
Effects of Globalization on Participation in Global Agricultural Value Chains in sub-Saharan African Countries

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ABSTRACT

Many studies have analyzed only the effect of economic globalization on the development of global value chains (GVCs). In this research, we analyze the effect of globalization (economic, social, and political) on Sub-Saharan Africa's (SSA) participation in agricultural GVCs. The data used in this study come from WDI, UNCTAD, and KOF indices and cover the period from 1991 to 2018. The results obtained using the Panel Corrected Standard Error (PCSE) estimation method show that overall globalization, economic globalization, and political globalization have a positive influence, while social globalization has a negative effect on participation in agricultural GVCs. In terms of economic policy implications, SSA countries should strengthen regional integration and facilitate openness by removing certain barriers to international trade.

Keywords: Sub-Saharan Africa, global agricultural value chains, globalization, Panel Corrected Standard Error

JEL classification codes: F60, F21, F29

1. Introduction

Could globalization affect participation in agricultural GVCs in SSA? Economic literature considers participation in GVCs to be one of the main determinants of international trade growth (Kowalski & al. 2015; OECD & al. 2014; OECD & UNDP, 2014) and economic

development and growth (Punthakey, 2020; Wonyra & Okah, 2020; Allard & al. 2016). The premises of international trade considered that goods are produced in one place and then exported. But with globalization facilitating global trade and, above all, the mobility of intermediate goods, production extends throughout the supply chain. This new production strategy generates commercial costs and requires financial and material support. Indeed, theoretical work on trade in intermediate goods initially considered factors of production (labor and capital), final goods costs, and international demand for intermediate goods as the determinants of participation in GVCs (Frankel, 1985; Sanyal & Jones, 1979; Ethier, 1982). It was not until the 2000s that other theoretical studies introduced financial flows into the analysis of participation in GVCs (Dearnodff, 2001; Jones & Kierzkowski, 2001). These authors added to their analyses the cost of local services, trade in services, and trade barriers, which incorporate financial flows. In addition, with the recent high mobility of FDI, other authors such as Wonyra & Efogo (2020); Amador & Cabral (2016); Asmussen & Pedersen (2009); and UNCTAD (2020) have analyzed the link between FDI and GVCs.

The GVC theory stems from international trade theory. The traditional theory of international trade was first developed by Smith (1776) and envisages a production process spread across several geographical areas. Smith's idea was then developed by Ricardo (1817) and Heckscher (1933), Ohlin (1933) and Samuelson (1941). These models made it possible to separate places of production and places of consumption internationally due to reduced transport and communication costs. With globalization, new theories consider that trade between countries is not limited to finished products. They also take into account intermediate goods (Chang & Mayer, 1973). Thus, the theoretical literature establishes a link between the different dimensions of globalization and participation in GVCs. First, it highlights the effects of the economic dimension, which is measured by financial and trade flows. According to the OECD report (2020), investments in research and development and education are all positively linked to the creation of national added value and participation in GVCs. These investments in the agricultural sector can significantly promote the development of agricultural GVCs. In this sense, Nguyen & al. (2023) argue that FDI is an indicator of participation in GVCs. Similarly, Punthakey (2020) argues that FDI plays an important role in stimulating participation in agri-food GVCs.

Furthermore, the social dimension, measured by the dissemination of cultures and languages through ICT, tourism, and migration, can also influence participation in agricultural GVCs. These various factors can resolve information asymmetry issues

by enabling the dissemination of useful information to GVC actors. According to the technology gap thesis, technology is a determining factor in international trade. In addition, tourism and migration provide labor in destination countries, with workers involved in various sectors of activity. It is in this sense that Yu & al. (2015) argue that Chinese migrants participate in the development of GVCs by improving the production, sale, and processing of agricultural products as well as the supply of inputs. Finally, the political dimension, measured by participation in international missions and the number of multilateral treaties signed since 1945, may be one of the factors influencing participation in GVCs. These different models of governance can influence learning mechanisms in GVCs (Pietrobelli & Rabellotti 2011).

Statistics show that Africa participates very little in agricultural GVCs. Although African countries' participation in GVCs has increased in recent years, they are still underrepresented in GVCs. Thus, regional value chains (RVCs) as a percentage of participation in GVCs is 2.7% for Africa, compared to 26.4% for Latin America and the Caribbean and 42.9% for Asia (OECD & AU, 2022). Similarly, intra-African trade in value-added goods has remained low (9%), compared to 45% in Asia and 18% in Latin America (Slany, 2019). Due to exports of raw natural resources, Africa participates more in downstream GVCs than in upstream ones. While upstream participation accounts for only 2% of African GDP, downstream participation accounts for 6% of Africa's GDP (OECD & AU, 2022).

Numerous scientific studies have focused on participation in GVCs. Indeed, most recent studies on this topic have considered only the effects of FDI (Punthakey, 2020; Wonyra & Okah, 2020) and trade policies (Takpara & al. 2023) on participation in GVCs. However, no studies have analyzed the effect of globalization on participation in agricultural GVCs, especially in the context of SSA. The objective of this study is therefore to analyze the effect of globalization (economic, social, and political) on the participation of SSA countries in agricultural GVCs. The rest of this study is structured as follows: Section 2 is devoted to the literature review; Section 3 discusses the research methodology; Section 4 presents the results and discussion; and Section 5 concludes the study.

2. Literature review

The analysis of participation in GVCs has attracted the interest of researchers in recent years. Empirical literature establishes links between FDI, trade facilitation, ICT, and participation in GVCs. The results of this research are mixed. While some researchers

argue that globalization promotes participation in GVCs (Greenville & al. (2017); Punthakey (2020); Gniniguè & al. (2023); Takpara & al. (2023); Sansika & al. (2023)), others highlight negative or even mixed effects (Seth & al. (2016); Lin & Kwan (2016); Todirica & al (2018)), especially in developing countries.

Theoretically, the literature establishes a link between the different dimensions of globalization and participation in GVCs. This literature analyzes the effect of foreign capital, trade agreements and costs, migration and tourism, international institutions, technology, and knowledge on the development of GVCs. First, the literature highlights the importance of globalization in developing countries. Nugroho & Lakner (2022) find that globalization positively affects participation in agricultural GVCs as it provides a market for agricultural products, technology, and innovation for greater and higher-quality production. Thus, as in other areas of activity, financial capital and investment are essential for the development of agricultural GVCs. These investments can significantly promote the development of agricultural GVCs. In this sense, Nguyen & al. (2023) argue that FDI has a positive impact on participation in GVCs. According to the OECD report (2020), investments in research and development and education are all positively linked to the creation of national added value and participation in GVCs. Consequently, Punthakey (2020) asserts that FDI plays an important role in stimulating participation in agri-food GVCs. FDI is considered a factor that can strengthen developing countries' participation in GVCs, as the inflow of FDI should stimulate the productivity of host countries (Evers & al. 2014), promote technology transfer (Allard & al. 2016), and enable the integration of local firms into their chains of activities (Arvis & al. 2012; Borchert & al. 2012; Fernandez & al. 2011).

Similarly, foreign capital and trade agreements can contribute to integration into agricultural GVCs. It is with this in mind that Conde & al. (2015) state that the implementation of regional trade agreements is a priority that could help African companies, particularly SMEs, which face obstacles to integrating into GVCs, to strengthen their competitiveness on a global scale. In addition, local institutions play an important role in the participation of companies in GVCs (Dollar & al. 2016). For Dollar & Matthew (2017), institutional quality at the national level is positively linked to participation in more complex GVCs. Similarly, regional institutions can impact the establishment of businesses and GVCs. However, the literature also emphasizes that globalization does not only have positive effects in developing countries. Globalization exposes developing countries to competition and international price levels. In this sense, local firms will not be able to establish themselves in agricultural GVCs since

the leading firms in the GVC control the brand and product design. In this case, globalization will not improve economic performance, social welfare, and participation in agricultural GVCs.

Empirically, the debate on the effect of globalization on participation in GVCs remains controversial. Some researchers argue that globalization has positive effects on participation in GVCs. Sansika & al. (2023) used panel data with the stepwise method to quantify the impact of economic globalization on agricultural value added in 101 countries between 2000 and 2021. Their results reveal that economic globalization through FDI influences agricultural value added. Takpara & al. (2023) empirically assessed the contribution of trade facilitation to the participation of SSA countries in GVCs. Using ordinary least squares (OLS) and two-stage least squares with instrumental variables (IV-2SLS), the results reveal that trade facilitation indicators such as physical infrastructure, ICT, and border and transport efficiency support SSA countries' participation in GVCs. Gniniguè & al. (2023) analyzed the effect of ICT on countries' participation in GVCs. Using the Bayesian model average calculation approach applied to data from 44 developing countries from 1990-2019, the results indicate that ICT has a positive and significant effect on developing countries' participation in GVCs. Punthakey (2020) analyzed the effects of FDI and trade on participation in agri-food GVCs from 1997 to 2017. The results of the OLS show that FDI plays an important role in stimulating participation in agri-food GVCs.

However, other researchers have shown that globalization has negative effects on participation in GVCs, especially in developing countries. Seth & al. (2016) studied the impact of Chinese migrants in the agricultural and agri-food sector in Ethiopia and Ghana. They found that these migrants do not contribute to agricultural and agri-food development. In their view, these migrants are looking for markets to sell their products in developing countries, rather than seeking to develop the sector. Lin & Kwan (2016) assessed the impact of FDI in China. They found that multinationals invest in several countries to acquire local markets at the expense of domestic companies. Demena & Murshed (2018), by identifying the channels of FDI transmission, showed that the direction of foreign capital effects depends on local absorption capacity (Farole & Winkler 2014) and the level of technology in the host country. Todirica & al. (2018) studied the advantages and disadvantages of globalization on food security in developing countries. They find that globalization has allowed foreign firms to take over agricultural land to the detriment of local companies.

3. Research methodology

1. Model

In this study, we use the theoretical model proposed by Chang & Mayer (1973) to analyze the effects of globalization on participation in agricultural GVCs in SSA. The model considers two sectors in which the industries in each sector use the finished products of the other industry as raw materials. The model is written as follows:

$$X_t = \bar{x}(K_t^\alpha L_t^{1-\alpha})^{1-\sigma} X_{t-1}^\sigma$$

Where X_t is trade in value-added products, K_t is capital, and L_t represents labor.

After linearizing and transforming the model, we obtain:

$$\ln(X_t) = \text{cons}_t + \rho_1 \ln(K_t) + \rho_2 \ln(L_t) + \rho_3 \ln(X_{t-1})$$

With $\rho_1 = \alpha(1-\sigma)$, $\rho_2 = (1-\alpha)(1-\sigma)$ and $\rho_3 = \sigma$

Based on this theoretical model, we introduce the variables of economic globalization and obtain the following econometric model:

$$\ln(PCVMA_{it}) = \rho_0 + \rho_1 \ln(Koffi_{it}) + \rho_2 \ln(L_{it}) + \rho_3 \ln(X_{it-1}) + \mu_{it}$$

Where $PCVMA_{it}$ represents participation in agricultural GVCs, $Koffi_{it}$ globalization, X_{it} the vector of control variables, and μ_{it} the error term. The indices i and t represent the country and time, respectively. These data cover 39 countries in sub-Saharan Africa over the period from 1991 to 2018.

2. Description of variables and data sources

We measure globalization using the globalization index. This index measures the degree of integration or openness of countries. It ranges from 1 to 100, with values closer to 100 indicating a high degree of globalization. It is subdivided into three (3) dimensions. First, the economic dimension, which is characterized by the removal of barriers to free trade, capital movements, FDI, and business relocation. Second, the social dimension, which includes the dissemination of ideas, information, images, values, cultures through ICT (mobile phones, radio, the internet, WhatsApp, and Twitter), tourism, and migration. Finally, the political dimension refers to the dissemination of government policies through their membership in international institutions (Bataka, 2021; Gygli & al. 2019). In addition, each dimension of globalization is subdivided into two (2) sub-dimensions,

namely de facto globalization and de jure globalization. De facto globalization measures actual flows and activities. A distinction is made between de facto economic globalization, which includes flows of goods, services, and capital, and de facto social globalization, which refers to the actual flows of ideas, knowledge, and images. Finally, de facto political globalization is characterized by the dissemination of government policies through countries' participation in UN peacekeeping missions and the number of embassies and international NGOs present in a country (Gygli & al. 2019). In addition, de jure globalization measures the policies and institutions that facilitate actual flows and activities. De jure economic globalization is the set of policies that facilitate trade flows. De jure social globalization is the set of policies that enable direct interactions between people living in different countries. And de jure political globalization measures a country's capacity to engage in international political cooperation.

Table 1: Description of variables and data source

<i>N°</i>	<i>Variables</i>	<i>Description</i>	<i>Sources</i>
1	PGAVC	Participation in global agricultural value chains	Eora-tiva (UNCTAD)
2	KOFGI	Total globalization	KOF Index
3	KOFGIdf	De facto total globalization	KOF Index
4	KOFGIdj	De jure total globalization	KOF Index
5	KOFecGI	Economic globalization	KOF Index
6	KOFecGIdf	De facto economic globalization	KOF Index
7	KOFecGIdj	De jure economic globalization	KOF Index
8	KOFSoGI	Social globalization	KOF Index
9	KOFSoGIdf	De facto social globalization	KOF Index
10	KOFSoGIdj	De jure social globalization	KOF Index
11	KOFPoGI	Political globalization	KOF Index
12	KOFPoGIdf	De facto political globalization	KOF Index
13	KOFPoGIdj	De jure political globalization	KOF Index
14	PIB	GDP per capita (US\$)	WDI
15	EpRN	Depletion of natural resources (% of GNI)	WGI
16	Ccorr	Corruption control	WGI
17	GovEff	Government effectiveness	WGI
18	StPo	Political stability and absence of violence	WGI
19	Rol	Rule of law	WGI
20	VoResp	Voice and accountability	WDI
21	INF	Inflation, GDP deflator (% annual)	WDI
22	Internet	Internet users (% of population)	WDI

Source: Author (2025)

Table 2: Descriptive statistics

<i>Variables</i>	<i>Obs</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Min</i>	<i>Max</i>
KOFGI	975	42.77	8.99	22.47	71.76
KOFGIdf	975	41.58	9.69	19.21	70.85
KOFGIdj	975	43.95	9.78	20.45	80.11
KOFecGI	975	41.12	10.26	16.09	84.89
KOFecGI df	975	46.09	14.13	15.31	89.22
KOFecGI dj	975	36.10	10.99	13.61	80.90
KOFSoGI	975	32.89	13.26	7.16	77.19
KOFSoGI df	975	28.73	12.72	7.37	70.83
KOFSoGI dj	975	36.88	14.83	6.58	83.54
KOFPoGI	975	53.94	14.40	23.49	89.15
KOFPoGI df	975	49.20	19.04	13.28	92.29
KOFPoGI dj	975	58.68	12.90	11.95	86.32
PGAVC	975	156.6	402.1	1.12	3.80
PIB	975	1.332	1.747	99.76	10.37
EpRN	952	8.673	10.57	0	78.37
Ccorr	663	32.07	22.05	0	85.19
GovEff	660	28.79	19.64	1.081	84.62
StPo	663	34.17	23.45	0	93.75
Rol	663	31.12	20.70	0.47	83.50
VoResp	663	32.92	19.98	2.49	77.61
INF	974	63.53	893.9	-27.05	26.76
Internet	961	3.38	7.138	-29.17	51.92

Source: Author (2025) based on Stata.

3. Estimation technique

3.1. Preliminary tests

To choose the appropriate estimation method, we will conduct a series of tests. The number of countries is greater than 25 and the time dimension is equal to 25. First, we perform the inter-individual dependence test (Pesaran, 2004) to choose between first-generation unit root tests (when there is inter-individual independence) and second-generation tests (when there is inter-individual dependence). The implementation of this test shows that the spatial dependence statistics for most variables are significant at 1% (see Table 3). We reject the null hypothesis of no spatial dependence between the countries studied. There is therefore spatial dependence in the panel data structure.

Table 3: Dependence test

Variable	CD-test	p-value
PGAVC	124.03***	0.00
KOFGI	121.95***	0.00
KOFGIdf	77.06***	0.00
KOFGIdj	128.42***	0.00
KOFecGI	30.53***	0.00
KOFecGI df	10.57***	0.00
KOFecGI dj	19.65***	0.00
KOFSoGI	130.78***	0.00
KOFSoGI df	123.69***	0.00
KOFSoGI dj	127.79***	0.00
KOFPoGI	104.44***	0.00
KOFPoGI df	35.00***	0.00
KOFPoGI dj	129.37***	0.00
PIB	114.79***	0.00
EpRN	6.77***	0.00
Rol	2.15*	0.03
Ccorr	0.58	0.57
GovEff	0.88	0.38
StPo	-0.18	0.24
VoResp	1.03	0.30
INF	19.48***	0.00
Internet	116.90***	0.00

***p<1% ; **p<5% ; *p<10%

Source: Author (2025) based on Stata.

The presence of spatial dependence between countries allows us to implement Pesaran's (2007) second-generation unit root test. The results of this test show that the CIPS statistics for most variables are below the critical statistic at the 1% threshold. These results allow us to reject the null hypothesis of the presence of a unit root for all variables (see Table 4). All variables are therefore stationary.

Table 4: Unit root test

Variables	t-CIPS*	10%	5%	1%	Stationarity
PGAVC	-2.05*	-2.04	-2.11	-2.23	I(0)
KOFGI	-2.47***	-2.04	-2.11	-2.23	I(0)
KOFGIdf	-2.58***	-2.04	-2.11	-2.23	I(0)
KOFGIdj	-2.25***	-2.04	-2.11	-2.23	I(0)
KOFecGI	-2.30***	-2.04	-2.11	-2.23	I(0)
KOFecGI df	-2.33***	-2.04	-2.11	-2.23	I(0)
KOFecGI dj	-2.06*	-2.04	-2.11	-2.23	I(1)
KOFSoGI	-2.13**	-2.04	-2.11	-2.23	I(0)
KOFSoGI df	-2.25***	-2.04	-2.11	-2.23	I(0)
KOFSoGI dj	-2.24***	-2.04	-2.11	-2.23	I(0)
KOFPoGI	-2.40***	-2.04	-2.11	-2.23	I(0)
KOFPoGI df	-2.39***	-2.04	-2.11	-2.23	I(0)
KOFPoGI dj	-2.51***	-2.04	-2.11	-2.23	I(0)
PIB	-2.82***	-2.04	-2.11	-2.23	I(0)
Rol	-2.09***	-1.69	-1.73	-1.82	I(0)
Ccorr	-2.03***	-1.69	-1.73	-1.82	I(0)
StPo	-2.11***	-1.69	-1.73	-1.82	I(0)
VoResp	-1.87***	-1.69	-1.73	-1.82	I(0)
Wooldridge autocorrelation test: Prob>F					0.00
Breusch-Pagan heteroscedasticity test Prob>chiz					0.00

***p<1% ; **p<5% ; *p<10%

Source: Author (2025) based on Stata.

To analyze the problem of heteroscedasticity, we performed the Breusch & Pagan (1979) heteroscedasticity test. The result gives a probability (chiz = 0.00) that is significant at 1%. This test therefore indicates the presence of heteroscedasticity. Next, to test for autocorrelation of errors, we used the Wooldridge (2002) test. The Fisher statistics provided by this test are significant at 1% and imply the presence of autocorrelation. Finally, the Pearson correlation coefficient matrix shows correlation coefficients that are significant at 1% for all variables.

3.2. Estimation method

The preliminary tests above reveal the presence of spatial dependence, the absence of a unit root, and the presence of heteroscedasticity and autocorrelation in the temporal structure of the data. The econometric literature proposes several methods for estimating static panel models that take into account the problems affecting our data.

Among these methods, the most recommended are Parks' (1967) Feasible Generalized Least Squares (FGLS) and Beck & Katz's (2011) panel-corrected standard errors (PCSE) (2011) (Moundigbaye & al., 2020). Beck & Katz (2011) point out that PCSE gives lower estimates. The standard errors for FGLS are 50 to 100% smaller than those for the OLS model with PCSE (Beck & Katz, 2011).

4. Results and discussion

First, Table 5 below presents the effects of globalization on agricultural GVCs.

Table 5: Effect of total globalization on agricultural GVCs

<i>Variables</i>	(1)	(2)	(3)	(4)
KOFGI	17.54***			
	(3.421)			
KOFecGI		0.10		
		(2.081)		
KOFSoGI			-5.37***	
			(1.671)	
KOFPoGI				13.18***
				(1.558)
PIB	0.09***	0.10***	0.11***	0.09***
	(0.013)	(0.015)	(0.014)	(0.012)
EpRN	-5.35***	-6.37***	-6.59***	-2.38***
	(0.914)	(1.271)	(0.963)	(0.791)
Ccorr	2.27	0.03	0.14	4.86***
	(1.486)	(1.224)	(1.224)	(1.502)
GovEff	3.03**	4.19***	3.88**	1.05
	(1.355)	(1.583)	(1.586)	(1.224)
StPo	-12.37***	-13.33***	-13.12***	-9.50***
	(1.949)	(2.122)	(1.971)	(1.550)
Rol	-7.00***	-4.96**	-4.29*	-6.38***
	(2.319)	(2.286)	(2.193)	(2.126)
VoResp	11.13***	12.90***	12.91***	8.51***
	(1.589)	(1.950)	(1.945)	(1.407)
INF	0.00	-0.02	-0.03	0.01
	(0.026)	(0.033)	(0.036)	(0.021)
Internet	6.55**	12.26***	14.31***	7.19***
	(3.108)	(3.473)	(3.669)	(2.569)
Constant	-505.74***	352.78***	575.16***	-430.25***

<i>Variables</i>	(1)	(2)	(3)	(4)
	(161.172)	(100.534)	(79.885)	(89.434)
Observations	635	635	635	635
R-squared	0.491	0.456	0.460	0.543
Number of id	38	38	38	38
chiz_stat	991.1	1609	1479	842.7

***p<1% ; **p<5% ; *p<10%

Source: Author (2025) based on Stata.

Column (1) of Table 5 shows the effects of total globalization (KOFGI), column (2) shows the effects of economic globalization (KOFecGI), column (3) shows the effects of social globalization (KOFSoGI), and column (4) shows the effects of political globalization (KOFPoGI) on participation in agricultural GVCs in SSA. The coefficients associated with KOFGI and KOFPoGI are positive and significant at 1%. These results show that total globalization, economic globalization, and political globalization positively influence participation in agricultural GVCs in SSA. Consequently, free trade, capital movements, FDI, and financial market integration are factors that encourage participation in agricultural GVCs in SSA. This result is similar to those of (Sansika & al. 2023). Furthermore, these results corroborate those of Takpara & al. (2023), who found that border and transport efficiency facilitate the participation of SSA countries in agricultural GVCs. The work of Punthakey (2020) and Bajgar & Javorcik (2020) also confirms our findings regarding the important role of FDI in strengthening participation in agri-food GVCs. Political globalization also increases participation in agricultural GVCs in SSA. Consequently, the dissemination of government policies through membership in international institutions are determinants of participation in agricultural GVCs in SSA. Takpara & al. (2023) also find the same results and conclude that a conducive business environment strengthens upstream integration in agricultural GVCs. Similarly, Kawasaki & al. (2017) find that countries' membership in international organizations improves contractual agreements in GVCs.

With regard to social globalization, the coefficient associated with KOFSoGI is negative and significant. This implies that social globalization negatively affects the participation of SSA countries in agricultural GVCs. Seth & al. (2016) found the same results and conclude that agricultural migrants and tourists do not enable participation in agricultural GVCs. This result contradicts those of Allard & al. (2016), who reveal that multinational companies promote technology transfer, and those of Yu & al. (2015), who assert that Chinese migrants contribute to strengthening agricultural GVCs. Regarding

the control variables, the coefficient associated with GDP is positive and significant at 1%. This result implies that GDP is a factor that countries can influence to improve participation in agricultural GVCs. Also, the coefficients associated with EpRN are negative and significant at 1% in all estimates. This implies that the depletion of natural resources hinders the participation of agricultural GVCs. Similarly, political stability and the rule of law have a negative and significant influence on countries' participation in agricultural GVCs in SSA. Gniniguè & al. (2023) found the same result when analyzing the role of ICTs on developing countries' participation in GVCs. Finally, internet access has a positive effect on participation in GVCs in SSA. This result corroborates those of Brun & al. (2019), who worked on developed countries; Gopalan & al. (2022), Ali & al. (2023), and Gniniguè & al. (2023), who worked on developing countries.

Table 6: Effect of de facto globalization on agricultural GVC participation

<i>Variables</i>	(1)	(2)	(3)	(4)
KOFGIdf	14.06***			
	(2.324)			
KOFECIdf		-5.56***		
		(1.095)		
KOFSoGIdf			-2.23	
			(1.744)	
KOFPoGIdf				10.17***
				(1.309)
EA	-0.44	-5.49***	-3.76***	-3.59***
	(0.496)	(0.566)	(0.643)	(0.489)
TC	0.00*	0.00**	0.00***	0.00
	(0.000)	(0.000)	(0.000)	(0.000)
PIB	0.10***	0.09***	0.10***	0.09***
	(0.014)	(0.014)	(0.015)	(0.012)
EpRN	-6.76***	-3.83***	-6.40***	-2.97***
	(1.079)	(1.196)	(1.005)	(0.856)
Ccorr	1.70	0.30	0.22	4.97***
	(1.276)	(1.231)	(1.251)	(1.484)
GovEff	2.72*	3.51**	4.05***	-0.92
	(1.402)	(1.541)	(1.543)	(1.204)
StPo	-12.56***	-12.45***	-13.24***	-9.68***
	(1.935)	(1.874)	(1.999)	(1.463)
Rol	-5.36***	-4.69**	-4.90**	-5.15***
	(2.013)	(2.187)	(2.176)	(1.951)

VoResp	11.52*** (1.584)	12.58*** (2.001)	12.69*** (1.890)	8.45*** (1.336)
INF	-0.00 (0.032)	-0.02 (0.027)	-0.02 (0.034)	0.01 (0.022)
Internet	8.07*** (3.001)	13.30*** (3.470)	13.12*** (3.487)	8.74*** (2.624)
Telep	-23.58*** (2.728)	-24.31*** (2.471)	-25.63*** (2.863)	-13.74*** (2.074)
Constant	-370.03*** (110.831)	709.44*** (61.402)	442.41*** (72.015)	-172.67** (68.391)
Observations	635	635	635	635
R-squared	0.491	0.469	0.457	0.558
Number of id	38	38	38	38
chiz_stat	821.6	1588	1419	579.3

***p<1% ; **p<5% ; *p<10%

Source: Author (2025) based on Stata.

Table 6 above shows the effects of KOFGI_{df} on participation in agricultural GVCs. Column (1) shows the effect of KOFGI_{df}, column (2) shows the effect of KOFECGI_{df}, column (3) shows the effect of KOFSoGI_{df}, and column (4) shows the effect of KOFPOGI_{df} on participation in agricultural GVCs. The coefficients associated with KOFGI_{df} and KOFPOGI_{df} are positive and significant at 1% (columns (1) and (4)). This implies that the flow of goods and services and the dissemination of government policies facilitate participation in agricultural GVCs. On the contrary, the coefficient for KOFECGI_{df} is negative and significant. This result implies that foreign financial flows and multinational firms do not promote the participation of SSA countries in GVCs. Todirica & al. (2018) reach the same conclusions after analyzing the advantages and disadvantages of globalization on food security in developing countries. They find that globalization has allowed foreign firms to take over agricultural land to the detriment of local businesses. Similarly, Reimer & Li (2016) argue that globalization causes disparities between developing countries and developed countries.

Table 7: Effect of de jure globalization on participation in agricultural GVCs

Variables	(1)	(2)	(3)	(4)
KOFGI _{df}	12.64*** (3.681)			
KOFECGI _{df}		7.07***		

Variables	(1)	(2)	(3)	(4)
		(2.007)		
KOFSoGI _{dj}			-5.61***	
			(1.537)	
KOFPoGI _{dj}				10.10***
				(1.317)
EA	-2.13***	-3.05***	-4.49***	-3.08***
	(0.573)	(0.495)	(0.748)	(0.438)
TC	0.00**	0.00***	0.00***	0.00**
	(0.000)	(0.000)	(0.000)	(0.000)
PIB	0.09***	0.10***	0.10***	0.10***
	(0.013)	(0.014)	(0.014)	(0.013)
EpRN	-4.56***	-5.72***	-6.71***	-3.62***
	(0.849)	(0.937)	(0.932)	(0.794)
Ccorr	1.75	0.82	-0.21	2.52*
	(1.606)	(1.404)	(1.224)	(1.412)
GovEff	3.84***	3.13**	3.89**	4.46***
	(1.439)	(1.422)	(1.638)	(1.539)
StPo	-12.63***	-13.47***	-13.13***	-11.09***
	(1.983)	(2.113)	(1.958)	(1.868)
Rol	-7.55***	-6.43***	-3.71	-6.94***
	(2.720)	(2.498)	(2.280)	(2.346)
VoResp	11.59***	12.94***	13.42***	10.59***
	(1.734)	(2.014)	(1.969)	(1.733)
INF	-0.00	-0.03	-0.04	-0.00
	(0.024)	(0.031)	(0.037)	(0.026)
Internet	7.83**	10.50***	14.40***	8.00***
	(3.334)	(3.156)	(3.727)	(2.932)
Telep	-26.07***	-26.74***	-25.10***	-23.15***
	(3.001)	(3.306)	(2.887)	(2.651)
Constant	-232.26	146.81**	594.18***	-322.99***
	(175.460)	(70.443)	(83.108)	(93.708)
Observations	635	635	635	635
R-squared	0.475	0.473	0.462	0.488
Number of id	38	38	38	38
chiz_stat	1677	1809	1820	1910

***p<1% ; **p<5% ; *p<10%

Source: Author (2025) based on Stata.

Thus, columns (1), (2), (3), and (4) show the effects of $KOFGIdj$, $KOFECIdj$, $KOFSoIdj$, and $KOFFoIdj$, respectively, on participation in agricultural GVCs. The empirical results give coefficients associated with the different variables that are positive and significant at 1%, except for $KOFSoIdj$, which is negative. These different variables have a positive effect on participation in agricultural GVCs. Economically, these results show that policies that facilitate trade and financial flows between countries and the ability to engage in an international political institution stimulate participation in agricultural GVCs.

5. Conclusion

The rise of globalization has changed the configuration of international trade, which is characterized by the emergence of GMCs. For a country, the gains from international trade are linked to its ability to be competitive in the global market. With the advent of GMCs, countries participate more in trade when they export value-added products and process imported raw materials. SSA countries with raw materials participate more in downstream GVCs than in upstream ones. Overall, developing countries participate marginally in GVCs. This low participation is linked to a lack of financing, low-quality labor, and a lack of modern technology. The literature considers globalization, through FDI and other foreign financial flows, to be an opportunity for the development of developing countries. It is in this context that this study analyzed the effect of globalization on participation in agricultural GVCs in SSA.

Using the OLS method, we tested the effects of globalization on agricultural GVCs for 39 countries in SSA during the period from 1991 to 2015. The results show that total globalization has a positive effect on participation in agricultural GVCs in SSA. Similarly, the results show that the de facto aspects of total globalization, economic globalization, and political globalization promote participation in agricultural GVCs, while de facto social globalization hinders participation in agricultural GVCs. In addition, the de jure aspects of total, economic, social, and political globalization positively influence participation in agricultural GVCs. Therefore, these results support the idea that free trade, capital movements, financial market integration, flows of goods and services, the dissemination of government policies, and policies that facilitate trade flows are factors that encourage participation in agricultural GVCs in SSA. Consequently, in order to support the development of the agricultural sector and GVCs in SSA, policymakers should regulate public policies that hinder agricultural finance. They should also remove certain constraints (tariffs, quotas, cumbersome procedures) to facilitate international trade and attract investors to the agricultural sector.

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