

-RESEARCH ARTICLE-

WHO WINS AND WHO LOSES UNDER THE AFCFTA? A SIMULATION ANALYSIS ACROSS ECOWAS COUNTRIES

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Abstract

Globalisation has become an unavoidable incidence with almost every country involved in some new form of economic integration arrangement. In Africa, the largest trade agreement, the African Continental Free Trade Agreement (AfCFTA) was recently signed in order to boost intra-trade and to increase not only economic welfare, but also living standards. However, when such trade arrangements occur, some economic sectors are likely to gain while others shrink due to changes in trade dynamics. The effects are structural changes within the economy of the respective countries. Consequently, this paper employs a World Bank developed simulation analysis using WITS-SMART procedures to determine the likely changes that are likely to happen when the AfCFTA is implemented. All even standard HS product classifications were used to compute the results. These are raw materials, intermediate goods, capital goods, consumer goods, agricultural sector, industrial sector and petroleum sector. The simulation results indicate that there will be overall positive gains since trade creation outweighs trade diversion. Secondly, tariff revenue losses were estimated indicating that larger and/or previously closed economies would lose more than

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smaller and/or previously open economies. Trade data indicates that larger economies include Ghana, Mali, Nigeria, Senegal and Togo. The study also indicated positive consumer surplus and welfare effect values for all ECOWAS economies. Therefore, the study recommends acceleration of the implementation of AfCFTA due to overall positive gains derived from various angles. Secondly, implementation should be complemented by the removal of non-tariff barriers in order to extent the possibility frontier, thereby maximising the likely economic gains.

Keywords: economic sectors; ECOWAS; simulation; trade integration; AfCFTA; economic structure

JEL Classification: F01, F02

1. INTRODUCTION

Africa's development over the decades has been described by so many economic analysts as snail-paced characterised by uneven forms of growth and development (Pasara and Diko, 2020), as indicated by synchronised economic growth in some regional economic communities (RECs) and the lack thereof in others (Pasara and Dunga, 2019). Overall, the continent grapples with perennial challenges of poverty with approximately 41% of people in sub-Saharan Africa (SSA) described as poor (World Bank 2016; Brooking, 2019). Of these, around a third of the population, which represents over 70% of the world's poorest, have incomes below the poverty line (Brooking 2019). Endemic challenges of civil conflicts, wars, disease outbreaks such as cholera, malaria, Ebola and more recently the coronavirus (COVID-19) are likely to lead to a more inflated figure than the previously projected figure, which estimated that the poor in Africa could represent 87% of the global poor in 2030. In other continents, nations such as North Korea, Haiti, Venezuela, Papua New Guinea and Venezuela are also likely to be affected. The poverty statistics for Africa appear gloomy, with World Bank (2016) data indicating that people living in extreme poverty increased since the 1990s and Nigeria recently overtook India to become the global poverty capital.

In line with promoting the United Nations Sustainable Development Goals (SDGs) on reducing poverty, inequality and the African Development Bank 'high priority' on promoting regional integration in Africa, the African Union chaired by the Rwandan president Paul Kagame signed the largest trade agreement in

Africa called the African Continental Free Trade Agreement (AfCFTA). The AfCFTA was largely a response by African leaders to find internal ways of promoting economic integration, stimulating intra-African trade, thereby improving economic growth and welfare of Africans (Pasara and Dunga, 2019a; Pasara and Diko, 2020). Prior to the AfCFTA, African markets were generally small, uncoordinated and fragmented, which made intra-African trade challenging, resulting in welfare losses. Consequently, the AfCFTA would create one big African market where movement of merchandise would be eased, thereby stimulating trade. It is a well-known stylised fact that a positive relationship exists between trade and economic growth. Moreover, the rationale behind economic integration anchored on the AfCFTA was that intra-trade would stimulate macroeconomic convergence (Pasara and Dunga, 2019b), which will, in turn, reduce inequalities between poor and wealthy economic regions (Thirwall, 2012; Fox, Fox & Gilson, 2016). This phenomenon of macroeconomic synchronisation was earlier described by Mundell (1973).

When economies are integrated and synchronised, distribution of merchandise between surplus and shortage regions becomes efficient and effective. This is because some analysts posit that a combination of tariff and non-tariff barriers (NTBs) were identified as the biggest constraints to intra-African trade (Jensen & Sandrey, 2011; AfDB, 2014). On the other hand, Tavengerwa (2018) argued that a greater proportion of African cross-border traders are small to medium players, which implies that they do not have the capacity to cover large overhead costs in order to retain profit. The author adds that the African situation is worsened by poor trade facilitation models such as lack of one-stop border posts, lack of digitalised systems, poor attitudes of customs authorities, and uncoordinated processes, which result in unnecessary paperwork, as well as corruption, among other factors (Tavengerwa, 2018; Kohl *et al.*, 2016). Consequently, the majority of African countries have found it easy to trade with countries outside the continent, which led to spillage of economic welfare in the long term¹. Therefore, the rationale behind continent-wide trade agreements such as the AfCFTA is to significantly decrease operating costs. This will, in turn, increase the trade value

¹ The paper acknowledges that there are other factors that contributed to the phenomenon of African countries skewing much of their trade towards outside economies (for instance, see Pasara, 2020; Pasara and Dunga, 2019a; Mold and Mukwaya, 2017; AfDB, 2014; Makochekanwa, 2012).

of intra-African trade, thereby contributing towards inequality and poverty reduction.

The majority of literature especially from econometric studies generally concurs on the rationale that economic integration leads to increased economic growth and welfare. However, a small group of literature emanating from the rationale of Jacob Viner (1950) argues that the effects of trade creation (TC) and trade diversion (TD) on free trade agreements (FTAs) such as the AfCFTA imply that economic gains cannot be generalised. This is because, as the theory argues, while overall effects may be positive, certain economies might become worse-off after the new trade arrangement. The theory uses a model under imperfect conditions to indicate that vulnerable economies might become worse off as they will be exposed to greater competition from large-scale predators. Therefore, while the ideal scenario would be for TC to always outweigh TD leading to a positive effect, empirical evidence from other studies that employed various simulation models such as Pasara and Diko (2020), Pasara and Dunga, 2019a), Mold and Mukwaya (2017) and Makochehanwa (2012) indicated that the flow of trade could swing in either direction. The implications of such results are far reaching. More broadly, there will be structural changes, which would imply a shift in the movement and distribution of production factors such as labour and capital as they seek productive economies (or sectors). While this is welcome in terms of efficiency, it might also threaten the achievement of SDGs and the continental agenda if resources were to move from vulnerable economies and sectors.

It is within this general context that this study seeks to investigate the potential effects of the AfCFTA across ECOWAS countries. The rationale for the selection of this economic region is that while the study acknowledges that the AfCFTA is a continent-wide agreement, it is likely that countries that are geographically closer to each other will trade more with each other due to transport costs. In addition, there are also other factors such as language constraints, shared border, historical factors and other pre-existing bilateral trade agreements. These are highlighted in various augmented gravity models². Therefore, it is likely that even when the AfCFTA becomes operational, countries will continue to trade using their traditional models and partners, at least in the short to medium term. In other words, there will be a lag or adjustment period until the new economic regions are

² See Pasara and Dunga (2020)

established under AfCFTA. Consequently, the potential effects of the AfCFTA across the ECOWAS region will be taken into account in this paper.

2. LITERATURE REVIEW

Lack of sufficient understanding of the cause and effect dynamics on processes on economic integration usually leads to misconceptions and superficial judgements on the subject (UNCTAD, 2010; Bustillo and Maiza, 2012). Scholars concur that economic integration theories are both intricate and intertwined because the subject is both an economic and a political one (Ujupan, 2005; Puga, 2002; Rosamond, 2000a; Santos, 2009). However, this paper will focus on the economic aspects of the subject. Theoretically, economic integration as a subject is not a new phenomenon. It was long deliberated by classicalists who linked major insights on division of labour and specialisation and how it influences uneven development and economic integration (Mill, 1920; Haas, 1958; Napoleoni, 1975; Ricardo, 1817; Viner, 1937). This school of thought essentially depends on perfect market principles, which are characterised by perfect factor markets (Smith, 1776) and it advocates for unrestricted or open economies, which would then generate perfect allocative efficiency. Gay (1998) posits that this will then lead to optimisation of global production, which will then be mirrored in effective consumer demand. In other words, classical theorists support the view that free trade reduces constraints and is the most effective approach to stimulate growth. Increases in economic growth will emanate from two strands: gains in production as a result of comparative advantages (Ricardo, 1817) and consumption gains due to increased choices at lower prices (Beyene, 2014a; Ujupan, 2005; Napoleoni, 1975). However, classical models had some limitations in that they were developed in the industrial phase where the notion of division of labour and specialisation was very feasible, the dynamics have changed significantly over the century with the fourth industrial revolution currently playing a significant role in matters of globalisation. Moreover, Sai-Wing Ho (2016) opined that classical trade theories concentrated on specialisation between firms (final product specialisation), but less attention on within firms (division of production operations). Similar arguments can also be raised when we factor in nation states instead of firms.

Apart from the mercantilism view, additional theorists also included the factor endowment theory developed by Bertil Ohlin and Eli Hecksher in 1993. The

Heckscher-Ohlin (H-O) theory was developed from two models of (1) the supply side of Smith's (1776) absolute advantage theory and (2) Ricardo's (1817) comparative advantage theory. The H-O focused on the significance of factor proportions and argued that the rationale for trade was due to country idiosyncrasies in factor proportions. Each country is endowed by various factor intensities and it is the relative differences in these intensities that give rise to international trade as actors seek equilibrium. However, this model later faced significant criticism from the famous 'Leontief paradox' when Wassily W Leontief was able to empirically demonstrate that economies with higher capital per worker traded more with each other than those with lower ratios. This view was later complemented by Gary (1998) who argued that a significant portion of international trade in the modern era occurs under the auspices of multinational corporations (MNCs), and therefore the free trade argument, which was developed under classical factor proportions, was no longer applicable.

The Stolper-Samuelson (1941) theory was a variant of the factor endowment model, only with lesser restrictive assumptions. It explains how differences in relative factor rewards and output prices stimulate trade. Therefore, under the AfCFTA arrangement, incomes of unskilled labour in industrialised ECOWAS nations such as Nigeria, Ghana and Cote D'voire are likely to worsen due to increased integration. This is because these countries can now import merchandise from low income countries more easily (Puga, 2002; Baldwin and Seghezza, 1996). This possibly explains why countries such as South Africa are very reluctant to liberalise their immigration laws despite being members of free trade areas (FTAs) and customs unions (CU). Although it was published much later in 1952, the factor price equalisation theory was also independently developed by Arber P Lerner in 1933. He employed isoquants to demonstrate that prices in the factor and goods market must equalise when international trade is opened up. Therefore, economic integration stimulates macroeconomic convergence for all trading markets (Bernhofen *et al.*, 2012; Fazio and Piacentino, 2011). There is a strong rationale for macro-convergence, which includes regional macroeconomic stabilisation since the economies will be synchronised (see Pasara and Dunga, 2019b).

Despite all these arguments as rationale for economic integration, in 1950 Jacob Viner developed a rather contrasting model and indicated that FTAs are not always welfare enhancing due to trade creation (TC) and trade diversion (TD)

effects (Viner, 1950). The former denotes welfare gains accrued when, *ex-post* the trade agreement, trade shifts from a high-cost supplier member country to a low-cost supplier member within the same ECOWAS community. The latter reflects welfare losses and refers to a shift from a low-cost supplier who is a non-member to a high-cost supplier who is a member of the community for the simple reason that merchandise from the non-member becomes more expensive due to discriminatory tariffs (Gurova, 2014). Therefore, when a new trade agreement is formed such as the AfCFTA, all participating economies will experience simultaneous TC and TD and the net effect will swing either in a positive or negative direction. Viner's theory gave some insight into the importance of size of the economic community where scale economies would reduce transaction costs. This argument of economic size was later elucidated by Tinbergen (1962) in his gravity model, while Krugman (1990) emphasised economies of scale. Although the underlying assumptions of Viner (1950) were later modified, the original model itself provides some lucid economic rationale of effects of FTAs in economic communities such as ECOWAS. Introducing the AfCFTA into the ECOWAS region will result in TC and TD effects.

Empirically, some authors investigated the effects of trade agreements within the African context using different methodologies. Kalaba and Tsedu (2008) observed that most welfare gains would accrue to SADC when the Tripartite Free Trade Agreement (TFTA) comes into effect. These findings were complemented by Karingi and Fekadu (2009), who examined the TFTA implications and observed that there will be positive overall benefits although distribution will be uneven. SADC will derive a greater proportion followed by EAC and lastly COMESA. The economic rationale behind this outcome is because economies that were relatively closed *ex ante* the trade agreement would have more to gain once trade is liberalised; that is, more TC. Consequently, SADC economies were less liberated than EAC and COMESA economies prior to the FTA. Moreover, some regions such as SADC have large economies, like South Africa, which implies that scale economies would kick in. A global trade analysis project (GTAP) model was employed by Jansen and Sandrey (2011) to analyse the impact of the TFTA. They observed that significant gains would accrue to South Africa and Mozambique with an estimated welfare increase of USD 1 321 million and USD 57 million, respectively. Other South African Customs Union (SACU) economies would have a combined estimated welfare loss of around USD 100 million. A

similar model was applied by Mold and Mukwaya (2017) and found that COMESA-EAC-SADC members could increase their intra-regional trade value by 29% if the TFTA was to be effected. Makochehanwa (2012) employed the World Integrated Trade Solution, Software for Market Analysis and Restrictions on Trade (WITS-SMART) model on agrifood products and investigated how the TFTA would impact members. Results showed that there will be TC valued at USD 2 billion, while USD 454 million will be diverted leaving a positive net effect of USD 1.5 billion. Pasara and Dunga (2019a) and Pasara and Diko (2020) applied a similar model for the TFTA economies and the effect of AfCFTA on SADC cereals, respectively. The former showed gains of USD 2 billion, while the latter indicated the AfCFTA will significantly contribute to food sustainability in the region.

3. METHODOLOGY

A WITS-SMART simulation model was employed. The model is extensively used by the World Bank and is effective in quantifying the effects of any form of trade agreement that results in tariff changes. This model is able to disintegrate the trade effects into trade creation, diversion, tariff revenue effects, consumer surplus and welfare effects, which provide room for an enriching analysis. Empirically, this paper utilises a partial equilibrium approach to estimate the AfCFTA effects across ECOWAS countries. Simulations are conducted under the assumption of infinite elasticity of supply. This assumption is rational since most if not all African economies are too small to influence global trade by manipulating their domestic supply (Mold and Mukwaya, 2017). The paper also assumes an Armington assumption on substitution value of 1.5, which states that products are similar but slightly differentiated. For example, maize, cocoa or rice from Ghana can be easily substituted with similar products from Nigeria. Although they are not perfect substitutes, they are very close substitutes. The following empirical models are for trade creation, trade diversion, net trade effects, net revenue effects and net welfare effects.

$$TC_{pqr} = M_{pqr} * \eta * \frac{\Delta_{pqr}}{(1+t_{pqr}) * (1+\eta/\beta)} \dots\dots\dots (1)$$

TC_{pqr} = Trade created
 M_{pqr} = Imports
 t_{pqr} = Tariffs
 η = elasticity of demand on imports
 β = export supply elasticity
 i = commodity
 q = exporting country
 r = importing country

Equation (2) represents trade diversion which largely depends on the substitution elasticity:

$$TD_{pqr} = \frac{M_{AfCFTA} * M_{RoW} \left[\left(\frac{1+t_t}{1+t_0} \right) - 1 \right] * \lambda}{M_{AfCFTA} + M_{RoW} + M_{RoW} \left[\left(\frac{1+t_t}{1+t_0} \right) - 1 \right] * \lambda} \dots\dots\dots (2)$$

TD_{pqr} = Trade diverted
 M_{AfCFTA} = Imported merchandise from AfCFTA countries
 M_{RoW} = Imported merchandise from rest of the world
 t_t = Tariff (where t_0 and t_t represent pre and post integration levels of tariffs)
 λ = substitution elasticity

The net trade effect (TE) is the summation of trade creation and diversion effects:

$$TE = TC + TD \dots\dots\dots (3)$$

The net revenue effect (RE) in equation (4) indicates the revenue changes after a change in tariffs. It largely depends on price and volume of imports.

$$\Delta R_{pqr} / R_{pqr} = [\Delta t_{ijk} / (1 + t_{pqr})] * \eta * [(1 + \beta) / (\beta - \eta)] \dots\dots (4)$$

ΔR_{pqr} = Revenue effects due to tariff changes
 η = Demand elasticity for the importers
 t_{pqr} = Tariffs
 β = Supply elasticity for exporting countries

Equation 5 below estimates the welfare effects sums consumer and/or producer surpluses.

$$W_{pqr} = 0.5(\Delta t_{pqr} * \Delta M_{pqr}) \dots\dots\dots (5)$$

The following section presents and discusses the results that are based on the highlighted methodology.

4. RESULTS

The results were computed based on the underlying assumptions that are specified in Table 1 below. The table indicates that the supply elasticity was 99, which indicates close to perfect elasticity because there is no single ECOWAS country that has enough influence over market prices. Therefore, world prices are assumed to be given. Secondly, substitution elasticity is also elastic at 1.5, which indicates that there are close substitutes that can be easily substituted across ECOWAS countries. For instance, maize, soya or cocoa from Ghana can be easily substituted by similar products from Nigeria. The import demand elasticity values were reflected as averages from each country and as clearly reflected, they vary from one economy to the other depending on the level of industrial capacity utilisation versus local demand. However, the general conclusion is that the import demand elasticity values for all ECOWAS economies are elastic, which implies that all economies are highly responsive to changes in import prices. The applied duty values reflect duties that were employed before the AfCFTA, while the new duty rates reflect post-AfCFTA rates. Across all economies, the new duty rates are less than the applied duty and bound rates, which is consistent with both economic theory and the rationale behind the formation of the AfCFTA, stimulating intra-African trade by reducing tariffs. Kindly note that no results were observed for Liberia and Guinea Bissau.

Table 1: Underlying conditions for SMART simulations analysis

	Supply elasticity	Substitution elasticity	Import demand elasticity (Av)	Applied duty rate (Av)	New duty rate (Av)	Bound duty rate (Av)
Benin	99	1,5	1,64	13,35	12,87	19,62
Burkina Faso	99	1,5	1,48	12,16	11,12	
Cape Verde	99	1,5	1,94	14,36	13,41	21,13
Gambia	99	1,5	1,67	14,15	13,85	
Ghana	99	1,5	1,6	12,36	10,83	
Guinea	99	1,5	1,64	13,04	12,14	14,6
Mali	99	1,5	1,71	12,88	11,87	18,39
Niger	99	1,5	1,65	13,18	13,04	41,83
Nigeria	99	1,5	2,24	11,51	10,51	94,59
Senegal	99	1,5	1,64	12,92	12,21	29,95
Togo	99	1,5	1,57	13,09	12,7	80

Source: Author's compilations from SMART Simulations

Table 2: Changes in trade values

	Trade value	Exports before	Exports after	Export revenue change
Benin	5513998	10954601,3	10960669,7	6068,47
Burkina Faso		5916077,69	5929160,92	13088,22
Cape Verde	1537483	3019174,99	3029204,97	10029,98
Gambia	1196582	2365572,09	2367973,2	2401,12
Ghana	22493181	43968095,2	44274832,5	306737,8
Guinea	39984718	7791557,17	7828237,24	36680,1
Mali	3107342	6094250,1	6152255,32	58005,26
Niger	1282372	2560000,4	2561231,17	1230,77
Nigeria	70039533	122038101	122584548	546446,8
Senegal	9639943	19012820,6	19099307,9	86487,35
Togo	4637173	9190586,53	9241394,57	50808,1

Author's compilations based on SMART simulations

Table 2 above clearly indicates that there will be increases in exports and subsequently, export revenues as a result of the implementation of the AfCFTA. Therefore, the rationale behind the formation of the AfCFTA is justified since it leads to an increase in both export volumes and values across all ECOWAS countries. This export revenue can be channelled towards economic growth and development, which could lead to multiplier effects in the long run. The table below represents the trade creation, diversion effect, changes in tariff revenue, consumer surplus and welfare effects that are likely to be experienced across the ECOWAS region as a result of the implementation of the AfCFTA.

Table 3: Trade creation, diversion, tariff changes, consumer surplus and welfare effects

	Trade creation (000)	Trade diversion (000)	Tariff revenue before (000)	Tariff revenue new (000)	Tariff change (000)	Consumer surplus (000)	Welfare effects (000)
Benin	3181,66	5,73E-05	1716153,23	1677558,51	-38594,5	675,37	564,89
Burkina Faso	6556,51	7,44E-05	588246,53	551742,65	-3653,77	1318,28	1176,07
Cape Verde	5046,72	5,26E-06	354686,74	346998,18	-7688,35	1269,13	1148,66
Gambia	1203,94	5,74E-06	399872,38	394355,58	-5516,66	313,3	247,19
Ghana	164693,2	9,14E-04	4913605,36	4405331,24	-508274	33987,39	32858,05
Guinea	19091,34	1,60E-04	967415,66	918948,18	-48467,7	3558,18	2969,91
Mali	29020,79	1,22E-04	676925,04	634109,85	-42815,1	7476,74	5696,22
Niger	615,38	1,97E-06	320680,73	318829,3	-1851,14	615,38	153,02
Nigeria	290969,5	1,29E-03	11946184,9	11255624,1	-690561	55377,63	49751,48
Senegal	43371,36	1,14E-04	2357332,94	2285831,21	-71502,1	7909,48	5101,02
Togo	25437,42	7,80E+00	1212939,57	1194071,4	-18868	5557,18	4262,02

Author's compilations based on SMART simulations

The results in Table 3 clearly indicate that trade creation outweighs trade diversion, which implies a positive net effect. In fact, in the case of ECOWAS countries, the level of trade diversion is so small that it is negligible, leaving trade creation basically unchanged. What this implies is that, prior to the signing of the AfCFTA, ECOWAS countries were efficiently trading with each other. Consequently, the new trade agreement will to a larger extent only add value to the economies through trade creation. This was not the case with SADC

economies as observed by Pasara and Diko (2020), Pasara and Dunga (2019 a,b) and Mold and Mukwaya (2017). All these studies observed significant levels of trade diversion in the SADC region. Using an econometric model, Pasara and Dunga's (2019 b) results were inconclusive in terms of net effect, while Pasara and Diko (2020) indicated a positive net effect although trade diversion was significant.

The implication of the AfCFTA across ECOWAS countries will reduce or eliminate their tariffs. In this study, the assumption was that the tariffs on merchandise originating from all African economies will be eliminated. Therefore, there will be tariff revenue losses that will be experienced by each ECOWAS economy. The tariff revenue losses depend on the value of imports in the preceding year, which is usually a function of the size of the respective economy. Larger economies include Ghana (- USD 508 274 000), Mali (-USD 42 815 000), Nigeria (-USD 690 561 000) and Senegal (-USD 71 502 100). Makochekeka (2012) highlighted that these tariff revenue losses could result in significant losses in overall economic welfare since these revenues could be channelled towards provision of public and merit goods such as education, hospitals, roads, and street lights. Pasara and Dunga (2019a) estimated the proportion of tariff revenue for some selected African countries and observed that for the majority of these economies, tariffs constitute a significant portion of aggregate government revenue. The last section of Table 3 above indicates the consumer surplus values. These values are consistent with microeconomic consumer theory, which states that price decreases lead to increases in consumer surpluses. Therefore, the positive consumer surplus values indicate that there will be increased consumer utility emanating from decreases in tariffs since tariffs reflect costs. These positive consumer surplus values coupled with positive net trade effects lead to positive overall welfare gains.

5. CONCLUSION AND RECOMMENDATIONS

The study analysed the effects of implementing the AfCFTA across the ECOWAS countries. The study employed the WITS-SMART methodology model, which was largely influenced by the Viner (1950) theoretical model that was anchored on trade creation and trade diversion effects of a tariff change. The results indicated that there will be overall positive net gains across all ECOWAS economies. The quantitative results will be greater for larger and/or previously

closed economies and smaller for economies that are either smaller or were relatively open prior to the signing of the agreement. If implemented, the AfCFTA agreement will benefit all ECOWAS economies since there is no case where trade diversion outweighs trade creation. The more economies reduce their tariffs, the more they stand to gain in terms of economic welfare. Therefore, the study recommends acceleration of the implementation of the AfCFTA. To maximise the benefits of this new trade agreement, the ECOWAS economies must compliment this new development by reducing non-tariff barriers that characterise most African economies. Other factors that constrain the African integration process were also clearly articulated in Pasara (2020). Therefore, in implementing the AfCFTA, it must be complemented by other policies in order to maximise both the static effects in the short run and the dynamic effects in the long run. The concluding remarks that can be made are that the implementation of the AfCFTA does not lead to a zero-sum game across the ECOWAS region where some economies benefit at the expense of others. However, caution should be taken. These results cannot be generalised and extended to other regional economic communities such as EAC, COMESA or SADC, since they have different underlying conditions. For instance, some economic communities were operating under free trade conditions, while some were at customs union and common market levels. All these factors have a bearing on the potential outcome from the simulations. Therefore, specific simulations should be computed for each economic community or the whole African continent.

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