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Response of Inclusive Growth to Development Aid in Africa and the Role of ICT Diffusion

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Abstract. Over the years, some regions of Africa have witnessed stable economic growth, which could not be considered pro-poor or inclusive given the region's high rate of poverty and income inequality. Development aid flow, on the other hand, has been contended to be a pro-poor strategy, which could play a key role in the drive towards the achievement of sustainable, inclusive growth in Africa. Thus, the purpose of this paper is to evaluate the role of development aid, which has been argued to be welfare-enhancing, especially in developing countries, taking into account digitalization. The research hypothesis is that development aid in the form of foreign aid and remittances promotes inclusive growth, especially in the face of digitalization in Africa. Premised on the inclusive growth-aid nexus, the study carried out panel data analysis using the common correlation effect technique for 50 African countries from 1996 to 2021. The main findings reveal that remittances have a welfare-enhancing effect through improving inclusive growth. Foreign aid, on the other hand, had a positive effect but was not significant, which was attributed to the weak institutional framework in the region. Digitalization was observed to have an adverse effect attributed to its high affordability. The theoretical contribution of the study is the incorporation of structural systems such as digitalization in the nexus between inclusive growth and development aid, which has been identified as a facilitator in the drive for inclusive growth. In terms of practical significance, the study highlights the need for digital reforms and investment in this sector as well as the need to address the institutional gap to mitigate the inefficiencies of development aid performance.

Key words: development aid; foreign aid; remittances; poverty; income inequality; inclusive growth; digitalization; institutional quality; Africa; heterogenous panel model.

1. Introduction

In recent times, most regions of Africa have witnessed consistent economic growth. However, this progress is seldom inclusive, as the region continues to be marred by extreme poverty and a high-income gap. According to an Oxfam report[1], Africa is the second most unequal continent in the world and is home to seven of the most unequal countries. Similarly, Statista[2] estimates that over 460 million people on the continent lived below the extreme poverty limit of $1.90 per day in 2022, indicating that approximately one-third of Africa's population was living in extreme poverty in that year.

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[1] Oxfam. (2019). Public good or private wealth? Retrieved from: https://s3.amazonaws.com/oxfam-us/www/static/media/files/bp-public-good-or-private-wealth-210119-en.pdf (Date of access: 23/07/2022).

[2] Statista. Retrieved from: https://www.statista.com/statistics/1228533/number-of-people-living-below-the-extreme-poverty-line-in-africa/ (Date of access: 22/07/2022).

This raises the fundamental question of how inclusive the region's economic growth is. This is because an inclusive economic growth process is expected to be extensive, rapid, and sustainable. In most cases, inclusive growth is regarded to be pro-poor growth, which can be categorized as absolute and relative pro-poor growth (see Ianchovichina & Lundström [1]).

In the first scenario, it is anticipated that the growth process should be welfare improving as it enhances the status of the poor and vulnerable. In other words, the rate of poverty reduction should parallel economic growth.

In the second scenario, the incomes of the poor may need to expand faster than the population (reduction in income inequality). Incidentally, these indicators of inclusive growth align with the Sustainable Development Goals' objectives 1 "End poverty in all its form everywhere" and 10 "reduce inequality within and among countries".

On the other hand, it has been argued that foreign development aid is a safety net for poor and vulnerable growth. According to Sachs [2], foreign aid can assist in breaking the vicious cycle of poverty and escaping the trap of poverty[1].

However, studies such as Amin [3], Moyo [4], and Wamboye et al. [5] contend that foreign aid is less significant, particularly in Africa, where it is often politicized and ineffective. Africa is one of the continents that receives a significant amount of global aid.

This is evidenced by a report by the OECD-DAC, which estimates that aid to African countries totalled about $60.5 billion in 2021, or 33.6% of total aid. In another report by World Bank Migration and Development, Sub-Saharan Africa received an estimated US$49 billion in remittances in 2021[2]. Despite these overwhelming figures, the twin problem of poverty and inequality prevail in the region.

The study is motivated by a misalignment in Africa between increasing economic growth and inclusive growth (as proxied by income inequality and poverty). Earlier studies in Africa, Asongu & Nwachukwu [6] concentrated on inequality while utilising an inequality adjusted human development index. While the index includes a component of inclusive growth (inequality), it does not include the other component, poverty.

In any event, poverty remains a major problem in Africa, with extreme cases in certain regions. Understanding these twin components, which differ across countries, is also an important research problem. Finally, considering the role of digitization and the gradual penetration of this system across the continent, we will attempt to determine the impact of digital diffusion in Africa's development aid inflows.

The purpose of this paper is to evaluate the role of development aid, which has been argued to be welfare-enhancing, especially in developing countries, taking into account digitalization.

The research problem emanates from the incongruity between African economies' steady growth rates and deteriorating poverty rates and income inequality, which highlights the question of inclusivity in the region. Similarly, the region has seen a significant increase in development aid in the form of international aid and remittances. It has, however, adopted digital technology, which is one process that promotes the flow of funds by reducing rigidities in foreign transactions.

To this end, the paper extends the research question to include: what is the effectiveness of international development aid in promoting inclusive growth in Africa? and

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[1] Sachs, J. (2014). The case for aid. Foreign Policy, 21, 2014. Retrieved from: https://foreignpolicy.com/2014/01/21/the-case-for-aid/

[2] See Knomad. Retrieved from: https://www.knomad.org/publication/migration-and-development-brief-36

what is the role of digital diffusion in the interaction between inclusive growth development aid?

The research hypothesis which is derived from the objective of the study is that development aid in the form of foreign aid and remittances promotes inclusive growth, especially in the face of digitalization in Africa.

The rest of the paper is organized as follows. Section 2 provides literature and conceptual review of the study. Section 3 and 4 discuss the methodology and empirical outcomes, respectively. Section 5 presents the discussion of the empirical outcomes of the study and section 6 concludes the paper and highlights the policy implications of the study.

2. Literature review

The literature on inclusive growth (definition & measurement) is still evolving, given the commendable efforts in conceptualizing the concept. The approaches could be categorized into views of World Bank, Asian Development Bank, OECD, and UNDP.

The World Bank perceived inclusive growth as growth process that paced (capable of reducing poverty) and broad-based (sustainable) across all sectors of an economy which are critical for achieving a high, sustainable growth record [1]. The view argued that inclusive growth is about enlarging the size of the economy (by creating more employment opportunities), rather than redistributing resources.

The UNDP approach could be viewed as an extension of the World Bank view given more laying emphasis on participation and benefit-sharing, with a focus on employment [7][1]. The approach demonstrates that growth is inclusive if it occurs in sec-

tors that employ the vulnerable and poor, such as agriculture; occurs in regions where the poor reside, such as rural and relatively backward regions; employs production factors that the poor possess in abundance, such as unskilled labor; and results in price reductions for commodities that the poor consume, such as food, fuel, clothing, and public transportation. Increasing returns to labour is therefore a process that benefits the poor.

On the other hand, Asian Development Bank views inclusive growth as being accompanied by equity and fairness as well as by providing economic opportunities for all (see Rauniyar & Kanbur [8] Ali & Son [9], and Rauniyar & Kanbur [10][2]. In addition to the World Bank's proposition, the ADB view factors in environmentally sustainable growth as a determinant of inclusive growth.

However, the study of Ngepah [11] notes that despite this all-encompassing, though holistic, the approach renders inclusive growth analytics unworkable because it requires determining how everyone contributed to such growth.

The OECD view is based on three broad pillars: multidimensionality, distributional considerations, and policy impact. The multidimensionality pillar asserts looking beyond the traditional growth measures of GDP-based, and GDP per capita-based linked welfare to include additional important dimensions of people's well-being that promote their productive capacity in the economy and society, such as social relations and happiness. The distributional pillar also necessitates analyses of distribution that consider the distributions of multidimensional well-be-

[1] Hirvay, I. (2011). Consultation on Conceptualizing Inclusive Growth. United Nations. Retrieved from: https://www.undp.org/sites/g/files/zskgke326/files/migration/in/consultation_on_conceptualizing_inclusive_growth.pdf

[2] Asian Development Bank. (2012). Framework of Inclusive Growth Indicators 2011: Key Indicators for Asia and the Pacific Special Supplement. Retrieved from: https://www.adb.org/sites/default/files/publication/42976/ki2011-special-supplement.pdf

ing beyond income (per capita)[1 & 2]. Owing to the increased variability of the correlation between per capita GDP growth and multidimensional living standards, a multidimensional approach is chosen in this perspective.

The theoretical link between inclusive growth and development aid remains knotty, however, there have been extensive discuss on the foreign aid and the various components of inclusive growth such as poverty and income inequality.

For instance, the study of Asongu [12] amongst others have studied the nexus between income inequality and development aid. The study contends that the notion that inequality would naturally fall with maturity in industrialization has become a bad idea. In addition, stressing that inequality may be a better policy variable than growth and stresses the need on why foreign aid should focus more on inequality than on growth in poverty reduction. Easterly [13] points out that poverty can be reduced through increasing economic growth, improving governance, and increasing access to public services.

The aid and inequality nexus could follow a nonlinear pattern relationship. For instance, Sobhee & Nath [14] points out that the literature documents evidence of an aid Kuznets curve that limits the income effect of foreign aid in the long term. Tezanos et al. [15] on the other hand argues that the long-run aggregate effects of aid could be more apparent when inequalities are dealt with.

Baah-Nketia[16] points out that foreign aid does not help inclusive growth in Africa. On the contrary, foreign aid sometimes retards or stagnates inclusive growth. More so, Kim & Kim [17] notes that foreign aid could reduce income inequality especially when after taking account the effect of good governance which could enhance the positive effect of foreign aid on income inequality.

On emphasizing the role of governance as a significant prerequisite for the effectiveness of the foreign aid, Maqbool & Ali [18] in an interactive study observes that the control foreign aid reduces income inequality in countries where control of corruption is high.

Several studies have established the nexus between income inequality and poverty. In line with this, the study argues that one possible channel of poverty reduction is through addressing the problem of income inequality [12].

Assessing the degree of responsiveness, the study of Fosu [19, 20] points out that the responsiveness of poverty to income is a decreasing function of inequality, and the inequality elasticity of poverty is actually larger than the income elasticity of poverty. More so, high initial levels of inequality limit the effectiveness of growth in reducing poverty while growing inequality increases poverty directly for a given level of growth [21].

More explicitly on the link between foreign aid and poverty, the seminal studies of Rosenstein-Rodan [22] and Lewis [23] have explained the linkage between foreign aid and poverty pointing out that foreign aid provides the necessary capital to boost developing countries into self-sustaining economic growth.

Furthermore, it was argued that poor countries needed a "big push" to free themselves from the constraints of the low-lev-

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[1] OECD. (2014). All on board: Making inclusive growth happen. OECD Paris. Retrieved from https://www.oecd-ilibrary.org/all-on-board_5jz14cc2p3r7.pdf?itemId=%2Fcontent%2Fpublication%2F9789264218512-en&mimeType=pdf

[2] OECD. (2016). Shaping policies for inclusive growth: voice, inclusion and engagement. In The Governance of Inclusive Growth (pp. 63–95). Retrieved from https://www.oecd-ilibrary.org/deliver?redirecturl=http%3A%2F%2Fwww.keepeek.com%2FDigital-Asset-Management%2Foecd%2Fgovernance%2Fthe-governance-of-inclusive-growth_9789264257993-en&isPreview=true&itemId=%2Fcontent%2Fpublication%2F9789264257993-en

el trap. The study of Sachs [2] further outlines that aid is one way to push people out of the poverty trap.

Collier & Dollar [24] in explaining the poverty-aid nexus through the 'poverty-efficient' hypothesis points out that aid, operating through increased economic growth, was responsible for lifting about 10 million people out of extreme poverty each year.

Bahmani-Oskooee & Oyolola [25] finds that aid reduces poverty; and that inequality is detrimental to poverty reduction.

Arndt et al. [26] notes that aid does stimulate growth, improve social welfare indicators, and reduces poverty.

Alvi & Senbeta [27] finds that foreign aid reduces poverty, specifically Multilateral aid, and grants while aid in the form of Bilateral aid and loans do not reduce poverty.

Mahembe & Odhiambo [28] notes that foreign aid in the form of that total aid, grant and bilateral aid are more likely to reduce poverty, while freedom of enterprise rather than political freedom plays a significant role in terms of the effectiveness of the aid in poverty reduction. Another dimension through which foreign aid can aid in poverty reduction is through Agriculture.

Kaya et al. [29] notes that Agricultural aid is one of the significant aid packages through which poverty is reduced. By nature, most vulnerable and poor are predominant in this sector, thus, the aid in this sector will enhance their productivity and improve their welfare.

Masron & Subramaniam [30] finds that remittances have a welfare-enhancing effect through poverty reduction.

3. Methodology
3.1. Tests and model

Previous similar studies relied on system-GMM, which is recognized for its ability to address endogeneity problem in a model. This technique, however, does not account for cross-sectional dependence (CSD). This is a topical in the context of the study because it concerns a group of countries that are interdependent owing to their location and are vulnerable to external shocks because of globalization.

Thus, the study adopts the Common correlated effects technique of Chudik & Pesaran [31]. The technique takes into consideration cross-sectional dependence, common correlated effects, and individual heterogeneity.

In line with this, the study conducted several pre-estimation tests. To begin, the study conducted a cross-sectional dependence test of Pesaran [32] to verify the claim of cross-sectional dependence. The CSD unitroot test of Pesaran [33] was carried out to determine the order of integration of the variables.

Following that, we conducted the Pesaran & Yamagata [34] homogeneity test to determine whether to impose homogeneity in the short-run or long-run coefficients.

Thus, the proposed baseline model is as follows:

$$incl_{it} = \alpha_0 + \beta_1 incl_{i,t-1} + \beta_2 Daid_{i,t} + \\ + \beta_3 Dig_{i,t} + \beta_4 cont_{i,t} + \varepsilon_{it}, \quad (1)$$

where $incl_{it}$ is a composite measure for inclusive growth, $incl_{i,t-1}$ is the lag of inclusive growth, $Daid_{i,t}$ is development aid (which takes the form of remittances and foreign aid), $cont_{i,t}$ is a vector of control variables which includes, population, government expenditure, and institutional quality, $Dig_{i,t}$ is digital diffusion, and ε_{it} is the idiosyncratic error term.

The literature on digitalization have shown that digital diffusion is a form structural change with a lot of gains for inclusive growth (see Ofori & Asongu [35], Ofori et al. [36], and Nchake & Shuaibu [37]). With digitalization, it is presumed that the hurdles associated with aid flow which include

agency and third-party factors could be reduced to its barest minimum.

3.2. Data

Annualized data for the 53 African countries from 1996 to 2021 was used (since institutional variables starts at 1996). An index based on poverty rates and income inequality was used to measure inclusive growth.

Poverty serves as proxy for absolute pro-poor growth, while income inequality as proxy for relative pro-poor growth. More specifically, regarding income inequality, the Palma's coefficient was used as against the common Gini coefficient. This is because the Palma's ratio captures the difference between individuals in the top and bottom brackets (i. e., by how much does of the poor share does the rich owns).

Table 1 shows a summary of the proposed variables' descriptions and sources.

Table 1. **Data Description**

Variable	Description	Source
Inclusive	Composite index of poverty and palma's ratio using principal component analysis	Author's computation
Poverty	share of population in extreme poverty	World Bank PovcalNet
Palma's ratio	"The RATIO of the top 1 % share is the share of income/wealth accruing to the 1 % highest incomes/wealth in the country OVER The bottom 50 % share is the share of income/wealth accruing to the bottom 50 % of the population"	Author computation using data from World Inequality Database
Gov. expd.	Government final expenditure as percentage of GDP	World Bank, World Development Indicator
Inst. Quality	A Principal component of world governance indicators	World Bank, World Governance Indicator
ODA	Net official development assistance received (constant 2020 US$)	World Bank, World Development Indicator
Remittance	Personal remittances, received (current US$)	World Bank, World Development Indicator
Population	Total population	World Bank, World Development Indicator
internet	Individuals using the Internet (% of population)	World Bank, World Governance Indicator

4. Results

Table 2 includes further descriptive statistics for the variables used. The estimates reveal that poverty is extremely high with the maximum statistics revealing that about 95 % of the people in extreme poverty in the overall sample, 82 % between and 80 % within the sample.

Also, the Parma coefficient reveals the high level of income gap with maximum value indicating that the 1 % income shareholders own about 12 times of the share of the bottom 50 % in the overall sample, 4.5 % in the between sample 10s% in the overall sample. The average value of the remittance reveals that about 4 % contribution

Table 2. **Summary Statistics**

Variable	Sample	Mean	Std. Dev.	Min	Max	Observations
pov	overall	0.357753	0.267	0	0.953	N = 1325
	between		0.236	0	0.822	n = 53
	within		0.131	−0.465	0.8	T = 25
palma	overall	1.574901	1.034	0.511	12.325	N = 1272
	between		0.858	0.523	4.541	n = 53
	within		0.588	−0.609	10.269	T = 24
oda	overall	6.82E+08	8.73E+08	−1.84E+07	1.19E+10	N = 1584
	between		6.46E+08	2.42E+07	2.65E+09	n = 53
	within		5.92E+08	−1.86E+09	1.07E+10	T = 29.887
remit	overall	3.918978	10.838	0	167.432	N = 1430
	between		7.979	0.002	55.991	n = 53
	within		6.805	−36.358	115.359	T-bar = 26.981
internet	overall	8.309624	14.622	0	88.130	N = 1583
	between		6.9639	0.398	28.597	n = 53
	within		12.861	−20.2878	67.843	T = 29.868
ggfe	overall	15.34308	7.309	0.911	62.133	N = 1410
	between		6.834	4.454	38.688	n = 50
	within		3.838	−0.7703	46.018	T-bar = 28.2
popden	overall	85.11785	113.679	2.0204	623.517	N = 1325
	between		112.706	2.511	604.912	n = 53
	within		21.226	−61.685	221.084	T = 25

Source: Author's computation

of remittance to GDP. However, we observed that, in the overall sample a contribution of about 167 % which is quite high.

Table 3 presents the correlation matrix which could inform us of possible multicollinearity. However, the estimates reveal absence of multicollinearity among the variables.

Given the assumption of cross-sectional dependency and slope heterogeneity underlying the CCE model, the study first conducted Pesaran [32] test for cross-section dependence in panel time-series data with the null hypothesis of cross-sectional independence (Table 4).

Following the result of cross-sectional dependence in table 4, we conducted the panel CSD unitroot test of Pesaran [34] to determine the series' stationarity (see Table 5) where only inclusive growth and official aid were found to be stationary at level. However, internet usage, remittance, government expenditure, population density, and institutional quality were found to be stationary at first difference.

Table 3. **Correlation matrix**

	pov	palma	oda	remit	internet	ggfe	popden
pov	1						
palma	0.149	1					
oda	0.177	−0.134	1				
remit	−0.089	−0.115	0.006	1			
internet	−0.518	−0.068	0.019	0.171	1		
ggfe	−0.236	0.303	−0.263	0.172	0.202	1	
popden	−0.091	−0.123	−0.041	0.126	0.155	−0.064	1

Source: Author's computation

Table 4. **Cross-sectional dependence test**

Variable	CD-test	p-value	corr	abs(corr)
Inclusive growth	27.48	0	0.151	0.574
ODA	35.43	0	0.175	0.334
Internet	184.40	0	0.927	0.927
Government expd.	7.91	0	0.043	0.401

Source: Author's computation

Table 5. **CSD Panel Unitroot test**

Variables	Level	1st difference
Inclusive growth	−2.06*	
Internet usage	0.933	−10.33***[a]
Remittance	1.91	−4.52***
Official aid	−4.09***	
Institution	0.31	−2.62***
Government expd.	2.62	−5.70***
Population density	4.53	−2.08**[a]

Source: Author's computation

Following the observation of cross-sectional dependence in Table 4, we conducted the slope homogeneity test of Pesaran & Yamagata [34] to ensure the technique's applicability in context of other slope homogeneity accounting techniques (see Table 6).

The result demonstrates the heterogeneity of slopes in the model indicating that individual effects must be taken care of. Furthermore, while it was not clear on whether to impose the short run or long run homogeneity restriction, thus, we then adopt the mean group estimator for the model. The mean group accounts for individual heterogeneity.

Table 6. **Homogeneity test**

Remittance model		
	Delta	P.value
	3.867	0
adj.	6.086	0
ODA model		
	Delta	P.value
	8.841	0
adj.	12.803	0

Note: Slopes are homogenous
Source: Author's computation

5. Discussion
5.1. Development Aid (remittance) and inclusive growth

Table 7 presents the dynamic common correlation effect technique analysis for equation 1. Five distinct models were estimated taking account of several control variables. Starting with the lag of the dependent variable, we observe that inclusive growth is cyclical and positive. For instance, this implies the poverty incidence and income inequality continues to increase. Official remittances received showed a positive negative effect on the inclusive growth index. By indication, this implies that remittance promotes both absolute and relative pro-poor growth through the reduction of poverty incidence and income inequality.

This aligns with the findings of Bahmani-Oskooee & Oyolola [25], Alvi & Senbeta [27], and Masron & Subramaniam [30] which observes that in aid could reduce poverty incidence. More so, average remittances received by Africa is about 4% contribution to GDP. It has also been estimated that Africa receives about US$49 billion in remittance inflow despite that the flows mostly followed through the shadow system which makes it impossible to account for. This finding is plausible and consistent across the models despite accounting for other macroeconomic, institutional, and demographic factors. A two-way scattered plot was carried out to show the cursory view of distribution the countries in terms remittances received and inclusiveness (see Figure 1).

Most of the countries are clustered after the median value with countries such as Algeria, Sudan, Morrocco, Somalia, Egypt, and Nigeria among the top recipient of remittance and have reported to be below the zero threshold of the index which may indicate the significant contribution of the aid towards improving inclusive growth (through reduction of poverty and inequality). However, countries such as Central Africa, Malawi, Burundi, Namibia, Rwanda which have received marginal rate of remittances have reportedly have high rate of non-inclusiveness (high rate of poverty and inequality). It is also visible that majority of the countries in region are clustered in middle percentile in terms of inclusive growth and remittances received.

The coefficient of the internet usage had mixed signs. For instance, in the first two models, it had the most expected negative signs though not significant but positive and significant in the last two models. One explanation to this, is the internet affordability is still a crucial Issue in the context of developing countries in Africa. For instance, internet accessibility is still relatively expensive in Africa and not everyone can afford it except the middle- and top-income category while leaving the poor and vulnerable less opportunities to internet facility. This may also signify that the negative effect of internet cost is more on the poor and vulnerable group than the middle and top class in the region.

Institutional Quality has a negative effect which was significant in the second last model. This reveals the governance and institutional policies are quite effective in the drive towards inclusive growth. Again, most African countries practice democratic system of government where people have the right to clamour for better governance and have a flexible system which puts

Table 7. **Estimates of development aid (remittance) and inclusive growth**

VARIABLES	model1	model2	model3	model4	model5
Incl(−1)	0.724***	0.643***	0.684***	0.708***	0.674***
	(0.0332)	(0.0372)	(0.0563)	(0.0649)	(0.0659)
remit	−0.0436**	−0.0638**	−0.0852**	−0.0647	−0.0850*
	(0.0187)	(0.0299)	(0.0380)	(0.0439)	(0.0471)
internet		−0.00315	−0.000746	0.00739***	0.00696***
		(0.00481)	(0.00466)	(0.00259)	(0.00236)
expd			0.00610	0.00298	−0.00744
			(0.00460)	(0.00547)	(0.00859)
IQ				−0.0196	−0.0445*
				(0.0258)	(0.0254)
Pop.					0.00834
					(0.0315)
Constant	1.423*	2.099**	2.364**	2.181**	2.159**
	(0.756)	(0.846)	(1.060)	(1.061)	(0.925)
Observations	934	910	759	729	705
R-squared	0.097	0.102	0.136	0.095	0.092
Number of groups	46	46	40	37	35

Note: Standard errors in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$
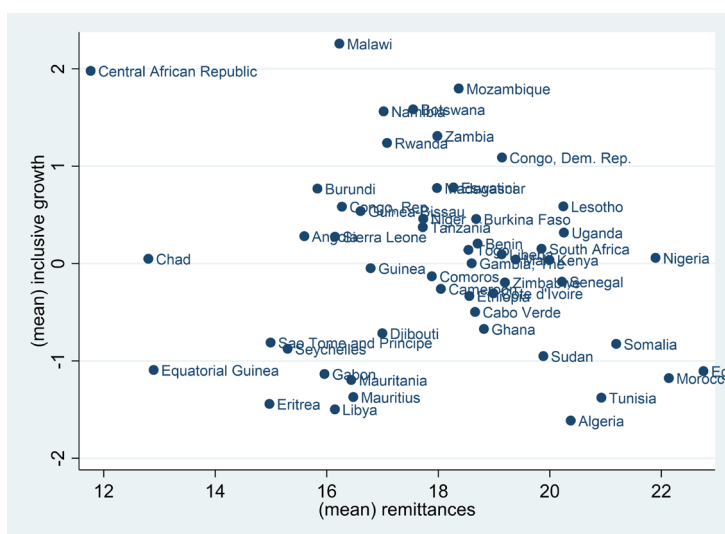
Figure 1. Inclusive growth and remittances
Source: Author's computation

Table 8. Official aid and Inclusive growth

VARIABLES	model1	model2	model3	model4	model5
Incl(−1)	0.768***	0.719***	0.673***	0.639***	0.678***
	(0.0273)	(0.0327)	(0.0433)	(0.0651)	(0.0500)
oda	0.000346	−0.00600	−0.00245	−0.0103	−0.0102
	(0.0174)	(0.0153)	(0.0161)	(0.0156)	(0.0170)
internet		8.23e−05	0.0136	0.00569	−0.00441
		(0.00330)	(0.00972)	(0.00548)	(0.00498)
expd			0.00375	0.000222	−0.00250
			(0.00358)	(0.00380)	(0.00524)
IQ				0.00553	−0.0176
				(0.0198)	(0.0244)
Pop.					0.0537
					(0.0342)
Constant	0.369	0.641	1.818*	1.302	1.683
	(1.073)	(1.038)	(1.025)	(1.238)	(1.308)
Observations	1,160	1,112	912	894	858
R-squared	0.156	0.098	0.130	0.127	0.094
Number of groups	53	53	46	44	41

Note: Standard errors in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$

people's welfare as top priority. Population had the expected sign of positive effect though not significant. This indicates that growing population have negative effect on inclusive growth as it exerts pressure on social development thereby constraining inclusive growth. Government expenditure on the other hand was found to have mixed signs but insignificant for instance, in model three and four, the coefficient is found to be positive but negative in the last model. In the former case, we can attribute the government spending channelled towards non-social development spending as this may not account for social welfare. However, in the last case, this accounted for population growth, which may be synonymous to per capita government spending; hence, the negative effect.

5.2. Supplementary Analysis
In this section, we carried out analysis using the official development aid (ODA) as against the used remittances in the previous model. Here, the coefficient of the ODA though consistent with the signs of the previous model having a negative sign but not significant across the five models (Table 8).

This explanation of this findings can be tilted towards the fact that foreign aids received in Africa is highly politicized and its effect is marginal given that first, it does not reach the targeted group and secondly, the packages may not be welfare improving
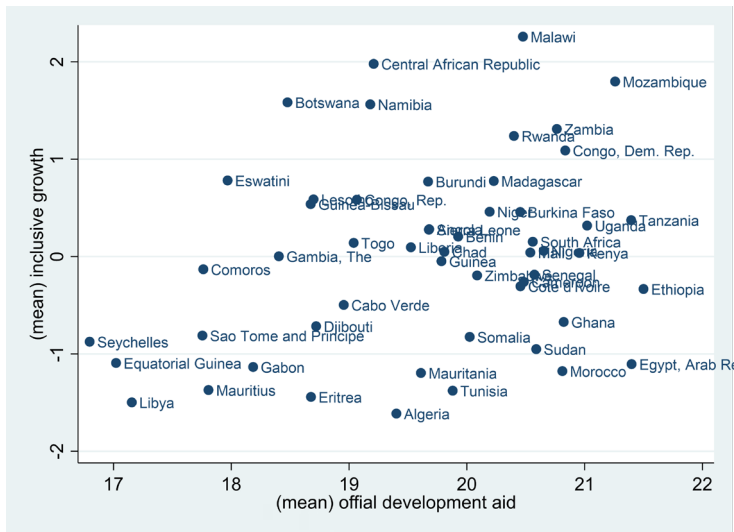
Figure 2. Inclusive growth and foreign aid
Source: Author's computation

in the context in which the aid was sent to. More so, we take a cursory look at the average distribution of aids and inclusive growth as presented in Figure 2. We observed an upwards movement from bottom-left to top-right movement. This indicates that most countries (not all) which receives foreign aid are likely to have less inclusive growth.

This further lends support to the earlier argument (see Amin [3], Moyo [4], and Wamboye et al. [5]) of adverse effect of foreign aid on inclusive growth in Africa. The control variables here reveal a consistent sign with the previous equation further for instance, Government expenditure also had a consistent and similar sign with the previous equation where the first two models had a positive sign and negative sign in the last model.

Based on the study's hypothesis, the study has observed that remittances can promote inclusive growth in Africa, while foreign aid has a marginal effect on promoting inclusive growth. Digitalization in the form of internet accessibility remains cynical in fostering inclusive growth, which is attributed to affordability. It is important to note that data from African

countries was used for this analysis; consequently, the outcomes and results may have limited applicability in other countries, particularly those outside the African continent. To determine the comparability and similarity of these findings with those of other regional developing economies, comparable analyses can be conducted for those economies.

6. Conclusion

This study investigates the impact of development aid in the form of aid and remittances towards attaining inclusive growth in Africa. To achieve this, the study conceptualized inclusive growth in terms of absolute pro-poor growth and relative pro-poor growth using poverty and income inequality as measures respectively.

Premised on the nexus that development aid could serve as a "big push" factor to reducing poverty and income inequality, the study carried out an empirical evaluation to contribute to the ensuing debate that aid could hamper or improve inclusive growth through income inequality and poverty reduction. To adequately account for individual heterogeneity and the potential problem of cross-sectional depend-

ence, the study employed the dynamic common correlation effect technique. In terms of the primary findings, the study observed that development aid in terms of remittances improves inclusive growth (via reduction of poverty and inequality).

However, aid as a form of development finance also promotes inclusive growth, although this effect is not statistically significant. This supports the claim that foreign aid does not improve the well-being of developing countries. This line of reasoning is applicable to Africa, which, among other characteristics, has weak institutions and a marginal impact, as found by our study. Digital diffusion, as measured by internet accessibility, was observed to be detrimental to inclusive growth, despite the strong argument that digitalization may boost inclusive growth.

Despite this, one may argue that digital penetration in Africa is still low due to the prohibitive cost of connectivity. Therefore, only the wealthy and privileged could afford this facility because the poor are at a disadvantage, thereby limiting the system's benefits.

The study's implications show that international development aid plays a critical role in attaining the sustainable development goals of reducing income inequality and poverty. To realize the benefits of this aid, several challenges must be surmounted. One approach is to address the digitalization gap as observed in some regions of the continent through digital reforms and investment in this sector. This structure's affordability and accessibility will significantly contribute to the success of development aid. Secondly, there is a need for a more transparent institutional system, particularly in terms of the form and application of foreign aid, as evidenced by the literature and the findings of the study. This will remove foreign aid inefficiencies and ensure that the targeted groups receive the essential welfare package.

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Реакция инклюзивного роста на помощь в целях развития Африки и роль распространения ИКТ

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Аннотация. На протяжении многих лет в некоторых регионах Африки наблюдался стабильный экономический рост, который нельзя было бы считать благоприятным для бедных или инклюзивным, учитывая высокий уровень бедности и неравенства доходов в регионе. С другой стороны, поток помощи в целях развития рассматривается как стратегия, ориентированная на интересы бедных слоев населения, которая может сыграть ключевую роль в стремлении к достижению устойчивого, инклюзивного роста в Африке. Целью данной статьи является оценка роли помощи в целях развития, которая, как утверждается, способствует повышению благосостояния, особенно в развивающихся странах, с учетом цифровизации. Гипотеза исследования заключается в том, что помощь в целях развития в форме иностранной помощи и денежных переводов способствует инклюзивному росту, особенно в условиях цифровизации в Африке. В исследовании, основанном на взаимосвязи между инклюзивным ростом и помощью, был проведен панельный анализ данных с использованием метода общего корреляционного эффекта для 50 африканских стран в период с 1996 по 2021 г. Результаты свидетельствуют о том, что денежные переводы оказывают эффект повышения благосостояния за счет улучшения инклюзивного роста. Иностранная помощь, с другой стороны, имела положительный эффект, но не была значительной, что объяснялось слабостью институциональной структуры в регионе. Показано, что цифровизация оказывает негативное воздействие, связанное с ее высокой ценовой доступностью. Теоретический вклад исследования заключается во включении структурных систем, таких как цифровизация, в анализ взаимосвязи между инклюзивным ростом и помощью в целях развития, которая была определена в качестве фактора, способствующего инклюзивному росту. Практическая значимость исследования обуславливается обоснованием необходимости цифровых реформ и инвестиций в этот сектор, а также необходимости устранения институционального разрыва для смягчения неэффективности оказания помощи в целях развития.

Ключевые слова: помощь в целях развития; иностранная помощь; переводы; бедность; неравенство доходов; инклюзивный рост; оцифровка; институциональное качество; Африка; гетерогенная панельная модель.

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ИНФОРМАЦИЯ ОБ АВТОРЕ

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