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External Financing for Inclusive Growth in Lower - Middle Income West African Countries: Foreign Direct Investment versus Official Development Assistance

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ABSTRACT

Most developing countries are plagued with harsh economic realities, which motivate them to seek sustainable economic growth and development in line with goal eight of the United Nations Sustainable Development Goals. To this end, this paper investigated the source of external financing that is most helpful for achieving inclusive growth in lower-middle-income West African countries. The study is a panel analysis of annual data extending from 2000 to 2019. The study employed the Emirmahmutoglu and Kose Bootstrap Granger Causality Test, Westerlund Cointegration Test, Common Correlated Mean Group estimation technique, and Augmented Mean Group estimation technique for econometric analyses. The long-run empirical results from the study showed that both foreign direct investment and foreign aid have positive and significant effects on inclusive growth, although the impact of foreign direct investment is greater than that of foreign aid. A bi-directional causality was also found to exist between inclusive growth and foreign direct investment, while no causal relationship was detected between inclusive growth and foreign aid. Given the study's empirical outcomes, it is recommended that West African countries prioritize macroeconomic policy reforms that provide enabling conditions for foreign direct investment to thrive rather than pursue foreign aid that more often than not are misdirected.

KEYWORDS

Inclusive growth; foreign direct investment; official development assistance; finance; augmented mean group; bootstrap granger causality

Introduction

West African countries[1] have, in the past decades, witnessed rising growth in national income alongside unexpected increases in unemployment and poverty rates that have widened the inequality gap. This has generated much debate about whether economic growth translates to economic wellbeing for the majority. Recently, the discourse has moved from just achieving economic growth to achieving inclusive growth. An inclusive growth analytical framework has been adopted in situations where growth rises but poverty reduction stagnates. According to the World Bank (2008), inclusive growth is growth sustained for a very long period, which cuts across sectors with a larger part of the country's labor force integrated. It also focuses on productive employment, and the pattern and rate of growth instead of income redistribution, which is the case with economic growth.

It is widely agreed in the literature that external finance could and does stimulate economic growth in developing countries, thereby promoting and achieving investment levels that are higher than the domestic savings of recipient countries (Balcilar et al., 2020). Furthermore, external finance is a veritable source of finance for facilitating the transfer of innovations and modern technology from advanced countries to developing countries, thus helping developing countries accelerate their speed of development. Despite these positive narratives about external financing, there are still indications suggesting that the growth-promotion effects of external financing vary from one country to another while presenting adverse effects in some other countries.

There has thus been a growing debate on whether it is official development assistance (ODA) or foreign direct investment (FDI) that matters the most in terms of growth and development. FDI and ODA are forms of external financing believed to have the capacity to augment domestic savings while promoting economic growth. According to the Organisation for Economic Co-operation and Development (OECD, 2016), "FDI is typically considered compelling as it provides an

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attractive package of capital, technology, managerial know-how, and access to markets." On the contrary, arguments against ODA hinge on the fact that countries that have succeeded with ODA are hard to come by (Galiani et al., 2017). In support of this, critics such as Stubbs et al. (2016) posit that ODA has a more damaging effect on developing countries. On the other hand, Sachs (2014) asserts that aid is an enabler for the attainment of sustainable growth.

There are, however, reasons to expect the impact of ODA to be different from that of FDI (see, Kosack & Tobin, 2006; Suliman & Ali, 2012; Suliman et al., 2018). As ODA is mainly government-centered, its impact on the domestically financed capital formation (DFCF) is directly through increased public investment in physical infrastructure and indirectly through social infrastructure, if these belong to government spending priorities. The opposite might also be true if the government's priority is elsewhere. The role of ODA in stimulating DFCF would be minimal where it is allocated mostly for non-investment type of activities, such as financing recurrent government expenditures, humanitarian aid, and other government consumption expenditures, ending up enlarging government budget rather than investment and growth (Kosack & Tobin, 2006).

Anyanwu (2012) and Quazi et al. (2014) observe three development gaps that FDI fills in developing countries. First, it fills an investment/savings gap by providing needed capital to supplement domestic saving and investment. Second, it fills a foreign exchange gap by providing foreign currency through initial investment and subsequent export earnings. Finally, it fills a tax revenue gap by generating tax revenues through the creation of additional taxable economic activities. FDI can also help to facilitate the transfer of management skills and technical know-how, engender competitiveness in local markets, open up opportunities for modern jobs, and create/expand access to the global market for locally produced export goods. Agosin and Mayer (2000) and Qu et al. (2013) also observe that on the negative side, FDI and multinational enterprises (MNEs) could crowd out domestic investment.

Addressing the following questions constitutes the purpose of this paper. (1) What are the interactive and independent contributions of ODA and FDI to inclusive growth in West African recipient lower-middle-income countries? (2) How do ODA, FDI and inclusive growth in West African lower-middle-income countries relate in the long run? (3) What is the direction of causality between ODA, FDI and inclusive growth in West African lower-middle-income countries?

The paper is structured as follows: the first section, which is the introduction, gives a breakdown of the background and problem of the study. Section two reviews the theoretical foundations as well as the empirical evidence on the link between ODA and FDI and their impact on inclusive growth. Section three is devoted to the materials and methods used in advancing this study, while section four discusses the results of the study. Conclusion and suggested recommendations are offered in section five.

Review of related literature

Reviewing the related empirical literature, Anetor et al. (2020) use a feasible generalized least square (FGLS) technique to investigate the impact of foreign direct investment, foreign aid and trade on poverty reduction in sub-Saharan African countries between the period 1990–2017, using data from 29 countries. Although the study does not use inclusive growth as one of its variables, the use of poverty reduction suggests a trickling down of growth outcomes, implying inclusive growth. The results of the study indicate that FDI and foreign aid have a negative influence on poverty reduction in the countries studied. This suggests that the threshold required for FDI to have a positive effect is yet to be attained and that ODA has not been properly channeled in the studied countries. Results further indicate that trade has a positive and significant impact on poverty reduction, especially in lower-income countries.

The above study contrasts with that of Bird and Choi (2020) who explore the effects of remittances, foreign direct investment and foreign aid on economic growth in a panel of countries. The study adopts a dynamic panel model and a fixed effects model to determine the impact of each source of finance on isolation and the overall impact on economic growth over the period 1976–2015, and finds that FDI impacts economic growth significantly and positively, while remittances exhibit a significant and negative impact on growth. On the other hand, foreign aid shows a non-significant effect on growth. The study focuses on growth and not inclusion, just like many other empirical works. In a similar study to examine the impact of FDI inflow and ODA inflow on growth and trade indicators in Ghana and Nigeria for the period 1970–2017 using non-linear ARDL technique, Amaefule (2020) finds that a positive FDI inflow generates a positive impact on real GDP in Ghana and negative impact on real GDP in Nigeria, while a positive ODA inflow causes a positive impact on real GDP in both Ghana and Nigeria. While Bird and Choi (2020) find a positive and significant

impact of FDI on growth for the panel of countries investigated, Amaefule (2020) finds a positive result for Ghana and a negative result for Nigeria.

Hans (2018) investigates the impact of foreign funds on improvements in the quality of life in nations most dependent on external finance. Utilizing FDI and ODA as proxies, the study compares the differences between two groups of nations – the 30 with the highest ODA-to-GNI ratio, and the 30 with the highest FDI-to-GDP ratio. By controlling for governance and industrial upgrading, and conducting a comparative dynamic model analysis as well as a descriptive typology of the changes in economic growth in both groups, the study finds that ODA is especially effective in increasing life expectancy but not improving mortality rates, while increasing FDI decreases under-5 mortality rates but does not affect life expectancy. The results have implications for race-to-the-bottom policy analysis, aid dependent discourse and value extraction research.

Yiheyis and Cleeve (2018) explore the link between FDI and ODA to understand how each relates to domestic capital formation in Africa, using a dynamic panel data estimation method. They find that ODA and FDI exhibit individual and combined effects on domestic capital formation. They also find a positive relationship between ODA and domestic capital formation, and a negative relationship between FDI and domestic capital formation. The study concludes that the determining factor of the impact of ODA on FDI is dependent on whether the aid is committed to complementary or productive activities in the recipient countries.

Yiew and Lau (2018) examine the relationship between GDP and ODA across 95 developing countries. Other variables included in the study are FDI and population, which serve as control variables. The results of the study reveal a U-shaped relationship between ODA and GDP. Furthermore, investigations reveal that ODA impacted negatively on growth at the onset but over time, it impacted positively on GDP. Results also indicate that FDI and population have a higher impact on GDP.

Amusa et al. (2016) investigate 31 sub-Saharan African (SSA) countries for the period 1995–2012 to verify whether the inflow of FDI is affected by ODA. Adopting a panel analysis, findings indicate that ODA on productive infrastructure complements the inflow of FDI, while the impact of ODA on socio-economic infrastructure is insignificant. Furthermore, concerning the resource motive of FDI, results indicate that ODA for productive and socio-economic infrastructures for SSA countries producing oil attracts less inflow of FDI when compared to SSA non-oil producing countries. The study finds that energy infrastructure-related ODA plays a complementary role to FDI inflow, while transport infrastructure-related ODA has a non-significant effect.

Nikhil (2016) examines the impact of external development finance and foreign exchange earnings on the growth of South Asian economies. Adopting a fixed effect panel model which was developed using data from Sri Lanka, Pakistan, Nepal, India, Bhutan and Bangladesh over the period 1960–2014, the study finds that only remittance impacted positively on growth, whereas, ODA and FDI were indeterminate.

Chuquilín et al. (2015) investigate the effects of foreign aid and FDI on economic growth in both the short and long runs in emerging markets for the period 1960–2012. The authors also explore the type of foreign capital flow that is more effective in stimulating economic growth within the study period. Applying the Pooled Mean Group estimator to an unbalanced panel of 94 countries, the results of the study indicate a positive but significant long-run nexus between foreign aid, FDI and economic growth. Results further show that the effects of foreign aid and FDI are not statistically different, suggesting that they could be substitutes in the long run. The study concludes that attention should be directed to the aggregate amount of foreign capital rather than its composition.

From the foregoing, therefore, it can be observed that findings on the impact of ODA and FDI on the economies of recipient countries are inconclusive. The methods adopted in these previous studies have been largely first-generation econometric techniques. A second-generation econometric estimation technique will, no doubt, provide deeper insight into this debate. Thus, this study is timely and worthwhile to extend the frontier of knowledge for sustainable economic growth for ample policy construction.

Methods

Data requirements and source

The five lower-middle-income countries in West Africa used for the study include Cote d'Ivoire, Ghana, Mauritius, Nigeria and Senegal. The data covers the period 2000–2019. The selection of countries and timelines are based on data accessibility for lower-middle-income countries in West Africa. The data used are gross domestic product per person employed (proxy for inclusive growth) as supported by Boarini et al. (2015), trade openness, foreign direct investment inflow, rate of inflation, net official development assistance (% of gross capital formation) and current health expenditure (% of GDP). Data for the variables used are sourced from the World Bank,

2017; https://data.worldbank.org), while current expenditure on health is taken from (https://apps.who.int/nha/database). Trade openness is sourced from https://www.rug.nl/ggdc/productivity/pwt.

Model specification and methods of estimation

This study adopts the augmented neoclassical model of Raheem et al. (2018) to empirically determine the most effective between FDI and ODA as a source of external financing for inclusive growth in lower-middle-income West African countries. The functional form of the model with a light modification is stated as follows:

$$ING = f(FDI,\ ODA,\ CHE,\ TOP,\ INF) \quad (1)$$

Where: ING = Inclusive growth proxied by GDP per person employed, FDI = Foreign direct investment (net inflows), ODA = Net official development assistance, CHE = Current health expenditure (% of GDP), TOP = Trade openness, and INF = Inflation (annual % of consumer prices). The dependent variable is inclusive growth, which is measured as GDP per person in order to capture the distribution of each dimension across the economies. External financing is captured using FDI and net ODA receipts to GDP because it makes up over two-thirds of external finance for least developed and developing countries (OECD, 2019).

Equation (1) is then re-specified in logarithmic form in the following manner:

$$LogING_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 LogODA_{it} + \beta_3 LogCHE_{it} + \beta_4 TOP_{it} + \beta_5 INF_{it} + \varepsilon_{it} \quad (2)$$

where $\beta_0 =$ constant term, $\beta_1, \beta_2, \beta_3, \beta_4, and \beta_5$ are the regression parameters. ε_{it} = error term. The number of countries i = 1, . . . N while t = 1, . . . T. Apriori expectations are that; $\beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 > 0, and \beta_5 < 0$. Although the intention of the study is to determine the best between FDI and ODA, other control variables are added as supported by Raheem et al. (2018). These variables are the current health expenditure, trade openness and inflation rate.

Estimation techniques

Before estimating the results for this study, some preliminary tests are conducted to ensure that bias and inconsistency of results, heterogeneity of slopes, and spuriousness of results are avoided.

Test for cross-sectional dependence

Bias and inconsistent results in cross-country studies are usually caused by cross-sectional dependence among the countries under review. The existence or otherwise of cross-sectional dependence among countries is therefore first checked. Four different cross-sectional tests are employed in this paper – the Breusch-Pagan LM test (1980), the Pesaran CD test, the Pesaran Scaled LM test (2008), as well as the Bias corrected LM scale test. For all these tests, the null hypothesis that there is no cross-sectional dependence is tested against the alternative hypothesis that there is cross-sectional dependence. The hypothesis is presented as follows:

$$H_0 : \hat{p}_{ij} = cor\left(\mu_{it}, \mu_{jt}\right) = 0 \, for \, i \neq j \quad (3)$$

$$H_0 : \hat{p}_{ij} = cor\left(\mu_{it}, \mu_{jt}\right) \neq 0 \, for \, i \neq j \quad (4)$$

Slope homogeneity test

Another key issue for this study is the heterogeneity of the slope (cross-country). The evidence that major economic shocks discovered in country 'A', for instance, are not necessarily imitated in country 'B' is the presence of heterogeneity of slopes in a series. In this paper, the Pesaran and Yamagata (2008) slope heterogeneity tests are used to prevent this, using the delta test, which is the standard version of the homogeneity test.

Test for panel unit root

While cross-sectional dependence and slope heterogeneity are present in data series, first-generation unit root tests are no longer sufficient because they are not robust to these challenges. Therefore, second-generation econometric techniques that are capable of handling cross-sectional dependence and slope heterogeneity are used. Specifically, the Cross-sectionally Augmented Im et al. (2003) (CIPS) unit root test and the Cross-sectionally Augmented Dickey–Fuller (CADF) unit root test are employed. According to Pesaran et al. (2008), the CADF statistic is calculated thus:

$$\Delta y_{it} = \alpha_i + b_i y_{i,t-1} + c_i \bar{y}_{t-1} + d_i \Delta \bar{y}_t + e_{it} \quad (5)$$

Where: $\bar{y}\ and\ \Delta\bar{y}$ are the mean of cross sections of lagged levels and the first differences at time t for the countries under review.

Westerlund cointegration test

It has been noted that most studies reviewed adopt the traditional panel cointegration techniques (residual-based cointegration) and first-generation panel unit

root tests. Pedroni (1999) observes that these techniques do not account for possible cross-sectional dependence in the data series. Therefore, the Westerlund (2007) panel cointegration test becomes handy to evaluate panel data collections found to be cross-sectionally dependent, and thus to investigate whether long-term relationships exist among the chosen variables. Where cross-sectional dependence is found, compensation is made by estimating the probability values of the test statistics using the bootstrapping method. Considering the null hypothesis of 'no cointegration', two panels and two group-mean tests are carried out against the alternative hypothesis of 'cointegration' with at least one cointegration or cross-sectional unit within the entire panel. Adopting the Westerlund (2007) test, the model for error correction is formulated and shown thus:

$$\Delta y_{it} = \delta' id_t + \alpha_i\left(y_{i,t-1} - \beta_i' x_{i,t-1}\right) + \sum_{j=1}^{pi} \alpha_{ij}\Delta y_{i,t-j} + \sum_{qi}^{pi} \gamma_{ij}\Delta x_{i,t-j} + \varepsilon_{it} \quad (6)$$

where d_t is the deterministic component. The lag lengths and lead orders are pi and qi and they vary across individual cross sections.

Bootstrap panel Granger causality test

The direction of causality between inclusive growth and FDI and between inclusive growth and ODA among the lower-middle-income West African countries is one thing that is essential to identify in this study. Therefore, following Emirmahmutoglu and Kose (2011), the test equation system to estimate panel causality is shown below:

$$ING_{it} = \alpha_{1i}^{ING} + \sum_{j=1}^{L_{FDI}+dmax_i} \beta_{1ij} FDI_{it-j} + \sum_{j=1}^{L_{ING}+dmax_i} \gamma_{1ij} ING_{it-j} + \varepsilon_{1it}. \quad (7)$$

$$FDI_{it} = \alpha_{2i}^{FDI} + \sum_{j=1}^{L_{ING}+dmax_i} \beta_{2ij} ING_{it-j} + \sum_{j=1}^{L_{FDI}+dmax_i} \gamma_{2ij} FDI_{it-j} + \varepsilon_{2it}. \quad (8)$$

$$ING_{it} = \alpha_{1i}^{ING} + \sum_{j=1}^{L_{ODA}+dmax_i} \beta_{1ij} ODA_{it-j} + \sum_{j=1}^{L_{ING}+dmax_i} \gamma_{1ij} ING_{it-j} + \varepsilon_{1it}. \quad (9)$$

$$ODA_{it} = \alpha_{2i}^{ODA} + \sum_{j=1}^{L_{ING}+dmax_i} \beta_{2ij} ING_{it-j} + \sum_{j=1}^{L_{ODA}+dmax_i} \gamma_{2ij} ODA_{it-j} + \varepsilon_{2it}. \quad (10)$$

In equations (7)–(10), respectively, ING_{it}, denotes inclusive growth of country i in period t, $FDI_{i,t}$ = foreign direct investment of country i in period t, $ODA_{i,t}$ = official development assistance of country i in period t. N = numerical value of the countries included in the panel ($j = 1, \ldots, N$), t = time period ($t = 1, \ldots, T$), 1 = optimal lag length, $dmax_j$ represents the maximal order of integration for each series in the VAR system.

For each pair of the bivariate Granger causality tests, the null hypotheses are stated thus:

$$H_0 : \rho_{1i1} = \rho_{1i1} = \ldots \rho_{1iki} = 0 \, for \, i = 1, 2, \ldots, N \quad (11)$$

$$H_0 : \alpha_{2i1} = \alpha_{2i2} = \ldots \alpha_{2iki} = 0 \, for \, i = 1, 2, \ldots, N \quad (12)$$

To test the null hypothesis of 'no causality' in a non-homogeneous mixed panel, Fisher (1932) adopted a procedure, which involves a combination of various significant levels (p-values) of independent but identical tests. If the test statistics are continuous, then the p-values (i.e. pi, $i = 1, \ldots, N$) are assumed to be variables of uniform independence (0, 1), so that the Fisher test statistic (λ) becomes:

$$\lambda = -2\sum_{i=1}^{N} ln_{(pi)} \qquad i = 1, 2, \ldots, N. \quad (13)$$

where pi = p-value for Wald statistic related to the ith individual cross-section. For equation 13, the test statistic possesses a Chi-square distribution with 2 N degrees of freedom. Furthermore, the test statistic of equation (13) is valid only when N is fixed as T approaches infinity (i.e. $T \rightarrow \infty$). Conversely, due to the presence of cross-sectional dependence among the members of the panel, the Fisher test statistic is still not valid. Therefore, the bootstrap technique becomes handy to test for causality among countries that are likely to be dependent on one another. The bootstrap technique is thus used to detect the direction of causality between inclusive

growth, on the one hand, and FDI and ODA in the lower-middle-income countries of West Africa, on the other hand.

Discussion of findings

A summary of the descriptive characteristics of the variables used for the study is first presented to show the structure and composition of the data used for this study. As reported in Table 1, the average value of inclusive growth, foreign direct investment, official development assistance, current health expenditure, trade openness, and inflation rate are $4.04 billion, $8.78 billion, $25.45 billion, $4.16 billion, 68.14% and 7.17%, respectively. Table 1 further shows that the maximum mean value of inclusive growth is reported in Nigeria ($4.17 billion). The minimum mean value is recorded in Ghana ($3.89 billion) within the period of study. For FDI, the maximum mean value is also reported in Nigeria ($9.53 billion), while the minimum value is in Mauritius ($8.35 billion). This shows that among the lower-middle-income countries, Nigeria has the highest foreign inflow within the study period. Mauritius has the highest mean value for ODA with $36.41 billion, while the lowest mean value is reported in Nigeria ($3.94 billion).

Looking at the descriptive statistics in terms of current health expenditure, as reported in Table 1, Cote d'Ivoire has the highest value with $6.31 billion, followed by Mauritius with $5.37 billion. The result shows that Ghana has the minimum ($1.74 billion). Concerning trade openness, Mauritius has the highest value with $127.06 billion, followed by Cote d'Ivoire and Ghana with $95.07 billion and

Table 1. Summary statistics.

Country	Mean	Std. Dev	Minimum	Maximum
Panel A: Inclusive Growth				
Cote d'Ivoire	3.95	0.06	3.89	4.09
Ghana	3.89	0.99	3.76	4.04
Mauritius	4.13	0.06	4.04	4.19
Nigeria	4.17	0.11	3.97	4.30
Senegal	4.04	0.06	3.95	4.15
Panel	4.04	0.13	3.76	4.30
Panel B: Foreign Direct Investment				
Cote d'Ivoire	8.60	0.20	8.21	8.99
Ghana	9.00	0.66	7.77	9.54
Mauritius	8.35	0.56	6.93	9.14
Nigeria	9.53	0.34	8.69	9.95
Senegal	8.41	0.33	7.63	8.83
Panel	8.78	0.63	6.93	9.95
Panel C: Official Development Assistance				
Cote d'Ivoire	31.34	36.28	3.83	12.42
Ghana	29.68	17.64	7.10	56.75
Mauritius	36.41	42.89	9.26	188.13
Nigeria	3.94	4.23	0.73	17.38
Senegal	25.88	8.68	13.07	48.50
Panel	25.45	28.49	0.73	188.13
Panel D: Current Health Expenditure				
Cote d'Ivoire	5.24	0.75	4.29	6.31
Ghana	3.63	0.85	1.74	4.67
Mauritius	4.20	0.62	3.24	5.37
Nigeria	3.69	0.58	8.69	5.05
Senegal	4.01	0.34	3.34	4.52
Panel	4.16	0.87	1.74	6.31
Panel E: Trade Openness				
Cote d'Ivoire	79.75	11.97	57.75	95.07
Ghana	58.77	10.33	46.04	75.59
Mauritius	110.38	11.55	83.86	127.06
Nigeria	37.06	9.29	20.72	52.79
Senegal	54.77	3.40	50.48	60.88
Panel	68.14	27.00	20.72	127.06
Panel F: Inflation Rate				
Cote d'Ivoire	2.25	1.76	−0.88	6.31
Ghana	15.13	6.71	7.13	32.91
Mauritius	5.05	2.68	1.47	12.13
Nigeria	12.07	3.66	5.39	18.87
Senegal	1.47	2.21	−2.25	7.34
Panel	7.17	6.66	−2.25	32.91

Source: Authors' computation (2020) from data retrieved for the selected countries.

Table 2. Cross-sectional dependence test.

	Test Stat & Prob.					
	ING	FDI	ODA	CHE	TOT	INF
LM (Breusch & Pagan, 1980)	145.76*	65.36*	36.16*	27.31*	48.11*	22.35**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
CDlm (Pesaran, 2004)	29.24*	11.261*	4.73	2.75**	7.40*	1.63
	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.10)
CD (Pesaran, 2004)	29.11*	11.13*	4.60	2.621**	7.27*	1.51
	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.13)
LMadj (Pesaran et al., 2008)	11.96*	7.17*	2.82**	−1.22	0.51	3.09*
	(0.00)	(0.00)	(0.01)	(0.22)	(0.61)	(0.00)

Note: * & ** denote statistical significance at 1% and 5%, respectively.

$75.59 billion, respectively. The highest inflation rate is reported in Ghana, followed by Nigeria, Mauritius, Senegal and Cote d'Ivoire, respectively.

Test for cross-sectional dependence

In order to avoid spurious finding and also detect the presence or otherwise of cross-sectional dependence (CSD) among countries, a CSD test is performed as put forward by Pesaran (2004). The CSD test follows a (0,1) distribution. From the result in Table 2, the null hypothesis of the CSD test, which is 'no cross-sectional dependence', is rejected at 5% significance level or better in all cases. It is therefore clear that a cross-sectional dependence exists in the data series.

The fact that cross-sectional dependence exists among the series shows that the behaviour of some of the macroeconomic variables in West African countries may be due to the interconnection between the countries, either in the area of trade or pattern of investment and calls for aid. This in turn affects the growth pattern of the West African countries since they depend on one another in one area or the other.

Slope homogeneity

As seen in Table 3, the results of the delta tilde and delta tilde adjusted for evaluating the presence of slope heterogeneity show that the statistics are significant at 5% significance level or better. Hence, it is confirmed that slope heterogeneity is present within the series.

Unit root test

Having confirmed the presence of cross-sectional dependence and slope heterogeneity in the data series, second-generation unit root testing was employed. The Cross-sectionally Augmented Im et al. (2003) (CIPS) and the Cross-sectionally Augmented Dickey–Fuller (CADF) unit root tests were carried out, and the results are presented in Tables 4 and 5. As observed in Tables 4 and 5, for the entire panel, as shown by the CIPS results, all the variables were nonstationary at level but became stationary after first differencing.

Westerlund panel cointegration test

Having established that the variables are integrated of order 1, the Westerlund panel cointegration test, which is a second-generation cointegration test, is employed in order to examine the long-run relationship that exists among the variables of interest. As observed in Table 6, all the asymptotic p-values are statistically significant at 10% significance level or better, while 3 out of 4 of the bootstrap p-values are statistically significant at 10% significance level or better. The results establish the presence of cointegration and indicate the presence of a long-run relationship between the variables.

Regression result

Table 7 reports the results obtained from the Common Correlated Mean Group (CCEMG), Augmented Mean Group (AMG) and Mean Group (MG) estimation

Table 3. Slope homogeneity test.

Delta Tests	Test Statistics and P-values					
	ING	FDI	ODA	CHE	TOT	INF
$\tilde{\Delta}$	1.50**	1.51**	3.74*	0.32**	2.61*	4.89*
	(0.07)	(0.07)	(0.00)	(0.07)	(0.00)	(0.00)
$\tilde{\Delta}_{adj}$	1.63**	1.63**	4.05	0.345**	2.83*	5.30*
	(0.05)	(0.05)	(0.10)	(0.06)	(0.00)	(0.00)

Note: *&** denote statistical significance at 1% and 5% respectively.

Table 4. CADF unit root results (trend at level).

							Critical values		
	ING	FDI	ODA	CHE	TOT	INF	1%	5%	10%
Cote d'Ivoire	−2.58	−1.30	−1.13	−1.41	−0.24	−2.01	−5.00	−4.19	−3.63
Ghana	−0.78	−4.11***	−2.37	−2.96	−1.02	−2.43	−5.00	−4.19	−3.63
Mauritius	−2.57	−3.12	−1.77	−2.23	−3.25	−2.46	−5.00	−4.19	−3.63
Nigeria	−2.45	−3.85***	−3.34	−1.06	−2.36	−1.62	−5.00	−4.19	−3.63
Senegal	−2.89	−0.50	−2.57	−1.82	−2.86	−3.09	−5.00	−4.19	−3.63
CIPS	−2.25	−2.58	−2.24	−1.89	−0.39	−2.32	−5.00	−4.19	−3.63

Note: *** denotes statistical significance at 10% level.

Table 5. CADF unit root results (trend at first difference).

							Critical values		
	ING	FDI	ODA	CHE	TOT	INF	1%	5%	10%
Cote d'Ivoire	−3.87***	−3.64***	−6.94*	−4.46**	−4.58**	−4.78**	−5.00	−4.19	−3.63
Ghana	−3.26	−3.24	−3.89***	−1.92	−3.28	−2.80	−5.00	−4.19	−3.63
Mauritius	−3.31	−2.57	−4.53*	−6.67*	−3.18	−2.78	−5.00	−4.19	−3.63
Nigeria	−2.31	−3.42	−6.09*	−1.90	−3.18	−3.79*	−5.00	−4.19	−3.63
Senegal	−3.15	−2.44	−4.60*	−1.76	−3.42	−4.30*	−5.00	−4.19	−3.63
CIPS	−3.94***	−3.82***	−5.21*	−3.64***	−4.83**	−3.69***	−5.00	−4.19	−3.63

Note: *, **&*** denote statistical significance at 1%, 5% and 10%, respectively.

results. It is worth noting that while the AMG and CCEMG estimators are robust to cross-sectional dependence and slope heterogeneity, the MG estimator is not. The MG results are, however, also included as a baseline for comparison. The results show that FDI has a positive and significant impact on inclusive growth. As a result of a one-percent rise in FDI, inclusive growth would increase by 0.0336% (AMG) and 0.0401% (CCEMG), respectively. The results also show that ODA has a positive impact on inclusive growth; a percentage increase in ODA is associated with an increase of 0.0002%. The result is, however, only significant for the CCEMG estimation. These outcomes imply that FDI and ODA are important for inclusive growth in lower-middle-income West African countries. Nevertheless, the percentage contribution of FDI to inclusive growth far outweighs the contribution of ODA.

Table 7 also shows that current health expenditure (CHE) positively impacts inclusive growth in the long run. According to the CCEMG result, inclusive growth would rise by 0.006% following a one-percent rise in CHE. Trade openness (TOP) has a negative and significant effect on inclusive growth. A percentage increase in TOP would decrease inclusive growth between 0.0004% (AMG) and 0.0002% (CCEMG). This outcome is of particular interest as it confirms the conclusion reached by Kim (2011) that although trade is beneficial for growth in developed economies, its effects are detrimental to the economic growth of developing countries. Inflation is found to have a negative and significant relationship with inclusive growth. A percentage rise in inflation rate reduces inclusive growth between 0.07% and 0.08%, respectively.

Bootstrap Granger causality test result

Having confirmed from previous results that the series are cross-sectionally dependent and that slope heterogeneity is exhibited among the five lower-middle-income West African countries, the bootstrap Granger causality test proposed by Emirmahmutoglu and Kose (2011) is carried out in order to determine the direction of causality between inclusive growth as a dependent variable and foreign direct investment and official development assistance as independent variables. The outcome of this test is shown in Tables 8 and 9.

Table 8 shows that a bidirectional causality exists between inclusive growth and foreign direct investment in Nigeria and Senegal. A one-way causality running from inclusive growth to foreign direct investment is visible in Ghana and Mauritius. No causal relations were detected in Cote d'Ivoire. At the panel level, both the asymptotic and bootstrap p-values confirm the presence of a feedback causality in West Africa. The outcome of the Granger causality test between inclusive growth and official development assistance is displayed in Table 9. The results indicate that a one-way causality running from inclusive growth to ODA exists in Mauritius and a one-way causality in the opposite direction exists in Ghana and Senegal. At the panel level, while the asymptotic p-value suggests the presence of a bidirectional causality between inclusive growth and ODA, the more reliable bootstrap p-value suggests otherwise.

Table 6. Westerlund cointegration test results.

Statistics	Value	Asymptotic p-value	Bootstrap p-value
g-tau	−4.179	0.000	0.044
g-alpha	−1.487	0.068	0.140
p -tau	−4.349	0.000	0.031
p -alpha	−4.349	0.004	0.088

Table 7. MG, AMG and CCEMG estimator results.

	MG Estimate		AMG Estimate		CCEMG Estimate	
	Coefficient	P-value	Coefficient.	P-value	Coefficient	P-value
FDI	0.0869*	0.003	0.0336*	0.008	0.0401***	0.088
ODA	−0.0014***	0.007	0.0002	0.309	0.0002**	0.049
CHE	−0.0088	0.442	0.0068	0.121	0.0060**	0.043
TOP	−0.0017*	0.418	−0.0004*	0.013	−0.0002***	0.086
INF	−0.0036**	0.001	−0.0007**	0.060	−0.0008**	0.076

Note: *, ** & *** denote statistical significance at 1%, 5% and 10%, respectively.
Source: Author's computation.

Table 8. Granger causality between ING and FDI.

H_0: Inclusive Growth does not Granger cause Foreign Direct Investment		H_0: Foreign Direct Investment does not Granger cause Inclusive Growth	
Countries	Wald statistics	Countries	Wald statistics
Cote d'Ivoire	0.214	Cote d'Ivoire	2.618
	(0.644)		(0.106)
Ghana	3.438*	Ghana	0.006
	(0.064)		(0.938)
Mauritius	7.180*	Mauritius	0.572
	(0.000)		(0.449)
Nigeria	3.147**	Nigeria	5.647**
	(0.076)		(0.017)
Senegal	18.885*	Senegal	7.512*
	(0.000)		(0.006)
Panel Fisher	**43.729**	**Panel Fisher**	**24.504**
Asymptotic p-value	(0.000)	Asymptotic p-value	(0.006)
Bootstrap p-value	(0.083)	Bootstrap p-value	(0.012)

Note: * and ** denote statistical significance at 1% and 5% respectively.

Table 9. Granger causality between ING and ODA.

H_0: Inclusive Growth does not Granger cause Official Development Assistance		H_0: Official Development Assistance does not Granger cause Inclusive Growth	
Countries	Wald statistics	Countries	Wald statistics
Cote d'Ivoire	2.216	Cote d'Ivoire	2.040
	(0.137)		(0.153)
Ghana	2.263	Ghana	8.487*
	(0.132)		(0.004)
Mauritius	4.792**	Mauritius	2.260
	(0.029)		(0.133)
Nigeria	1.236	Nigeria	0.192
	(0.266)		(0.661)
Senegal	2.605	Senegal	9.798*
	(0.107)		(0.002)
Panel Fisher	**22.260**	**Panel Fisher**	**32.585**
Asymptotic p-value	(0.014)	Asymptotic p-value	(0.000)
Bootstrap p-value	(0.621)	Bootstrap p-value	(0.917)

Note: * and ** denote statistical significance at 1% and 5% respectively.

Conclusion and recommendations

Despite the improvement recorded in the gross domestic product (GDP) of many West African countries, poverty and unemployment still ravage the majority of the populace, thus raising doubts about growth in income reaching the lowest ranks of the society. This has necessitated a paradigm shift from economic growth to inclusive economic growth. This study was borne out of the burning desire to investigate how external finance may contribute to achieving inclusive growth. However, the question arises as to which is the best source of external financing for inclusive growth: FDI or ODA?

The study findings make a strong case for foreign direct investment as evidenced by the results obtained from both AMG and CCEMG estimators. The positive impact of FDI on inclusive growth for the countries as a whole range between 0.0336% and 0.0401%. The results generated through the AMG and CCEMG estimators also show that the positive impact of a percentage increase in ODA on inclusive growth is about 0.0002%. FDI and ODA are thus important for inclusive growth. The results obtained from the panel causality tests conducted further confirm the link between FDI and inclusive growth as well as between ODA and inclusive growth. The estimates, however, indicate that for lower-middle-income West African countries as a whole, external financing through FDI contributes higher than ODA; hence, it is concluded that FDI is preferable to ODA for improvement in inclusive growth. Consequently, this study supports FDI as the principal vector of external financing for inclusive growth in lower-middle-income West African countries.

Given the study's empirical outcomes, it is recommended that West African countries prioritize macroeconomic policy reforms that provide enabling conditions for FDI to thrive rather than pursue ODA that more often than not are misdirected. This way, through increased GDI, more employment will be generated, infrastructural growth and technology transfer will occur, and global market access for locally produced export commodities will expand. Moreover, to significantly improve the impact of ODA on inclusive growth in lower-middle-income West African countries, it is recommended that ODA should not be channeled to non-investment-type activities, such as financing recurrent government expenditures and government consumption expenditures, but rather should be channeled towards increased public investment in physical infrastructure and social infrastructure.

Note

1. Benin, Burkina Faso, Cape Verde, Côte D'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Sao Tome and Principe and Togo.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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