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An assessment of effectiveness of public sector financial management in Nigeria: A country policy and institutional approach

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Abstract

In the sphere of Public Sector Financial Management, research attention is gradually shifting from growth in sizes of input and output (efficiency) to quality of input and social welfare outcomes (effectiveness) in line with elements of sustainable development goals (SDGs 2030). In this paper, the authors investigate public sector financial management effectiveness in Nigeria in terms of how the more relevant goals of human development, and economic output per capita have been influenced. Relying mostly on country policy and institutional assessment variables, developed by the World Bank for some eligible developing nations, the authors adopted ex post facto design to collect relevant data for the period 2009 to 2018. The generalized method of moment was used to analyze the data and make necessary inferences. A key result of the analysis is that while marginal growth in economic output per capita appears to have been achieved using government expenditure, human development has not been positively impacted. Also, most policy and institution quality variables proved to have potential to improve both growth and development outcomes, but their declining performance rating appeared to rob the country of desired positive development outcomes.

Keywords: *Human Development Index; Gross Domestic Product per capita; Country Policy & Institution Assessment; Public Financial Management Quality.*

1. Introduction

Public Financial Management (PFM) is a critical instrument in the implementation of economic policy, and it works by influencing the allocation and use of public resources through the budget and fiscal policy in general (Prakash & Cabezon, 2008). According to Prakash & co, a well-functioning PFM system would also provide assurance that the funds released would be productively used in a transparent and efficient manner. This view follows the work of Musgrave (1959), which showed that governments' financial management roles in resource allocation, income distribution and stabilization are key determinants of how effective the desired outcomes of economic policy may be achieved. However, there appears to be subsisting controversy in literature concerning the nature of relationship between use of public resources by government and different measures of fiscal outcomes. While the predominant view holds that a positive nexus exists as true explanation of these relationships (Ghura & Hadjimichael, 1995; Avila & Strauch, 2003; Ageli, 2013; Szarowska, 2016; and Eid & Awad, 2017), contrary findings also exist to suggest negative or inconclusive evidence (Alfonso & Furceri, 2010;

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and Amah, 2020). Clearly, an appreciable quantum of empirical literature appears to support the view that countries with better demonstrable capacity in playing the public financial management roles report better outcomes. Interestingly, capacity has been shown to reflect not only in size of intervention but more so in the quality of public financial management (Barrios & Andrea, 2008; Prakash & Cabezon, 2008; Fisayo & Adeoye, 2019; and Montes, & De-Oliveira, 2019). Hence, research attention is gradually shifting from growth in sizes of input and output (efficiency) to quality of input and social welfare outcomes (effectiveness) (Rajkumar & Swaroop, 2002; Fisayo & Adeoye, 2019) in line with elements of sustainable development goals (SDGs 2030).

From World Development Indicator database (World Bank, 2020), it was revealed that countries in Sub-Saharan Africa Region have, in the years between 2009 and 2019, consistently reported low performances in key social/economic outcome measures used to evaluate effectiveness of public financial management. In 2019 for instance, the Sub-Region's Gross Domestic Product per capita was the lowest among all the Sub Regions in the world with reported figure of $1,599 against global average of $11,417. Unemployment rate (at ILO estimates) was reported as 6.14% while the global average was 5.37%. On the human development side, infant mortality was 52 per 1000 live births while life expectancy at birth was 62 years against 28 and 72.7years global averages respectively. Poverty Headcount Ratio (at $1.90 per day) was 40.4% in 2018 against global average of 9.3%. Specifically for Nigeria, the World Bank database showed equally less than desirable outcomes. GDP per capita was reported at lowly $2,229 against world average of $11,417. Unemployment rate in Nigeria was 8.5% (ILO measure), infant mortality was 74 out of 1,000 live births, Life Expectancy at birth was 55 years, while poverty headcount ratio was 39.1(2018). These performance outcomes are obviously poor, and the authors are concerned they could be a reflection of state of public finance management in these countries in terms of size and quality variables?

From the deluge of literature in the Public Finance – Outcomes Nexus, less attention has been paid to Sub-Saharan Africa and Nigeria in particular. It is even of greater interest that most of the related studies had focused on sizes of input and output/growth (Odior & Alenoghena, 2004; & Amah, 2020) and less on public finance quality. The downside of this is that such studies reveal the extent to which input of resources are used to generate output (efficiency) but hardly tell us what needs to be known concerning quality of resource allocation and outcomes desired by economic units (effectiveness). For developing countries that need extensive reforms, this would limit ability of policy makers to respond appropriately to failures in achieving outcomes desired by citizens.

In the input side, financial management process is adjudged high quality if policy, operating and institutional frameworks to deliver the outcomes have such characteristics as transparency, equity, corruption-free, stability, inclusivity, and integrity among others (Barrios & Andrea, 2008). On the other hand, output of the process is deemed high quality and desirable if it positively reflect on well-being and standard of living of society (Amit & Debroy, 2019). It is obvious that by their qualitative nature, some of these constructs expectedly pose serious challenges to researchers and policy makers in the areas of data collection, measurement and benchmarking and may have accounted for dearth of related studies particularly among sub-Saharan African countries. This is clearly a critical gap in understanding dimensions of public financial management effectiveness in the sub-region. As the countries in the sub-region contend with failure to achieve Millennium Development Goals 2015 (World Bank, 2018), and task of meeting targets of Sustainable Development Goals (SDGs 2030), enriching the body of knowledge by contributing towards filling this gap would be essential for informed policy actions. It would definitely help to provide explanations to the variations between output and desired outcomes of the public financial management process, and how the differences can be resolved.

In this paper, the authors hope to fill this gap by providing answers to two inter-related questions. First, would size of public spending affect social welfare outcomes in Nigeria? Secondly, to what extent would quality of public financial management policies and institutions affect social welfare outcomes in Nigeria? To answer these questions, the specific objectives are:

i) To find out if size of public spending has significant effect on human development index and gross development output per capita in Nigeria.

ii) To investigate the extent to which specific measures of public finance quality affect human development index and gross domestic output per capita in Nigeria.

The rest of the paper contains as follows: In section two, the authors reviewed related theories and empirical literature, including short reviews of some classics in the theory of public finance. Section three contains methods adopted for descriptive and inferential analysis to arrive at results of the investigation including operationalization of World Bank's CPIA framework of PFM quality variables adapted for empirical investigation. In section four, the paper presents the data and results of analysis, followed by conclusions and recommendations in section five.

2. Review of Theory and Empirical Literature

2.1. Theoretical Review

A rich array of theories and evidence exist in the body of knowledge concerning fiscal governance behaviors and utility. Among the classics in the field is the Wagner's Law of increasing state spending. Wagner (1890) held that for any country, public expenditure tends to rise consistently as output expands, with a prediction that share of government expenditure in gross domestic output will continue to grow. This is based on 3 main assumptions, namely:

i) Expansion in output brings about new complexities in interactions among economic units, meaning that new laws and policies will continually be required

ii) Expansion leads to urbanization and, hence, negative externalities and market failures. Market failures will thus create need for public goods and government intervention.

iii) Public goods have high income elasticity of demand.

The law implies the existence of self-reinforcing pathways to expansion in the public finance – economic growth nexus. However, Wagner's law would appear to be silent on value and utility of outcomes desired by economic units and hence cannot provide comprehensive explanation of effectiveness of public finance.

Against this weakness, it would seem, the New Classical Theory of public finance had earlier emerged with the utilitarian view of output of the public financial management process from the works of several authors. Worthy of mention here are particularly Jevons' utility theory of value initially conceived in 1862 (Jevons, 1871) and Walras' marginal utility principle and theory of general equilibrium (Walras, 1874). In this School of Thought, there was the belief that utility of consumers, not necessarily cost of production, is the most important determinant of value of products and services. Infact, Jevons' doctrine held out that the degree of utility of a commodity is some continuous mathematical function of quantity of the commodity available. To Jevons, the consumer's first concern is maximizing personal satisfaction and would make purchase decisions in a rational way based on evaluation of utility of a product or service. Complementarily, Walras developed the principle of marginal utility and propounded that value of units is not monotonous in output but determined by utility of successive units. With decreasing marginal utility, prices of successive units go down, and demand is able to establish equilibrium with supply at higher level of output. The implication is increase in long run output in line with outcome valued and desired by economic units. The school of thought hence surmised that equilibrium in the market and sustainable growth at full employment should be the primary economic priorities of government, and underlies the nuances of Keynesian economics. It thus prescribes increasing role of government in the use of fiscal tools to pursue social welfare goals; and whenever the economy operates out of equilibrium (as it always does), increasing government intervention by use of taxing and spending tools is called for. However, it does appear that deconstructing these roles of government for public financial management effectiveness was needed in a manner that can throw some lights on impacts of size and quality variables.

In the evolution of theories of public finance, it is the Musgrave's Fiscal Theory (Musgrave, 1959) that appeared to comprehensively explain government's fiscal roles. According to what Musgrave called 3 "branches", the roles of government in managing public finances can be classified into allocation, distributing and stabilizing roles. The key role of allocation is about apportionment of resources to different uses with the goal of maximizing output of economic units in a manner devoid of wastages and inefficiencies. Hence, resources are allocated to sectors and activities in a manner that ensures maximum productivity. Musgrave also highlights government's role in (re)distributing output to ensure that socially desirable outcomes are achieved. The watchword here would appear to be equity in such a manner that greater

majority of economic units share in the benefits of the output. Finally, the fiscal role of stabilization aims to eliminate manifestations of excess or insufficient demand thereby keeping the system in an even keel.

This would create the right environment for achievement of the other core public finance management roles. From above review, it is clear that apart from key explanations offered for positive public finance – growth nexus, Musgrave's thesis incorporates socially desirable outcomes of equity and stability which are important elements of public finance quality. However, the fiscal theory would appear to implicitly assume that governments allocate resources efficiently, distribute resources equitably and stabilize the system in a manner that maximizes utility of individuals who happen to be owners of public finances. On this, Auerbach (2010) had warned that public finance has both normative and positive aspects; and that when political environment gives politicians strong incentive to serve narrow interests at the expense of common good, bad outcomes may be delivered. A behavioral theory to explain actions of government officials towards achieving the desired socio-economic outcomes is therefore required.

To explain and situate responsibility in effective performance of the roles, we take recourse to the Agency Theory. Though established by Jensen & Meckling (1976) in explaining nature of, and costs of conflict of interest between principal (Owners) and Agents (Managers) in a corporate setting, it is rooted in one of the oldest problems of political philosophy – relationship between master and servant. While government can be likened to an agent, the individual member of society is the principal whose utility the agent should seek to maximize. Embedded in this theory are highlights of adverse selection and moral hazard factors that may lead to violation of implied social contract in the principal-agent relationship (Brousseau & Glachant, 2002). Obviously, an environment that is predisposed to upholding the social contract can be said to be of high quality and supportive of public financial management effectiveness. Several empirical studies exist to support or contradict these theoretical prescriptions.

2.2. Empirical Evidence

Literature is replete with empirical investigations of public financial management effectiveness in different dimensions of fiscal outcomes with several of such studies focusing on the economic growth nexus. In a study of cross section of countries that cut across regions, Barro (1991) investigated 98 countries for the period between 1960 and 1985, and arrived at some disparate findings. Dissecting government spending, the paper found "government consumption" spending to be inversely related to economic growth whereas "public investment" has very little relations with growth. In perhaps a complementary result related to quality, average growth rate was found to be positively related to human capital, stability and property rights. According to Barro, this positive nexus remains valid even with government taxation which works to reduce citizens' disposal income.

This is because, if production function is of the Cobb Douglas function form, an optimizing government still satisfies natural condition for production efficiency. In a study restricted to the European Union, Avila &Strauch (2003) arrived at similar findings using a distributed lag model. However, by incorporating factors of size and volatility of different proxies of revenue and spending, Alfonso & Furceri (2010) failed to confirm findings by Avila & co for EU and OECD countries with a result that suggest public investments do not significantly determine growth. This would appear to contradict normative theory and evidence. In another EU-based study; Montes, Bastos & De-Oliveira (2019) investigated channels through which fiscal transparency affects spending efficiency and government effectiveness; and found that this happens through enhancing accountability and resource allocation.

This is because openness and transparency are thought to clear doubts and uncertainties concerning government policies and direction, and motivates decisions of investors and entrepreneurs. However, as we know from Jensen & Meckling (1976), public officers who would not work to maximize utility of the principal do not have incentive to create conditions for fiscal transparency and accountability. Brousseau & Glachant (2002) opines that such conditions come with incomplete information and leads to adverse selection, manipulations and false financial reporting. In this environment, measuring and benchmarking government performance against stakeholder expectations can be very challenging (Kouzmin, Loffer, Klages & Korac-Kakabadse, 1999). To Kouzmin & co, this is always going to be the case in an agency-theoretic framework where the user is not necessarily the one that pays for a service; and compounded where public officers seek to take advantage of information asymmetry to engage in self-interested behaviors.

In study which focused on the Middle East Region, Ageli (2013) used a narrow measure of public investment and established existence of long-run Keynesian relations between education spending and economic growth. This was further validated by another finding by Eid & Awad (2017). Using data from the same Saudi Arabia, Eid & co found a statistically significant positive relations between government expenditure and non-oil sector GDP.

In one of the earliest African studies which indirectly considered quality, Ghura & Hadjimichael (1995) investigated a sample of sub-Saharan Africa countries for the period 1981 – 1992 and found positive relations between investment and growth. Although focus of the investigation was private investment, the positive result was only obtained after controlling for public financial management policies related to budget reforms, stabilization measures, structural reforms and human capital development. Focusing on the highly indebted poor Sub-Saharan African Countries, Prakash & Cabezon (2008) considered 15 indicators designed to assess overall strength of their PFM systems. The indicators constructed around PFM laws, policies and procedures were found to positively and significantly explain such fiscal outcomes as economic growth, GDP per capita and literacy rate among others. Some weaknesses are however associated with this study. It involved a panel data set for just 2001 and 2004. In an empirical paper that directly investigated public spending, Fisayo & Adeoye (2019) studied 21 Sub-Saharan Africa countries for the period 1984 to 2016 using Mean-Group and Pooled Mean-Group methods of analysis.

The authors found that public spending has positive and significant effect on human capital development in the long run, but insignificant in the short run when education alone is used as proxy for human development. However, when life expectancy was added, public spending showed regularity at both long and short runs. In a related study, Amah (2020) found that narrower regressions which isolated expenditures on power, telecommunication, road and rail infrastructures respectively, were negative on growth and life expectancy. However, when a composite infrastructure index was used, the regression turned positive.

The study hence concluded that piecemeal application of infrastructure spending policy would not yield desired positive outcomes. In earlier study using annual data for Nigeria between 1986 and 2016, Amah (2019) deconstructed a typical transmission mechanism of government policy instruments and investigated extent of their effectiveness in meeting growth and development objectives. The study employed dynamic system modelling of unrestricted vector autoregression and obtained results that are surprisingly mixed and anomalous as to signs of coefficients. Recurrent spending turned out positive while capital spending showed negative outcome in the regression. The above results would seem to suggest that appropriate measures of dependent and independent variables are required to achieve the expected theoretical Keynesian relations between government spending and socio-economic outcomes.

In a key investigation which appeared to address inconclusive evidence from Europe-based studies above, Barrios & Andrea (2008) turned focus on quality of public finances. Using Discriminant Analysis method to model data for 1995 – 2007 period, Barrios & co showed that types of public expenditure (in terms of composition and functional classification) could have accounted for weak relations found in the previous studies. It established positive links between public finances and economic growth when quality indicators are factored into the equation. Such quality indicators considered included fiscal debt sustainability, structure of public revenue and expenditure, fiscal governance and regulatory environment.

The study found that 'fiscal performance' alone is not sufficient to achieve long run growth but must be accompanied with public finance quality of different dimensions. This is logical. For instance, it is the number and quality of roads built, rather than budgetary provisions for works programmes that would be expected to enhance economic activities. In a study with similar results, Szarowska (2016) investigated channels and tools of public finance management in Czech Economy for the period 1995 to 2013. Using the Barro & Sala-Martin framework, the study found that public finance variables affect economic growth only partly, but that such quality factors as human capital and openness play much bigger role. RayP & Van-De-Sijpe (2007) studied 52 developing countries and arrived at similar findings.

The authors also found that government expenditure efficiency is primarily determined by structural country variables and governance indicators. In another paper that specifically sought to find out whether fiscal governance matters, Rajkumer & Swaroop (2002) examined role of governance quality, measured by level of corruption and bureaucracy in determining public finance effectiveness in functional dimensions. The paper found that public spending lowers child and infant mortality. Likewise, education spending improved primary school enrolment and attainment in countries with good governance indicators. To Rajkumer & co, possible explanations of ineffectiveness of public spending includes poor targeting and institutional inefficiencies such as leakages in public spending and weak institutional capacity.

In summary, it is clear that several theories and evidence exist to explain the nature of relationship between public financial management and measures of economic growth and development outcomes. Quite a number, including some classics propounded and/or established a positive link between government expenditure and economic growth (Wagner, 1890; Walras, 1874; Musgrave, 1959; Barro, 1991; Ghura & Hadjimichael, 1995; Avila & Strauch, 2003; Ageli, 2013; Szarowska, 2016; Eid & Awad, 2017). A small number found this relationship to be negative or at best mixed (Alfonso & Furceri, 2010; Amah, 2021).

Growing research interest is now towards measures of development outcomes and public finance quality (Fisayo & Adeoye, 2019; RajKummer & Swaroop, 2002, RayP & Van-De-Sijpe, 2007; Barrios & Andrea, 2008; Montes, & De-Oliveira, 2019). Only a few studies on sub-sahara Africa focused on the emerging area of literature, particularly public finance quality (Prakash & Cabezon, 2008; Fisayo & Adeoye, 2019). This gap is perhaps partly attributable to challenges of data and measurement of public finance quality variables. This paper is designed to contribute to the body of Knowledge through a model that parameterizes the quality variables in a largely under-researched developing economy context. The result promises great value addition, not just to the body of knowledge, but more so to policy makers who need closer understanding of micro issues of behaviors of economic units and officials of government towards instituting reforms to improve public financial management effectiveness.

3. Methodology

3.1. Research Design, Data & Specification

In this paper, the authors adopt ex-post facto research design with secondary data sourced from World Development Indicator database and World Bank Reports covering the period 2009 to 2018 (World Bank, 2019 & 2020).

From theory and empirical literature reviewed, a wide range of size and quality variables were used to represent inputs and outcomes of public financial management process. A key measure of effectiveness of public financial management, and hence key dependent variable of interest adopted in this study, is the Human Development Index (HDI). This is considered a more desirable outcome than the traditional ones as its components touch directly on the existence, welfare and humanity of individuals (Amit and Debroy, 2019). Specifically, HDI is a composite index measured from literacy level, life expectancy and measure of standard of living (Stewart, 2013) often used by national and multilateral institutions to evaluate impact of public financial management policies and practices. GDP per capita is another measure of effectiveness of public financial management, on the outcome side, used in the paper.

This measure, which improves on the distributional effect of the traditional economic output measure, is used here essentially as a comparative variable of analysis. To evaluate effectiveness from policy input side, we considered variables that reflect size and quality of public finance in the choice of independent variables. In line with dominant approach in reviewed literature, we adopt government expenditure per capita (GovEx) as fiscal variable reflecting size of public finances. This is thought to reflect totality of government's fiscal behaviors in a period, and expected to exert positive influence on socio-economic outcomes. The key input factors to evaluate effectiveness in this paper are conceptualized under the broad concept of public finance quality.

The concept is de-constructed into four elements and operationalized using the Country Policy and Institutional Assessment (CPIA) measures developed by World Bank for countries eligible for development assistance (World Bank, 2019). The chosen variables are Public Sector Management & Institution Rating (PMI), Policies for Social Inclusion/Equity Rating (SIE), Economic Cluster Rating (ECR), and Structural Policies Rating (STR)

The CPIA variables are quantitative expressions of elements contained in the nation's budgetary and public management process used to evaluate effectiveness of policies and institutions of countries eligible for international development assistance. The Rating Methodology is straightforward (World Bank, 2019) and assessment is based on a set of 16 clearly defined criteria of performance and grouped into 4 clusters captured in this study by PMI, SIE, ECR and STR.

These are thought to reflect quality of policies and institutions that engender resilience and sustainability of impacts of public finance into the distant future. The authors accordingly consider these measures to be appropriate, not only in

explaining public financial management effectiveness, but even more so in designing the right response to unfavorable public financial management outcomes. Data on these variables were collected for the 16-year period from 2005 to 2020 and modeled as follows:

$$HDI = a_0 + a_1GovEx + a_2PMI + a_3SIE + a_4ECR + a_5STR + \mu_1 \quad (1)$$

$$GDPk = b_0 + b_1GovEx + b_2PMI + b_3SIE + b_4ECR + b_5STR + \mu_2 \quad (2)$$

3.2. Explanation and Measurement of Public Financial Management Quality Variables

3.2.1. CPIA Public Sector Management and Institution Rating (PMI)

The Public Sector Management and Institutions Rating is used by the World Bank to assess the budgetary process, revenue mobilization, services delivery of plan provisions through expenditure programs and assurance of property rights. Specifically, it among others, answers the questions of whether budgets are appropriately linked to policy priorities, whether financial reporting and auditing practices are adequate in terms of timeliness and accuracy. On the institutional aspects, it evaluates existence of framework to ensure that contract terms are respected and enforced, and rules obeyed both by the citizens and those who make and implement policies.

This cluster includes the vexed issues of transparency, accountability and corruption which occupies center stage in discussions of public sector financial management globally, but particularly in Nigeria. This index was also developed to evaluate how accountable the Executive arm of government is in the use of funds, especially to the legislature and civil society. It also considers whether there is public disclosure and ready access to information about government revenues and expenditure programs. The performance rating of this cluster is measured by first assigning scores ranging from 1(low) to 6 (high) to each of 5 performance criteria namely:

- Quality of Budgetary Process and Financial Management
- Revenue Mobilization Efficiency
- Quality of Public Administration
- Public Sector Accountability, Transparency and Corruption and
- Property Rights and Rule-Based Governance

Following this, the 5 performance scores are weighted equally to arrive at average rating for the public sector management and institutions cluster. It should be noted however that in assigning scores, economists go beyond mere prescriptions to 'implementability' of policies (World Bank, 2019).

PMI is a key quality variable which facilitates transmission of government resources towards achieving growth in economic output and desired human development outcomes. By effectively mobilizing funds and allocating such to projects chosen in a participative, accountable and transparent manner; minimizing corruption and guaranteeing property rights of economic units; and allowing for rule-based governance, welfare of citizens will expectedly be maximized.

3.2.2. CPIA Economic Cluster Rating (ECR)

Economic Cluster Rating measures effectiveness of key macroeconomic management, fiscal and debt policies and institutions of government, and hence their potential to support growth and development. In line with established methodology, this cluster is measured by assignment of scores ranging from 1(low) to 6 (high) to each of 3 performance criteria namely:

- Monetary and Exchange Policy
- Fiscal Policy, and;
- Debt Policy

The Rating is arrived at by determining the equally weighted average score of the 3 performance criteria by evaluating a combination of macroeconomic measures implemented through the Treasury, Central Bank and Debt Management authority. By this, ECR measures the ability of government to utilize variety of instruments to influence amount and direction of spending by individuals, businesses and public sector, and hence, aggregate demand in the economy. Changes in aggregate demand translates to changes in economic output and ability of the system to deliver development outcomes.

3.2.3. CPIA Structural Policies Rating (STR)

STR incorporates trade, financial sector and regulatory policies put in place, just like ECR, to support households, businesses and public sector agencies in pursuit of wider economic growth and development. It answers questions as to whether trade, exchange, banking and other financial regulatory policies and measures support or hinder financial sector in improving aggregate demand outlook and acting as engine of growth for private sector towards productivity, job creation and new investments. The rating of this cluster is determined by assignment of scores ranging from 1(low) to 6 (high) to each of 3 performance criteria namely:

- Trade Policy Rating
- Financial Sector Rating
- Business Regulatory Environment Rating.

The rating for the STR cluster is arrived at by determining the equally weighted score of the 3 performance criteria. A high STR means high quality and reflects less repressive policy regime and environment supportive of high productivity and growth.

3.2.4. CPIA Policies on Social Inclusion and Equity (SIE)

The SIE index is used to measure gender equity issues, equity in the allocation, distribution and use of public resources. It also rates equity in access to, and quality in delivery of basic needs; and the extent to which pattern of public expenditure and revenue collection is equitable across different classes of society. It thus includes an assessment of government measures to reduce the risk of people becoming poor and ensure that they live above a minimum level of welfare.

This index also captures the extent of interface of policy on environmental resources with demands of nature in a manner that ensures today's progress without compromising tomorrow's welfare. It is the belief here that effectiveness of public financial management goes beyond temporary social welfare gains in a given period. SIE index hence considers how elements of air and water pollution, clean energy, waste management, management of biodiversity, protection of natural resources and wildlife are mainstreamed in the public financial management. Accordingly, performance of this cluster is measured by assignment of scores ranging from 1(low) to 6 (high) to each of 5 performance criteria namely:

- Gender Equity
- Equity in the use of Public Resources
- Building Human Capital Resources
- Social Protection and Labour
- Policies and Institutions for Environmental Sustainability

The rating for Social Inclusion and Equity cluster is arrived at by determining equally weighted average score of the 5 performance criteria. As a quality variable, it is thought to be a relevant measure of effectiveness of distributional role (Musgrave, 1959) of public financial management.

On apriori basis, all independent variables are expected to yield positive coefficients in Human Development Index and Gross Domestic Product per Capita regressions in line with dominant views in literature.

3.3. Data Diagnostics & Estimation Method

For the test of presence of unit roots in the data series, we could not reject the null hypotheses of presence of unit roots at 5% level of significance using combined procedures of Augmented Dickey Fuller (Dickey and Fuller, 1979) and Philip Perron (Phillips and Perron, 1988) Chi-square tests. This suggests that data series are largely stationary in automatic lag length of two. We thus employed two lags of our chosen variables as instruments in the regression.

The Durbin-Wu-Hausman test (Hausman, 1978) was assessed for post regression endogeneity and we found no difference in the restricted and non-restricted J-Statistics employed for evaluation, an indication that the use of instrument

variable approach would be valid for estimation. Given data attributes, we employed the Generalized Method of Moments (GMM) estimation method for estimation of parameters of the public sector financial management relationships. GMM is one of the instrument variables approaches agreed in literature as having the quality to control for a number of associated confounding and measurement errors in observational studies. Infact Jagannathan (2002) attested to robustness of GMM in empirical studies of finance especially under more realistic assumptions regarding the nature of stochastic processes governing temporal evolution of exogenous variables. According to Jagannathan, subsequent developments in time series econometric methods have made it a reliable and robust methodology for studying dynamic models allowing for dependent and stochastic variables to be serially correlated, leptokurtic and conditional heteroscedastic.

4. Descriptive Analysis & Regression Results

4.1. Descriptive Statistics

A close observation of Table 1 reveals descriptive statistics of public financial management variables of interest in the study for the period 2005 to 2020. Mean of the key dependent variable, Human development Index, was 0.51 and reflected weak performance in such development factors as literacy level, life expectancy and general standard of living with range of values falling between 0.47 and 0.54. This fell within the United Nation's lowest human development cohort of the category below 0.55. With average figure of $2,266 for the period, the performance picture is not very different from the comparative fiscal outcome measure of gross domestic output per capita. The minimum was $1,268 while the maximum was $3,222.68. Interestingly the $2,097 recorded in the last year (2020) of our coverage was not very different from the minimum and reflected a generally deteriorating trend of this critical metric.

The predictor variables did not show significantly different input characteristics. Expenditure size was low as government, on the average, spent just US$145 per annum on a citizen during our coverage period. Quality metrics were not significantly different. For instance, among the public finance quality variables, PMI turned up with remarkably low-ranking metrics at mean value of 2.84. This reflects poor state of budgetary process, transparency, accountability, property rights, rule of law and professionalism of the civil service. The data points did not show the presence of outliers as values concentrated reasonably around mean values. Hence Jarque Bera tests could not reject the null hypotheses of normal distribution at 5% level of significance.

Table 1: Descriptive Statistics

	ECR	GDPK	GOVEX	HDI	PMI	SIE	STR
Mean	3.904	2266.118	145.127	0.507	2.838	3.350	3.269
Median	4.000	2205.060	145.776	0.511	2.800	3.400	3.300
Maximum	4.500	3222.680	191.952	0.543	2.900	3.500	3.500
Minimum	3.300	1268.380	103.219	0.465	2.800	3.100	2.830
Std. Dev.	0.413	510.464	28.324	0.026	0.050	0.159	0.241
Skewness	-0.282	0.142	0.013	-0.153	0.516	-0.359	-0.377
Kurtosis	1.693	2.624	1.837	1.525	1.267	1.485	1.642
Jarque-Bera	1.351	0.148	0.903	1.514	2.714	1.874	1.609
Probability	0.509	0.929	0.637	0.469	0.257	0.392	0.447
Sum	62.460	36257.890	2322.031	8.118	45.400	53.600	52.300
Sum Sq. Dev.	2.560	3908607.795	12033.315	0.010	0.038	0.380	0.872
Observations	16	16	16	16	16	16	16

Note: GDPK ($), GOVEX (Naira)

Source: Authors' Computation

4.2. Regression Result: Government Expenditure, GDP per capita and HDI

As could be seen in table 2, regressions involving public sector fiscal operations showed interesting relationship with policy outcomes, with the more traditional gross domestic product per capita showing positive and statistically significant relationship with government expenditure. As government expenditure per capita increased/declined by one-unit, gross domestic product per capita increased/declined by a scale of 6.84. The positive sign is in consonance with expectation and the obviously low p value reinforces theoretical prescription. Government expenditure, no doubt, is an important component of national income and can act as a major stimulant to economic growth through the multiplier effect.

Table 2: HDI and GDPk Regressions Results

Variable	HDI			GDPk		
	Coef.	**t-stat**	**Prob.**	**Coef.**	**t-stat**	**Prob.**
GOVEX	-0.0001	0.958	0.366	6.839	5.528	0.001
PMI	-0.132	-2.931	0.017	-2509.170	-1.092	0.307
SIE	0.096	5.501	0.001	1698.522	2.913	0.019
ECR	-0.011	-4.058	0.004	415.949	2.596	0.032
STR	-0.015	-2.747	0.025	784.445	5.844	0.000
R-Sq	0.969			0.890		
Adj R-Sq	0.949			0.822		
DW	1.99			2.978		
SE of Reg	0.005			179.780		
Mean DV	0.513			2380.934		
J-stat	3.954			3.996		
P(J)	0.556			0.550		

Source: Computed GMM Regression Results by Authors

The more profound outcome of regression here is that increase in government expenditure appeared to have negligible impact on indicators of welfare of citizens. The coefficient of the fiscal variable, GovEx, is -0.000005 in the Human Development Index model regression. It is equally statistically insignificant at 5% level of significance with p value of 0.37. The combined results of the two regressions suggest that even where size of government fiscal operation caused marginal increase in size of economic output; it neither resulted in development nor improved welfare of citizens. This result is of great economic importance to public sector financial management in Nigeria.

4.3. Regression Result: Public Finance Quality, GDP per Capita and HDI

Among the four public finance quality variables studied; three, namely ECR, SIE and STR turned out positive and significant in the GDPK regression in line with apriori expectation. In other words, as we observed improvement in the rating of government efforts in the areas of environmental preservation and adherence to sustainable finance principles, monetary, fiscal and trade policy framework, GDP per capita responded positively. Incidentally, these are clusters in which the country recorded modest rating outcomes in World Bank's assessment (see table 1). Looking at table 2, regression result on SIE suggests non-trivial direct impact where government adopts equity in allocation and distribution of resources, and environmentally sustainable measures. The payoff on the economic output measure was remarkable with positive coefficient that suggested that a unit improvement in equity and sustainability rating could lead to gain of $1,698.52 in gdp per capita.

Structural measures relating to business regulations and financial sector policies aimed at providing conducive environment for businesses also showed substantial impact on economic output with a unit change in STR rating having potential to add or subtract US$784.4 from GDP per capita. Monetary, fiscal and debt policies exerted similar but less severe impact with a positive coefficient of 416 for STR.

Remarkably, the only PFM quality variable which turned out with unexpected negative coefficient in the GDPk regression is PMI. Notwithstanding its statistical insignificance, the size of negative coefficient (at -2,509) suggests that changes in this

variable have the capacity to exert the most profound influence on economic output. Interestingly, Nigeria recorded its worst rating in this cluster just as some of the elements deteriorated. Rating elements which capture quality of Management and Institutions for budgetary process, administrative and bureaucratic governance, corruption and transparency, property rights and adherence to rule of law showed poor performance during the period.

What about the relationship between quality of Public Financial Management and the more relevant social welfare measure of Human Development Index?

Our regression result, as revealed in table 2, shows that coefficient of only one of the four variables (SIE) has the expected positive sign. Hence a unit increase/decrease in rating related to equity in resource distribution and environmental sustainability is associated with increase/decrease in human development index by a factor of 0.096. This is both economically and statistically significant, and perhaps not surprising. Measures that reduce inequality, engender social inclusion and make communities livable will readily be guaranteed to improve general wellbeing of society. On the other hand, coefficients of PMI, ECR and STR turned out with statistically significant negative results. Again, the most profound is the negative coefficient of 0.13 for PMI in the HDI regression.

This suggests that when budgetary processes are followed, revenue mobilization efficient, public service administered with accountability and transparency, and property rights of economic units upheld, undesirable development outcomes will be achieved. However, during the period of our coverage (2005 – 2020), Nigerian Public sector management & Institution's system had some of its lowest ratings in certain elements of this cluster. Infact Nigeria recorded as low as CPIA rating of 2.5 in such critical elements like protection of property rights, public administration and obedience to rules and regulations over the period. Nonetheless, recorded HDI figures sustained annual marginal increases from 0.47 in 2005 to 0.54 in 2020.

The Economic Cluster Rating (ECR) and Structural Policies Rating (STR) showed results (-0.011 and -0.015 coefficients respectively) that moved in the same direction with PMI, albeit with lower intensity. This is interpreted to mean, surprisingly, that as better assessments of financial sector, trade, monetary, fiscal and debt policies are recorded, lower HDI outcomes are achieved. Interestingly the country attained its best ratings of 4.5 and 3.5 in ECR and STR clusters respectively in 2013, largely due to appreciable debt management policies, banking sector reforms and supportive fiscal regime in the preceding years. These had successively seen reversals culminating in assessments of 3.5 and 3.0 respectively in 2020. Coincidentally, Amah (2019) had found a disturbing phenomenon of policy (monetary and fiscal) non-convergence in the country during the period arising from unfavorable monetary, fiscal and debt policies that tended to crowd out private sector and generally increase economy's financial risk. The figures show clearly anomalous findings, but underlies a seeming disconnect between formal financial markets and social welfare outcomes in the country, and undoubtedly a widening gap in the country's ability to optimize the use of markets for efficient allocation of resources.

5. Conclusion & Recommendations

5.1. Conclusion

Following review of related literature and results of empirical investigation, we arrived at a number of key conclusions, with far reaching implications on the effectiveness of Public Sector financial management system in Nigeria. Government fiscal operations, by way of size of expenditure, appeared to have resulted in marginal improvements in economic output, but have not positively impacted real human development and welfare. A poorly aligned public service with substantial lack of capacity imposes huge cost to efficiency and effectiveness of public financial management process. This is because all policy measures of government to influence economic output, improve literacy and life expectancy among other development outcomes are implemented through the civil service. Hence a weak administrative and civil service machinery cannot be relied upon to deliver desirable social welfare outcomes irrespective of how well government policies are formulated.

Where the wrong fiscal and budgetary processes are followed; property rights and rule of law constantly breached; and fiscal authorities exhibit low level of transparency and accountability in managing public finances, the potential to achieving desired economic outcomes is enhanced. The poor rating in most elements of PMI cluster appears to have contributed substantially to less than desired performance of Nigeria in both Output and Human Development measures. While monetary, fiscal and debt policies may be readily formulated and implemented to stimulate growth in economic output,

perhaps, it takes more than these policies to ensure that desired development outcomes are achieved. The same conclusion may equally be reached with many structural policies related to trade & exchange and business regulatory environment. Arguably, these kinds of policies are primarily directed at improving efficiency, not necessarily effectiveness of public financial management.

On the other hand, measures aimed at protecting the environment and ensuring sustainability are not only able to achieve substantial efficiency gain by aiding growth in economic output, but are even more effective in influencing positive human development outcomes. This suggests that the economy suffers no loss of efficiency in productive allocation of resources when measures to engender healthy environment, inclusive society and human capacity are implemented.

5.2. Recommendations

Socially inclusive and gender equity schemes, environmental protection and sustainability measures should aim to promote attainment of desired development outcomes without sacrificing growth in economic output. For example, social protection initiatives like conditional cash transfers and other empowerment schemes should not be implemented as unproductive hand-outs and 'sharing of national cake'. Such interventions should instead be oriented towards developing people skills and up-scaling capacity of micro and small-scale entrepreneurs. In this way, higher rating on social protection and equity will be achieved without sacrificing productivity and sustainable growth. In a similar case, government should use technology to optimize on environmental sustainability measures like recycling of wastes, pollution controls, flaring of gases, and process automation to minimize effective cost of associated green initiatives.

Government should invest more resources and efforts in human capacity building to scale up knowledge and skills in the public sector. As complement, civil service functions should be professionalized to attract self-motivated, value-driven and competent professionals in all spheres of financial management functions related to revenue and expenditure planning, financial reporting and auditing.

Government should come up with deliberate measures to reduce opaqueness by institutionalizing transparency and accountability in all aspects of public financial management process. A dedicated commercial court and arbitration system to enforce rule of law, uphold property rights of individuals and businesses, and handle public sector corruption should be set up. Civil servants who are accessory to political corruption should equally be made liable.

Liberal but complementary monetary, fiscal, financial sector, trade and exchange regimes that are not repressive to business and households should be instituted using specific sector instruments. Part of required reforms may include, for example, scaling down direct government involvement in economic sectors and reducing cost of governance without prejudice to public investments in human capital development sectors. In all of the above, a new system of benchmarking effectiveness, with measurable targets, in the four policy clusters and sixteen performance areas would be required to ensure sustainable growth and development, and attainment of desired outcomes.

And finally, to deepen research in this area, it should be noted that it is early days yet on use of qualitative factors in evaluating effectiveness of public sector financial management. Great value will certainly be added to literature if all CPIA clusters are further deconstructed into component elements and sample data expanded to include more developing countries. The quality variables used in this paper are based on the CPIA frameworks developed by the World Bank some 16 years ago.

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