



AFRICA'S HUMAN CAPITAL DEVELOPMENT: IS PUBLIC FINANCE MANAGEMENT AN EFFECTIVE STRATEGY?

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ABSTRACT

Article History

Received: 10 January 2019

Revised: 18 February 2019

Accepted: 23 April 2019

Published: 1 July 2019

Keywords

Human capital development

Public finance management

Governance

Sub-Saharan Africa.

Cointegration analysis

JEL Classification:

J24, H50, N47.

Given the prevailing conjecture that human capital has multiple pathways through which it influences growth and development, understanding its current level and capacity and the public finance management impact in Africa cannot be overemphasized. Hence, the study examines the long-run and short-run relationship between public spending and human capital in twenty-one (21) sub-Saharan African (SSA) countries between 1984 and 2016 using mean – group (MG) and pooled mean – group (PMG). Empirical evidence reveals that when primary school enrollment is employed as the human capital indicator, public spending has a positive and significant effect on human capital in the long-run, whereas it is insignificant in the short-run. The findings support the view that public spending oriented towards education could lead to human capital enhancement in the long-run. Also, with the inclusion of life expectancy as the human capital measure, government expenditure positively and significantly influences human capital in the long- run as well as in the short-run, suggesting that public expenditure on the advancement of literacy rate and provision of better health facilities would stimulate human capital development in SSA. The study highlights that political and institutional failures which undermine good-quality delivery of sustainable social services (including education and healthcare services) could harm the development of human capital in the region. Thus, the paper posits that ensuring effective expenditure control and results-based funding are central to the drive towards raising the quality of human capital in Africa.

Contribution/Originality: Aside addressing the growing human capital deficiencies in SSA, the study basically unravels public finance-human capital development gap, and offers a sufficient ground for remedying it. With the use of frontier econometric methods, the paper gives accurate accounts on the inadequacies of institutional measures in engendering sustainable social policies.

1. INTRODUCTION

With the rising international consensus that good economic governance offers the requisite condition for the attainment of sustainable economic development, public finance management is increasingly viewed as crucial for economic development. The state of public economic institutions quantifies the milestones in developing countries' growth trajectory (Fjeldstad *et al.*, 2004). Better development outcomes such as lower infant mortality, higher per

capita income and literate rates are enhanced by strong and well – coordinated economic institutions¹ (Kaufmann *et al.*, 1999). Thus, capacity building for sound and effective governance is the basic prerequisite for facilitating improved welfare. In general, educational enhancement and skill acquisition are the cornerstone of upskilling efforts and good quality of life. The resulting outcomes from the human capital investment policy which culminate in improved national competitiveness and standards of living necessitate, in practical terms, capacity enhancement through the public finance management strategy.

As developing high quality human capital² will galvanize easy adaptability to best practices which is the bedrock of maintaining competitiveness across economies (Goedhuys *et al.*, 2008) interventions through capacity development initiatives by public institutions are critical, especially in a capacity-constrained region, such as sub-Saharan Africa (SSA). Given the recent report (World Bank, 2018) African countries are the lowest ranked region in the human development index, out of 157 countries ranked based on the results achieved on health and education, it is evident that countries in the region face shared challenges. Accordingly, the report reflects the appalling level of human capital in the region as Chad is in 157 (bottom) position, followed by South Sudan (156), Niger (155), Mali (154), Liberia (153), Nigeria (152), Sierra Leone (151), Mauritania (150), and Côte d'Ivoire (149), while South Africa is placed in 126 position. No African country makes up the top fifty on the list. SSA, in terms of accessibility to education, largely lags behind other regions. Indeed, the state of human capital in Africa is worrying. In the region, political leaders often tend to concentrate on the shorter-term approach to burnish their reputations, because of the pervasive notion that investment in human capital may not yield immediate economic returns and rewards. Thus, with rent-seeking proliferation, successive governments have little reason to pursue viable and sustainable social policies. In general, a realistic view on the role of the state in executing and implementing effective programs seems more appropriate and undeniably germane. Furthermore, since human capital has multiple pathways through which it influences growth and development, understanding its current level and capacity is central to both researchers and policy makers.

The common argument has been that, based on the 2005 Paris Declaration, governance improvement and capacity development supported with increased financing could aid sustainable growth and improved social welfare. Hence, ensuring effective expenditure control, result-based funding and enabling efficient management are crucial to the drive towards raising the quality of human capital. The adoption of basic conceptual framework for sound public finance management has a stake in human capital development process. In view of these, focusing on the effect of public finance on human capital in Africa is vital. As literature seems not to have comprehensively addressed this topical issue with specific attention and focus on the circumstances of SSA countries, the link between public finance management and human capital may not be absolute or clear in the region. Moreover, public finance-growth nexus has been the usual topic of most studies (Korman and Bratimasrene, 2007; Macek and Janků, 2015; Szarowská, 2016). It is evident that there is dearth of systematic analysis that centers exclusively on how public finances influence human capital development in Africa. As a consequence, a fundamental question is being raised to address this critical gap and stimulate incentives for human capital building in the region: is public expenditure management a driven force of human capital enhancement in Africa?

In light of the preceding background, the main objective of the study is to assess the long – run and short run relationship between public finance management and human capital development in SSA between 1984 and 2016 using mean - group estimator proposed by Pesaran and Smith (1995) and pooled mean – group estimator of Pesaran *et al.* (1997). The technique is appropriate where both N (cross-sectional observations) and T (time-series

¹limited government; legal system that enforces contracts, supports property rights protection, modest taxation and regulation; relatively less cumbersome and uncorrupt bureaucracy are regarded as key components of good economic institutions La Porta, Shleifer and Vishny (1998).

²Human capital is the accumulation of knowledge, skills, and health by people over their lives, which enhance the realization of their potential and values as productive members of the society.

observations) are large, like the case in this study. It also provides the sufficient ground for capturing the aspect of economic development sustainability. A focus on government finance management would offer the starting point for harnessing human potential and progress in the region because weak human capacity could result to a general deficiency in the overall public management ability in improving prevailing systems.

The paper is structured into 5 sections. Beginning with an introduction, literature review is presented in Section 2. Section 3 describes data and methodological approach adopted. In Section 4, results and discussion are presented. Finally, Section 5 contains concluding remarks.

2. LITERATURE REVIEW

2.1. Theoretical Background

The theoretical relationship between fiscal policy and economic growth is firmly established by some authors in the literature. For instance, Barro (1990) by including fiscal expenditure and taxation, made an extension in endogenous growth model with empirical support given. Consolidating the work of Barro (1990) based on the assumption that government expenditure and public goods are both productive, with different extension made in endogenous model, Cashin (1995); Sala-i-Martin (1997); Tsoukis and Miller (2003); Ghosh and Roy (2004) offer a sound basis for fiscal –growth nexus. This is more elaborated by Doryan (2001). The author elucidates that the judicious use of the benefit of economic growth by the government to finance basic health care and enhance access to education for all, it will make the poor better off; they will become healthier and better educated, and thus increase their consumption level. More specifically, while estimating elasticities of human capital development in view of public expenditure, Suescún (2007) focusing on 15 Latin American countries, asserts that there exists a theoretical relationship between government expenditures and human capital development.

According to Hagen (2011) while growth can be impaired by both the size of the public sector and the debt/deficit, the composition and efficiency of public expenditure are the significant conditioning factor. Following theoretical and empirical findings, when public finance is oriented towards investment, growth can be enhanced. The relevance of this, in particular, is more pronounced for investment in public infrastructure, technical progress (R&D spending) and human capital. As empirically suggested, however, there is no automatic conjecture for the linkage between the amount of public spending in these areas and economic growth, as it is largely based on the capacity to attain the planned outcomes (for example, more private investment in R&D and higher education attainment) and, without creating new distortions, circumventing existing market failures. Hence, by maximizing public outlays' potential and creating fiscal space for general demands, high efficiency and effectiveness of public spending are central (Deroose and Kastrop, 2008; Abbott and Jones, 2011; Halaskova and Halaskova, 2014).

2.2. Empirical Evidence

The effect of public finance on economic growth is the major focus of many studies coupled with the paucity of comprehensive accounts and resulting ambiguity on the role of public finance in human capital development process (Gemmell *et al.*, 2011; Kotlán *et al.*, 2011; Macek and Janků, 2015; Szarowská, 2016). In the literature, some show that public expenditure positively affects human welfare while others stress that it inversely impacts peoples' wellbeing. Smith and Wahba (1995) assess the role of public revenue and public expenditure on 56 developing countries' economies. Among different model, the authors also analyze impact of the fiscal policy on human development using human development index (HDI). The results indicate that public investment in infrastructure, social expenses and direct taxes are positively correlated with HDI. Searching the channel of public spending consumption and welfare, Devereux *et al.* (2000) show that, in the case of constant returns, private consumption and welfare is negatively related with government spending regarding the effect on the total productivity of the economy but, in the case of increasing returns to specialization, it is positively related. More importantly, examining government expenditure efficiency towards the human development, Prasetyo and Zuhdi (2013) using

Data Envelopment Analysis (DEA) approach over the period of 2006-2010 on 81 countries, reveal that there are countries that, during the sample period, is often positioned in the efficient frontier. Focusing on the development in OECD countries, [Soroceanu and Lupaăcu \(2011\)](#) posit that in order to enhance efficient allocation of resources and the promotion of growth and employment orientation, in line with the Lisbon strategy, redirecting the composition of public expenditure towards growth-enhancing categories by member states are suggested. This could be attained through the assessment of the relationship between public spending and the accomplishment of policy objectives.

Another study by [Suescún \(2007\)](#) examines the significance of sectorial public expenditures on growth performance and poverty reduction. Using the dynamic equilibrium model for 15 Latin American economies, the author argues that infrastructure spending takes over spending on education, government consumption, health in terms of respective positive effects on growth performance, human development, welfare and social progress in the region. Analogously, following the welfare dominance test, [Amakom \(2010\)](#) discovers that public spending on the advance of literacy rate and offering better health facilities could aid poverty reduction. In the author's conclusion, for both male and female, primary education is found to be progressive in Nigeria. [Qadri and Waheed \(2011\)](#) through Johansen cointegration technique, investigate the role of human capital in the economy of Pakistan between 1978 and 2007. While using a health adjusted education as a proxy for human development; they posit that human capital strongly influences economic growth. Also, focusing on Pakistan, [Mehmood and Sadiq \(2010\)](#) using human development index as dependent variable, assess the effect of fiscal decentralisation on human capital development over the period of 1976-2009. In the study, two different models were employed. Regarding the first model, cointegration technique is used and a long run relation established between fiscal decentralisation and human capital development. On the other hand, using panel GMM in the second model, the effect of fiscal decentralisation on human development at provincial level is examined, and findings show that human capital development is enhanced by fiscal decentralization. Similarly, using VECM approach with a data set from 1972 - 2008, [Asghar et al. \(2012\)](#) investigate the effect of public spending on poverty alleviation in Pakistan. While employing the head count index as a proxy for poverty, it is revealed that public spending on education, law and order will lead to poverty reduction in the country. In addition, empirical evidence indicates that budget deficit and spending on community services have a positive influence on poverty, but expenditure on health is found to be insignificant.

More importantly, in countries with good governance, with a view to enhancing primary education attainment, based on the work of [Rajkumar and Swaroop \(2008\)](#) increasing public spending on primary education could be more effective. Focusing on 23 OECD countries and with particular attention on the joint development of public expenditures and economic growth, [Lamartina and Zaghini \(2007\)](#) posit that a structural positive correlation exists between public spending and GDP per capita. Consequently, they suggest that a rise in government spending basically for the development of human capital could culminate in improved economy performance (per capita output).

The preceding review underscores the relevance of this study as most studies do not give exclusive accounts on the relationship between public expenditure and human capital regarding African countries. By and large, there is no comprehensive detail on SSA. It is evidenced that literature is dominated with expositions on the relationship between government expenditure and economic growth. Thus, motivation for this empirical study stems from the rising demand for exclusive basis and proof crucial to the needs of Africa, which could strengthen collaborative and coordinated institutional measures.

3. DATA AND METHODOLOGY

3.1. Data

The study covers 21 African countries based on annual data from 1984 and 2016. The scope and selected countries are mainly determined by the availability of data. Also, with the adoption of numerous fiscal policy

measures in Africa, the study period encompasses the major fiscal reform regime. Gross national expenditure (% of GDP) serves as the public spending indicator, and it is defined as the sum of household final consumption spending, general public final consumption expenditure and gross capital formation. In terms of fiscal finance coverage, the significance of this indicator has been stressed by some researchers (Roubini and Sachs, 1989; Edin and Ohlsson, 1991; Wehner, 2006). Human capital is measured by life expectancy and school enrollment, primary (% gross). These measures are suggested to be relevant for capturing the level of human capital development in the economy (Doryan, 2001; Suescún, 2007). In all, three control variables which are GDP per capita, inflation, consumer prices (annual %) and democratic accountability (original scale: 6 points) are included in the study. As the effectiveness of public expenditures is viewed to be determined by the state of governance (Rajkumar and Swaroop, 2008) inclusion of democratic accountability is germane in order to capture the influence of the quality of governance on African economies. Both GDP per capita and democratic accountability are expected to have a direct relation with human capital while inflation is expected to have an inverse effect. With exemption of data on governance that were sourced from World Governance Indicators (2018 Edition), others were obtained from the World Bank's World Development Indicators (2018 Edition).

3.2. Methodology

Following the aforementioned theoretical assertion of Barro (1990); Hagen (2011) the study's model is specified in terms of dynamic panel approach to simulate the correlation between public finance management and human capital.

$$H_{it} = \gamma H_{it-1} + \alpha W_{it} + \beta GDP_{it} + \theta DEM_{it} + \delta INF_{it} + \mu_i + \varepsilon_{it} \quad (1)$$

$t = 1, 2, 3, 4, \dots T$ & $i = 1, 2, 3, 4, \dots N$

H_{it} is the human capital indicator. H_{it-1} represents initial level of human capital. GDP_{it} is the GDP per capita, μ_i captures the country specific effect. W_{it} indicates gross national expenditure (% of GDP). DEM_{it} represents governance measure (democratic accountability). Also, INF_{it} is the inflation, The error term is captured by ε_{it} . The respective slopes are represented by $\gamma, \alpha, \beta, \theta$ & δ .

Since the study's major contribution is to control for endogeneity in a dynamic panel model through the lagging of the explanatory variables based on Auto Regressive Distributed Lag (ARDL) framework with the carrying out of the estimations putting the data in levels, the cointegrating (long term) relationship between dependent and explanatory variables are controlled for. While covering the aspect of economic development sustainability is mostly plausible by the analysis of cointegrating relationship in the model, the study applies mean – group (MP) estimator of Pesaran and Smith (1995) and pooled mean – group (PMG) estimator developed by Pesaran *et al.* (1999) with a view to taking into account the long-run and short-run estimates. Given the possible variability of slopes and offsets in the long term as well as short term relationships, maximum heterogeneity among individuals is accounted for. Panel Auto-Regressive Distributed Lag (ARDL) dynamic models (Pesaran and Shin, 1999) showing long term relation ARDL is specified as;

$$H_{it} = \sum_{j=1}^p \gamma_{ij} H_{i,t-j} + \sum_{j=0}^q \varphi_{ij} R_{i,t-j} + \eta_i + \varepsilon_{it} \quad (2)$$

Based on Equation 2, γ_{ij} indicate scalars; φ_{ij} represent the $k \times 1$ coefficient vectors; and η_i is the group – specific effects while the long term estimates ψ_i of $R_{it} = (r_{1it}, r_{2it}, \dots, r_{kit})$ are calculated by

$$\psi_i = \frac{\sum_{j=0}^q \varphi_{ij}}{1 - \sum_{j=1}^p \gamma_{ij}} \quad (3)$$

Regressors could be either integrated of I (1) or I (0) for the estimates' consistency. Following Equation 2 and 3, any deviation from long – run equilibrium which implies an error correction model resulting from responsiveness of cointegrating variables suggesting that the deviation from equilibrium affects the short run dynamics of the variables. Hence, an error correction model (ECM) representing the existence of a cointegrating relationship is given as; $H_{it-j} - \psi_i R_{it}$ in form of;

$$\Delta H_{it} = \phi_i (H_{it-j} - \psi_i R_{it}) + \sum_{j=1}^{p-1} \gamma_{ij}^* \Delta H_{it-j} + \sum_{j=0}^{q-1} \varphi_{ij}^* \Delta R_{it-j} + \eta_i + \varepsilon_{it} \quad (4)$$

In Equation 4, the error – correcting speed of adjustment term is indicated by the parameter ϕ_i ; such that if $\phi_i = 0$, there will be evidence of a long – run relationship. Regarding the parameter, it is expected to be significantly negative in order to affirm the prior assumption of the return to a long – run equilibrium of variables.

4. EMPIRICAL RESULTS AND DISCUSSION

In the study, separate regressions are run for each indicator of human capital development (primary school enrollment (model i) and life expectancy (model ii)), and in order to ascertain the order of integration and check for non-stationarity, a set of unit root tests was performed. Given that the use of Levin and Lin (LL) is not appropriate in unbalanced panel, Im, Pesaran and Shin (IPS), ADF Fisher and Phillips – Perron Fisher based on Maddala and Wu (1999) were applied. In the dynamic panel framework, with the assumption of heterogeneity between units, both tests provide a remedy to Levin and Lin's serial correlation problem. In light of the tests, although not reported to save space, none of the estimated variables is I (2) or above. The order of integration is I (0) and I (1) which satisfies the theoretical basis for the approach employed. Another vital test which is the check for cross-dependence (Pesaran, 2004) is also carried out in the study. Regarding Equation 1 and for the robustness of the empirical outcomes, panel Dynamic OLS (DOLS) is conducted, and it is reported in Table 3. Compared to Fully – Modified OLS (FMOLS), this technique performs better. Furthermore, two panel cointegration tests (Kao and Johansen – Fisher test) were performed. Following the report of the tests in Appendix A and B, it is evidenced that there is existence of long – run relationship among the estimated variables. Given the Hausman test, the strict assumption of homogenous parameter that is applicable to Pooled Mean Group (PMG) does not hold, implying that the hypothesis of slope homogeneity is not accepted based on the test of difference in the models. The test suggests that the two models are veritably heterogeneous indicating that the PMG estimates are inappropriate, and hence could be resulted to inefficient and inconsistent estimates. Accordingly, Table 1 and Table 2 represent long-run and short-run dynamic specification models respectively.

With the preceding diagnostic test outcomes, Mean Group (MG) is considered more appropriate, mostly preferred, efficient and consistent. As a result, MG estimation results primarily form the central analysis and discussion from which conclusions are drawn. In Table 1, long run estimates for model (i) (when primary school enrollment is used as dependent variable) under MP, public expenditure (fiscal indicator) has a positive coefficient,

and it is significant at 10% level, suggesting that if an increasing share of public budget is committed to education, it may generate a significant improvement in human capital in the long-run. This finding underscores the empirical postulation that public spending oriented towards education could lead to human capital enhancement (Lamartina and Zaghini, 2007). With respect to GDP per capita, economic growth, also based on MP, positively influences human capital and statistically significance at 10% level in model (i) but it is insignificant in model (ii), indicating that improved GDP per capita could stimulate human capital development. The results corroborate the notion that the judicious use of the benefit of increased GDP per capita by the government to finance basic health care and enhance access to education for all, will engender incentives for human capital building in the long-run (Doryan, 2001). However, the weak significance in model (i) and insignificance of GDP in model (ii) could be ascribed to grounded mismanagement of public resources across African countries (World Bank, 2018). On the other hand, inflation adversely affects human capital in the long-run, which is in tandem with the theoretical expectation. This implies that in the long-run, high inflation rate could cause rising poverty level, and hence exacerbate the capacity-constrained phenomenon in Africa (Easterly and Fischer, 2001). While democratic accountability (governance measure) is significant at 10% and 5% level in model (i) and (ii) respectively, it has a negative relationship with human capital in model (i) and a positive correlation with human capital in model (ii). The feeble significance and adverse estimated coefficient of the governance measure in model (i), in the long run, could be caused by the downright lack of accountability and transparency in the public sector across countries. This warrants the dearth of capacity or incentives by the bureaucracies to convert good policy measures into effective and socially sustainable program. As a consequence, policies aimed at maintaining high level of accountability and transparency could induce public sector biases towards excessive and unsustainable deficits, and thus undermines human capital building. The empirical elucidation agrees with the assertion of Bennett and DiLorenzo (1983); Bunch (1991). Nonetheless, the positivity and significance of the estimated coefficient of democratic accountability in model (ii) can be linked to the theoretical stance that, in the long-run, health service-induced public systems resulting from improved governance will enhance good quality of life, and hence engender capacity building in the region.

Table-1. Pooled Mean Group (PMG) and Mean Group (MG) — Long-run estimation.

Independent Variable	PMG		MG	
	Primary School enrollment Model (i)	Life Expectancy Model (ii)	Primary School Enrollment Model (i)	Life Expectancy Model (ii)
GDP	0.11 [1.26]	0.98*** [19.95]	2.55* [1.71]	0.67 [0.69]
Inflation	-0.002 [-1.10]	-0.001*** [-3.88]	-0.01 [-0.45]	-0.01** [-2.01]
Democratic ACC	0.14*** [7.65]	-0.004 [-0.88]	-0.28* [-1.77]	0.10** [2.14]
Public Expenditure	0.16 [1.40]	0.03 [0.48]	0.47* [1.98]	0.44* [1.89]
Hausman test (p-value)			16.41 (0.001)	21.01 (0.003)
Pesaran CD			0.14	0.23

Figures in parentheses are z-values. (***), (**) & (*) indicate significance at 1%, 5% & 10% respectively. Primary school enrollment for model (i) and life expectancy for model (ii).

Also in Table 1, regarding the estimated coefficient of public expenditure in model (ii), in the long-run, analogous to model (i) is positive and significant at 10% level, suggesting that public spending on the advancement of literacy rate and provision of better health facilities may stimulate human capital development in Africa. This finding buttresses the empirical work of Amakom (2010). Although, the long-run parameters are usually the major focus in most analysis³, with respect to short-run in Table 2, in terms of signs, the results of the three control

³ See Blackburne and Frank (2007).

variables (GDP, inflation and democratic accountability) are somewhat similar to the findings and discussion in Table 1.

Table-2. Pooled Mean Group (PMG) and Mean Group (MG) — Short-run estimation.

Independent Variable	PMG		MG	
	Primary School enrollment Model (i)	Life Expectancy Model (ii)	Primary School enrollment Model (i)	Life Expectancy Model (ii)
Constant	-0.20* [-1.52]	-0.06** [-2.43]	0.98* [1.63]	-0.21** [-2.30]
ECT	-0.08** [-2.61]	-0.02** [-2.53]	-0.19** [-3.07]	-0.005** [-2.31]
GDP	0.11* [1.63]	0.004** [2.12]	0.28** [2.20]	0.002** [2.16]
Inflation	0.0007 [1.29]	0.59 [2.27]	-0.003 [-0.57]	-0.68 [-0.04]
Democratic ACC	0.007 [1.07]	0.001 [0.98]	0.002 [0.10]	0.0002 [0.14]
Public Expenditure	0.04 [0.34]	0.01 [1.03]	0.10 [0.99]	0.008* [1.51]

Figures in parentheses are z-values. (***), (**) & (*) indicate significance at 1%, 5% & 10% respectively. Primary school enrollment for model (i) and life expectancy for model (ii).

However, unlike Table 1, GDP is significant in model (ii), whereas inflation is not significant in model (ii), and democratic accountability is not significant in both models. Considering the main variable of interest (public expenditure), in the short run, while estimated coefficients are positive, like in the long run, it is only significant in model (ii). Reasons for these findings allude to the earlier empirical elucidations in the previous section Table 1. On the estimated coefficients of the error correction term (ECT), results indicate that they are negative and statistically significant across models. This indicates that the earlier assertion of the presence of a long run relationship between human capital and public spending with the inclusion of control variables are tenable. By implication, the speed of adjustment towards the long-run equilibrium takes place given the existence of any abrupt shock. Overall, ECT coefficients, in terms of size, show the time frame of which human capital will get back to equilibrium. More importantly, PMG results, regarding the estimated coefficients of national expenditure, based on the signs, are somewhat analogous to that of MG in the long-run as well as in the short run.

Table-3. Cointegrating Regression.

Independent Variable	Panel Dynamic Least Squares (DOLS)	
	Primary School enrollment Model (i)	Life Expectancy Model (ii)
GDP	0.45*** [2.61]	0.24*** [5.19]
Inflation	0.002 [0.73]	0.001 [0.85]
Democratic ACC	0.11*** [3.30]	0.01* [1.80]
Public Expenditure	0.63* [1.51]	0.44** [3.91]

Figures in parentheses are z-values. (***), (**) & (*) indicate significance at 1%, 5% & 10% respectively. Primary school enrollment for model (i) and life expectancy for model (ii).

In general, ascertaining the robustness (sensitivity) of the results, Table 3 consolidates the empirical findings of the study as it underscores the assertion of the existence of a long-run theoretical relationship between government expenditures and human capital development (Suescún, 2007). Based on the prevailing development across African countries, and with the better measurement of outcomes through the techniques adopted, the political and institutional failures which undermine good-quality delivery of sustainable social services (including education and

healthcare services) harmed the development of human capital in SSA. Hence, enhancing capacity building process is impaired by the ill-managed public resources in Africa. This inefficiency is reflected in the parochial interest of the political leaders across countries which restricts public funds only towards politically visible aspects such as constructing hospitals and schools in lieu of intangible aspects of human capital —the quality and competence of health workers and teachers (World Bank, 2018).

5. CONCLUDING REMARKS

With the pervasive conjecture that human capital has multiple pathways through which it influences growth and development, understanding its current level and capacity, and the public finance management impact in Africa cannot be overemphasized. Hence, the study examines the long – run and short run relationship between public finance management and human capital development in twenty-one (21) SSA countries between 1984 and 2016 using mean – group (MG) estimator proposed by Pesaran and Smith (1995) and pooled mean – group (PMG) estimator of Pesaran *et al.* (1997). The countries are; Botswana, Burkina Faso, Cameroon, Congo, Congo Dem. Rep, Cote d'Ivoire, Gambia, Ghana, Guinea, Kenya, Madagascar, Malawi, Mali, Mozambique, Namibia, Niger, Nigeria, Senegal, South Africa, Togo and Uganda. In the study, the main conclusion rests on the results obtained from the MG.

Following systematic analysis, when primary school enrollment is employed as the human capital indicator, public spending has a significant positive correlation with human capital in the long-run, whereas it is not significant in the short-run. The study buttresses the view that public spending oriented towards education could lead to human capital enhancement. Also, with the inclusion of life expectancy as the human capital measure, government expenditures positively and significantly influence human capital in the short- run as well as in the long-run, suggesting that public expenditures on the advancement of literacy rate and provision of better health facilities may stimulate human capital building in Africa. With respect to GDP per capita, economic growth has direct significant effect on human capital, corroborating the notion that the judicious use of the benefit of increased GDP per capita by the government to finance basic health care and enhance access to education for all, will engender incentives for human capacity enhancement. However, inflation is found to adversely affect human capital. The findings underscore that high inflation rate could cause rising poverty level, and hence exacerbate the capacity-constrained phenomenon in Africa. More importantly, democratic accountability has a significant impact on human capital in the long run, while it has an insignificant impact in the short-run. By and large, empirical evidence asserts that the feeble political institutions and poor bureaucratic systems which undermine good-quality delivery of socially sustainable services (including education and healthcare services) harmed the development of human capital in SSA. Overall, the study stresses that capacity building could be impaired by the inefficiency and ineffectiveness of public spending, as the poor public finance management is reflected in the failure of governments across African countries to favor spending more on intangible aspects of human capital (the quality and competence of health workers and teachers). Furthermore, political and institutional failures which undermine good-quality delivery of sustainable social services (including education and healthcare services) could harm the development of human capital in the region. By implication, improved governance and capacity development through effective public finance management could aid sustainable growth and improved social welfare. Hence, the study posits that ensuring effective expenditure control, results-based funding and enabling efficient management are central to the drive towards raising the quality of human capital in Africa.

Funding: This study received no specific financial support.

Competing Interests: The authors declare that they have no competing interests.

Contributors/Acknowledgement: Both authors contributed equally to the conception and design of the study.

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APPENDIX A**Model (i): Primary School enrollment as dependent variable**

Kao Residual Cointegration Test

Series: LSCH LGDP INF DACC LEXPD

Date: 03/04/19 Time: 18:28

Sample: 1984 2016

Included observations: 693

Null Hypothesis: No cointegration

Trend assumption: No deterministic trend

Automatic lag length selection based on SIC with a max lag of 5

Newey-West automatic bandwidth selection and Bartlett kernel

			t-Statistic	Prob.
ADF			-2.581417	0.0369
Residual variance			0.003602	
HAC variance			0.006492	

Johansen Fisher Panel

Cointegration Test

Series: LSCH LGDP INF DACC LEXPD

Date: 03/04/19 Time: 18:29

Sample: 1984 2016

Included observations: 693

Trend assumption: Linear deterministic trend

Lags interval (in first differences): 1 1

Unrestricted Cointegration Rank Test (Trace and Maximum Eigenvalue)

Hypothesized	Fisher Stat.*		Fisher Stat.*	
No. of CE(s)	(from trace test)	Prob.	(from max-eigen test)	Prob.
None	429.5	0.0000	286.7	0.0000
At most 1	214.9	0.0000	134.0	0.0000
At most 2	130.3	0.0000	108.3	0.0000
At most 3	87.62	0.0000	82.13	0.0002
At most 4	58.44	0.0472	58.44	0.0472

APPENDIX B**Model (ii): Life expectancy as dependent variable**

Kao Residual Cointegration Test

Series: LEXP LGDP INF DACC LEXPD

Date: 03/04/19 Time: 18:06

Sample: 1984 2016

Included observations: 693

Null Hypothesis: No cointegration

Trend assumption: No deterministic trend

Automatic lag length selection based on SIC with a max lag of 6

Newey-West automatic bandwidth selection and Bartlett kernel

			t-Statistic	Prob.
ADF			-2.240482	0.0125
Residual variance			0.000123	
HAC variance			0.000758	

Johansen Fisher Panel Cointegration Test

Series: LEXP LGDP INF DACC LEXPD

Date: 03/04/19 Time: 18:07

Sample: 1984 2016

Included observations: 693

Trend assumption: Linear deterministic trend

Lags interval (in first differences): 1 1

Unrestricted Cointegration Rank Test (Trace and Maximum Eigenvalue)

Hypothesized	Fisher Stat.*		Fisher Stat.*	
No. of CE(s)	(from trace test)	Prob.	(from max-eigen test)	Prob.
None	947.1	0.0000	742.8	0.0000
At most 1	335.3	0.0000	211.0	0.0000
At most 2	168.1	0.0000	112.0	0.0000
At most 3	96.97	0.0000	74.63	0.0014
At most 4	84.74	0.0001	84.74	0.0001
*				

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