



# Situating Foreign Aid and Human Development Indicators in Sub-Sahara Africa: The Role of Institutions in the Anthropocene

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## Abstract

Recent literature has addressed the value and efficacy of foreign aid with the identification of country-specific and non-linear effects on the growth of the foreign-aid relationship. This study addresses these issues utilizing the System Generalized Method of Moments (GMM) and focuses on the functions of institutions in mediating the effectiveness of various aid programs affecting the human development indicators (HDIs) in sub-Saharan Africa, a region facing challenges in achieving the Sustainable Development Goals (SDG). The findings indicate that aggregated bilateral aid has a negative impact on HDIs and other welfare initiatives, while disaggregated bilateral aid comprising sector aid programs has a positive effect on HDIs. Additionally, institutional qualities show a significant positive influence on both types of aids. From a policy perspective, the article proposes scaling up foreign aid in targeted areas where it is most effective and calls for proactive and robust institutions to ensure accountability and probity. The study also suggests exploring innovative means of aid delivery in addition to traditional methods.

## Subject Areas

Public Policy, Development Economics

## Keywords

Foreign Aid, Human Development, Institutions, Anthropocene

## 1. Introduction

The human development index (HDI) has become a general indicator for the global assessment of human development and a critique of minimal capabilities

[1]. The focus was on income (welfare), education (knowledge) and longevity (good health) [2]. The metrics have since been augmented by indicators such as gender development, inequality-adapted HDI, gender disparity, and the multi-dimensionality of poverty [3].

The 2020 human development report (HDR) proposed a planetary pressure-adjusted Human Development Index (HDPI) due to the imminent Anthropocene [3]. The HDPI adjusts a country's level of greenhouse gas emission and material footprint on a per capita basis [3]. The new development aimed to communicate to the larger community about the risks with existing practices in the global resources. The adjustment sees a decline in the global average of HDI and individual countries. The world average HDI in 2019 plummeted from 0.739 to 0.683 [1]. The report further spotlighted sub-Sahara Africa (SSA) as the sole continent still lurching under 0.5 HDIs with the COVID-19 pandemic as the latest harrowing consequences of imbalances writ at large [3]. Since 1985, human development conditions in Sub-Saharan Africa have transformed far too little, while certain developing parts of the world have witnessed substantial advancement [1].

The HDR of 2005 reported 12 countries in SSA and six countries from the former Soviet Union that experienced HDI reversal between 1990 and 2003. In addition, the report cited African reversal in the HDI as the result of stagnant economies, poor educational advancement, the prevalence of HIV/AIDS, poor implementation of development policies, and civil and inter-ethnic wars [4].

The SSA countries have witnessed worse GDP per-capita growth as compared to other developing regions [5]. Therefore, access to resources to improve HDIs cannot be any better. [5] attributed the slow growth of GDP to low human capital formation, domestic saving, technology and private investment, including foreign investment. The latest has been the COVID-19 pandemic, wreaking havoc on HDIs and continuing to spin new variants [6]. This slow growth persists despite the growth in development aids at the disposal of Sub-Saharan Africa, especially between the 1980s and early 1990s.

Since its inception in 1949 with the Marshall Plan, foreign aid as an intervention has become one of Africa's most effective tools for achieving objectives relating to human development over time. [7] argued that strengthening the government at the detriment of the private market would diminish the government's obligation to preserve a business-friendly climate for private industry. By 1960, international aid to several developing nations had surged to the point that practitioners like David Bell began emphasizing that international aid should be founded on the principle of collaboration rather than on dependency [8].

The Organization for Economic Cooperation and Development (OECD) (2010) posit that \$503 billion of development assistance was distributed worldwide between 2002 and 2009. Out of this, 37 per cent went to African countries. Also, the disbursed development assistance in SSA increased significantly between 2000 and 2016 [9]. Despite the increment in the official development assistance inflow, the average HDI increase was 1.67 between 2000 and 2015 [10].

According to [11], aid contributes to the aggregate welfare of the people through increased wages due to increased public and private expenditure emanating from the indirect demand for labour services on education and health. Aid for economic and social infrastructure is used in financing health facilities and educational programmes to enhance people's living standards with greater means to fundamental services [9]. If development assistance improves the welfare of people, why does low HDI still characterize SSA despite being the largest benefit of development assistance?

According to [12], corruption alone costs about \$152 billion in the continent in a year, which is higher than the \$136.8 billion in foreign aid to SSA from 2000 to 2013. Hence, the disbursement of aid is affected by corruption, which could lessen the effective outcomes of the varied aid for socio-economic development. Furthermore, international assistance ineffectiveness may result from poor quality institutions in Africa, as institutions in Africa are still characterized by bureaucracy, high levels of bribery and corruption, and low accountability of high officials [13]. Notwithstanding, [13] [14] [15] [16] still stand by the fact that institutional quality is still crucial in aid effectiveness.

### **1.1. Statement of the Problem**

With the inception of the Millennium Development Goals, there has been a growing desire for more tailored foreign aid in Africa to address inclusive development objectives like poverty reduction and employment creation [17] [18]. In current development literature, there is an increasing push to investigate and re-invent foreign aid for non-exclusive development [19].

This research in Sub-Saharan Africa was prompted by the growing demand in academic circles for foreign aid to be redesigned for inclusive and sustainable development [19]. Furthermore, this paper fills a significant gap in the literature, namely the limited studies (such as [5] [19] with institutional qualities that examine whether increasing development aid can increase inclusive human development in Africa.

### **1.2. The Purpose of the Article**

This paper assesses the institutional influence of higher amounts of aid as well as how they are delivered. This Article solely centres on SSA countries. Given developing notions of non-linearity and unobserved state-specific impact on the connection among aid, welfare and growth [5], the area differs from other locations [5]. This Article uses new approaches in dynamic panel data methods (DPDMs) to arrive at higher accurate as well as effective findings [20] [21] to explore these propositional questions.

- What are the effects of official developmental aid on the welfare of HDIs in SSA?
- How does institutional quality affect the effectiveness of developmental aids in SSA?

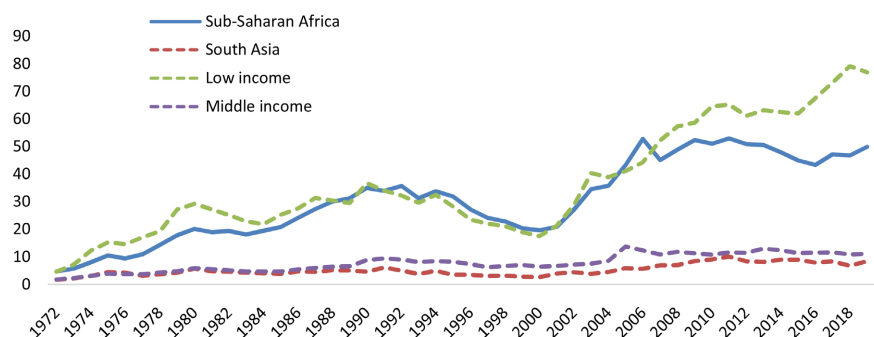
- Do countries need to scale up aid levels or improve the current efficiency flow required to achieve the SDGs?
- What are the appropriate means to help administer aid flow to the SSA?

This paper contributes to the theoretical development regarding human development and foreign aid within the COVID-19 era, greatly influencing African economies. It will expand already limited literature on aid and human development and provide opportunities for donors to re-invent aid strategies. The paper contributes to the strand of the growing literature affecting the argument on development aid effectiveness. The approach employs a dynamic specification and uses the appropriate DPDMs to assess the impact of foreign aid on HDIs, especially welfare indicators, with the mediating role of institutions. The approach can handle the country-specific unnoticed effects. The study further considers different types of foreign aid programs, such as sector aid and programme aid, since they have varied direct and indirect impacts on HDIs, especially welfare or standard of living. This Article provides insightful input for the donor community in addressing and committing more development assistance in response to the sustainable development goals.

## 2. Literature Review

### Development Aid Flow to Sub-Sahara African States

For the last four decades, foreign aid flow regarding aid per capita to SSA has been in the ascendancy since 1972, as seen in **Figure 1**. The trend for SSA rose to \$10 in 1975, after which it rose to an all-time high of \$20 per capita in the 1980s. This was the period most sub-Saharan Africans experienced severe drought coupled with economic hardship, and that accounted for that peak in 1980. It declined to \$18.5 per capita in 1983 and rose to \$40 per capita in 1992. After that, aid declined steeply to \$20 per capita in 2000, as recorded early in 1980. This was after the rich countries cut their aid budget support to SSA. After 2000, the flow of foreign aid to SSA took a sharp turn, reaching an all-time peak of \$57 per capita in 2006. After that, the flow dropped sharply to \$42 per capita the following year in 2007. The flow increased to \$56 in 2011 and declined again in 2016, and after that, it increased to \$52 per capita in 2018.



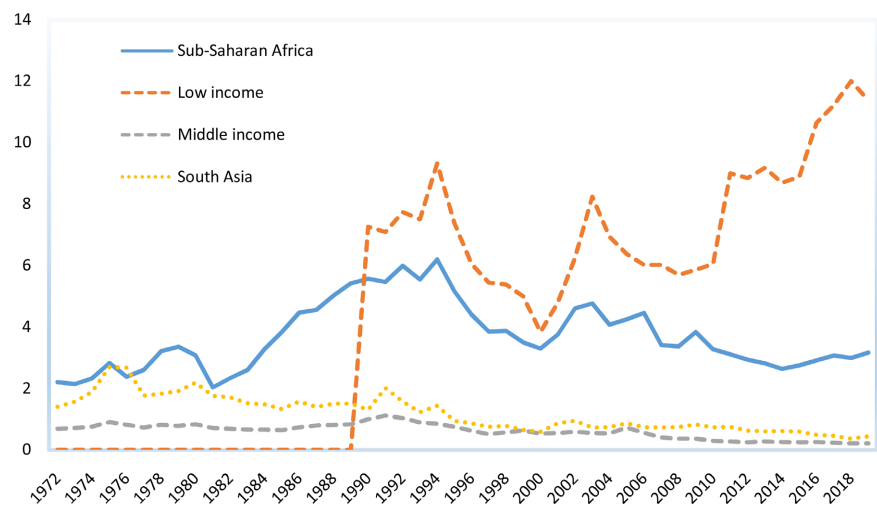
**Figure 1.** Statistics of regional-based per capita aid (source: world development indicators).

When considered in terms of aid as a proportion of Gross National Income, the trend for foreign aid to Sub-Saharan Africa also indicates positive movement. From **Figure 2**, the region recorded the highest peak of 6% in 1994. From there it decreased consistently until a nadir of 4% in 2000. It, however, recovered significantly to a ratio of 5% in 2003 and declined to 3% in 2014. After that, it began to increase again to 3.8% in 2018. However, except for SSA and other low-income nations, aid per capita flow for South Asia and middle-income countries has remained consistently low. The aid ratio per GNI reached its highest peak of 3% for Asia in 1976. After that, they remained consistently low except in 1991 when they increased to 2%. Since then, the ratio has been decreasing. Likewise, the ratio of aid to GNI has been consistently low in middle-income countries since 1972. In sum, despite human and economic development statistics indicating low trends, sub-Saharan Africa has had the greatest continuous growth in aid inflows over the past forty years.

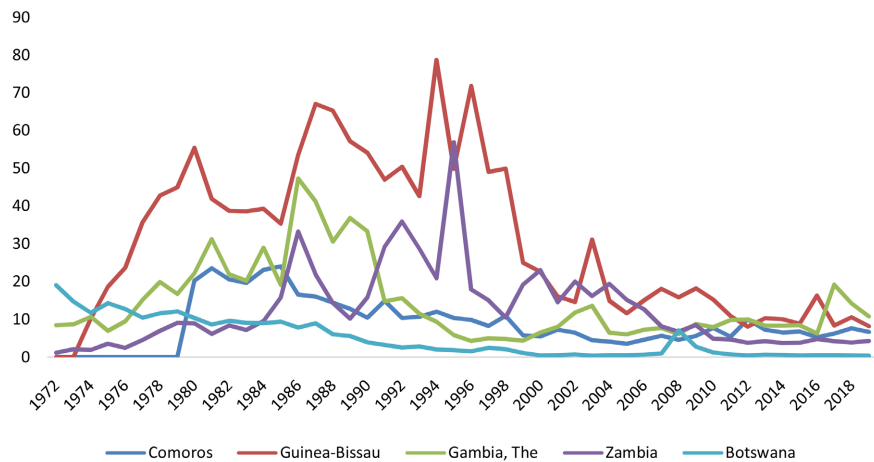
Country-based aid inflow highlighted five states (Botswana, Swaziland, Lesotho and Comoros) which have received the greatest aid from 1972 to 2018, as shown in **Figure 3**. For instance, Mauritania, Congo Democratic Republic, Sierra Leone, Guinea-Bissau, Zambia, Malawi and the Gambia received aid greater than the SSA average. In 1994, Guinea-Bissau received 80% of its GNI in development aid (World Development Indicator). Similarly, Zambia also recorded a peak of 60 per cent as a proportion of her GNI in 1994. Consequently, development aid inflow to SSA has increased comparatively more than the other regions for over forty years.

## 2.1. Dependency Theory and Development Assistance

Modernization theory's shortcomings led to dependency theory in the 1950s. Theorists were frustrated that affluent and industrialized countries' prosperity did not benefit poorer countries [22]. According to dependency theory, the periphery of affected nations' economies is the primary source of their stagnant



**Figure 2.** Comparing region-aid % GNI (source: world development indicators).



**Figure 3.** Sub-Sahara Africa—Aid in relation to GNI from 1972-2018 (Source: world development indicator).

development. Typically, poor countries supply inexpensive labour and raw materials to the global marketplace. Contemporary dependency systems reveal themselves in the submissive incorporation of developing nations into a global financialized economy [23].

A dependency is a form of an international system composed of dual-dimensional states. A state can be either “dominant or dependent”, “core or peripheral”, or “metropolitan or satellite” [24] [25].

For example, the OECD’s core states are wealthy and industrialized nations. The peripheral states are Latin American, African, and Asian nations. These nations have a low Gross National Product (GNP) per capita and depend on a singular product or service to generate foreign currencies [22]. In addition, these core states include exogenous dominant forces such as multinational firms, donor aid, global economies, media, and additional mechanisms through which industrialized nations can signify their strategic interests overseas [26].

In addition, the dependency concept shows that the relationships between the dominating and subordinating nations are dynamic, as encounters between the two state groups seek to maintain and intensify unequal patterns [26]. These forces unleash greater political and economic control, such as fiscal policies and direct the affairs of satellite countries. Consequently, donor aid schemes foster dependency in many sub-Saharan African countries [22]. The dependence on donor help has become so entrenched that communities and villages constantly demand social assistance. Moreover, donor aid initiatives intended to benefit the targeted segment or generality of the populace and other human development programs of dependent states have been plundered through corruption and weak governance [18] [26] [27] [28] [29].

## 2.2. Empirical Review

A plethora of literature [30]-[35] examined the efficacy of foreign aid with equivocal results. Within the past, many studies delved into aid effectiveness on ma-

economic constructs like economic development, public investment and savings. The first literary work on aid effectiveness by [36] posited that the purpose of aid was to quicken economic growth to a satisfactory point where economic growth can be self-sustaining but not to increase welfare. The study's theory was drawn from the Harrod-Domar growth model, which assumed aid as an exogenous boost of the total capital stock; hence, foreign aid help might boost savings and investment.

Some studies have reported negative relationships among foreign aid, saving and economic development [30] [31]. However, their findings were antithetical to those [32] [33] [34] who described a positive correlation between foreign aid and aggregate savings, positing that aid increases saving but a lesser quantum of the aid flow.

In 1966, the two-gap model developed by [37] as a reference model indicated that foreign aid could bridge a disparity between capital investment and domestic savings, leading to economic development. The model served as a primary foundation on which many studies were conducted with varied findings. Studies such as [38] [39] [40] reported no significant association between aid and GNP growth proportions in developing nations on the ground that aids were fungible, leading to unproductive public spending with adverse impact on the domestic private market via changes in relative prices. The Dutch disease was a prototype example of the foreign aid adversative effects on the private sector.

[14] assessed the efficacy of aid in a state based on government policies and reported that aid was more effective with good government policies such as lower inflation rates, transparent trade and lesser budget deficit (or surplus). Their findings further provoked studies such as those [41] [42] [43] [44]. A study by [45] investigated the conditions necessary to succor foreign aid in improving the individuals' condition of life within a country and averred that democracy was necessary. In contrast, countries with autocratic rule were reported to have an adverse effect.

[46] developed pro-poor public spending indexes with the help of regression to assess whether aid can reduce poverty through government expenditure. The study reported that foreign aid in pro-poor spending has a higher welfare impact and human development index but is inversely related to infant mortality.

A study by [47] considered that a state's susceptibility to outside shocks influences aid usefulness in such a country. By adding the vulnerability variable to the Burnside and Dollars' study specification, they found out that policy, foreign aid, and vulnerability significantly affected economic development. Moreover, where institutional vulnerability remained substantial, aid was always more effective. These findings implied that foreign aid either stimulates the development or helps in the containment of slower growth in nations institutionally susceptible to outside shocks. The authors used natural disasters, the long-term patterns of trade arrangements, volatility of export earnings and population as the proxy for the vulnerability index.

[48] have introduced financial development in their study, they asserted that aid recipient countries with good financial markets or more profound financial development expedite aid inflow management and enhance their absorption capacity and effectiveness.

[11] studied the effect of foreign aid and conflict on HDIs and found a significant negative impact of conflict and foreign aid on HDIs. The authors also indicated that conflict circumstances did not influence aid effectiveness. [49] also asserted that non-economic factors could influence aid effectiveness. They reported that geographic and climatic-related elements significantly influence growth and hence aid effectiveness. Thus, their study indicated that disadvantaged nations tend to receive less effective aid as compared to countries in a favourable climate and geographical zone. Hence this should always be considered in aid allocation.

[5] investigated thirty-nine sub-Saharan African countries on the effect of foreign aid on welfare variables. They reported that aggregate bilateral aid has an insignificant influence on HDIs. [50] investigated the impact of foreign aid in SSA during the 1973-2005 period, indicating that economic growth responds more to foreign aid shockwaves in countries with poor or weak institutions, high levels of aid dependency and better economic policies. The study also revealed that HDIs react favorably to aid in settings with strong democratic values and institutions. The result was consistent with that of [14].

### 3. Methodology and Results

#### 3.1. Methodological Approach of the Model

The paper explores foreign aid in the form of development support relating to HDIs in SSA. Using the system GMM, the Article looked at the mediating function of institutions on foreign aid effectiveness on the welfare variable of the HDIs in SSA. The theoretical modelling for economic development and foreign assistance for developing states remains within the rudimentary stages. Notwithstanding, the following is the work of authors such as [51] on endogenous growth. The study specifies the general production function as

$$y_{it} = A_{it} K_{it}^a \quad (1)$$

where  $y_{it}$  and  $k_{it}$  refer to GDP per capita and domestic investment for a state  $i$  at year  $t$ .  $A_{it}$  denotes the total production factor, which describes the development in overall productivity not ascribed to investment but other elements. Since the endogenous growth literature allows other theoretical factors to affect GDP per capita, possibly through the total factor productivity TFP, this Article assumes  $A_{it}$  to be the following variables, the lag of HDI (GDP per capita, infant mortality), Aggregated bilateral aid proportionate to GDP, private consumption (PC), financial development (FD), good policies indicators (M) and IMF, population growth (POP), the interaction of aid and institutional quality (INSQ).



$$A_{it} = \beta (y_{it-1})^{\beta e^{\theta AID_{it} \delta PC_{it} \sigma PC_{it} \varnothing M_{it} \omega POP_{it} \mathcal{G}(AID * INSQ)_{it}}} \quad (2)$$

Integrating the two equations with natural logarithms, the study yielded this econometric equation

$$\ln y_{it} = \varphi + \beta \ln y_{it-1} + \alpha K_{it} + \theta AID_{it} + \delta PC_{it} + \varnothing M_{it} + \omega POP_{it} + \mathcal{G}(AID * INSQ)_{it} + \eta_i + \mu_i + \varepsilon_{it} \quad (3)$$

for  $i = 1, 2, \dots, N$  and  $t = 2, 3, \dots, T$

With the intercept,  $\varphi = \ln \beta$ ,  $\eta_i$  and  $\mu_i$  represent the total unobserved state-level impact and time-level impact, respectively.  $\varepsilon_{it}$  is the error term.

The empirical model for the estimation is therefore specified as

$$\ln W_{it} = \varphi + \beta \ln W_{it-1} + \theta AID_{it} + \delta PC_{it} + \varnothing M_{it} + \omega POP_{it} + \mathcal{G}(AID * INSQ)_{it} + \eta_i + \mu_i + \varepsilon_{it} \quad (4)$$

where  $W$  represents the welfare variables respectively.  $(AID * INSQ)$  captures the interaction effect of the World Bank's Country Policy and Institutional Assessment (transparent, corrupt, and accountable administration) in governance on aid effectiveness on the human development index (welfare, knowledge, life expectancy, poverty, and inequality). The model specified DPDMs, which is intended to control for the likelihood of persistent effects in welfare and poverty since they have a behavioural effect that persists. In addition, the issue of endogeneity bias is resolved using the DPDMs based on the GMM estimation.

The GMM is a generalized method for determining the parameters of statistical models. It employs moment conditions that are functions of the model parameters and the data and whose likelihood is "0" when the modeling values are at their real levels. In a DPDMs, the GMM accounts for endogeneity of the variables that are dependent when there is a relationship between the variables that provide an explanation and the error term, bias from omitted variables, unobserved panel heterogeneity, and assessment inaccuracies. The model is as follows.

$$y_{it} = \beta' x_{it} + \delta' k_i + u_{it} \quad (5)$$

$$t = 1, \dots, T \quad i = 1, \dots, N \quad u_{it} = \eta_i + v_{it}$$

$$E\{v_{it} | x_{i1}, \dots, x_{iT}, k_i, \eta_i\} = 0$$

The assumption is that  $x_{it}$  and  $k_i$  are strictly exogenous, given the unobservable individual effect  $\eta_i$ . This identifies  $\beta$  but not  $\delta$  in standard conditions. The  $\delta$  is only identified based on the assumption that

$$E\{v_{it} | x_{i1}, \dots, x_{iT}, k_i, k_i\} = 0$$

The model uses the partition where  $x_{it} = (x'_{1it}, x'_{2it})'$  and  $x_i = (k'_{1i}, k'_{2i})'$  throughout,  $T$  is considered small, and  $N$  is large. This model is an intermediate between the "fixed effect" and the standard uncorrelated "random effect model".

There are two types of GMM. The different GMMs was developed by Arellano and Bond (1991). They corrected for endogeneity as it transforms all the regres-

sors through differentiation to remove the fixed effect. The second GMM is the system GMM developed by [21] [52]. It tries correct endogeneity through the introduction of other instrumentations to substantially enhance efficiency, thereby transforming the scales so that they are unrelated (exogenous) to the fixed impacts. The GMM system generates a set of dual equations: original and modified. It employs orthogonal deviations; rather than removing prior observations from contemporaneous ones, and it subtracts the average of all future available measurements of variables. It is computationally efficient for all observations except the final one for each individual, regardless of the number of gaps, hence minimizing data loss.

For the empirical estimation of the difference GMM

$$\begin{aligned} \Delta \ln W_{it} = & \varphi + \beta \Delta \ln W_{it-1} + \theta \Delta AID_{it} + \delta \Delta PC_{it} + \varnothing \Delta M_{it} + \omega \Delta POP_{it} \\ & + \mathcal{G} \Delta (AID * INSQ)_{it} + \Delta \eta_i + \Delta \mu_i + \Delta \varepsilon_{it} \end{aligned} \quad (6)$$

Given that  $\Delta \eta_i = (\eta_i - \eta_i) = 0$  and  $\Delta \mu_i = (\mu_i - \mu_i) = 0$ , Equation (6) can be rewritten as

$$\begin{aligned} \Delta \ln W_{it} = & \varphi + \beta \Delta \ln W_{it-1} + \theta \Delta AID_{it} + \delta \Delta PC_{it} + \varnothing \Delta M_{it} + \omega \Delta POP_{it} \\ & + \mathcal{G} \Delta (AID * INSQ)_{it} + \Delta \xi_{it} \end{aligned} \quad (7)$$

For  $i = 1, 2, 3, \dots, N; t = 1, 2, 3, \dots, T$ .

From Equation (7), it is apparent that the specific effects are removed. However, it is also evident that  $\ln W_{i,t-1}$  in  $\Delta \ln W_{i,t-1} = \ln W_{i,t-1} - \ln W_{i,t-2}$  is related to  $\varepsilon_{i,t-1}$  in  $\Delta \varepsilon_{it} = \varepsilon_{it} - \varepsilon_{i,t-1}$ . Therefore,  $\Delta \ln W_{i,t-1}$  is now endogenously related to  $\Delta \varepsilon_{it}$ . Also, any pre-determined variables in this model which are not exclusively exogenous is a potentially endogenous; hence they may be related to  $\varepsilon_{i,t-1}$ .

Therefore, the differenced GMM is based on the moment condition that the independent variables are not purely exogenous and the error term is not auto-correlated as given below:

$$\begin{aligned} E \left[ W_{i,t-j} (\varepsilon_{it} - \varepsilon_{i,t-1}) \right] &= 0, \text{ for } t = 2, 3, \dots, T \\ E \left[ X_{i,t-j} (\varepsilon_{it} - \varepsilon_{i,t-1}) \right] &= 0, \text{ for } t = 2, 3, \dots, T. \end{aligned}$$

For  $j \geq 2 \dots (T-t); t = 3, \dots, T$ .

There is consistency in the first difference estimates as the result of addressing the endogeneity of some of the predictable variables using the differenced operator.

[52] proposed another assumption by stating there should be no correlation between the different instruments and the fixed effect. This made use of more instrumental variables and therefore gain more efficiency [53]. The system estimator, therefore, used the level equations. This study adopted the system estimator because of its ability to use more instruments, which seemingly gives more efficient estimates than the difference estimator. Secondly, the difference estimator gets rid of the heterogeneity among the countries, and lastly, small samples is been biased by the difference estimator [21].

### 3.2. Sources of Data and Estimations

The researchers culled data for estimation from different places. For instance, HDI data were culled from HDR 2020. The other variables (GNI, population growth, private consumption, IMF, infant mortality) were attained from the development indicators of the World Bank (2005-2020). In addition, the Article took into consideration the impact of disaggregated foreign aid data (programme and sector aids) culled from the OECD's credit reporting system database (OECD). The OECD source consists of varied aid disbursement (e.g. programme assistance, sector aid, socio-economic structures and services, education, water supply and hygiene, growth services, humanitarian aid, as well as programme support). However, this study focused on sector aid and programme assistance because they constitute about ninety per cent of the aid flow to SSA countries. The study limited the number of countries to 50 due to data limitations and considered non-overlapping data from 2005 to 2020.

The researchers used the GMM methodology for the estimation. Explicitly the GMM systems were preferred for the DPDMs where the sample is finite. **Table 1** and **Table 2** present the results for the aggregated aid. Also, the study presented

**Table 1.** HDI on aggregated aid in proportion to GNI.

HDI as dependent variable	System Gmm	Within Group	Ordinary Least Squares
Lagged HDI	0.620*** (0.000)	0.603*** (0.000)	0.859*** (0.000)
Aid as a ratio of GNI	-0.045** (0.007)	-0.010 (0.365)	-0.017 (0.47)
Aid * institutional quality	0.011** (0.027)	0.003 (0.513)	0.004 (0.152)
Private consumption	-0.635*** (0.000)	-0.555** (0.018)	-0.241*** (0.000)
IMF	0.175 (0.438)	0.037 (0.367)	0.002 (0.801)
Financial development	-0.041*** (0.008)	0.001 (0.960)	-0.020*** (0.000)
Population growth	0.006 (0.805)	0.011** (0.584)	0.020 (0.346)
Constant	6.166*** (0.000)	4.403*** (0.001)	2.550*** (0.000)
Sargan test (P-value)	(0.155)	Sigma_u (0.2170)	R-squared = 0.96
Hansen Test	(0.743)	Sigma_e (0.1016)	Adj R-squared = 0.96
Arellano Bond AR (1) Test	(0.047)*	Rho (0.8200)	Root MSE = 0.127
Arellano Bond AR (1) Test	(0.227)		

Source: World Development Indicators. Notes: P-values are in brackets and Significance level: \*\*\* for 1%, \*\* for 5% and \* for 10%. The GMM estimations are based on the two steps with robust standard errors.

**Table 2.** Infant mortality on Aid as a proportion of GNI.

Infant Mortality Rate (Dependent variable)	System Gmm	Within Group	Ordinary Least Squares
Lagged infant mortality rate	1.00*** (0.000)	0.966*** (0.000)	0.993*** (0.000)
Aid as a ratio of GNI	0.008 (0.489)	0.001 (0.222)	0.001 (0.371)
Aid * institutional quality	-0.003 (0.491)	0.000 (0.183)	-0.000 (0.308)
Private consumption	0.012 (0.361)	-0.015 (0.470)	0.015*** (0.003)
IMF	0.001 (0.578)	-0.0001 (0.833)	0.001 (0.455)
Financial development	0.004 (0.301)	0.004 (0.558)	0.001*** (0.001)
Population growth	-0.023 (0.159)	-0.007*** (0.002)	-0.013*** (0.000)
Constant	-0.196* (0.041)	0.081 (0.769)	-0.126*** (0.001)
Sargan test	(0.000)***	sigma_u (0.023)	R-squared = 0.998
Hansen Test	(0.126)		
Arellano Bond AR (1) Test	(0.263)	Sigma (0.012)	Adj R-squared = 0.998
Arellano Bond AR (1) Test	(0.464)	Rho (0.780)	Root MSE = 0.0143

Source: World Development Indicators. Notes: P-values are in brackets and Significance level: \*\*\* for 1%, \*\* for 5% and \* for 10%. The GMM estimations are based on the two steps with robust standard errors.

the results using the in-group and the conventional least squares. This justified that, before using the system GMM [54], the lagged dependent value must lie between the within-group and the ordinary least squares estimates.

The study also considered programme and sector-specific aids. These disaggregated aids affect welfare in a different dimension. For example, programme aid usually complements state expenditure on social projects and, therefore, indirectly influences welfare through increasing social expenditure, whereas sector aids like donor-sponsored ventures (e.g. in good sanitation or health) have direct effects on welfare.

### 3.2.1. Aggregated Aid and HDIs

**Table 1** indicates that aid proportionate to GNI has a significant impact (P-value < 0.01) on HDIs in SSA. The marginal effect is negative (-0.045). At a significance level of 1%, a percentage change in aggregated aid as a proportion of GNI is related to a 4.3% fall in HDIs. Hence, aggregated aid and HDIs exhibit an inelastic relationship. The ordinary least squares and the within-group estimator also

confirmed the negative marginal effect ( $-0.010$  and  $-0.017$ ), even though the two later estimates might incur exogenous errors because of the existence of dependent variables that are lagging. The study considered other specifications of the model to avoid the multicollinearity problem.

Nevertheless, the results were explicitly consistent with a marginal increase in the magnitude of the coefficients. The negative marginal effect is not surprising because human development indicators might rather intimate foreign aid and not vice versa. This calls for doubling up aid to Africa by the economic commission to hasten the achievement of sustainable development goals. These findings conform to [5] studies.

The coefficient of institutional qualities interacted with aggregated aid and has a significant positive influence on HDIs (P-value  $< 0.05$ ). A percentage change of improvement in institutional qualities (e.g., transparency, probity, and fraud levels) in governance is associated with a 1.1% improvement in HDIs (P-value = 0.005). Hence institutional qualities and HDIs exhibit an inelastic relationship. The argument for this variable justifies the venality of most consultants and experts facilitating foreign aid inflows in Africa.

Including final consumption as a ratio of GNI captures the total individual domestic (private) and public (state) consumption expenditures. Unfortunately, the effect was marginally negative, A marginal value of ( $-0.635$ ), perhaps due to the inequitable income distribution. Also, the result is contrary to the position of [46] [55] that government spending (through aid) in Africa does not augment pro-poor expenditure and therefore does not improve HDIs. As such, a 100% increase in final consumption, apathetic to pro-poor, will decrease human development indicators by 63.3 percent.

The study included the IMF variable with impetus from [14], who averred that aid performance hinges on the environmental milieu. The expectation is that the presence of IMF in an African country simply indicates that good policies will be formulated and implemented to improve HDIs. The result, however, suggests otherwise. The existence of IMF support in a country rather has a deleterious effect on human development indicators [5]. For instance, Ghana has had sixteen IMF interventions (concessional and non-concessional arrangements) since 1966 (History of Lending Commitments: Ghana, n.d.). This connotes that measuring good policies with the presence of the IMF might be insufficient.

Financial development was included to measure the worth of fiscal intermediary services that financial organizations provide. The argument is that financial development should also be a vehicle for pro-poor policies and not only for pro-growth. The claim is that financially integrated households can engage in self-sustaining businesses that alleviate poverty [5]. From the estimation, financial development has a significant negative effect (P-value  $< 0.01$ ) on human development indicators with a marginal effect of  $-0.041$ . A proportionate change in financial development is related to a 3.9% decrease in HDI in the short term. This may be because the financial sector in Sub-Sahara Africa is intertwined or inundated with artful Ponzi schemes that defraud customers of their deposits

which impoverishes many of them instead of being a pro-poor tool. The contemporary view [50] emerging is that aid should instead be directed or channelled to support small businesses since most poor people are in the informal sector. Population growth has an insignificant effect (P-value > 0.1) on HDIs despite the minimal positive impact (0.006).

### 3.2.2. Foreign Aid and Infant Mortality

The researchers used infant mortality as a proxy for poverty as well as social welfare (Table 2). The results indicated that poverty and welfare are persistent, as revealed by the significance level (P-value = 0.000). From the system GMM, the within effect and the OLS, the result surmised no significant relationship between infant mortality and foreign aid. However, the work of [56] showed that contiguity to development aid is correlated with decreased infant mortality. In the present expression, the institutional qualities which measure transparency, accountability and corruption do not affect infant mortality (P-value = 0.491). Furthermore, private consumption has a marginally positive effect (0.012); by implication, countries with higher private consumption turn to increase poverty as measured by infant mortality [5]. The insinuation is that higher private consumption turns to lower public consumption, government spend less on social interventions, increasing unemployment which aggravates poverty. The IMF (a mirror of good policies) programmes are usually short-term stabilization programmes of economic exogenous shocks or fluctuations with no structural effect [47]. This might explain the reason underpinning the insignificant value (P-value = 0.578). Financially integrated countries have a positive marginal effect because households can access funds to undertake the small-scale business; this confirms the work of [46]. However, this in itself has no significant effect on poverty. The process and requirements for this financial support are so rigorous and laborious that only a few people can afford it, leaving majorities out of the equation, hence the insignificant effect of financial development on poverty.

Population growth shows a marginally negative impact on poverty (-0.023). The result was significant at one per cent from both the within effect and the ordinary least squares estimates. It is indeed not surprising that countries with higher populations tend to have higher infant mortality [5].

## 3.3. Disaggregated Foreign Aid—Programme Aid and Sector Aid

### 3.3.1. Sector and Programme Aids and HDIs

The addition of sector and programme aids dramatically produced some estimates contrary to what was obtained. For instance, sector-specific aid now has a significant positive effect (P-value < 0.05) on human development indicators (see Table 3, column 1). This aligns with the view of [46] [55]. That the effect of foreign assistance works indirectly on welfare variables through government social expenditure and other sector intervention programmes. Institutional quality's interaction with aid also produces a dramatic, significant positive effect (P-value < 0.01) on human development indicators. This is not surprising;

**Table 3.** Dynamic panel regression (two step system GMM Estimation).

Variables	1	2	3	4
	Sector Aid On HDIs	Programme Aid on HDIs	Sector aid on Infant mortality	Programme Aid on infant mortality
Lagged HDI	0.712*** (0.000)	00.864*** (0.001)		
Lagged infant mortality rate			0.989*** (0.000)	0.995*** (0.000)
Sector AID as % of GNI	0.060** (0.043)		0.042 (0.411)	
Programme AID as a % GNI		-0.001 (0.975)		0.023 (0.727)
Sector Aid * institutional quality	0.019*** (0.004)		-0.013 (0.384)	
Programme Aid * institutional quality		0.001 (0.657)		-0.008 (0.752)
Private consumption	-0.587** (0.002)	-0.337 (0.378)	0.021 (0.478)	0.012 (0.561)
IMF	0.038 (0.162)	0.004 (0.905)	-0.004 (0.622)	-0.000 (0.950)
Financial development	-0.037* (0.047)	-0.020 (0.346)	0.005 (0.435)	0.002 (0.622)
Population growth	-0.005 (0.866)	0.002 (0.979)	-0.034 (0.191)	-0.016 (0.113)
Constant	4.826*** (0.001)	2.767 (0.370)	-0.146 (0.485)	-0.102 (0.406)
Sargan test	(0.180)	(0.002)***	(0.107)	(0.040)*
Hansen Test	(0.304)	(0.078)*	(0.705)	(0.404)
Arellano Bond AR (1) Test	(0.054)*	(0.139)	(0.261)	(0.220)
Arellano Bond AR (2) Test	(0.068)*	(0.095)*	(0.377)	(0.518)

Notes: P-values are in brackets and Significance level: \*\*\* for 1%, \*\* for 5% and \* for 10%. The GMM estimations are based on the two steps with robust standard errors.

countries with high institutional qualities (high accountability and probity) have a higher positive effects of aid on quality human development [57]. Consequently, foreign aid will be meticulously and efficiently used for the appropriate designation programmes, which will galvanize the improvement of human development indicators.

Financial development indicates a significant negative effect (P-value < 0.05) on human development indicators in the sense that the financial market development is also closely intertwined with Ponzi games which defraud a plethora of

depositors and thereby impoverish them [58] [59]. Also, financial development is viewed as a vehicle for pro-growth and not pro-poor (welfare system), suggesting a negative effect on human development (Table 3, column 1)

In Table 3 (column 2), programme aid produces an insignificant effect on HDIs (P-value > 0.1). All the other variables (Programme Aid \* institutional quality, Private consumption, IMF, Financial development and Population growth) follow the same trend as the sector aid (Table 3, column 1) but suggest an insignificant effect.

### 3.3.2. Influence of Sector and Programme Aids on Infant Mortality Rate

The results indicated that neither sector aid (P-value = 0.411) nor programme aid (P-value = 0.727) has a significant influence on infant mortality (see Table 3). This questions the suitability of using infant mortality as a proxy for poverty in Sub-Saharan Africa. In addition, the researchers showed that institutional quality's effect on infant mortality remains the same negative effect with marginal values of -0.013 (sector aid) and -0.008 (program aid).

### 3.4. Discussion and Policy Recommendation

This Article examines the influence of foreign aid and other institutional quality on HDIs through data from forty-eight sub-Saharan African countries. The results indicated that aggregated foreign aid demonstrated a significant negative effect on HDIs. Institutional quality interacted with aid also significantly impacts human development indicators. Disaggregated aid, such as sector aid, suggests a significant positive impact on HDIs and poverty. The implication, therefore, is that not all aggregated bilateral aid has the same impact on welfare and poverty. Hence, it needs to target sector-specific assistance. For instance, the millennium challenge account scheme the United States government established in 2002 under President George Bush was in the right direction as it sought innovative approaches to improve foreign assistance for global development in developing countries.

## 4. Conclusion

This paper advances human development and foreign aid theory in the COVID-19 era, which affects sub-Saharan African economies. It advances the discussion on foreign aid and institutions in SSA in light of a myriad of current aid literature research. It broadens aid and human development literature as well as dependency theory, allowing funders to rethink aid policies. Because of the study findings, the Article proposes some recommendations to restructure and boost the efficacy of foreign aid in the SSA. First, it is necessary to target sector-specific assistance to raise government social spending on policy intervention. Secondly, ensure effective coordination and predictability of aid flow in SSA. Furthermore, the institutions need to be proactive and robust to ensure accountability and probity and gang up against corruption as well as other financial malfeasance in the region. Finally, public-private partnerships need to be explored so that pub-



lic wherewithal can be leveraged for private activities that could benefit the wider society. Future research on aid and human development can focus on other continents for similar analysis.

## Conflicts of Interest

The authors declare no conflicts of interest.

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