	7.68	7.79	11.16	11.19
2016	6.19	6.26	9.46	9.48	8.56	8.7	7.49	7.61	7.37	7.45	12.12	12.08	10.98	11.1	3.32	3.39	5.91	5.96	9.35	9.39	7.68	7.79	11.15	11.11
2017	6.19	6.13	9.46	9.32	8.56	8.67	7.5	7.51	7.37	7.41	12.12	11.98	10.99	11	3.31	3.28	5.91	5.91	9.35	9.27	7.68	7.74	11.15	10.85
2021	6.19	6.07	9.45	9.3	8.55	8.53	7.54	7.41	7.39	7.37	12.12	12.06	11	10.98	3.31	3.25	5.92	5.91	9.33	9.2	7.67	7.61	11.14	10.84
2022	6.19	5.98	9.45	9.23	8.55	8.5	7.55	7.35	7.4	7.3	12.11	11.95	11	10.88	3.31	3.15	5.92	5.85	9.32	9.1	7.67	7.53	11.14	10.8
2027	6.16	5.73	9.44	9.06	8.54	8.41	7.61	7.28	7.42	7.21	12.08	11.53	11.01	10.7	3.29	2.9	5.93	5.76	9.27	8.85	7.66	7.4	11.15	10.75
2032	6.1	5.6	9.42	8.99	8.53	8.39	7.68	7.31	7.46	7.2	12.02	11.29	11.02	10.64	3.24	2.83	5.93	5.73	9.21	8.73	7.65	7.36	11.17	10.75
2037	5.97	5.38	9.4	8.92	8.52	8.35	7.76	7.31	7.5	7.2	11.92	11.09	11.03	10.59	3.17	2.7	5.94	5.7	9.14	8.6	7.61	7.29	11.18	10.74
2040	5.87	5.25	9.39	8.9	8.52	8.34	7.8	7.34	7.54	7.24	11.86	11.03	11.03	10.59	3.11	2.64	5.94	5.7	9.1	8.56	7.59	7.26	11.18	10.75

Table 50: Impact on real GDP. EPA-EPADP (BAU=Cotonou)

Years	ECOWAS		ECOWAS- BEN NGA		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT			
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %		
2011	126692	0.05	58777	0.09	4540	0.04	5762	0.09	3881	0.04	8241	0.08	5257	0.04	67914	0.02	2704	0.16	8165	0.09	2056	0.08	14028	0.06
2016	140743	1.36	65943	1	5244	0.96	6612	0.85	4325	0.81	9012	1	6056	1.39	74800	1.67	3268	0.91	8932	0.38	2330	1.69	15478	0.41
2017	143746	1.7	67469	1.19	5394	1.11	6799	1	4422	0.98	9171	1.2	6233	1.62	76277	2.16	3398	1.1	9080	0.44	2389	1.97	15788	0.48
2021	156975	3.34	74010	1.87	5968	1.82	7569	1.54	4842	1.64	9832	2.03	7028	2.43	82966	4.65	3961	1.78	9763	0.7	2627	3.12	17104	0.68
2022	160456	3.7	75714	1.94	6127	1.91	7768	1.59	4948	1.72	10004	2.17	7240	2.42	84742	5.27	4119	1.92	9915	0.77	2691	3.2	17455	0.7
2027	180445	5.68	84889	2.25	6911	2.35	8917	1.78	5549	1.95	10913	2.84	8332	2.35	95556	8.73	5063	2.35	10774	1.09	3024	3.6	19316	0.7
2032	206458	8.21	95262	2.49	7753	2.77	10114	1.92	6267	1.99	11929	3.45	9596	2.18	111196	13.11	6277	2.58	11620	1.42	3402	3.9	21535	0.6
2037	242814	11.54	106892	2.7	8621	3.18	11354	2.05	7002	1.91	12918	4.09	11103	1.95	135922	18.49	7766	2.76	12632	1.76	3732	4.23	24135	0.45
2040	271571	13.93	114817	2.81	9166	3.42	12143	2.1	7516	1.78	13590	4.46	12168	1.75	156754	22.08	8889	2.82	13284	1.98	3939	4.39	25914	0.35

Table 51: Impact on households' real consumption. EPA-EPADP (BAU= Cotonou)

Years	ECOWAS		ECOWAS- BEN NGA		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT			
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %		
2011	79590	0.4	46342	0.68	3918	0.51	4840	0.58	3083	0.34	7461	0.78	4130	0.09	33248	0	1898	1.89	5545	0.35	1755	0.56	10148	0.29
2016	88025	1.46	51761	1.61	4506	1.57	5544	1.08	3441	1.22	8101	1.69	4739	1.81	36265	1.24	2276	1.79	6022	1.08	1980	1.64	11190	1.01
2017	89772	1.76	52914	1.91	4631	1.93	5700	1.23	3519	1.41	8233	1.95	4873	2.15	36858	1.55	2363	1.89	6111	1.43	2028	1.96	11413	1.28
2021	97558	2.4	57860	2.24	5100	2.94	6338	1.26	3857	1.77	8780	2.1	5480	2.97	39698	2.62	2738	1.02	6545	2.25	2218	2.86	12360	1.32
2022	99496	2.52	59145	2.3	5231	2.97	6502	1.34	3943	1.83	8922	2.18	5642	2.93	40351	2.83	2843	1.29	6637	2.3	2270	2.88	12612	1.33
2027	110133	3.12	66019	2.52	5864	3.16	7458	1.58	4425	1.93	9666	2.6	6471	2.7	44115	4.02	3461	1.99	7175	2.45	2529	3.01	13942	1.35
2032	122262	3.86	73707	2.64	6537	3.36	8446	1.69	4996	1.84	10485	2.94	7424	2.43	48555	5.71	4247	2.28	7699	2.59	2818	3.1	15518	1.26
2037	137269	4.89	82149	2.76	7209	3.59	9453	1.77	5566	1.64	11207	3.25	8556	2.17	55120	8.06	5187	2.41	8352	2.83	3039	3.17	17354	1.17
2040	147950	5.65	87795	2.83	7622	3.72	10083	1.77	5948	1.44	11664	3.42	9356	1.98	60155	9.78	5875	2.44	8779	3.01	3167	3.18	18597	1.13

Table 52: Impact on total investment: EPA-EPADP (BAU=Cotonou)

Years	ECOWAS		ECOWAS- BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT			
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %		
2011	12252	8.33	6883	8.66	571	9.22	521	9.81	308	7.52	643	12.5	578	11.39	5369	7.9	402	3.31	1359	2.9	295	19.76	1780	3.16
2016	14001	15.1	7834	11.14	654	10.66	599	12.32	353	10.34	722	17.74	674	11.54	6167	20.14	512	6.91	1464	5.06	349	21.3	2045	4.13
2017	14481	16.06	8051	11.38	672	11.74	615	12.55	363	10.54	741	18.65	695	11.38	6431	21.92	538	7.1	1488	5.79	361	22.16	2106	3.48
2021	16342	15.97	9005	7.36	752	9.1	692	7.25	409	6.51	830	14.79	785	3.72	7337	26.52	665	6.06	1579	7.01	416	12.13	2382	1.55
2022	17017	16.19	9276	7.2	773	9.24	714	6.99	423	5.88	855	14.6	809	3.43	7740	26.97	702	5.58	1606	7.11	431	11.91	2460	1.23
2027	21144	19.27	10833	6.93	892	9.75	828	6.55	504	4.19	1011	14.32	958	2.7	10311	32.24	926	4.64	1740	7.96	516	11.26	2917	0.31
2032	27915	23.26	12809	6.86	1031	10.08	978	6.2	612	2.84	1222	14.29	1145	1.97	15105	37.16	1238	4.3	1901	8.97	616	10.62	3480	-0.19
2037	37866	27.84	15358	6.71	1193	10.18	1174	5.54	785	1.41	1541	13.61	1374	0.96	22507	42.25	1691	3.87	2079	10.25	734	9.43	4178	-0.54
2040	46323	30.31	17196	6.65	1302	10.18	1315	5.19	926	0.51	1782	13.24	1531	0.36	29128	44.28	2048	3.59	2197	11.18	811	8.74	4670	-0.66

Table 53: Impact on transfers from the rest of the world: EPA-EPADP and fiscal neutralization transfer (BAU=Cotonou)

Years	ECOWAS	ECOWAS- NGA	BEN	BUR	GUI	GHA	MAL	NGA	NG	SEN	TOG	COT
2011	0	0	0	0	0	0	0	0	0	0	0	0
2016	-2.19	-2.19	0	0	0	0	0	0	0	0	0	-2.19
2017	64.81	64.81	0	0	0	0	0	0	0	0	0	64.81
2021	298.75	298.75	0	22.97	4.51	29.91	12.55	0	11.59	36.66	0	142.91
2022	345.83	345.83	0	28.8	8.33	39.13	18.26	0	12	48.77	0	156.98
2027	475.91	475.91	0	42.64	17.02	72.97	33.05	0	12.42	82.43	0	201.59
2032	562.24	562.24	0	51.71	23.44	92.27	44.91	0	12.82	101.39	0.07	235.64
2037	731.43	731.43	0.34	69.92	33.05	117.3	65.1	0	16.08	133.7	5.55	290.39
2040	850.07	850.07	5.64	79.78	40.15	132.79	78.67	0	18.68	153.15	10.19	331.02

Table 54: Impact on real GDP: EPA-EPADP with fiscal neutralization transfer (BAU=Cotonou)

Years	ECOWAS		ECOWAS- BEN NGA		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT			
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %		
2011	126692	0.05	58777	0.09	4540	0.04	5762	0.09	3881	0.04	8241	0.08	5257	0.04	67914	0.02	2704	0.16	8165	0.09	2056	0.08	14028	0.06
2016	140743	1.36	65943	1	5244	0.96	6612	0.85	4325	0.81	9012	1	6056	1.39	74800	1.67	3268	0.91	8932	0.38	2330	1.69	15478	0.41
2017	143746	1.71	67469	1.19	5394	1.11	6799	1	4422	0.98	9171	1.2	6233	1.62	76277	2.16	3398	1.1	9080	0.44	2389	1.97	15788	0.49
2021	156975	3.36	74010	1.93	5968	1.82	7569	1.54	4842	1.64	9832	2.03	7028	2.44	82966	4.64	3961	1.79	9763	0.71	2627	3.12	17104	0.92
2022	160456	3.74	75714	2.05	6127	1.91	7768	1.63	4948	1.73	10004	2.2	7240	2.46	84742	5.25	4119	1.98	9915	0.79	2691	3.2	17455	1.03
2027	180445	5.83	84889	2.62	6911	2.35	8917	2.08	5549	2.12	10913	3.06	8332	2.65	95556	8.67	5063	2.68	10774	1.22	3024	3.61	19316	1.6
2032	206458	8.49	95262	3.21	7753	2.77	10114	2.59	6267	2.46	11929	4.04	9596	2.92	111196	13.02	6277	3.23	11620	1.74	3402	3.92	21535	2.18
2037	242814	11.98	106892	3.84	8621	3.17	11354	3.14	7002	2.84	12918	5.17	11103	3.23	135922	18.38	7766	3.74	12632	2.31	3732	4.27	24135	2.78
2040	271571	14.48	114817	4.25	9166	3.42	12143	3.5	7516	3.09	13590	5.91	12168	3.42	156754	21.97	8889	4	13284	2.69	3939	4.48	25914	3.16

Table 55: Impact on households' real consumption: EPA-EPADP with fiscal neutralization transfer (BAU=Cotonou)

Years	ECOWAS		ECOWAS- BEN NGA				BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT	
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %
2011	79590	0.4	46342	0.68	3918	0.51	4840	0.58	3083	0.34	7461	0.78	4130	0.09	33248	0	1898	1.89	5545	0.35	1755	0.56	10148	0.29
2016	88025	1.46	51761	1.61	4506	1.57	5544	1.09	3441	1.22	8101	1.69	4739	1.81	36265	1.24	2276	1.79	6022	1.08	1980	1.64	11190	1.01
2017	89772	1.76	52914	1.92	4631	1.93	5700	1.23	3519	1.4	8233	1.95	4873	2.15	36858	1.54	2363	1.89	6111	1.42	2028	1.96	11413	1.35
2021	97558	2.44	57860	2.34	5100	2.93	6338	1.34	3857	1.8	8780	2.16	5480	2.97	39698	2.58	2738	1.21	6545	2.3	2218	2.86	12360	1.59
2022	99496	2.58	59145	2.44	5231	2.96	6502	1.45	3943	1.89	8922	2.27	5642	2.97	40351	2.78	2843	1.51	6637	2.37	2270	2.88	12612	1.68
2027	110133	3.29	66019	2.84	5864	3.16	7458	1.9	4425	2.14	9666	2.79	6471	2.97	44115	3.98	3461	2.36	7175	2.6	2529	3.03	13942	2.1
2032	122262	4.17	73707	3.18	6537	3.37	8446	2.28	4996	2.27	10485	3.25	7424	3.08	48555	5.67	4247	2.86	7699	2.82	2818	3.14	15518	2.48
2037	137269	5.37	82149	3.59	7209	3.6	9453	2.68	5566	2.43	11207	3.74	8556	3.27	55120	8.02	5187	3.25	8352	3.18	3039	3.24	17354	2.92
2040	147950	6.24	87795	3.84	7622	3.74	10083	2.9	5948	2.49	11664	4.02	9356	3.4	60155	9.75	5875	3.43	8779	3.43	3167	3.29	18597	3.21

Table 56: Impact on total investment: EPA-EPADP with fiscal neutralization transfer (BAU=Cotonou)

Years	ECOWAS		ECOWAS- BEN		BUR		GUI		GHA		MAL		NGA		NG		SEN		TOG		COT			
	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %	BAU	var %		
2011	12252	8.33	6883	8.66	571	9.22	521	9.82	308	7.52	643	12.5	578	11.39	5369	7.9	402	3.31	1359	2.9	295	19.76	1780	3.16
2016	14001	15.1	7834	11.12	654	10.66	599	12.33	353	10.34	722	17.74	674	11.54	6167	20.14	512	6.91	1464	5.06	349	21.3	2045	4.06
2017	14481	16.31	8051	11.9	672	11.73	615	12.54	363	10.55	741	18.65	695	11.38	6431	21.82	538	7.1	1488	5.77	361	22.16	2106	5.52
2021	16342	17.18	9005	9.82	752	9.1	692	9.94	409	7.18	830	16.87	785	5.2	7337	26.21	665	7.52	1579	8.33	416	12.2	2382	6.22
2022	17017	17.61	9276	10.08	773	9.24	714	10.43	423	7.13	855	17.46	809	5.58	7740	26.64	702	7.22	1606	8.92	431	12	2460	6.42
2027	21144	21.17	10833	10.93	892	9.74	828	11.82	504	6.94	1011	19.61	958	6.42	10311	31.93	926	6.68	1740	11.2	516	11.39	2917	6.96
2032	27915	25.37	12809	11.71	1031	10.07	978	12.74	612	7.09	1222	21.23	1145	6.93	15105	36.95	1238	6.66	1901	13.29	616	10.76	3480	7.48
2037	37866	30.13	15358	12.58	1193	10.15	1174	13.6	785	7.1	1541	21.73	1374	7.54	22507	42.1	1691	6.52	2079	16.04	734	10.22	4178	8.15
2040	46323	32.64	17196	13.13	1302	10.44	1315	13.95	926	7.07	1782	21.88	1531	7.96	29128	44.16	2048	6.41	2197	17.88	811	9.99	4670	8.62