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THE IMPACT OF TRADE ON POVERTY IN SUB-SAHARAN AFRICA: DO SOURCES MATTER?

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ABSTRACT

Global trade development has provided noteworthy global poverty gains since the 1990s. Accordingly, Africa has gradually engaged itself in trade and trade policy reforms through multilateral and regional trade agreements among other initiatives. Nonetheless, poverty levels in the Sub-Saharan Africa (SSA) region remain relatively high. Recognizing that existing evidence on trade-poverty nexus is based on aggregate trade, we provide a new perspective on SSA by disaggregating trade by sources for the period 2003-2017. We employed the Generalised Method of Moments (GMM) estimation of a panel data model derived from the Modified Basic Household Model and Neo-Conservative Poverty Theory for analysis. The results document poverty gains from trade liberalization, with the extent varying according to sources. Specifically, trade from MENA and within SSA was found to offer more gains. Furthermore, findings suggest that poverty gains from trade are strengthened with better institutional quality. It follows that to accelerate poverty gains from trade liberalization, SSA should promote intra-Africa trade as well as trade with MENA countries. To accelerate the gains, Africa has to invest in better institutions, in particular, to improve governance and corruption eradication.

Contribution/Originality: This study contributes to existing literature on trade-poverty nexus in two ways. Firstly, instead of basing conclusions on aggregate trade, we focus on trade by sources. We disaggregate SSA's trade by regional sources. Secondly, we introduce control of corruption interaction term to control for institutional quality in the analysis.

1. INTRODUCTION

Despite the worldwide poverty rate having immensely reduced since 2000, poverty alleviation remains topical. The United Nations, through the Sustainable Development Goals (SDGs), places poverty eradication at the top of the global development agenda. SDG number one envisages ending extreme poverty in all forms by 2030. The African Union Commission (AUC) Agenda 2063's aspiration for "a high standard of living, quality of life and well-being for all citizens" (New Partnership for Africa's Development (NEPAD, 2019) targets an end to poverty as a priority. The World Bank and World Trade Organisation (WB and WTO, 2019) recognize trade liberalization as an avenue to eradicate poverty.

A rich body of literature supports trade liberalization as a tool to alleviate poverty (Bayar & Sezgin, 2017; Kis-Katos & Sparrow, 2015; Li, 2009; Okungbowa & Eburajolo, 2014; Onakoya, Johnson, & Ogundajo, 2019; Zahonogo, 2016). These studies reinforce theoretical predictions by traditional theories on trade and welfare. The Heckscher-

Ohlin theory states that there are welfare gains-including technology transfer and employment creation from trade. These in turn positively impact poverty reduction (Berg & Kruger, 2003). According to the OECD trade also affects poverty through taxes and transfer system, price, assets, and access to goods and services channels.

However, the conventional wisdom that trade can reduce poverty has been opposed, both theoretically and empirically. Some studies (Dollar & Kraay, 2001; Kpodar & Singh, 2011; Yusuf, Malarvizhi, & Khin, 2013) find no evidence of trade openness on poverty. Furthermore, Aigheyisi (2013) documents that trade can indeed increase poverty levels. However, some studies show that the conclusion that trade exacerbates poverty may arise from ignoring the role that institutional quality plays. Le Goff and Singh (2014) and Zahonogo (2016) found that trade openness inclines to reduce poverty in economies with stronger institutions, deep financial sectors, and high education levels. In light of the controversy, this study seeks to contribute to the trade-poverty nexus in SSA, by focusing on the impact of trade by sources.

The study proceeds as follows. Section 1.1 covers the background of the study, highlighting the research problem, objectives, and study contribution. Section 2 briefly highlights related empirical literature. In section 3 we present our methods and data, in particular theoretical underpinnings and specification of the model and the econometric approach used. Section 4 presents and discusses the results while section 5 covers the conclusion and recommendations.

1.1. Trade and Poverty in Sub-Saharan Africa

With poverty gains likely to outweigh negative effects, Africa has gradually engaged in trade and trade policy transformations through multilateral and regional trade agreements (RTAs)[1] among other initiatives. Liberalizing trade has brought positive trade flows for Africa. Africa's share of global trade has been increasing steadily in the last 2 decades. In 1998 the share of Africa's merchandise trade was 1.91% which increased to 3.48% in 2008 before receding to 2.49% in 2018. In value terms, trade increased from US$105 million in 1998 to US$ 462million in 2019, having reached a high of US640 million in 2012, representing an average growth of 7.44% for the period (UNCTAD, 2020). As shown in Figure 1, SSA merchandise reflects the same pattern. Regardless of significant growth in its trade, Africa has the least progress in poverty alleviation.

Despite global poverty levels falling drastically since 1990, a focus on SSA reveals a bad picture. The state of poverty in Africa is shown in Figure 2.In 2015 10% of the world's population or 736 million people lived in poverty which is a significant reduction from 36% or 1.9 billion in 1990. However, of these 413 million people or 56.16% are from SSA. WB and WTO (2019) reveals that although close to half of the world's countries have poverty levels below 3%, SSA- which recorded 41.1% in 2015- is likely to remain in double digits beyond 2030. The poverty headcount in SSA is 4 times bigger than that of South Asia of just over 11%. However, the trade performance of the two regions is almost the same. Over the period 1998-2019, the share of merchandise trade for SSA and South Asia averaged 1.81% and 2.0% respectively. It follows that regardless of the increase in trade flows in Africa, the poverty gains have been limited. In light of this, we question the role of trade liberalization in poverty alleviation.

Our examination contributes to the existing literature in two ways. Firstly, whilst the majority of studies on trade-poverty nexus (including (Chaudhry & Sharif, 2013; Dollar & Kraay, 2001; Okungbowa & Eburajolo, 2014; Winters, 2002)) base their conclusions on aggregate trade, we focus on trade by sources. Specifically, we disaggregate trade according to SSA's major trading regions[2]. The rationale is a recognition that trade liberalization is not universal. Although most countries in SSA are members of the World Trade Organisation, there has been a growth in the number of RTAs, continental and cross-continental trade agreements, among other

[1]The main being the Common Market for Eastern and Southern Africa (COMESA), East African Community (EAC), Economic Community of Central African States (ECCAS), Economic Community of West African States (ECOWAS), and Southern African Development Community (SADC).

[2] East Asia (EA); Middle East-North Africa (MENA); Organization for Economic Co-operation and Development (OECD); SSA.

trade pacts entered into by SSA countries. This highlights the need for trade concessions to be tailor-made to suit the specific structure and circumstances of involved parties. Accordingly, it's logical that heterogeneous trade should have varying impacts on various areas of outcome, including poverty.

Secondly, we recognize and incorporate the role of institutions in the trade-poverty nexus. We do this given the wisdom that better institutions facilitate and strengthen the poverty gains from trade liberalization. As noted by Le Goff and Singh (2014) trade affects poverty through the re-allocation of factors of production. However, if the re-allocation is distorted, the projected gains from open trade may be shot down. This suggests that good institutions provide a foundation upon which trade benefits on poverty can be realized. Although focusing on the impact of aggregated trade on poverty, Zahonogo (2016) and Pietrucha, Żelazny, Kozłowska, and Sojka (2018) provide evidence that without good institutions, poverty levels may increase or at least be unaffected by trade liberalization.

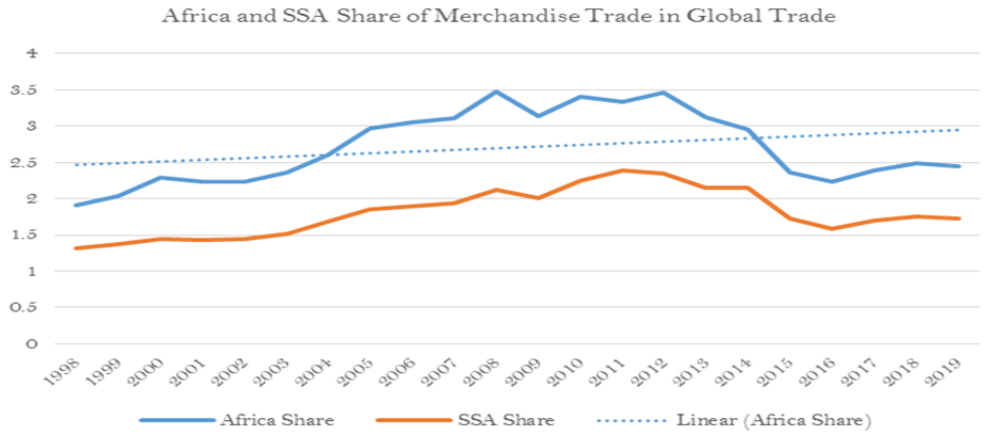

Figure-1. Africa and SSA share of merchandise trade in global trade umber of poor by region.

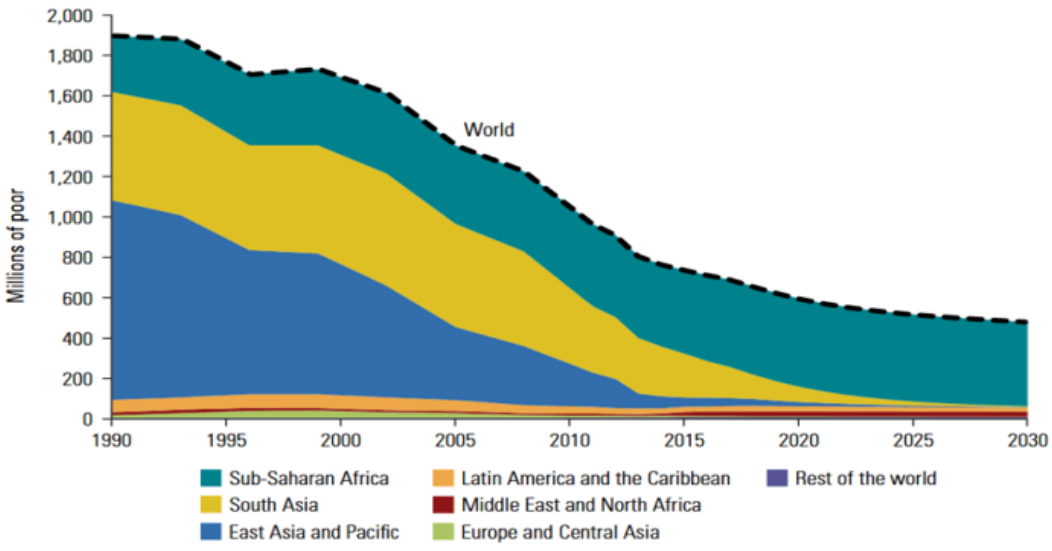

Figure-2. Number of poor by region, 1990-2030.

Source: PovcalNet (2020).

2. EMPIRICAL LITERATURE

In this section, we briefly highlight recent evidence on the trade-poverty relationship in Africa. Evidence is mixed, yet it's skewed in favor of poverty gains from trade openness. Okungbowa and Eburajolo (2014) studied the relationship between the poverty rate and trade liberalization (as proxied by globalization) in Nigeria using co-integration and error correction modeling methods. Results indicated that trade openness enhances economic growth which then reduces poverty levels. More recently, Onakoya et al. (2019) studied the probable connection between trade liberalization and poverty in 21 African economies from 2005 to 2014. Panel data estimates and panel

cointegration revealed that trade openness negatively impacts poverty. This implies that poverty falls with more trade openness.

Le Goff and Singh (2014) provided a new perspective on the link between trade and poverty. They provided an analysis in which the relationship depends on country heterogeneities, particularly institutional quality. Using panel data analysis from African countries from 1981 to 2010, they find that trade reduces poverty and with the gains higher in countries with strong institutions, high education levels, and deep financial sectors. The significance of institutions is confirmed by Zahonogo (2016) who estimated a dynamic growth model for 42 SSA countries using data for the period 1980-2012 using the Pooled Mean Group (PMG) panel data estimation technique. In the same vein, other studies find that other factors important in the trade poverty nexus are macroeconomic stability (Newfarmer & Sztajerowska, 2012) complementary fiscal and monetary policies (Shuaibu, 2017) and financial development (Kaidi, Sami, & Mehdi, 2019).

However, not all studies find trade favorable effects on poverty. For instance, an analysis by Manson, Ogujiuba, and Adeola (2005) on Nigeria shows that while urban poverty fell in urban dwellers in both the short run and long run, it worsened in rural areas. Also, some studies (Kpodar & Singh, 2011; Yusuf et al., 2013) find no evidence of trade openness on poverty. Document that head-count poverty increases while the poverty gap expands with more trade openness in SSA.

3. METHODS AND DATA

The study is based on a panel of 30 countries from Sub-Saharan Africa from a period of 2003 to 2017. A dynamic panel data model, estimated using the Generalized Methods of Moments (GMM) was adopted for analysis.

3.1. Theoretical Framework

Our examination is based on the Modified Basic Household model originally by Singh, Squire, and Strauss (1986) and Neoconservative poverty theory that associates poverty with the agriculture output of the rural sector where the poorest live (Dollar & Kraay, 2003). This relationship is expressed in (1) as follows;

$$POV_{it} = \omega + \varphi\left(Y_{it}^{A}/Y_{it}^{N}\right) + \alpha\left(P_{it}^{A}/P_{it}^{N}\right) + \gamma X_{it} \quad (1)$$

Where POV is poverty; Y^A is output in the agriculture sector; Y^N is output in the non-agriculture sector; P^A is the prices of agriculture sector goods and P^N is the prices of non-agriculture sector goods. ω, φ, α and γ, are parameters to be estimated; i is country and t is time. X is a vector of other factors affecting poverty. The equation says that poverty is a function of the ratio of agricultural goods to non-agricultural goods and the ratio of the price of agricultural goods to non-agricultural goods. Following transmission mechanisms through which trade affects poverty economic growth (Shuaibu, 2017) technological change (Nissanke & Thorbecke, 2010) changes in prices faced by households (Winters, McCulloch, & McKay, 2004) employment and wages (Goldberg & Pavcnik, 2007b) and empirical formulations (Kis-Katos & Sparrow, 2015; Onakoya et al., 2019; Pradhan & Mahesh, 2014; Zahonogo, 2016) we augment (1) by including trade liberalization, as proxied by trade openness (TO) to give;

$$POV_{it} = \omega + \varphi ECD_{it} + \alpha INF_{it} + \gamma_1 TO_{it} + \mu_{it} \quad (2)$$

In (2) the ratio of agriculture to non-agriculture output is proxied by economic development (ECD) and while agriculture to non-agriculture prices is represented by inflation ($INFL$) Literature (Acemoglu & Robinson, 2012; Singh & Huang, 2015) acknowledges the pivotal role good institutions play in poverty reduction. Accordingly, we include institutional quality (control of corruption) as an additional variable to our specification. Furthermore, Le Goff and Singh (2014), Zahonogo (2016), and Pietrucha et al. (2018) document that better institutions strengthen poverty gains from trade liberalization. Given this, we also include an interaction term between trade openness and control of corruption as in Le Goff and Singh (2014) to capture this. This leads to Equation 3;

$$POV_{it} = \omega + \varphi ECD_{it} + \alpha INF_{it} + \gamma_1 TO_{it} + \gamma_2 CC_{it} + \gamma_3 (TO * CC)_{it} + \mu_{it} \quad (3)$$

The contribution of the study is to investigate the impact of trade by source. Hence the total trade openness in (3) is disaggregated according to the following trading regions; MENA, East Asia, OECD, and SSA. In addition to (3), literature identifies other key determinants of poverty as education/human capital (Chaudhry & Sharif, 2013; Ladd, 2012; Le Goff & Singh, 2014) domestic and foreign capital accumulation (Magombeyi & Odhiambo, 2017). Accordingly, we add these variables to (1) to give (4);

$$POV_{it} = \omega + \varphi ECD_{it} + \alpha INF_{it} + \gamma_1 TO_{it} + \gamma_2 CC_{it} + \gamma_3 (TO * CC)_{it} + \gamma_4 GFC_{it} + \gamma_5 FDI_{it} + \gamma_6 HC_{it} + \gamma_7 INFR_{it} + \mu_{it} \quad (4)$$

Lastly, we introduce logs to explanatory variables in (4) to make it a linear-log model. The rationale is to minimize multicollinearity and heteroskedasticity in the model (Gujarati, 2004). Also, it allows parameter analysis as elasticities rather than units. Accordingly, we get (5);

$$POV_{it} = \omega + \varphi lgECD_{it} + \alpha lgINF_{it} + \gamma_1 lgTO_{it} + \gamma_2 lgCC_{it} + \gamma_3 lgTO * lgCC_{it} + \gamma_4 lgGFC_{it} + \gamma_5 lgFDI_{it} + \gamma_6 lgHC_{it} + \gamma_7 lgINFR_{it} + \mu_{it} \quad (5)$$

3.2. Econometric Estimation

We transform (5) into a dynamic form and estimate it using the differenced Generalized Methods of Moments (GMM) by Arellano and Bover (1995) and Blundell and Bond (1998). These estimators can evade numerous modeling issues such as endogeneity of regressors which cannot be addressed by Fixed Effects (FE) and Random Effects (RE) models. The differenced GMM deals with the endogeneity problem. Additionally, dynamic panel data estimation is attractive over static estimators because it accommodates the influence of past values on current behavior. Lastly, the approach suits well panels with short T and large N, as in our case. In general, a dynamic panel data is expressed in (6) as:

$$Y_{it} = \alpha y_{i,t-1} + \beta X'_{it} + \mu_i + v_{it} \quad i = 1, \ldots, N; t = 1, \ldots\ldots, T \quad (6)$$

$\varepsilon_{it} =$ and the expected value between and v_{it} is zero. Where x'_{it} is a vector of regressors, $\mu_i$is the individual-specific effects, v_{it} is the error term. In this specification, $y_{i,t-1}$ is correlated with $\mu_i$since the past values already depend on the individual effects (Kruiniger, 2009). Expressing (4) in dynamic form gives Equation 7;

$$POV_{it} = \omega + \lambda POV_{i,t-1} + \varphi lgECD_{it} + \alpha lgINF_{it} + \gamma_1 lgTO_{it} + \gamma_2 lgCC_{it} + \gamma_3 lgTO * lgCC_{it} + \gamma_4 lgGFC_{it} + \gamma_5 lgFDI_{it} + \gamma_6 lgHC_{it} + \gamma_7 lgINFR_{it} + \mu_{it} \quad (7)$$

We use current values and first lags of poverty and independent variables as instruments in controlling endogeneity. To verify the consistency of the GMM estimator, and to check the validity of the instruments, we used the Hansen test of over-identifying restrictions (Hansen, 1982). If the null hypothesis is not rejected it implies that instrumental variables are not correlated with the residual and are satisfying the orthogonality conditions required. A serial correlation test is also carried out to check that the errors exhibit no second-order serial correlation.

3.3. Data Description and Sources

The variables used, their description, and data sources are shown in Table 1.

Table-1. Data description and sources

Variable	Description	Source
Poverty	Human Development Index	WBDI
Trade Openness	Trade as a % of GDP	WBDI
Institutional Quality	Democratic Accountability	ICRG
Economic Development	Real GDP per capita	WBDI
Inflation	Consumer Price Index	WBDI
Capital	Gross Capital-Formation (% of GDP)	WBDI
Infrastructure	Africa Infrastructure Development Index	AfDB
Foreign Direct Investment	Foreign Direct Investment (% of GDP)	WBDI
Human Capital Stock	Average years of schooling	WBDI

WBDI-World Bank Development Indicators, AfDB-African Development Bank, ICRG-International Country Risk Guide

4. RESULTS PRESENTATION AND DISCUSSION

4.1. Descriptive Statistics

Table-2. Descriptive Statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
HDI	300	0.4817	0.0909	0.2660	0.7170
TO	285	49.4815	19.9541	13.5127	132.9586
EA	285	7.1193	3.4004	0.1232	22.7399
MENA	285	2.6176	2.1698	0.2399	15.8101
OECD	285	19.4088	8.9872	2.5217	53.3230
SSA	285	17.9149	16.3140	1.4002	85.8117
CC	300	-0.5120	0.5535	-1.4049	1.2167

Table 2 presents the data descriptive statistics for our key variables, HDI, TO (aggregate and regional), CC. It can be observed human development index (HDI) had a mean value of 0.4817 implying high poverty levels in SSA. The standard deviation, minimum and maximum values for HDI are 0.0909, 0.2660, and 0.7170 respectively. This implies high variation of data within the panel. Aggregate trade openness (TO) with a mean of 49.48 and a standard deviation of 19.9541 points to significant data variability. The minimum and maximum values for the panel are 13.51 and 132.96. The statistics for disaggregated trade openness show that SSA member states mostly trade with $OECD$, followed by SSA, EA, and lastly $MENA$, as shown mean values of 19.41; 17.91; 7.12; 2.62 respectively. Furthermore, institutional quality (CC) confirms poor institutional quality for the region as supported by an

average of -0.5120 and a standard deviation of 0.5535 which is greater than the mean. This signifies high data variation for institutional quality.

4.2. Generalised Methods of Moments (GMM) Estimation Results.

The GMM estimation results are presented in Table 3.

Table-3. Generalised Methods of Moments (GMM) Estimation Results

			Model 2		Model 3		Model 4		Model 5	
Variable	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
lgL.HDI	0.878* (0.024)	0.888 (0.034)	0.8443 (0.030)	0.848 (0.035)	0.900 (0.030)	0.907 (0.059)	0.890 (0.023)	0.889 (0.029)	0.894 (0.026)	0.899 (0.035)
lgTO	0.010* (0.002)	0.0115* (0.003)								
lgCC	0.003** (0.001)	0.0016 (0.001)	0.003** (0.001)	0.002*** (0.001)	0.002 (0.002)	0.007*** (0.004)	0.003** * (0.001)		Model 1	0.001 (0.001)
lgED	0.019* (0.004)	- 0.002*** (0.012)	0.018** * (0.003)	0.0161* (0.003)	0.017* (0.005)	0.027** (0.007)	0.019* (0.004)	0.018* (0.005)	0.017* (0.004)	0.016* (0.004)
lgINF	0.004 (0.00)	- 0.004 (0.005)	0.004 (0.005)	- 0.035*** (0.021)	-0.005 (0.006)	-0.015 (0.001)	0.006 (0.005)	0.004 (0.006)	0.003 (0.005	-0.003 (0.008)
lgGFCF	0.008** (0.003)	0.0071** (0.003)	0.008** (0.003)	0.008** (0.003)	0.006** * (0.003)	0.0156 (0.033)	0.008** (0.003)	0.009** (0.003)	0.009* (0.003)	0.009* (0.003)
lgFDI	-0.002** (0.001)	-0.002 (0.01)	-0.002** (0.001)	-0.001 (0.001)	-0.003** (0.001)	- 0.004*** (0.022)	-0.003* (0.001)	-0.008 (0.007)	- 0.002*** (0.001)	-0.001 (0.001)
lgINFRA	-0.006 (0.006)	-0.005 (0.007)	-0.002 (0.006)	-0.004 (0.007)	-0.006 (0.006)	-0.002 (0.011)	-0.008** (0.003)	-0.006 (0.008)	-0.005 (0.006)	-0.018** (0.008)
lgHCS	0.035 (0.021)	-0.032 (0.038)	0.034** * (0.018)	-0.048 (0.049)	0.032 (0.020)	0.011 (0.061)	0.039** * (0.019)	0.032 (0.024)	0.025 (0.025)	0.007 (0.027)
lgWLDCC		0.026*** (0.015)								
lgEA			0.008* (0.002)	0.007** (0.002)						
lgEACC				0.052*** (0.029)						
lgMENA					0.012** (0.005)	0.028** (0.013)				
lgMENACC						0.027 (0.045)				
lgOECD							0.007* (0.002)	0.007* (0.002)		
lgOECDCC								0.010 (0.011)		
lgSSA									0.006** (0.003)	0.008** * (0.004)
lgSSACC										0.025** (0.012)
Instruments	18	18	18	19	18	19	18	18	18	17
F-stat	1923.23	3775.63	2073.38	2445.22	1731.47	363.45	1623.37	1557.78	1969.06	2683.39
Prob	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Obs	246	246	246	246	246	246	246	246	246	246

Note : ***,** and * show 1%, 5% and 10% level of significance respectively. In parenthesis ( ) are robust standard errors. In Model 1 total openness and control of corruption are regressed on poverty firstly (a) without interaction and in (b) with the interaction between the two. Model 2- 5 are disaggregated trade openness according to specified regional trade partners without (a) and (b) with control of corruption interaction terms.

Across all models, the F-Statistics are statistically significant at 1%, implying that collectively, the explanatory variables are statistically significant in explaining variations in poverty. LGHDI had a positive (0.878) and statistically significant (1%) impact. This implies that past poverty trends positively impact current poverty levels. Specifically, a 1% increase (decrease) in the previous year human development causes a 0.878 unitary increase (decrease) in the current human development. This is in line with the cultural theory of poverty which relates current poverty levels to prevailing cultures.

Model 1(a) shows that trade openness has a positive and highly significant impact on poverty. A coefficient of 0.01 means that a 1% increase (decrease) in world trade openness results in a 0.01 unitary (decrease) increase in poverty. The finding is in line with theoretical propositions linking trade to poverty alleviation through transmission mechanisms such as economic growth (Shuaibu, 2017) skill-biased technological change (Nissanke & Thorbecke, 2010) changes in prices faced by households (Winters et al., 2004), employment and wages (Goldberg & Pavcnik, 2007b). Empirically this is in tandem with several studies (including (Bayar & Sezgin, 2017; Kis-Katos & Sparrow, 2015; Onakoya et al., 2019; Zahonogo, 2016)).

Also, control of corruption was found to be statistically significant at 1% level, with a coefficient of 0.0026. This suggests that institutional quality plays a pivotal role in poverty reduction in the SSA region. A 1% increase (decrease) in institutional quality resulted in a 0.0026-unit increase (decrease) in human development thus poverty mitigation. This confirms previous findings by Cepparulo, Cuestas, and Intartaglia (2016); Rashid and Intartaglia (2017); Kaidi et al. (2019). Results from Model 1(b) are interesting. The interaction term between trade openness and institutional quality interaction has a bigger (0.026) impact on poverty reduction than the individual impact of 0.010 and 0.003 as in Model 1(a). This suggests that an increase in trade openness coupled with low corruption increases poverty gains from trade openness. Our findings echo that of Le Goff and Singh (2014) who document a positive relationship between poverty reduction and the interaction between trade openness and institutional quality.

Results from disaggregated trade openness (Models 2-5) show that the source of trade matters. In as much as trade openness reduces poverty, the impact and significance vary according to the trading partners. The results suggest that trade with MENA offers more poverty gains, followed by SSA, OECD, and lastly East Asia. For MENA, the trade openness coefficient of 0.012 which is statistically significant at 5%, increases to 0.028 in Model 2b after controlling for corruption. Intra-Africa trade, as represented by the SSA coefficient of 0.006 in Model 5(a) and 0.008 in Model 5(b), also gives significant poverty gains. It can be observed that the interaction term increases impact to 0.025. This shows how rampant corruption in Africa is. Given high levels, the marginal benefit from corruption eradication is arguably higher than in developed regions like the OECD.

Trade openness with East Asia offers the greatest poverty gains after adjusting for control of corruption. In model 2(b) we observe a substantial increase in the coefficient on trade openness from 0.007 to 0.052, though with a fall in significance from 5% to 10%. This shows that the impact of trade openness on poverty eradication is sensitive to corruption, which distorts the allocation channel of trade openness. Estimations from OECD portray a similar picture. Trade openness has a positive and significant impact on poverty. However, control of corruption is less important in influencing the role of trade in poverty reduction. The increase by 0.003 percent points in the coefficient in Model 4(b) from 0.007 to 0.01 is the least of the interaction terms. The low return from control of corruption explains the diminishing returns from control of corruption. This is usually true for economies with stronger and quality institutions.

Table-4. Post estimation diagnostic tests.

	Model 1		**Model 2**		**Model 3**		**Model 4**		**Model 5**	
Test	A	B	a	b	a	b	a	b	a	b
AR(2)	0.209*	0.240*	0.065*	0.066*	0.339*	0.224*	0.384*	0.409*	0.116*	0.106*
Hansen	0.216*	0.167*	0.196*	0.387*	0.330*	0.147 *	0.161*	0.145*	0.220*	0.126*

Note: * ** (***) denote the rejection of the null hypotheses at 1%, 5% (10%) level of significance.

Diagnostics tests for the model are shown in Table 4. The AR(2) results show that the presence of serial correlation is rejected at 1% level of significance. Also, the Hansen results reject the null hypothesis that the instruments are not valid.

5. CONCLUSION

The main objective of the study was to examine the impact of trade-by source- on poverty in Sub-Saharan Africa (SSA). Global trade expansion has provided significant global poverty gains since the 1990s. Accordingly, Africa has progressively indulged itself in trade and trade policy reforms through multilateral and regional trade agreements among other initiatives. Nonetheless, poverty levels in the Sub-Saharan Africa (SSA) region remain relatively high. Recognizing that existing evidence on trade-poverty nexus is based on aggregate trade, we provide a new perspective on SSA by disaggregating trade by sources for the period 2003-2017. We employed the Generalised Method of Moments (GMM) estimation of a panel data model derived from the Modified Basic Household Model and Neo-Conservative Poverty Theory for analysis. The results document poverty gains from trade liberalization, with the extent varying according to sources. Specifically, trade from MENA and within SSA was found to offer more gains. Furthermore, findings suggest that poverty gains from trade are strengthened with better institutional quality. It follows that to accelerate poverty gains from trade liberalization, SSA should promote intra-Africa trade as well as trade with MENA countries. To accelerate the gains, Africa has to invest in better institutions, in particular, improve governance and corruption eradication.

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