The Effects of Global Value Chain Participation on Current Account Balances in African Economies: Does it Matter Being a Landlocked Country?: An Empirical Review

Ningaye Paul[1], Tchounga Anatole[1] and Kenfack Geraud Francis[1*]

[1]*The Dschang School of Economics and Management (DSEM), University of Dschang, Cameroon.*

Authors' contributions

This work was carried out in collaboration among all authors. Author NP designed the topic and drafted and appropriate approach for various analyses. Author TA prepared the literature review and designed the background of the study. Author KGF analyzed quantitative data and interpreted the results. All authors read the drafted and final copies making adequate corrections. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

The general objective of this paper is to evaluate the effects of Global Value Chain Participation (GVCP) on Current Account Balance (CAB) in African countries. The specific objectives are to (1) identify the type of GVCP that contributes more significantly and positively to African countries' current account balance and (2) find out whether being landlocked affects a country's participation in global value chain in Africa. This paper uses panel data from three secondary sources: (1) UNCTAD-EORA database (2018) for forward and backward participation indicators, (2) WDI (2018) for current account balance, FDI, population and trade openness and (3) PWT 9.1 for exchange rates. In a linear panel specification, this research applies the Feasible Generalized Least Square (FGLS) econometric techniques and results highlight firstly that forward GVCP contributes more significantly and positively to CAB in Africa with a coefficient ranging between 1.64 and 2.43 in various regressions. Secondly, the effect of GVCP on CAB is reduced in landlocked African

_____

Corresponding author: E-mail: kgeraudfrancis@gmail.com;

countries as revealed in its negative and significant coefficient of -2.33 as the variables are interacted. This paper recommends that, African countries should embark on forward participation and improve connectivity infrastructure to facilitate the participation of landlocked African economies in global interactions.

ABBREVIATIONS

CAB   : Current Account Balance
DVA   : Domestic Value Added
FGLS   : Feasible Generalized Least Square
FVA   : Foreign Value Added
GCI   : Global Competitiveness Index
GVC   : Global Value Chain
GVCP   : Global Value Chain Participation
IO   : Input Output
LL   : Landlocked
MRIO   : Multi-Region Input-Output
OECD   : Organization for Economic Co-operation
          and Development
PWT   : Penn World Tables
RER   : Real Exchange Rate
UNCTAD : United Nations Conference on Trade
          and Development
VS   : Vertical Specialization
WDI   : World Development Indicators

1. INTRODUCTION

International competitiveness is an important target of many economies in the world. African countries with their specificities have been seeking for alternative ways of improving their competitiveness [1]. As a measure of competitiveness, the current account balance of African countries has witnessed some remarkable fluctuations as revealed by the WDI database of the World Bank. Furthermore, the poor performance of many African countries characterized by repeated macroeconomics and debt crises have raised the necessity to clearly investigate on non-traditional determinants of a country's current account balance (CAB). A country's current account exposes the current extent of a country's industries, services and capital market activities. It also reveals the inter-temporal decisions of domestic and foreign residents with respect to saving, investment, the fiscal position, and demographic factors. In African, there is recurrent deficits of many countries in the continent. These Prolonged deficits in most of the countries have become unsustainable, crowd out domestic saving or lead to economic instability [2,3]. Current account

balance sustainability is very crucial for macroeconomic policy changes and decisions [4]. It is a useful economic indicator because it represents other important economic variables like savings, investment and the budget balance. All these indicators have a direct impact on economic growth, exchange rate and economic competitiveness [4].

Due to digitalization and a progressive improvement in international or trans-border connectivity, the world is fast becoming a global village [5]. Also, the progress in information and communication technologies have lowered the co-ordination costs associated with offshoring [6]. This has paved the way to production fragmentation known as value chain and many firms in Africa now focus on a single aspect of the production process.

Value chain as a new approach to competitiveness has a lot of virtues in terms of value addition and the segmentation of activities [7]. The value chain concept describes the full range of activities that firms and workers perform to bring a product from its conception to end use and beyond including activities such as research and development, design, production, marketing, distribution and support to the final consumer [8]. The value chain approach has been the new development strategy proposed by researchers to policy makers and development promoters. [9] points out that this approach is increasingly becoming an important development strategy in less developed economies since it constitutes a system of industrial development which can be extended to a national level through an intercountry Global Value Chain (GVC). As a result, vertical specialization has led to the necessity of participation in GVC activities [10,11]. Evidence from the [12] suggests that typically, about one-third of the imported intermediate goods are destined for the export market, with higher ratios in smaller economies. With the emergence of the global value chain concept, many African economies want to gainfully take part in international interactions [13].

The problem of low competitiveness has been persisting in African economies. Researchers, free trade and development promoters have resorted to many strategies to make African countries more competitive through productivity boosting, quality amelioration and standard, technological or knowledge transfer, aid to development, infrastructural development, [14], but more efforts is still needed to overturn the poor performance of African countries as seen in the periodic competitiveness report. In different editions of the Global Competitiveness Report, including the 2019 edition, African economies in general are ranked among the least competitive economies [15]. In the 2019 ranking, the first two Africans countries are Morocco and Seychelles occupying the 75th and 76th positions respectively and 25 African countries occupy the bottom positions [15].

Analyzing GVC quantitatively requires that the production process is divided into discrete tasks or phases. [16] estimates that nowadays 80% of trade involves transnational corporations (TNCs). Meanwhile, vertical trade explains most of the growth in world trade since more than half of world-manufactured imports are intermediate goods including primary goods, parts and components, and semi-finished products, and more than 70 percent of world imported services are intermediate services [17]. Trade in intermediate goods have led to two major ways of participation in a globally fragmented trade. [18] Characterized backward participation as vertical specialization (VS) and forward participation as vertical specialization 1 (VS1). This approach defines value chain participation in terms of the origin of the value added embodied in exports both looking backward and forward from a reference country [19]. Forward participation is linking into the GVC by providing intermediary inputs to other countries exports while backward participation is linking into the global value chain by importing intermediary inputs to be used in the country's export [20].

The main objective of this paper is to evaluate the effects of Global Value Chain Participation (GVCP) on Current Account Balance (CAB) in African countries. The specific objectives of this paper therefore is to (1) identify the type of GVCP that contributes more significantly and positively to African countries' current account balance and (2) find out whether being landlocked affects a country's participation in global value chain in Africa. The two hypotheses

to be tested are stated in the alternative form (H1) as follows;

H1(a): Forward GVCP has a more significant and positive effect on CAB in African economics.
H1(b): Landlocked African countries are affected differently.
The rest of this paper contains the literature review, followed by the methodology. Further, we present and discuss results and make a conclusion with some recommendations.

2. LITERATURE REVIEW

2.1 The Theoretical Bases Assessing Current Account Fluctuations: The Intertemporal Approach

The intertemporal approach makes it possible to assess the determinants of current account over a given period of time. Here, current account deficit is the outcome of a dynamic saving and investment decisions caused by expectations of productivity growth, government spending, interest rates, and other factors. Also, current account balance behaves as a buffer against transitory shocks in productivity or demand [21,22]. Furthermore, the impact of economic changes on the current account balance may vary according to their origin, persistence and timing of such changes. Considering their origin, shocks may be country-specific or global. The literature points out that, global productivity shocks have a smaller impact on current account deficits than country-specific shocks [23]; [24]. The persistence of shocks, whether transitory or permanent, can produce different responses at the level of current account balances. A permanent productivity shock for example may increase the current account deficit as it may generate a surge in investment and a decline in savings given that it causes consumption to rise by more than gross output. On the other hand, transitory productivity shocks may move the current account into surplus [23,22].

2.2 Gains from Participating in Global Production Network and Exchange: Theoretical Backings

Earlier in the literature, the quest for power and riches in a mercantilist reasoning considered the exportation of goods a priority at the expense of import [25]. Nations could be rich by acquiring precious metals like gold by ensuring that the volume of export was greater than the volume of

import [26]. [27] criticized the mercantilists ideas and brought forth the advantages of division of labor and specialization based on various advantages developed by various authors in their respective writings. The international division of labor segmented world economies into core and periphery areas with specific tasks to be undertaken by each segment [28]. As time went on, the manner of participating in world activities varied between the core and the periphery regions moving from a purely exploitative relation to a trading relation. Here, developing countries (the periphery) could provide certain primary commodities to the core regions in exchange of manufactured products [29]. The new form of International Division of Labor developed in the 1960s and was characterized by the internationalization of production as opposed to trade among core and peripheral countries [29]. Levels of foreign direct investment (FDI) increased and, were directed to countries in the economic periphery. Many works came up around the 1970s and the 1980s notably that of [30], where factual ideas on the new internationalization of production and the incorporation of developing countries were made. Here, the main ideas of authors was the relocation of certain production facilities from the core regions to the periphery due to cheap labor [30]. Further in the literature, [31] inherited Ricardian trade model with a continuum of goods from [32]). Here, trade in intermediate products was incorporated to previous analyses. This is mainly because countries have different access to technology. Global production network characterized by more trade in intermediate products is developed based on the revolutionary change in communication and information techniques and drastic reduction of transport costs [33]. Extended Ricardian trade model provides a new theory that can treat trade of input goods and the emergence of global value chains [34]. Here, the leading theorists constitute Michael E. Porter's theory of competitive advantage and Gereffi's Global value chains analyses which comes as a specific form of division of labor theory. With Porter's theory of competitive advantage, participating in global production requires that nations position themselves appropriately for international business success [35]. A nation's competitive advantage therefore depends on the collective competitive advantage of all its firms. The competitive advantage of nations is the capacity of its industry to innovate and upgrade to form a nation's competitiveness in various cross border participation [35]. Gereffi's Global value chains

theory is a specific form of division of labor different from that of his predecessors in cross border division of labor and specialization. On the one hand, the global fragmentation of production in theory means that many low income countries can participate into global value chains and benefit from it through resultant technology transfer, learning by doing, and so on. On the other hand, Global value chain analysis focuses on the dynamics of inter-firm linkages within this system, and the way in which firms and countries are integrated globally [8].

2.3 Empirical Literature on the Link between Global Value Chain Participation and Country's Competitiveness

One of the most recent work which studies the link between GVC and CAB is that of [36], with results showing that backward and forward participation positively contribute to current account balance. This study however is overshadowed by developed economies. In the 20th and 21st centuries, global trade witnessed a shaped increase accompanied with global imbalances and financial crises. To address these issues, [37] investigated the contribution of GVC on global imbalances captured by current account. The result shows that GVC weighted by trade share and participation is negatively related to a country's current account. Elsewhere, a study conducted by [38] on GVC participation in the agriculture and food sectors focuses on the flow of products across national borders within GVCs. They discover that across the sectors examined, GVC participation varies considerably driven by the nature of the product produced. Further in their results, policies related to service markets were found to influence GVC participation and domestic value added creation. Value chain policies often cut across several sectors.

Empirical studies on landlocked countries' participation in global production and exchange include that of [39] who conducted an investigation in African landlocked countries and Non-African landlocked countries. They found that most African landlocked countries are located upstream (forward participation), while non-African landlocked countries are highly engaged in downstream activities (backward participation) close to the final consumers. Being landlocked imposes additional costs on trade and reduces international competitiveness. In this light, [40] examines the determinants of export

performance in developing countries, and their results suggest that the overall export performance of Land Locked Developing Counties is lower than that of non-landlocked developing countries. Earlier, [41] in a study of being landlocked on trade in Central Asia, finds that for landlocked countries, trade reduces by as much as 80 percent. Based on African countries, a recent work by [42] analyses the link between GVCP and CAB in landlocked African countries and found that forward participation has a more significant and positive effect on CAB than backward participation.

3. METHODOLOGY

3.1 Nature and Sources of Data

The data used in this paper come from three secondary sources. The first set of data is obtained from the time series database of the World Bank, called the World Development Indicators (WDI-2018). The data obtained from this source are current account balance, Foreign Direct Investment, population, and trade openness. The next database is the Penn World Table 9.1 where the variables exchange rate has been obtained. The last database is the UNCTAD-EORA-MRIO (2018) time series database from where the data on forward and backward participation are gotten.

3.2 Sample Size

This study covers the entire African continent from north to south and east to west. Out of the 54 African countries, 33 are considered in this paper. The countries involved are Algeria, Angola, Botswana, Burundi, Cameroon, Cote D'Ivoire, Democratic Republic of Congo, Egypt, Gabon, Gambia, Ghana, Kenya, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria Rwanda, Senegal, Sierra Leon, South Africa, Tanzania, Togo, Tunisia, Uganda, Lesotho, and Seychelles. The choice of countries included in the sample is determined by data availability especially as many African countries lack data on key variables. Fig. 1 gives a clear distinction and locational positions of landlocked and non-landlocked countries in Africa.

3.3 Model Specification

Current Account Assessment for Competitiveness follows the intertemporal approach, where the determinants of a country's current account performance is investigated with the help of an econometric regression of diverse indicators over a set of explanatory variables. This was first applied by [43]. Several analyses applied this method many years after including [44] who used this approach to investigate the sustainability of the Greek current account in a period of structural change. In this line, our specification follows that of [40] in a study of being landlocked and export performance.

The specification adopted by this paper considers the state of being landlocked as a modifying factor to GVCP and develops a dummy variable which is interacted with forward and backward participation. We therefore make our econometric specification as follows;

Fig. 1. The Map of Africa with Landlocked and non-Landlocked Countries
Source: Maps online (2019)

$$CAB_{(it)} = \lambda_0 + \lambda_1 LnDVA_{(it)} + \lambda_2 LnFVA_{(it)} - \lambda_3 LL_{(it)} - \lambda_4 LL * LnDVA_{(it)} - \lambda_5 LL * LnFVA_{(it)} + \lambda_6 FDI_{(it)} + \lambda_7 RER_{(it)} - \lambda_8 Unempt_{(it)} + \lambda_9 Open_{(it)} + \lambda_{10} LnPop_{(it)} + U_{(it)}$$

$$(1)$$

Where, CAB(it) = Current Account Balance of country i at time t, LnDVA(it)= the natural logarithm of Domestic Value Added in country i's export at time t, LnFVA(it)= the natural logarithm of Foreign Value Added in country i's export at time t, LL = LandLocked, a dummy variable, which takes a value 1 if the country is landlocked and 0 if the country is non-landlocked. A negative sign is expected for this coefficient based on the literature especially when it is interacted with GVCP variables, LL*LnDVA= An interaction between Landlockedness and Domestic Value Added, LL*LnFVA= An interaction between Landlockedness and Foreign Value Added, FDI(it)=Foreign Direct Investment of country i at time t, RER(it)=Real Exchange Rate of country i at time t., Unempt(it)=Unemployment rate of country i at time t, Open(it)=trade openness of country i at time t and LnPop(it)= the natural logarithm of the population of country i at time t which captures the market.

Also λ0 to λ10 are parameters to be estimated in equation (1), and U(it) is the error term.

3.4 Technique of Estimation

A series of regressions were conducted using the Feasible Generalized Least Square (FGLS) econometric techniques. The choice of this regression technique is based on the results obtained from the heteroscedasticity test and the stationarity of variables. This technique is applied to obtain consistent and efficient estimators in the presence of heteroscedasticity.

4. RESULTS AND INTERPRETATION

4.1 Preliminary Tests Results

4.1.1 Heteroscedasticity test

The heteroscedasticity test results are presented in Table 1 below. We use the white test for heteroscedasticity on our model specified. The results show that, the p-values for all sources of heteroscedasticity are significant at 1 percent. Based on this p-value, the null hypothesis (H0) of homoscedasticity is rejected and the alternative hypothesis (H1) of heteroscedasticity is accepted. The specified model is therefore heteroscedastic.

4.1.2 Unit root test

The results of the unit root test conducted for variables used in this paper are presented in Table 2 below. Based on the synthetic results of the panel unit root tests presented, some variables are stationary at level while others are stationary at first difference. This is seen in their significance at 1%. Specifically, the results of common unit root (Levin, Lin Chu) show that variable exchange rate is not stationary at level but become stationary at first difference. Other variables notably current account balance, domestic value added, foreign value added, foreign direct investment inflows, trade openness, unemployment and population are stationary at level at 1 and 5% level of significance. The results of individual unit root (Im, Pesaran, Shin), show that two variables are stationary at level (current account balance, foreign direct investment) and the rest become stationary at first difference (unemployment rate, trade openness, domestic value added, foreign value added, real exchange rate, population).

Table 1. Presentation of the White Test for Heteroscedasticity

source	Chi2	df	p-value	conclusion
Heteroscedasticity	208.82	56	0.0000	Heteroscedastic
Skewness	32.32	10	0.0004	
Kurtosis	9.17	1	0.0025	
Total	**250.31**	**67**	**0.0000**	

Source: Authors calculation from Stata 14

Table 2. Panel Unit Root Tests Results

Variables	Common unit root process			Individual unit root process		
	Levin-Lin-Chu unit-root test			Im-Pesaran-Shin unit-root test		
	statistics	Prob.	Decision	statistics	Prob.	Decision
cab	-3.9324	0.0001	I(0)	-1.4057	0.0799	I(0)
unemp	-6.2015	0.0000	I(0)	-0.9301	0.1761	I(1)

Variables	Common unit root process			Individual unit root process		
	Levin-Lin-Chu unit-root test			Im-Pesaran-Shin unit-root test		
	statistics	Prob.	Decision	statistics	Prob.	Decision
fdi	-4.2823	0.0000	I(0)	-5.4840	0.0000	I(0)
rer	-6.5516	1.0000	I(1)	-9.0668	1.0000	I(1)
open	-1.5412	0.0616	I(0)	0.5134	0.6962	I(1)
lndva	-7.5032	0.0000	I(0)	-1.0606	0.1444	I(1)
lnfva	-8.6952	0.0000	I(0)	-1.0014	0.1583	I(1)
lnpop	-23.4507	0.0000	I(0)	14.6165	1.0000	I(1)

Source: Authors calculation from Stata 14

.

4.2 Results from Model Estimation

4.2.1 Presentation of results

Table 3. Panel Estimation of Parameters in Equation (1)

Independent variables	Dependent variable: CAB					
	(1)	(2)	(3)	(4)	(5)	(6)
Lndva	1.6413***					2.4315***
	(.5477)					(.6697)
Lnfva		.5608				-1.7327**
		(.5338)				(.6737)
LL	29.4667*	16.8806	-2.0955			11.8281
	(15.8277)	(14.6336)	(1.3453)			(11.8668)
LL*Lndva	-2.3312**			-.1803		-2.5733
	(1.2368)			(.1086)		(1.7436)
LL*Lnfva		-1.7075			-.2167*	1.6411
		(1.3256)			(.1283)	(1.7740)
Fdi	-.3155***	-.3187***	-.3005***	-.3004***	-.3003***	-.2955***
	(.0404)	(.0406)	(.0376)	(.0376)	(.0376)	(.04424)
Er	.0012	.0010	.0002	.0002	.0002	.00155*
	(.0012)	(.0012)	(.0009)	(.0009)	(.0009)	(.0009)
Unemp	.1017	.1632*	.1431**	.1435**	.1420**	.2642***
	(.0924)	(.0939)	(.0713)	(.0712)	(.0713)	(.0826)
open	1.8660***	1.6648***	1.3908***	1.3797***	1.3814***	2.1760***
	(.5012)	(.5186)	(.4126)	(.4100)	(.4099)	(.5725)
Lnpop	-.6925	.3895	1.7123**	1.7360**	1.7359**	-1.2020**
	(.7641)	(.7391)	(.6934)	(.6939)	(.6945)	(.5402)
Constant	-20.0573***	-21.5068**	-35.8965***	-36.2381***	-36.2177***	-2.6179
	(10.0604)	(9.9919)	(11.2625)	(11.2652)	(11.2754)	(7.0984)
Observations	627	627	627	627	627	627
Number of countries	33	33	33	33	33	33

*NB: Standard errors are in parentheses and *** p<0.01, ** p<0.05, * p<0.1 indicate significance of parameters at 1%, 5% and 10% respectively, Source: Authors' computation from stata 14*

4.3 Interpretation of Regression Coefficients

4.3.1 Interpreting coefficients of target variables

4.3.1.1 Forward participation

In Table 3, domestic value added (DVA) appears as Lndva and is present in the first and the sixth regressions under columns (1) and (6) respectively. The panel regression coefficient is positive and statistically significant at 1% in both regressions, affirming the assertion that forward participation in GVC for African countries positively contribute to current account balances. This explains the fact that most African countries' exports is constituted of raw material or unprocessed intermediary products needed by other actors in the global chain network. [36]

obtained similar results suggesting that backward and forward participation positively and significantly relate to current account balances. Also, [45]), working on a large sample of countries, including Sub-Saharan African (SSA) found that, despite the low trade shares at the global level, SSA countries are deeply involved in GVCP and the relevance of their international linkages is increasing with time and still limited to upstream production stages of the chain. However, [37] investigated the contribution of GVC on global imbalances captured by current account and found that GVCP affects CAB negatively.

4.3.1.2 Backward participation

Backward participation indicator appears as Lnfva in Table 3. The resulting coefficients are depicted under columns (2) and (6). In the regression labelled (2), it has a positive non-significant coefficient and in the regression labelled (6), it has a coefficient which is negative and significant at 5%. This simply means that, backward participation into GVC deteriorates Africans countries current account balance. Based on this outcome, one could deduce that African countries in general lack facilities which eases the use of intermediate products from other countries or value chain actors. These facilities could be in terms of poor infrastructure and other information and communication technologies. Simply put, participation in GVC at a higher cost can deteriorate a country's CAB. [37] obtained similar results showing that GVC negatively relates to CAB. Also, [36] conducted several regressions and found that backward participation positively contribute to current account balance in a general perspective.

Considering the results obtained from the two GVCP variables, the first alternative hypothesis is accepted and it is said that forward GVCP has a more positive and significant effect on CAB in African economies.

4.3.1.3 Being landlocked (LL)

In our specification, this variable is represented by (LL) as seen in Table 3. This variable exist independently in the regressions labelled (1) (2) (3) and (6). This variable present a coefficient which is positively significant at 10% only in the regression labelled (1). The target of this paper however is GVCP associated to being landlocked economy and not current account balance in landlocked economies. We therefore interact the variable LL with GVCP variables as seen below.

4.3.1.4 Interacting Landlocked Variable with Forward Participation Variable (LL*Lndva)

This interaction variable appears in the regressions labelled (1), (4) and (6) in Table 3 above. It is represented as LL*Lndva and it contributes negatively to the current account balance in all the regressions and statistically significant at 5% in the regression labelled (1). This means that in landlocked African countries, the effect of forward participation in GVC on current account balances is reduced. This is due to accessibility challenges which complicates the participation of landlocked African economies into global production network.

4.3.1.5 Interacting Landlocked Variable with Backward Participation Variable (LL*Lnfva)

Concerning this other interaction variable which appears in the regressions labelled (2), (5) and (6) as LL*Lnfva in Table 3 above, we equally observe a negative sign. The result is significant at 10% in one regression. This signifies that in landlocked African economies, backward participation into GVC has a reduced effect on current account balances in landlocked African countries. Just like with forward participation, this result is attributed to the accessibility challenges associated to participating in global production chain.

Generally, the introduction of the dummy variable landlocked and its interactions with GVCP variables raises the issues on the difficulties encountered by landlocked countries to join the global production network and the international exchange of goods and services. With this result, it can therefore be concluded that during the period covered by this study, GVCP has a reduced effect on current account balances in landlocked African countries and the second alternative hypothesis of the paper is accepted on the basis that landlocked African countries are affected differently. Landlocked countries have to make further efforts to develop long lasting infrastructure that eases their participation into global activities. [40] in a study on being landlocked and export performance found that the overall export performance of Landlocked Developing Countries is lower than that of non-landlocked developing countries due to the

inherent additional trade costs associated with landlockedness. [46] suggest that a median landlocked country trades 30 percent less than a non-landlocked country. [41] finds that landlockedness reduces trade by as much as 80 percent in these countries. [47], in a study of landlockedness, find that landlockedness increases trade costs by almost 50 percent more than the costs imposed by distance, and reduces trade volume by 30 to 60 percent in a group of developed and developing countries. [48] observed that even after controlling for other factors, firms in landlocked countries are less likely to export than firms in countries with access to seaports. Further, [42] in a study on GVCP and CAB in landlocked African countries found that GVCP contributed positively to CAB. Also, [39] compared African landlocked and non-African landlocked and found that African landlocked countries were located upstream.

4.4 Interpretation of Control Variables

4.4.1 Foreign direct investment (FDI)

Looking at the results of foreign direct investment (FDI) in Table 3 it has a negative and statistically significant relationship with current account balance in African economies during the period of study. A recent study conducted by [1], obtained similar results using three econometric methodologies. [49] found that FDI has a negative and significant relation with current account balance. [50] in a study also discovered a negative non-significant relation between FDI and current account balance. A contradiction to our result was gotten by [51] where they found that FDI positively and significantly contributed to employment quality outcomes which ameliorates current account balance.

4.4.2 Trade openness

As observed in Table 3, the variable trade openness (Open) positively contributes to current account balance in Africa during the period covered by this study. On the contrary, [50] found that trade openness had a negative and significant relation with current account balance. Earlier authors in the literature acknowledged the fact that trade openness has ambiguous effects on the current account balance. Less open economies may import less, which may reduce the current account deficit. However, the same countries may have difficulties servicing external liabilities, resulting in higher debt service costs and a greater current account imbalance. On the

other hand, greater openness typically allows countries to undertake more investment and to finance the resulting current account deficits with capital flows from abroad. Our specification in the context of global production network require adequate trade openness which is very beneficial for country and firm interdependence.

4.4.3 Unemployment rate

For unemployment rate (Unempt), results from all the regressions reveal that it contributes positively to current account balances in African economies during the period of study. The coefficients obtained show that it is statistically significant in five out of the six regressions conducted at various level of significance. Similar results were obtained by [49].

4.4.4 Population acting as the Market

The total population (Pop) which represent the market positively contribute to current account balance in African economies during the period of study. This variable is statistically significant in four out of the six regressions though with a negative sign in one of the regressions. Similar results were obtained by [1]. Contradictory results were obtained by [36] where they discovered a negative and statistically significant relation between population growth rate and current account balances. This negative relation can be justified by the fact that a larger population means that more goods will be imported for their up keep. The domestic market size is expected to be a strong determinant of the volume of GVC trade through the economic mass of trading partners ([52]; [53])

5. CONCLUSION

The main objective of this paper has been to find out the type of GVC participation that affects current account balance in African economies, making further precisions on the specific case of landlocked countries. The researchers make a panel specification and conduct a regression analysis taking inspiration from previous works. This paper used time series data from the recently developed Multi-Region Input Output (MRIO) table provided by UNCTAD-EORA (2018) database, the WDI-2018 database and the PWT 9.1. The FGLS econometric technique was used to regress our specified model and the main results revealed firstly that forward participation in GVC contributes more significantly and positively to the current account

balances of African countries. Secondly, the results on the specific case of African landlocked countries showed that, the effect of GVC on current account balances is reduced in landlocked African countries. This is due to locational challenges which increases the cost of participation in global activities.

This paper recommends that African countries should orientate their international dealings towards forward participation to improve their current account balance. This implies African countries should be providers of intermediary inputs to other GVC actors worldwide. Further, the paper recommends that African countries should design policies that will favor the establishment of firms or industries involved in the provision of intermediate products. Also, African countries in general and landlocked countries in particular should improve the infrastructure that facilitates connectivity to the external world so as to reduce trade costs which increase the burden of participating in global production and exchange.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Eita JH, Victoria M, Erwin N. Macroeconomic variables and current account balance in Namibia. MPRA. 2018;88818.
    Available:https://mpra.ub.uni-muenchen.de/88818.Aag.
2. Opoku-Afari M. Capital flows and current account sustainability: Research paper at www. Nottingham.ac.uk/economics/credit.; 2005.
3. Osakwe P, Verik S. Current Account Deficit in Sub-saharan Africa. Do they matter? United Nations Commission for Africa. 2007;201-220.
4. Boljanovic S. A Sustainability Analysis of Serbia's CA Deficit, Serbia. Economic Annals. 2012;57(195):0013-3264.
5. Ben S, Jodie K, Poorvi G. Connectivity and Global Value Chain Participation: Cost and Capability Considerations. The Common Wealth. Trade Hot Topics; ISSUE. 2016;136.
6. Baldwin R. Global supply chains: why they emerged, why they matter, and where they are going, in Elms, D. and Low, P. (eds.), Global value chains in a changing world, WTO Secretariat; and United Nations Conference on Trade and Development (UNCTAD); 2013.
7. Taguchi H. Domestic value creation in global value chains in Asian economies. Saitama University; MPRA. 2018;89741, posted 30 Oct 2018 00:41.
    Available:https://mpra.ub.uni-muenchen.de/89741/W.
8. Gereffi G, Fernandez-Stark K. Global Value Chain Analysis: A Primer. Second Edition. The Duke Center on Globalization, Governance & Competitiveness; 2016
    Available:https://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/12488/2016-0728_GVC%20Primer%202016_2nd%20edition.pdf?sequence=1.
9. Ikuo K. Mapping Agricultural Value Chain with International Input-Output data. IDE discussion. 2016;623.
10. Johnson RC, Noguera G. Accounting for Intermediates: Production Sharing and Trade in Value Added. Journal of International Economics. 2012;86(2):224-236.
11. Wang Z, Wei S-J, Zhu K. Quantifying international production sharing at the bilateral and sector levels. National Bureau of Economic Research; 2013.
12. OECD-WTO. Database on Trade in Value-Added First Estimates. 16 January 2013", Paris: OECD; 2013.
13. Bilal L, Mohamed K. Competitiveness Determinants of Moroccan Exports: Quantity-Based Analysis. International Journal of Economics and Finance. Published by Canadian Center of Science and Education. 2016;8(7): 2016 ISSN 1916-971X E-ISSN 1916-9728.
14. Ifedapo A, Mark E. Africa's competitiveness in the Global economy. Book series: AIB Sub-Saharn Africa (SSA) series. Springer International Publishing; Print ISBN: 978-3-319-67013-3; Electronic ISBN. 2018;978-3-319-67014-0.
15. Klaus S. The Global Competitiveness Report (2019). World Economic Forum 91-93 route de la Capite CH-1223 Cologny/Geneva Switzerland. ISBN-13: 978-2-940631-02-5. The Report and an interactive data platform are; 2019.
    Available:www.weforum.org/gcr.
16. UNCTAD. World Investment report 2013: Global Value Chains: Investment and

Trade for Development. United Nations Conference on Trade and Development, United Nations Publication. ISBN 978-92-1-112868-0; 2013.

17. Miroudot S, Lanz R, Ragoussis A. Trade in intermediate goods and services. OECD Publishing. OECD Trade Policy Working Paper No. 2009;93.

18. Hummels D, Jun I, Kei-Mu Y. The Nature and Growth of Vertical Specialization in World Trade. Journal of International Economics. 2001;54(1).

19. Stehrer R, de Vries GJ, Los B, Dietzenbacher H, Timmer M. The World Input Output Database: Content, Concepts and Applications; 2014.

20. Casella B, Bolwijn R, Moran D, Kanemoto K. Improving the Analyses of GVC: the UNCTAD-EORA database. New York and Geneva: United Nations; 2019.

21. Sachs J. The Current Account and Macroeconomic Adjustment in the 1970s'. Brookings Papers on Economic Activity. 1981;1:201-282.

22. Obstfeld M, Rogoff K. The Intertemporal Approach to the Current Account. In G. Grossman and K. Rogoff (eds.), Handbook of International Economics. 3. Amsterdam: North Holland. 1995;1731-1799.

23. Glick R, Rogoff K. Global versus Country-Specific Productivity Shocks and the Current Account. Journal of Monetary Economics. 1995;35:159-192.

24. Razin A. The Dynamic-Optimizing Approach to the Current Account: Theory and Evidence. In P. Kenen (ed.) Understanding Interdependence: The Macro-economics of the Open Economy. NJ: Princeton; 1995.

25. Backhaus JG. Handbook of history of economic thought: insights of the foundation of modern economics. The European heritage in economics and the social sciences. Springer New York Dordrecht Heidelberg London. Library of Congress; 2012. ISBN 978-1-4419-8335-0. DOI 10.1007/978-1-4419-8336-7.

26. Reinhard S. Adam Smith, the Patterns of Foreign Trade and the Division of Labour: A Country as a Jack-of All-Trades Rather Than a Specialist. Center for the history of political economy at duke university. Chope Working Paper No. 2016-22;2016.

27. Smith A. An Inquiry into the Nature and Causes of the Wealth of Nations. [WN], R. H. Campbell and A. S. Skinner (eds), The Glasgow Edition of the Works and Correspondence of Adam Smith: Oxford University Press. 1976;2a and 2b.

28. Coffey WJ. The "newer" international division of labour. in P.W. Daniels and W.F. Lever (eds), The Global Economy in Transition, Longman, Harlow. 1996;40–61.

29. Kherrazi S. 'L'essor des Chaînes de Valeur Mondiales : l'impératif d'une stratégie duale pour l'Afrique'. Revue de Management et de Stratégie,. www.revue-rms.fr2015;2-5. French

30. Frobel FH, Heinrichs J, Kreye O. The new international division of labour. Social Science Information. 1978;17(1):123–42.

31. Eaton J, Kortum S. Technology, Geography, and Trade. Econometrica. 2002;70(5):1741-1779.

32. Dornbusch R, Fischer S, Samuelson PA. Comparative Advantage Trade and Payments in Ricardian Model with Continuum of Goods. The American Economic Review. 1977;67(5):823-839.

33. Shiozawa Y, Fujimoto T. The nature of international competition among firms. In T. Fujimoto and F. Ikuine (eds.) Industrial Competitiveness and Design Evolution, Tokyo, Springer Japan; 2018.

34. Grossman G, Rossi-Hansberg E. The Rise of Offshoring: It's Not Wine for Cloth Anymore. American Economic Review. 2006;98(5): 978-97.

35. Porter M. Competitive Advantage: Creating and sustaining superior performance. New York: Free Press; 1985.

36. Brumm, J, Georgiadis G, Grab J, Trottner F. Global Value Chain Participation and Current Account Imbalances. Journal of International Money and Finance. DOI:10.1016/j.jimonfin.2019.01.018; 2019.

37. Jane H. Have Global Value Chain contributed to Global Imbalances? International Finance discussion paper: number 1154; ; 2015. Available:http://dx.doi.org/10.17016/IFDP.2015.1154.

38. OECD. GVC participation in the agriculture and food sectors. Trade and Agriculture Directorate: Joint Working Party on Agriculture and Trade. Available at TAD/TC/CA/WP(2016)1/PART2/FINAL. JT03408256; 2016.

39. Gilhaimé M, Jiong. Determinants of global value chains participation for landlocked countries. International Journal of Social Science and Economic Research. ISSN: 2455-8834. 2019;04(05).

40. Paudel RC, Cooray A. Export performance of developing countries: Does landlockedness matter? Rev Dev Econ. 2018;00:1–27.
Available:https://doi.org/
10.1111/rode.12389; 2018.

41. Raballand G. Determinants of the negative Impact of being landlocked on Trade: An Empirical Investigation through the Central Asian case. Comparative Economic Studies. 2003;45.

42. Kenfack GF, Ningaye P, Kuipou TC. Global Value Chain Participation and Current Account Balances in Landlocked African Countries. Journal of Economics, Management and Trade. 2020;26(2):1-14. Article no. JEMT.54987 ISSN: 2456-9216; 2020.

43. Debelle G, Farquee H. What Determines the Current Account? A Cross-Sectional and Panel Approach" IMF Working Paper 96/58; 1996.

44. Brissimis SN, Hondroyannis G, Papazoglu C, Tsaveas NT, Vasardani MA. Current Account Determinants and External Sustainability in Periods of Structural Change. European Central Bank Working Paper Series. 2010;1243.

45. FAO. Global and Agro-Food Value Chains Participation, determinants and trade policy with a focus on Sub Saharan countries. (Second Draft); 2016.

46. Limao N, Venables AJ. Infrastructure, geographical disadvantage, transport costs, and trade. World Bank Economic Review. 2001;15(3):451–479.
Available:https://doi.org/10.1093/wber/15.3.451;.

47. Behar A, Venables AJ. Transport costs and international trade. In R. L. Andre de Palma, Emile Quinet, and Roger Vickerman (Eds.), A handbook of transport economics. 2011;97–115.

48. Clarke GR. Beyond tariffs and quotas: Why don't African manufacturers export more? Policy Research Working Paper 3617. Washington, DC: World Bank; 2005.

49. Gheorghe H, Maria-Isadora, L, Madalina EP. An assessment of enhanced competitiveness through fiscal devaluation. Procedia Economics and Finance. 2015;22:262 – 267. Economic Scientific Research - Theoretical, Empirical and Practical Approaches', Bucharest, Romania, 2015;13-14.

50. Luljeta S, Merale FV, Murat S, Nimete B. The persistence and determinants of current account deficit of FYROM: An empirical analysis. ScienceDirect: Available online at www.sciencedirect.com. Procedia Economics and Finance. 2015;33.

51. Agyapomaa G, Abena DO, Ebo T, Twumasi PB, Abbey EN. Ghana's Participation in Global Value Chains: The Employment Effects. Swiss programme for research on global issues for development. World Trade Institute. R4D Working Paper 2017/05; 2017.

52. Anderson JE, van Wincoop E. Gravity with gravitas: A Solution to the border puzzle. American Economic Review. 2003;93(1):170–192.
Available:https://doi.org/10.1257/000282803321455214.

53. Evenett SJ, Keller W. On theories explaining the success of the gravity equation. Journal of Political Economy. 2002;110(2):281-316.

Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle4.com/review-history/74142